

Tree Conservation Processes Review Discussion Paper

March, 2023

EXECUTIVE SUMMARY

In 2015, Kitchener had an urban forest canopy of around 26% or 3,474 hectares of canopy cover. This was remeasured in 2019 and the urban forest canopy increased to 27% or around 3,615 hectares of canopy, one of the highest percentages of tree cover among urban Ontario municipalities.

On January 10, 2022 staff presented report [INS-2022-002 Tree Canopy Target for Kitchener](#) to Council recommending approval of a tree canopy target of 30 percent for each ward by 2050 and an overall City-wide tree canopy target of 33 percent by 2070.

Council considered the matter, approving staff's recommendation and further directing staff to initiate a review of existing tree conservation processes in the City with an intention to extend and strengthen tree conservation measures, including: a review of the existing bylaws and processes, including the [Kitchener Tree By-law](#) and the [Kitchener Tree Conservation By-law](#); a review of requirements for tree planting contained within the [Development Manual](#); a review of the [Tree Management Policy](#) and any relevant policies as required; and, a jurisdictional scan of other municipal tree conservation processes, policies and bylaws.

This Discussion Paper outlines the current approach to tree conservation and management in Kitchener, and in other select municipalities. Key findings from the review are:

- Kitchener currently utilizes all tools available and has mechanisms and processes in place to support tree conservation.
- 72% of Kitchener's existing tree canopy is collectively protected or regulated through different tools.
- 28% of Kitchener's Tree Canopy is not protected or regulated.
- A scan of other municipalities' practices reveals that Kitchener is using similar tools - perhaps to even greater effect than elsewhere, but there are differences in how Kitchener applies these tools, such as:

- Kitchener's Tree By-law (public trees) does not have a permitting process in place to proactively notify staff when work near a tree could potentially impact a tree (roots, branches and/or trunk), while some municipalities do.
- Kitchener's Tree By-law (public trees) does not allow for conditions to be applied when work is occurring near a tree, or the collection of securities to ensure tree protection and monitoring measures are implemented
- Kitchener's Tree By-law (public trees) does not enable making orders to cease or correct a contravention of any provision of the by-law.
- The application of private tree by-laws differs from municipality to municipality and is largely based on the municipality's objectives and resources available. Most municipalities apply their private tree by-laws based on only size of the tree, irrespective of size of the property. Kitchener uses a combination of size of tree (tree equal to or greater than 10 cm diameter at breast height) and size of the property (property equal to or larger than 1 acre). Different ways that private tree by-laws apply does not necessarily mean that all trees are protected/regulated.
- Tree replacement/compensation in Kitchener is based on value of the tree to be removed. Some municipalities have specified tree replacement ratios based on the size of the tree, while others have used different approaches for determining tree monetary value and replacement costs and the overall compensation value.
- Kitchener does not lay out an appeal process for tree permit applications, while some municipalities do.
- There are additional learnings from other municipalities.
 - The extent and success of tree regulation on public and private properties is closely linked to staff resources available to implement these regulations.
 - Education of stakeholders and clear communication around tree conservation and management processes is key for successful tree conservation.

- There are advantages of forestry staff, being able to directly enforce by-laws, including the ability to issue orders and penalties as they are the subject area experts regarding tree physiology and tree growth.
- Conviction of a bylaw offence through the court system is a long and difficult process and costs to pursue a conviction may be higher than the fine amount received even if there is a successful conviction.
- There are benefits of having tree care professionals working on trees to be licensed with the municipality, such as:
 - Ensuring tree care professionals are aware of applicable by-laws and their obligations to adhere to them,
 - Improving communication between industry professionals and city staff,
 - Protecting private property owners from retaining unqualified companies.
- Adopting an iterative process which monitors tree canopy changes in relation to tree permits and development applications (i.e., removals) aids in making more informed updates to processes.
- Having a notification procedure for planned tree removals not subject to a bylaw that documents where, why, and what size and type of tree(s) is being removed can allow for targeted bylaw or process updates to better conserve existing tree canopy.
- Establishing set bylaw review intervals allows for new best practices to be adopted and incremental changes to bylaws and processes to be adapted to changing needs for tree conservation
- Incentive programs providing financial support or tax credits to property owners for maintaining and retaining trees on private properties can help conserve existing tree canopy.
- There are concerns around a lack of process and repercussion against property owners who remove trees before submitting a formal development application.

The review of tree conservation processes in Kitchener and other municipalities has highlighted the opportunity to improve Kitchener's tree conservation processes. A second phase of the project to further explore opportunities to enhance Kitchener's tree conservation tools, is recommended to strengthen and extend existing measures. Updates to existing tree conservation processes are recommended to be based on a measured approach to balance staff resources and adequate level of tree protection.

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1 INTRODUCTION AND BACKGROUND

Trees are the most visible part of the urban forest and there is growing recognition of the immense social, economic, and environmental benefits that trees provide to a community. The benefits trees provide is directly related to the quantity and quality of a city's tree canopy and are communicated through the "10 ways trees help us" in Kitchener's Sustainable Urban Forest Strategy (City of Kitchener, 2019).



Figure 1. 10 ways trees help us

In 2019, the City of Kitchener's (the City) tree canopy covered 3,615 hectares or 27.2 percent of City's land base. Of this tree canopy 48% was on public property (including lands owned by the City and other public agencies) while 50% was on private property. Figure 2 illustrates the proportion of private and public tree canopy ownership in each of the 10 wards in the City, indicating an important role for both public and private landowners in maintaining and conserving the existing tree canopy (City of Kitchener, 2021).

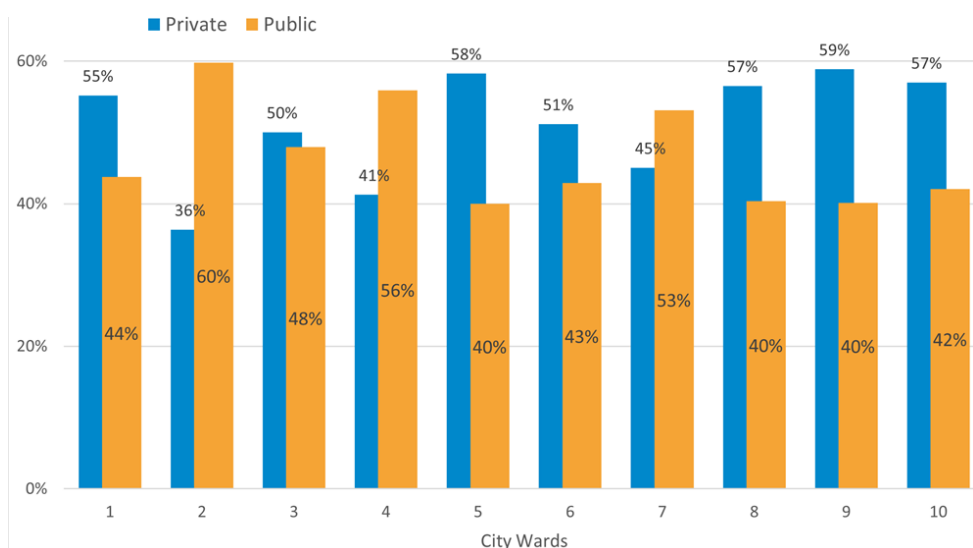


Figure 2. Private and Public Tree Ownership in the 10 wards of the City

Direction to set a tree canopy target came from Kitchener's Strategic Plan 2019-2022, and Kitchener's Sustainable Urban Forest Strategy.

On January 10, 2022 staff presented report [INS-2022-002 Tree Canopy Target for Kitchener](#) to Council recommending approval of a tree canopy target of 30 percent for each ward by 2050 and an overall City-wide tree canopy target of 33 percent by 2070. Council considered the matter and passed the following resolution:

"That a tree canopy target of 30% per cent by 2050 be established for each of the 10 Wards in the City of Kitchener together with an overall Citywide canopy target of 33% per cent by 2070, as outlined in Infrastructure Services Department report INS-2022-002, and,

That staff be directed to develop ward (and where appropriate, neighborhoods), specific action plans that focus on planting, maintaining and protecting trees in consideration of local pressures on canopy and,

That these action plans inform future budget requests beginning in 2022 for the 2023 financial year; and,

That staff be directed to initiate a review of existing tree conservation processes in the City, including:

- A review of the existing by-laws and processes, including the Kitchener Tree Conservation By-law
- Review of requirements for tree planting contained within the Development Manual
- Reviewing the Tree Management Policy and any relevant policies as required
- Undertake a jurisdictional scan of other municipal tree conservation processes, policies and by-laws

With an intention to extend and strengthen tree conservation measures, and report back to Council with preliminary findings by the end of 2022, and further,

That staff report back in 2025 and on five-yearly intervals thereafter, with an update on Kitchener's Urban Forest Canopy, which will include a review on whether the tree canopy target can be increased to 33% per cent by 2050 be established for each of the 10 Wards in the City of Kitchener together with an overall City-wide canopy target of 38% per cent by 2070."

This discussion paper provides a review of existing processes with respect to tree conservation and management for the City of Kitchener, and a jurisdictional scan of other municipal tree conservation processes, policies and by-laws.

The discussion paper is structured into the following four sections:

- Section 1: Introduction and Background
- Section 2: Existing Direction and Approach to Tree Conservation and Management
- Section 3: Tree Conservation and Management Jurisdictional Scan
- Section 4: Conclusion

2 EXISTING DIRECTION AND APPROACH TO TREE CONSERVATION AND MANAGEMENT

In Ontario, each municipality is given powers and duties under the *Municipal Act* and several other Acts for the purpose of providing good governance with respect to matters within their jurisdiction. Further, upper-tier governments adopt policies, by-laws and processes that provide additional direction to lower-tier municipalities for various matters.

This section summarizes the provincial and regional direction for tree conservation and management applicable to the City of Kitchener and provides an overview of the current approach to tree conservation and management in the City, including public and private trees.

2.1 PROVINCIAL DIRECTION

There are several Acts and policy documents that provide direction to municipalities on matter of conservation and management of trees and woodlands, some specifically provide for the regulation of trees while others are associated with trees.

Municipal Act, 2001, S.O. 2001, c. 25

The *Municipal Act* gives the responsibility to municipalities to ensure laws and plans are in place to protect the natural environment. This includes, under Section 135, the power to pass tree by-laws that regulate or prohibit the injuring or destruction of trees. Section 135 (12) of the Act provides statutory exemptions for by-laws passed under Section 135. Further, Section 270 of the *Municipal Act* requires municipalities to adopt and maintain policies with respect to the manner in which the municipality will protect and enhance the tree canopy and natural vegetation in the municipality.

Forestry Act, R.S.O. 1990, c. F.26

The *Forestry Act* allows the Minister of Northern Development, Natural Resources and Forestry to establish programs to protect, manage or establish woodlands and to encourage forestry that is consistent with good forestry practices. The *Forestry Act* allows municipalities to pass by-laws and enter into agreements for the purposes of forestry

activities and reforestation on lands that are either owned by that municipality or are the subject of such an agreement. It provides powers of entry to inspect trees and forest products for infestation, as well as survey timber and natural resources. The *Forestry Act* also defines what a boundary tree is and provides details on when trees are considered common property and stipulates that every person who injures or destroys a boundary tree without consent is guilty of an offence under the Act.

Planning Act, R.S.O. 1990, c. P.13

The *Planning Act* sets out ground rules of land use planning in Ontario and describes how land uses may be controlled, and who may control them. It provides the basis for considering provincial interests under Section 2 such as the protection of ecological systems and conservation and management of natural resources. Further, it provides for various tools to be at the disposal of municipalities, such as Official Plans, Zoning By-laws, Site Plan Control, and Plans of Subdivision.

Section 16 of the *Planning Act* gives municipalities the power to establish goals, objectives and policies through Official Plans to manage and direct physical change and their effects on the social, economic, built and natural environment of the municipality or part of it.

Section 34 of the *Planning Act* provides the basis for regulating and controlling land uses in municipalities through Zoning By-laws. Zoning By-laws put the Official Plan into effect and provide for its day-to-day administration, containing specific requirements that are legally enforceable. Zoning By-laws may prohibit any use of land and the erecting, locating or using of any buildings or structures within woodlands, among other natural features and areas.

Under Section 41 of the *Planning Act* municipalities are allowed to designate site plan control areas to achieve high quality site design, appropriate siting and massing of development on a site, and to ensure safety, accessibility, attractiveness and compatibility of a development with the site context and overall urban landscape. Municipalities have the authority to approve site plans if sufficient consideration is given to woodland buffers, and trees for landscaping and protecting adjoining lands, including highways. As a

condition to approval of site plans, a municipality may require the owner of the land to enter into one or more agreements to ensure the development proceeds in accordance with the plans and drawings approved. Bill 23, More Homes Built Faster Act now exempts development with 10 residential units or less from site plan control.

Part VI of the *Planning Act* provides for subdivision of land. A registered plan of subdivision creates new, separate parcels of land which can be legally used for the sale of lots. Plans of subdivision are required to have regard to the provisions of the *Planning Act* and related policies and plans. Municipalities may impose conditions to the approval of a plan of subdivision, including the owner of subject lands to enter into agreements which may be registered against the land to which it applies.

Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (PPS), issued under Section 3 of the *Planning Act*, provides policy direction on matters of provincial interest related to land use planning and development. It gives provincial policy direction to help build strong, healthy communities in Ontario; protect the province's natural heritage (such as wetlands and woodlands), water, agricultural, mineral, cultural heritage (such as structures and landscapes) and archaeological resources; and protect communities through directing development away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety, or property damage.

PPS prohibits development and site alteration in significant wetlands and significant coastal wetlands, and in significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest and coastal wetlands unless it has been demonstrated that there will be no negative impacts. Development and site alteration is also not permitted on lands adjacent to the natural heritage features and areas unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Planning authorities are also required to support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts

of a changing climate through land use and development patterns which maximize vegetation within settlement areas, where feasible.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe

A Place to Grow (the Growth Plan) is the province's growth plan, enabled through the *Places to Grow Act 2005*, that builds upon the policy foundation of the PPS to plan for growth and development in the Greater Golden Horseshoe (GGH).

Policies of the Growth Plan support integration of green infrastructure, including components such as street trees and urban forests, in achieving complete communities and protection of the Natural Heritage System for the Growth Plan, outside of the settlement areas. Within settlement areas, the Growth Plan enables municipalities to protect the natural heritage features and areas in a manner that is consistent with the PPS.

Conservation Authorities Act, R.S.O. 1990, c. C.27

The *Conservation Authorities Act* provides for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario. The Act enables establishment of conservation authorities in Ontario, including the Grand River Conservation Authority. Section 21 lends the authorities various powers to accomplish its objectives. It includes, among other matters, the power to enter into agreements with owners of private lands to facilitate the due carrying out of any project and to plant and produce trees on lands with the consent of the owner for any purpose.

Section 28 of the *Conservation Authorities Act* sets out prohibited activities that include development in areas that could be unsafe for development because of natural processes associated with flooding or erosion, and interference with, or alterations to, watercourses, wetlands or shorelines.

Ontario Heritage Act, R.S.O. 1990, c. O.18

The *Ontario Heritage Act* allows municipalities to designate individual properties and districts as being of cultural heritage value or interest. Part IV allows for designation of

heritage properties and Part V allows for designation of heritage conservation districts. Tree(s) can be identified as a heritage attribute of a property designated under Part IV or as a heritage attribute within a heritage conservation district designated under Part V of the *Ontario Heritage Act*.

Invasive Species Act, 2015, S.O. 2015, c. 22

The *Invasive Species Act* prohibits the possession, transport, release, or propagation of invasive species within Ontario. Ontario Regulation 354/16 lists prohibited and restricted invasive species, as per subsection 4(2) of the Act. There are presently no woody plants listed in O. Reg. 354/16.

2.2 REGIONAL DIRECTION

The Regional Municipality of Waterloo builds on provincial direction and implements, in relation to tree conservation and management, the Regional Official Plan and the Conservation of Trees in Woodlands By-law.

Region of Waterloo Official Plan

The Region of Waterloo Official Plan (the ROP) was adopted by Regional Council on June 16, 2009. The ROP was approved by the Ministry of Municipal Affairs and Housing in December 2010 and came into full effect in June 2015 following its appeal.

The ROP incorporates the policy and regulatory framework established by the Province and contains goals, objectives and policies to manage and direct land use change and its effects on the cultural, social, economic and natural environment within Waterloo Region. Area Municipal Plans, including the City of Kitchener Official Plan, and all land use related by-laws and future development is required to conform to the ROP.

Policies in the ROP direct the Region and/or the Area Municipalities to ensure that development occurring within the Urban Area and Urban Designated Greenfield Area is planned and developed in a manner that protects the natural environment. It also supports improved air quality through 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.

The ROP establishes a Greenlands Network in the region which is a layered approach to environmental protection comprised of Landscape Level Systems, Core Environmental Features, Fish Habitat, Supporting Environmental Features and the linkages among these elements. Policies relating to the Greenlands Network focus on protecting and enhancing the ecological integrity and functions of these landscapes. Significant woodlands are identified as Core Environmental Features and defined as areas that meet the criteria of: (a) greater than four hectares in size, excluding any adjoining hedgerows; (b) consisting primarily of native species of trees; and, (c) meets the criteria of a woodland in accordance with the provisions of the Regional Woodland Conservation By-law.

The Region encourages good stewardship practices to manage public and private woodlands through the development and implementation of forest management plans. It directs area municipalities to consider the importance of woodlands during the development review process and encourages to adopt a Tree Preservation By-law to prohibit or regulate the destruction or injuring of trees in woodlands less than four hectares in area.

On August 18, 2022, Regional Council passed By-law No. 22-038 to adopt Amendment No.6 to the ROP (the Amendment). This amendment updates several planning policies, objectives and mapping in the ROP to ensure they conform to the Growth Plan and are consistent with the PPS. This amendment is currently awaiting approval by the Ministry of Municipal Affairs and Housing.

The Amendment directs area municipalities to adopt policies and zoning that advance the integration of green infrastructure and increase in tree canopy to adapt to the impacts of a changing climate.

Evaluation of existing environmental policy is anticipated to be part of the second phase of the ROP Review.

Conservation of Trees in Woodlands By-Law 08-026

The Region of Waterloo's Woodland Conservation By-law 08-026 applies to all natural forested areas that are at least one hectare in size with the requisite number of trees (1,000 trees of any size, 750 trees over five (5) cm in diameter, 500 trees over 12 cm in

diameter, or 250 trees over 20 cm in diameter) per hectare. Around 41% of Kitchener's tree canopy is within woodlands one hectare in size or greater. The by-law sets the prohibitions and exemptions under which protected species of woodland trees may and may not be destroyed or injured. It outlines three permit types that can be obtained to allow the destruction of trees: the Good Forestry Practices Permit, the Diameter Limit/Basal Area Permit, and the Woodlot Removal Permit. It also gives the "officer" powers to make an order to the owner/occupier of a property to discontinue activities that contravene the by-law. Notably, activities or matters undertaken by a municipality are exempt from these regulations.

2.3 CURRENT APPROACH AT CITY OF KITCHENER

Following provincial and regional direction, the City of Kitchener works to protect and manage trees. Importance of trees and the numerous benefits they provide are reflected in several city documents that influence tree conservation and management within the City, such as:

- [Kitchener's Sustainable Urban Forest Strategy 2019-2028](#): A long-term guiding document that presents the vision and goal for a sustainable urban forest, along with identified actions intended to guide future decisions and priorities. It identifies what is required to grow and maintain big, healthy trees that provide the greatest benefits to the community. A review and potential update of existing by-laws and policies that protect city trees, their soil habitat natural areas, and private trees is identified as an action item.
- [Kitchener's Tree Canopy – Technical Report](#): A periodic technical report analyzing Kitchener's tree canopy metrics through use of high-resolution imagery and LiDAR data. This report helps in tracking and monitoring of the tree canopy in the City.
- [Kitchener, Changing for Good - Our Corporate Climate Action Plan for Sustainability](#): A climate action plan for reducing corporate level greenhouse gas emissions while adapting to local climate change impacts.
- [Integrated Storm Water Management Master Plan](#): Master Plan setting targets for stormwater management in the City and how to achieve them, recommending

measures to improve overall environmental performance, increasing efficiencies, and reducing costs.

- [Complete Streets Kitchener – Streets for All](#): Guidelines to design safe and comfortable ‘complete streets’ for all in the City contributing towards sustainability, health and social priorities.
- [Kitchener’s Official Plan](#): Kitchener’s Official Plan includes land use policies and mapping that approximately identifies its natural heritage system, including among other things, regionally significant and locally significant woodlands. These are identified as core natural heritage features and designated Natural Heritage Conservation. These woodlands are protected from development, redevelopment and site alteration.
- [Kitchener’s Zoning By-laws \(Zoning By-law 85-1 and Zoning By-law 2019-051\)](#): Kitchener’s Zoning By-laws implements the objectives and policies set out in the Kitchener’s Official Plan by providing regulations around how to manage land and future development in Kitchener. The Natural Heritage System land use designation is implemented in the Zoning By-law through the application of a Natural Heritage Conservation Zone. The purpose of this zone is to protect and conserve natural heritage features, including woodlands, and their ecological functions on public and well as private properties. This zone only permits existing agriculture and natural heritage conservation uses.
- [Urban Design Manual](#): Council adopted document containing guidelines to ensure that new development is consistent with the City’s vision and policies for urban design.
- [Municipal Code – Chapter 270](#): By-law prohibiting prescribed activities within City parks including cutting, destroying or damaging in any way any tree, flower, shrub or flowerbed subject to approvals.
- [Municipal Code – Chapter 633](#): By-law prohibiting any activity connected to site alteration within the City except in accordance with a permit.
- [Municipal Code – Chapter 665](#): The City’s ‘Property Standards By-law’ outlining the applicable minimum standards for maintenance and occupancy that property owners must follow. Exterior property areas are to be maintained in a safe

condition which includes the removal of trees, bushes, and hedges including any branches or limbs thereof which are dead, decayed or damaged, and brushed.

- [Municipal Code – Chapter 690](#): The City's 'Public Tree By-law' prohibiting damage, destruction or injury to any tree, sapling or shrub growing on City property.
- [Municipal Code – Chapter 691](#): By-law providing an officer to enter and inspect any land, including trees and vegetation, for pests.
- [Municipal Code – Chapter 692](#): The City's 'Private Tree By-law' prohibiting injury of tree or trees on private land within the City without a permit.
- [Tree Management Policy](#): A Council adopted policy document which formulates definite and specific requirements to ensure tree management. Policy ensures consistency and effective assessment of plans submitted with Planning Act applications.
- [City of Kitchener Development Manual](#): A manual outlining the City's current engineering requirements, guidelines, specifications and standards, which guide the design and construction of public infrastructure, and requirements for obtaining approvals associated with development applications.

Conservation and management of existing trees on public and private lands are enabled through different tools in the City. The next subsections speak to City's approach to tree conservation and management on public and private lands.

Approach to Tree Conservation and Management on Public Lands

Trees on City lands are recognized as one of Kitchener's corporate assets. Public trees include those located in parks, open spaces and natural areas, as well as those on the road right-of-way (boulevard trees). Forty-eight percent (48%) of Kitchener's tree canopy is located on publicly owned lands, including City owned lands and that owned by other public agencies (City of Kitchener, 2021).

Policies in the Kitchener's Official Plan promote and encourage reforestation and naturalization of parks, open space and stormwater management areas. Further, the City is required to protect and manage trees located within and outside a road right-of-way by encouraging public authorities to give due consideration to their preservation when

undertaking projects and maintenance activities. The City also requires replacement of any trees damaged or removed from an existing road right-of-way due to a development or infrastructure project.

Kitchener's Official Plan also identifies its natural heritage system including regionally significant and locally significant woodlands. These are identified as core natural heritage features and designated Natural Heritage Conservation in the Official Plan. These woodlands are protected from development, redevelopment and site alteration.

The Zoning By-law applies a Natural Heritage Conservation Zone following the Natural Heritage System land use designation of the Official Plan. This zone protects and conserves the natural heritage features, including woodlands, on both public and private lands. Only existing agriculture and natural heritage conservation uses are permitted in this zone.

Thirty-one percent (31%) of all tree canopy in Kitchener is protected by Natural Heritage Conservation land use designation and/or zone, and is on publicly owned lands.

Chapter 690 of the Municipal Code is the City's 'Tree By-law'. The By-law was first adopted in 1987 and later amended in 1988, 1991, 2000, 2001 and 2011. The Infrastructure Services Department administers this By-law and is authorized for all acts necessary to provide for the planting, care and maintenance of all trees on City property. The By-law prohibits damage, destruction or injury to any tree, sapling or shrub or any part thereof located on a City property. It also prohibits damage, destruction and removal of any supporting post, stake or guard attached to or around a tree, and cutting, rooting and removing any tree or part thereof whether living or dead. Thirty-seven percent (37%) of all tree canopy in Kitchener is on City owned lands.

The City of Kitchener Development Manual identifies the minimum requirements for tree planting and soil habitat zones for all City lands managed by Infrastructure Services Department under Section M - Urban Forest – Tree Planting & Establishment. The requirements include details about minimum quantities, tree size, soil volumes, cash-in-lieu payments and species diversity. The number of trees required and their locations

varies by the type of development and land use while rest of the requirements remain same for all types of developments.

Approach to Tree Conservation and Management on Private Properties

Although trees on City lands are an integral part of Kitchener's corporate assets, the vast majority (50%) of tree canopy is located on privately owned lands (City of Kitchener, 2021). The City aims to conserve and manage the private trees through use of various tools.

Kitchener's Official Plan encourages reforestation, wise management and improvement of privately owned trees and woodlands within the City. Policy 7.C.2.3 protects existing site conditions within the development review process by not recognizing illegal acts resulting, or having resulted, in a reduction in the form or function of natural heritage feature including tree removal. Restoration of the damaged area may be required prior to, or as a condition of, approval of any development application. The City may also require existing trees and vegetation to be retained through the Site Plan Approval process.

The Zoning By-law applies a Natural Heritage Conservation Zone which protects and conserves the natural heritage features, including woodlands, on private and public lands.

Eighteen percent (18%) of all tree canopy in Kitchener is protected by Natural Heritage Conservation land use designation and/or zone, and is on private properties.

The Tree Management Policy applies where a proposed development requires a Planning Act application (e.g. subdivision, Official Plan and Zoning By-law amendments, site plans, and some committee of adjustment applications). It consists of the following three steps within which data collection and analysis is sequentially undertaken:

1. General Vegetation Overview: The purpose of a General Vegetation Overview is to provide an inventory and mapping of biological and physical characteristics for each vegetation community. This is required for all lots or blocks within a Draft Plan of Subdivision. It determines which vegetation community requires further data and analysis, and the criteria to evaluate the Draft Plan of Subdivision. The Tree

Management Policy specifies the information generally required for the General Vegetation Overview.

2. Detailed Vegetation Plan: The purpose of a Detailed Vegetation Plan is to provide further data and analysis as set out in a previously approved General Vegetation Overview. It is required for all lots and blocks containing vegetation communities requiring further data and analysis.
3. Tree Preservation/Enhancement Plan: This is required for subdivisions where the Detailed Vegetation Plan identified trees to be retained, site development under Section 41 of the Planning Act, and lots containing trees created by consent under Section 52 of the Planning Act.

Tree removal on private property is subject to the Tree Conservation By-law which prohibits injury of tree(s) on private properties within the City without a permit. The By-law, in addition to the statutory exemptions, exempts lands less than 1 acre or 0.405 hectares in size, and small trees with a diameter at breast height of less than 10 centimeters.

Challenges with Current Approach to Tree Conservation and Management

City staff have identified various challenges with respect to regulating trees on public and private properties through the current processes. These challenges pertain to the tree canopy not protected or regulated through the current processes, and recent development trends related to intensification and infill development. Some of the challenges include:

- 72% of Kitchener's existing tree canopy is collectively protected from development through the Natural Heritage Conservation land use designation in the Official Plan and/or the NHC-1 zone in the Zoning By-law, and/or regulated by the Region of Waterloo's Woodland Conservation By-law (woodlands 1 hectare in size or greater), the Kitchener Tree By-law (trees on City property), and/or the Kitchener Tree Conservation By-law (trees on private properties 1 acre in size or greater). This means that 28% of Kitchener's existing tree canopy is not protected or regulated on private property, or on properties owned by other public agencies.

Figure below highlights the existing tree canopy in Kitchener that is protected/regulated or not protected/regulated.

**Tree Canopy Cover
(2019)**

- Regulated / protected
- Un-regulated / -protected

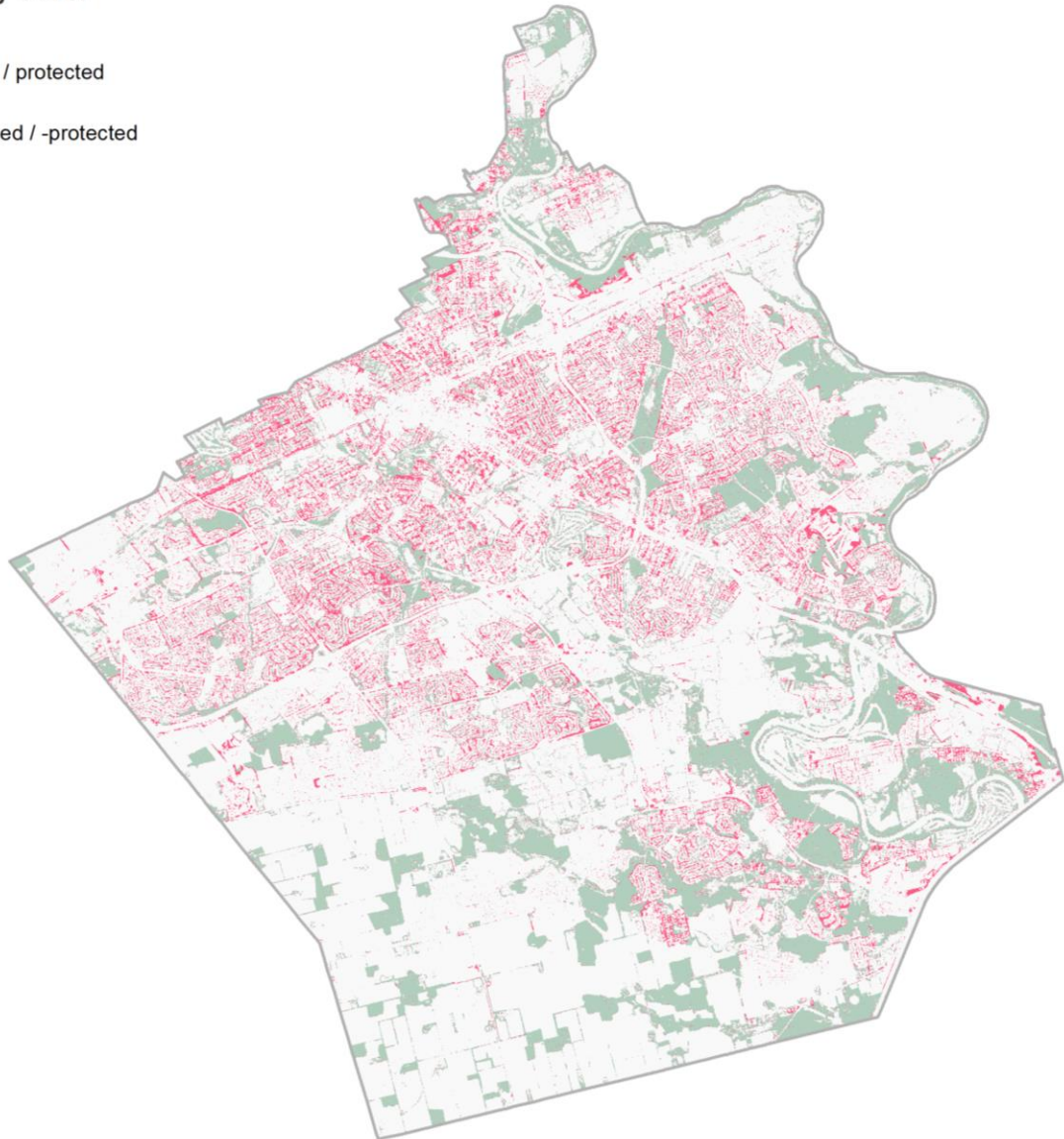


Figure 3. Regulated/protected and unregulated/unprotected tree canopy cover in the City of Kitchener

- Impact on trees (public and private) and their root zones from development, particularly intensification, on adjacent properties including additional dwelling units, and driveway widening and curb cuts.

- Administrative challenges, including but not limited to, extensive staff time involved with reviewing development applications and inspecting and monitoring trees as part of these applications that are to be retained.
- Inconsistencies in absence of clear tree replacement and compensation policies and coordination required between different departments.
- Inconsistencies in the absence of processes to administer the public tree bylaw.
- Administrative challenges of monitoring the public tree asset with multiple stakeholders working around trees potentially damaging tree roots, branches and trunks.
- Legal challenges of enforcing both the public and private tree bylaw when there is a contravention.

3 TREE CONSERVATION AND MANAGEMENT JURISDICTIONAL SCAN

Other municipalities in Ontario as well as in other Provinces, use various mechanisms to conserve and manage trees. Using publicly available data and information collected through key-informant interviews, this section provides a summary of some shortlisted municipalities in Canada and their comparison with the City of Kitchener in relation to conserving and managing trees within their respective jurisdictions.

3.1 SHORTLISTING MUNICIPALITIES

For this review, municipalities were selected on a range of criteria. This included similar population size, similar population density, fast growth rates, proximity, progressiveness, and similar urban character/nature to Kitchener. Additionally, some municipalities were considered due to their large population size, high density, and continued leadership in policy development, including tree conservation and management. Table 1 lists the 12 selected municipalities and the reason(s) for their inclusion.

Table 1. List of shortlisted municipalities and reason(s) for inclusion

| Municipality | Reason(s) for Inclusion |
|-----------------------|--|
| City of Waterloo | Area municipality within the Region of Waterloo |
| City of Cambridge | Area municipality within the Region of Waterloo |
| City of Guelph | Similar population density and proximity to Kitchener |
| Town of Oakville | Similar population size, population density and character to Kitchener |
| City of London | Proximity and similar character to Kitchener |
| City of Mississauga | Proximity and similar character to Kitchener |
| City of Hamilton | Proximity and similar character to Kitchener |
| Town of New Tecumseth | Recently updated processes |
| City of Toronto | Large population size, high population density, leadership in policy development |
| City of Vancouver | Large population size, high population density, leadership in policy development |
| City of Edmonton | Large population size, high population density, leadership in policy development |
| City of Surrey | Large population size, progressive, fast-growing municipality (similar to Kitchener) |

3.2 RESEARCH AND ANALYSIS

This section provides an overview of the existing tree conservation and management processes at the selected municipalities. Each of the municipalities were explored to check what tools they use to conserve and manage trees, or to enhance tree canopy within their jurisdictions. Largely, it was observed that municipalities use the following tools to conserve and manage trees:

- Urban forest management plan/strategy (UFMP/S) or equivalent, including specified tree canopy targets (TCT);
- Official plan policies (OP) in relation to tree conservation and management;
- Tree management policy/guidelines/manual/standards or equivalent documents (TMP) used to guide the development process; and,
- By-laws regulating:
 - public trees in parks, open spaces and natural areas, as well as those on the road right-of-way (boulevard trees)
 - trees on private properties

Table 2 illustrates a snapshot of the tools that the selected municipalities use to conserve and manage trees.

Table 2. Overview of tree conservation tools used in municipalities

| Municipality | UFMP/S & TCT | OP | TMP | Tree By-law |
|---------------------|-------------------------|-----------|------------|-----------------------------|
| City of Kitchener | Yes | Yes | Yes | Separate Public and Private |
| City of Waterloo | No | Yes | Yes | Only Public, No Private |
| City of Cambridge | Yes | Yes | Yes | Separate Public and Private |
| City of Guelph | Yes | Yes | Yes | Only Private, No Public |
| Town of Oakville | Yes | Yes | Yes | Separate Public and Private |
| City of London | Yes | Yes | Yes | Separate Public and Private |
| City of Mississauga | Yes | Yes | Yes | Separate Public and Private |

| Municipality | UFMP/S & TCT | OP | TMP | Tree By-law |
|-----------------------|-------------------------|-----------|------------|---|
| City of Hamilton | No, Yes TCT | Yes | Yes | Separate Public and Private (applies to specific areas) |
| Town of New Tecumseth | Yes | Yes | Yes | Combined Public and Private |
| City of Toronto | Yes | Yes | Yes | Separate Public and Private |
| City of Vancouver | Yes | Yes | Yes | Separate Public (Street Tree) and Private |
| City of Edmonton | Yes | Yes | Yes | Only Public, No Private |
| City of Surrey | Yes | Yes | Yes | Combined Public and Private |

Urban Forest Management Plan/Strategy & Tree Canopy Target

Urban Forest Management Plan or Strategy (UFMP/S) is essentially a strategy document that outlines a municipality's vision and goals of growing and maintaining the urban forest asset. UFMP/S are typically intended to maintain or enhance the urban forest in a municipality through high-level goals supported through specific recommendations and action items. The goals largely revolve around planning, engaging, maintaining, protecting, and planting, similar to the five branches of Kitchener's Sustainable Urban Forest Strategy. The recommendations and/or action items on the other hand are tailored to the municipality and can include influencing Official Plan policies regarding trees, direction on instituting tree by-laws, and direction on establishing public education programs and tree-planting programs.

Of the 12 municipalities reviewed, 10 have an UFMP/S document. City of Waterloo and the City of Hamilton do not currently have a UFMP/S. Appendix A documents the types of tree-related issues addressed through actions and/or recommendations by the municipality, and other ways they plan on growing their urban tree canopy.

Municipalities also set tree canopy targets based on current canopy cover, anticipated future trends, and goals set out by the municipality. Table 3 provides a summary of

existing tree canopy and tree canopy targets set by the selected municipalities. Most municipalities set a municipality-wide tree canopy target. City of Kitchener, in addition, has set a target for each ward as well. Some municipalities (City of London, Town of New Tecumseth) have set the tree canopy target to be achieved for a specified area within the municipality. Further, some municipalities (Town of Oakville) have tree canopy targets by land use designation (not shown in the table).

Table 3. Existing Tree Canopy and Tree Canopy Targets

| Municipality | Existing Tree Canopy | Tree Canopy Target |
|--------------------------|--|---|
| City of Kitchener | 27.2% as of 2019 | 30% each ward by 2050 and 33% citywide by 2070 |
| City of Waterloo | NA | NA |
| City of Cambridge | 27% as of 2013 | 30% by 2034 |
| City of Guelph | 23.3% as of 2019 | 40% by 2031 (not likely achievable) |
| Town of Oakville | 27.8% as of 2015 | 40% by 2057 |
| City of London | 23.7% as of 2015 | 34% by 2065 (within the urban growth boundary) |
| City of Mississauga | 15% as of 2011, 19% as of 2014 | 15% to 20% by 2033 15% in at least 95% of the City's residential areas and in 50% to 75% in city's other land use categories |
| City of Hamilton | 21.2% as of 2018 | 30% (no defined timeframe) |
| Town of New Tecumseth | 21% as of 2021 within developed areas | 30% by 2042 on all developed and developing lands |
| City of Toronto | 28.4% as of 2018 | 40% by 2050 |
| City of Vancouver | 19% as of 2015 | 22% by 2050 |
| City of Edmonton | 10.3% as of 2009 | plant 2 million new urban trees by 2050 |
| City of Surrey | 29% as of 2018 | 30% by 2038 |

Development Review

The development review process in municipalities with respect to tree conservation and management is more or less similar. Policies in the municipal Official Plans are often supplemented with additional guiding documents that assist in tree conservation and management through the development review process.

Appendix B lists policies related to tree conservation and management in the respective Official Plans of the selected municipalities.

All 12 municipalities reviewed have policies that deal with environmental features including trees and urban forests. Generally, municipalities apply natural heritage protection areas (Kitchener's Natural Heritage System, Toronto's Green Space System) that are delineated through a map attached to the Official Plan. The primary objective of delineating the natural heritage protection areas is to protect and enhance the ecological network within municipal jurisdictions. Although trees are not the specific focus of such policies, the policies include protection of significant environmental features (including woodlands), planning for green and sustainable development, and restoring the urban landscape through appropriate (native, climate resilient) planting. More restrictive policies apply to lands close to environmental features identified under the natural heritage protection areas. However, much of the previously developed urban landscape remains outside the boundaries of these protections.

A range of policies in municipal Official Plans are related to conservation of trees and often linked to the development review process. The primary objective of such policies is to retain existing trees and preserve the existing landscape as much as possible. However, some developments are not able to preserve all trees located on site. Most policies are therefore centered around replacement or relocation of trees damaged through development in order to guide preservation of pre-existing landscape through either replacement on-site or relocation off-site. This is considered to be the next best approach to address tree loss if a development is not able to retain trees.

Majority of the Official Plan policies direct to include tree inventory/protection/preservation plan as part of a development application. Such plans involve documentation of existing

trees, ones to be retained and ones intended to be destroyed. This allows municipalities to monitor the treescape and hold applicants to high standards for protection of trees while development occurs. Planners are provided with a level of control to ensure adequate tree planting is included in development agreements.

Municipalities have expressed concern regarding the application of these policies through the planning process and the potential for applicants to clear-cut a site before submitting a formal development application. Some Official Plans include policies that confront this concern through including policies that ensure applicants are held accountable for alterations made to a site before a development application is submitted to the municipality. The City of Kitchener and the City of Waterloo have policy in their Official Plans that does not recognize conditions resulting due to 'illegal acts' such as tree removal as existing conditions and enables conditions to be imposed to restore the damaged area. However, the use of the term 'illegal acts' is debatable. The Town of New Tecumseth has approached this challenge by prohibiting removal of protected trees within two years of a development or demolition application in its tree by-law. References to and adherence to the intent of other municipal policies or by-laws make tree conservation and management stronger, particularly where existing trees have been removed or damaged prior to an application or during the process of obtaining approval.

Some Ontario municipalities (City of Guelph, Town of Oakville), in their Official Plans, also refer to the importance of trees in matters of heritage preservation. These policies enable tree conservation as a matter of preserving heritage landscapes or natural heritage features of neighbourhoods through additional protection of designated heritage items under the *Ontario Heritage Act*.

Many municipalities (City of Waterloo, City of Cambridge, City of Guelph, Town of Oakville, City of Hamilton, City of Vancouver, City of Surrey) include design-related policies regarding trees within their Official Plans. Such policies support the aesthetic and material benefits that trees provide residents serving as a way to encourage tree planting or protection. These policies communicate that trees should be retained, replanted or relocated in order to achieve desirable aesthetics or provide distinct benefits to users of

the area. The City of Kitchener refers to the Urban Design Manual and the Development Manual for incorporating existing and/or new trees into design.

Subtle differences were observed in the language of policies. For instance, some policies are more direct using the word 'shall', while some are non-binding and open for interpretation by using 'should'. Language prompting protection of trees directs tree protection to be considered and incorporated into design through the development process. On the other hand, the use of non-binding language draws attention to considering trees in the development process but is more likely to be interpreted as a suggestion for consideration.

Beyond the Official Plan policies discussed in the previous subsection, most municipalities (City of Cambridge, City of Guelph, City of Mississauga, City of London, City of Hamilton, Town of Oakville, Town of New Tecumseth, City of Toronto, City of Edmonton) have separate guiding document(s) as the City of Kitchener. The City of Kitchener has the Tree Management Policy, the Urban Design Manual and the Development Manual that assist City staff and the development industry including developers, builders and their consultants and contractors to prepare and evaluate submissions associated with development and infrastructure.

The City of Kitchener's Tree Management Policy provides details on submission requirements at different stages of a development application through three types of documents (general vegetation overview, detailed vegetation plan, and tree preservation/enhancement plan). Other municipalities have similar requirements during development applications for tree inventory and preservation.

Some municipalities (City of Guelph, Town of New Tecumseth, City of Mississauga) list tree replacement ratios and/or approach to compensation formula. Most tree replacement ratios are based on the size of the tree being destroyed. The City of Guelph and the Town of New Tecumseth enable replacement/compensation based on aggregate caliper formula, area-based canopy approach and mass planting approach. The City of Edmonton places emphasis on the replacement cost versus monetary value of a tree and necessitates higher of the two for compensation. The cost of replacing a tree includes the plant material, installation, all planning components, watering and young tree

maintenance (pruning and stake removal). The City of Kitchener bases its tree replacement on the value of the tree to be destroyed determined by practices established by the International Society of Arboriculture, where replacement trees are to be of the same or greater value. The City of Cambridge, in addition to following a similar approach to the City of Kitchener, enables requirement of security deposits or letter of credit for detailed vegetation plans on lots that are to come to public ownership. The value of the trees are determined through consultation with the Forestry Technician.

City of Kitchener's Development Manual identifies the minimum requirements for tree planting and soil habitat zones for all City lands. Other municipalities have these requirements as well but not necessarily consolidated in one document. The requirements typically include details about minimum tree quantities, tree size, soil volumes, cash-in-lieu payments, and species diversity. The number of trees required, and their locations varies by the type of development and land use while rest of the requirements remain same for all types of developments.

Public Tree By-laws

Public tree by-laws regulate trees owned by the municipality including trees located in parks, open spaces and natural areas, as well as those on the road right-of-way or boulevards. Of the 12 municipalities reviewed, 11 have a public tree by-law. City of Guelph is the only municipality in the selected municipalities that does not currently have a public tree by-law. Key components of the public tree by-laws and differences in the municipalities are discussed below.

1. Prohibition, application, and exemptions

Public tree by-laws, including Kitchener's Tree By-law, prohibit injury, damage, or destruction of any tree, sapling or shrub or any part thereof located on a property owned by the municipality; damage, destruction and removal of any supporting post, stake or guard attached to or around a tree; cutting, rooting and removing any tree or part thereof whether living or dead; and fastening, tying or attaching

any animal, fence, wire, bill or notice to any tree or to any post, stake or guard which supports a tree.

The authority for planting, care and maintenance and removal of trees is also set out in public tree by-laws. Further, the responsibility of executing work on municipal property and taking all necessary steps to avoid injuring of trees is on the person or corporation undertaking the work. Kitchener's Tree By-law requires adequate steps for the protection of any trees on city property within 6.09 metres (20 feet) of any such lot before commencement of work. Other municipalities (City of Toronto, Town of Oakville, City of Mississauga, City of Edmonton, City of Surrey, Town of New Tecumseth) have similar requirements, but have also developed separate tree protection procedures that must be adhered to when construction is occurring near city trees. Some of these municipalities also have a permitting system in place to support the public tree bylaw. These permits provide a proactive notification that a city tree may be impacted by construction, allow conditions to be applied to the permit and in some cases collect securities to ensure tree protection measures are implemented and monitored for the duration of a project.

Kitchener's Tree By-law also prohibits grade alteration around trees without the specific permission from the department. Further, permission is required to plant trees on City property. In contrast, it does not specify permission is required to injure or destroy a public tree(s).

2. Orders, offences, and penalties

City of Kitchener's Tree By-law does not enable making orders for contravention of any provision of the by-law. It provides that every person who contravenes any provision of the by-law is guilty of an offence and liable, upon conviction, to a fine. The fine, not exceeding \$5,000, is exclusive of costs and recoverable under the Provincial Offences Act. Further, the by-law enables recovering of costs for damage or destruction of a tree. For a tree which is damaged beyond repair, the cost includes that of removing the tree and the value of the tree as established by

the appropriate method of appraisal prescribed by the International Society of Arboriculture.

Some municipalities (City of Waterloo, Town of Oakville, City of Toronto, City of London, City of Hamilton) enable making orders either to cease the contravention or to do work to correct the contravention. In contrast to the maximum fine set out in Kitchener's Tree By-law, other municipalities (Town of Oakville, City of Mississauga) specify minimum and maximum fines for a first and subsequent conviction and in case of continuing offences. Town of Oakville includes a clause that removes any upper limit of fine amount where there is an economic advantage or gain from the contravention. In addition to fines applied upon conviction for contravening the bylaw, some municipalities (City of Toronto, City of London, City of Hamilton, Town of New Tecumseth, City of Edmonton) can issue set administrative penalties or tickets for the injury or removal of city trees.

Private Tree By-laws

Private tree by-laws regulate the removal of trees on privately owned lands. 10 of the 12 municipalities reviewed have a private tree by-law. The extent to which a municipality regulates private tree protection varies. Key components of private tree by-laws and differences in the municipalities are discussed below.

1. Prohibition, application, and exemptions

Private tree by-laws prohibit causing or permitting the causing of injury or damage to trees on private properties without a permit. Injury or damage is generally defined to include: removing, cutting, girdling, or smothering of the tree or its roots; interfering with the water supply; setting fire to a tree; applying chemicals on, around or near the tree; and compaction of regrading within the dripline of a tree. Some municipalities, such as the City of Cambridge, the Town of Oakville, and the City of Mississauga specify that maintenance pruning is not considered as injury/damage to a tree when good arboriculture practices are followed. Furthermore, the Town of New Tecumseth prohibits removal of tree(s) within two

(2) years of a development/demolition application, including road occupancy permit and site alteration applications.

Depending on the objectives of and resources available with the municipality, the application of private tree by-laws differs. Table 4 summarizes the application of private tree by-laws in the selected municipalities.

Most commonly, private tree by-laws are based on the size of the tree measured by the diameter at breast height (DBH). Some municipalities (City of Kitchener and City of Guelph) use a combination of size of the tree and size of the land to regulate trees. Further, some municipalities specify species of trees to be regulated (City of Surrey) or refer to trees classified as endangered, threatened or at risk under the provincial *Endangered Species Act* or the federal *Species at Risk Act* (Town of Oakville). Some municipalities (Town of Oakville and City of Mississauga) also specify regulation of trees required to be retained or planted as a condition of a development application or the by-law itself.

Table 4. Application of Private Tree By-laws

| Municipality | Application | |
|---------------------|----------------------------------|---|
| City of Kitchener | Trees with a DBH of ≥ 10 cm | Properties ≥ 1 acre |
| City of Waterloo | No private tree by-law | |
| City of Cambridge | Trees with a DBH of ≥ 20 cm | |
| City of Guelph | Trees with a DBH of ≥ 10 cm | Properties ≥ 0.5 acre |
| Town of Oakville | Trees with a DBH of ≥ 15 cm | |
| | Trees of any size | retained or planted as a condition of an approved site plan |
| City of London | Trees with a DBH of ≥ 50 cm | within the urban growth boundary |
| | Trees of any size | within a tree protection area |
| City of Mississauga | Trees with a DBH of ≥ 15 cm | |
| | Replacement trees | |

| Municipality | Application | |
|-----------------------|---|---|
| City of Hamilton | Trees with a DBH of ≥ 10 cm | within certain areas of the City (Ancaster and Dundas) |
| Town of New Tecumseth | Trees with a DBH of ≥ 20 cm | part of a development |
| | Significant or heritage tree | |
| City of Toronto | Trees with a DBH of ≥ 30 cm | |
| | Trees of any size | within a protected area (through a separate Ravine and Natural Feature Protection By-law) |
| City of Vancouver | Trees with a DBH of ≥ 20 cm | |
| City of Edmonton | No private tree by-law | |
| City of Surrey | Trees with a DBH of ≥ 30 cm | |
| | Replacement Trees | |
| | Trees planted or retained through a development application | |
| | Trees in a riparian area | |
| | Trees with evidence of nesting | |
| | Specified tree species | |

The *Municipal Act* lists statutory exemptions for tree by-laws passed under Section 135 but does allow for flexibility in what is regulated. Injury or damage to a tree is generally exempt from the requirement for a permit if: the tree is dead, diseased or hazardous; the tree is damaged or destroyed and removal is in the interest of public safety, health or general welfare; the tree is within five (5) meters of an occupied building, or located within a building envelop in respect of which a building permit has been issued; activities or matters are undertaken by a municipality or a local board of a municipality; activities or matters are regulated or licensed under other statutes such as the *Crown Forest Sustainability Act*, *Forestry Act*, *Surveyors Act*, *Electricity Act*, *Farming and Food Protection Act*, or *Aggregate Resources Act*; and, activities or matters are in accordance with a condition to the approval of a development application or agreement under Section 41, 51, 52, or

70.2 of the *Planning Act*. Some municipalities such as the City of Cambridge, the City of Guelph, the Town of Oakville and the City of Mississauga also exempt trees located on rooftop gardens, in interior courtyards, in solariums, in a nursery, or in a golf course.

Some municipalities do not exempt dead, diseased or hazardous tree(s) or damaged or destroyed tree(s) where removal is in the interest of public safety (City of Mississauga, City of Vancouver). These municipalities require an issuance of a permit, where an application needs to be supported with an arborist or other qualified professional certifying the condition of the tree.

2. Permits and Conditions

Application requirements

Private tree by-laws prescribe information and fees required for a complete application for a permit to injure or damage a tree regulated under the by-law. In addition to general identifier information, prescribed fees and consent from all owners (particularly in case of a boundary tree), municipalities require specific information related to trees and/or environmental features to be submitted.

City of Kitchener requires a detailed plan or survey of the subject site which clearly identifies location and dimensions of the trees proposed to be injured and/or retained, and all significant features of the lands including but not limited to rivers, streams, steep slopes (greater than 20 percent), wetlands or environmentally regulated areas. A General Vegetation Overview, Detailed Vegetation Plan or Tree Preservation/Enhancement Plan prepared and signed by a qualified professional in accordance with the City of Kitchener Tree Management Policy may also be required. City of Kitchener's Tree Conservation By-law also enables additional information to be required within a specified period of time if deemed necessary to evaluate the application.

Municipalities (City of Cambridge, City of Guelph) require photographs to be submitted along with a plan or plan of survey including the location, species, DBH and condition of each tree to be injured or retained, purpose for the injury or

destruction, nature and method of the proposed injury or destruction, and nature and method of the protection for each of the trees to be retained including if required a tree protection plan. Furthermore, some municipalities (City of Guelph, Town of Oakville, City of Mississauga, City of Toronto, City of London) enable the requirement of an arborist's or a registered professional forester's or qualified person's report/opinion to be submitted for various purposes. The Town of Oakville licenses arborists under its Licensing By-law. City of Vancouver and City of Surrey identify arborists as certified by the International Society of Arboriculture.

Since the Town of New Tecumseth's private tree regulations are incorporated with its public tree by-law, it does not lend the opportunity to apply for permits.

Issuance or refusal of a permit

Permits issued under the City of Kitchener's Tree Conservation By-law are valid for a period of ninety calendar days from the date of issuance. A permit may be extended where an owner applies to renew a permit at least thirty calendar days before the date of expiry accompanied with a payment of one-half of the original permit fee. City of Guelph issues permits for a period of ninety days as well with a one-time extension of ninety days. Other municipalities (City of Cambridge, Town of Oakville and City of Mississauga) issue permits valid for 12 months while City of Vancouver issues permits valid for 6 months.

Private tree by-laws set out requirements for issuance and/or refusal of tree permits. General criteria for issuance of a permit include submission of complete application and prescribed fees. Other criteria for issuance of a permit to injure or destroy a tree at City of Kitchener include: proposed injury being in accordance with good forestry practices; interference with natural drainage processes; soil erosion, slope instability or siltation in a watercourse; impact on healthy vegetation community or on fish or wildlife habitat within and adjacent to subject site; contravention to the *Species at Risk Act*, the *Endangered Species Act*, or the *Migratory Birds Convention Act*; and/or consistency with an approved tree preservation plan.

Other municipalities specify the use of following criteria for the issuance of a permit to injure or destroy a tree: condition and location of the tree; reason(s) for the proposed injury or destruction; no reasonable alternatives to the proposed injury or destruction; preservation of retained trees on the lot; and protection and preservation of ecological systems and their functions.

The criteria for issuance of a permit discussed above also become criteria for refusal of a permit for the injury or destruction of a tree.

Conditions on a permit

Private tree by-laws enable issuance of permits subject to conditions. City of Kitchener's Tree Conservation By-law stipulates conditions which may be imposed as a requirement for a permit including: submission of landscaping or restoration plans and associated maintenance plans; requiring replacement trees be planted; undertaking of tree cutting work only under supervision of an arborist; the manner and timing in which injury is to occur; or, the species, size, number and location of trees to be injured.

Further, where planting of replacement trees is imposed as a condition, further conditions may include: species, size, number and location of the replacement tree; submission of landscaping or restoration plans and associated maintenance plans; or submission of a written undertaking signed by the owner for carrying out replacement planting. Where replacement trees are not possible to be planted on the subject site, conditions maybe imposed: to plant replacement trees on other suitable land; or, to pay an amount equaling 120 percent of the cost for planting replacement trees and maintaining the trees for a period of two years.

Kitchener's Tree Conservation By-law does not specify any ratio or the size of the replacement trees to be planted. This is left at the discretion of the Director. Some municipalities such as the Town of Oakville, the City of Vancouver and the City of Surrey specify the number and size of the replacement trees based on the size of the tree being removed. City of Surrey also enables requirement of a security

deposit in cash or letter of credit where replacement trees or retention of existing trees are required as a condition of a permit.

Some municipalities (City of Cambridge, City of Guelph) stipulate imposing other conditions such as implementation of specified measures to mitigate the direct and indirect effects of injuring or destroying other nearby trees, land water bodies or natural areas. Furthermore, municipalities such as City of Cambridge and City of London enable imposing special conditions as necessary in addition to those specified in their respective by-laws.

Appeals

The Town of Oakville, the City of Mississauga, the City of London, and the City of Toronto allow the applicant to appeal a refused tree permit application within a prescribed time (generally 14, 21, or 30 days) from the date of issue of the decision. There is no requirement under the *Municipal Act* to provide for an appeal process for a by-law passed under Section 135 of the Act.

3. Orders, offences, and penalties

Kitchener's Tree Conservation By-law enables for the Director to make an order the owner or any other person in contravention of the by-law or a condition of a permit issued under the by-law to cease any or all work immediately, and/or to take necessary steps in accordance with the approved permit, plans, documents and other information upon which the permit was issued and in accordance with the conditions of the permit within a time set out in the order.

Some municipalities such as the City of Mississauga, the City of London and the City of Toronto enable making an order to do work to correct the contravention. This may require that any injured or destroyed tree be replaced with a replacement tree and further specify its species and location or payment in lieu be provided for where a replacement tree cannot be located on the lot.

Any person or corporation who contravenes any provision of the by-law, conditions of a permit, or an order issued under the by-law, is guilty of an offence and liable

to fines. Generally, the fines are exclusive of costs and are collectible pursuant to the *Provincial Offences Act*. City of Kitchener enables penalties as follows:

- For contravention by a person
 - on a first conviction, to a fine not exceeding \$25,000; and,
 - on any subsequent conviction, to a fine not exceeding \$50,000.
- For contravention by a corporation
 - on a first conviction, to a fine not exceeding \$50,000; and,
 - on any subsequent conviction, to a fine not exceeding \$100,000.

In addition to minimum and maximum fines for a first and subsequent conviction, most of the other municipalities (City of Cambridge, City of Guelph, City of Mississauga, City of London) prescribe a minimum fine of \$500 and minimum and maximum fines per tree. They also clarify that in case of multiple offences, the total of all daily fines is not limited to the maximum. In most cases, the maximum fine is \$100,000.

Resources for Administration of Tree Conservation Processes

The extent of tree regulation on public and private properties is closely linked with resources available with a municipality to implement these regulations. All municipalities have different staff complement available at their end which is summarized in Table 5. Typically, the duties are observed to be divided amongst Planning and Forestry teams with assistance from By-law Enforcement, similar to what the City of Kitchener currently has.

Table 5. Staff Resources available with select municipalities

| Municipality | Staff Resources |
|---------------------|--|
| City of Kitchener | <ul style="list-style-type: none"> • 1 full time Manager, assigns public by-law related work to staff as needed and based on capacity • 2 full time Environmental Planners, review planning applications and administer the private tree by-law in addition to other duties |
| City of Waterloo | <ul style="list-style-type: none"> • 1 full time supervisor, assigns bylaw related work to staff as needed • 1 full time Planner to review development applications |
| City of Cambridge | <ul style="list-style-type: none"> • 1 full time Forestry Technician • 2 full time bylaw staff for property standards and private tree bylaw |
| City of Guelph | <ul style="list-style-type: none"> • 1 full time environmental planner, reviews planning applications • 4 full time inspectors <ul style="list-style-type: none"> ○ 3 development related inspectors ○ 1 non-development related inspector |
| Town of Oakville | <ul style="list-style-type: none"> • 1 full time supervisor (Forest Protection) • 4 full time staff and 2 seasonal staff (Forest Protection), all are bylaw officers able to enforce the bylaw • 2 full time staff (Development Services) |
| City of London | <ul style="list-style-type: none"> • 1 full time supervisor (Forestry Operations) • 3 full time forestry inspectors • 1 full time Landscape Architect reviews all development applications for private and public tree impacts |
| City of Mississauga | Full staff complement unknown, there is a Tree Preservation and Protection supervisor. |
| City of Hamilton | <ul style="list-style-type: none"> • 3 full time urban forest health technicians, public tree review for city projects, planning applications and homeowners • 2 full time Natural Heritage Planners, private tree review for planning applications • 4 full time Forestry Investigators (these staff inventory trees in the public realm and notify Forest Health Technicians if bylaw contraventions are observed). • 1 full time bylaw officer for private tree bylaw; woodland conservation bylaw and property standards |

| Municipality | Staff Resources |
|-----------------------|---|
| Town of New Tecumseth | 1 full time staff for by-law and development applications |
| City of Toronto | <ul style="list-style-type: none"> • 25 staff across 3 Forestry Branches covering Urban Forestry Policy and Planning, Forest Policy Standards and Tree Protection and Plan Review. The Tree Protection and Plan Review branch most involved in the bylaws/ravine protection has a manager plus 4 supervisors and 1 project manager, plus support staff |
| City of Vancouver | <ul style="list-style-type: none"> • 3 full time technical staff review and assess public trees for city projects and development • Landscape Development Team enforces the private tree bylaw this includes <ul style="list-style-type: none"> ○ 1 full time landscape planner ○ 3 full time technical staff |
| City of Edmonton | <ul style="list-style-type: none"> • 4 full time staff and 4 seasonal staff • 2 full time staff (urban foresters) for permit in natural areas • 2 full-time bylaw officers to support |
| City of Surrey | <ul style="list-style-type: none"> • 14 staff responsible for implementing the Tree protection Bylaw on private land • additional 10 staff are responsible for overseeing the protection of trees on public land that is associated with development |

Note: Staff resourcing information has been collected through municipal interviews and/or municipal staff reports published and available in the public domain.

Other Learnings

Additional opportunities were identified from conversations with municipalities and their experiences administering tree conservation and management tools. These are:

- Education and communication
Educating stakeholders and communicating the processes around tree conservation clearly can contribute positively towards the success of conserving trees.

- Notification procedures and monitoring
Municipalities have communicated advantages of monitoring changes in tree canopy through tree permits and development applications, and benefits in establishing notification procedures where injury or destruction of a tree does not require a permit or development application. Some municipalities have embedded notification procedures in previous versions of their by-laws to gather data and made informed updates.
- Bylaw review intervals
Some municipalities use data collected through their notification procedures and monitoring to review their bylaws at set intervals or on an annual basis and may make necessary updates and changes to ensure bylaws are effective.
- Foresters plus by-law officers
Municipalities where foresters were also by-law officers conveyed advantages of foresters to be able to enforce by-laws, including the ability to issue orders and penalties.
- Professionals licensed with the municipality
Some municipalities require professionals working on trees within their jurisdictions to be licensed with the municipality. This helps with build relationships between municipal staff and contractors, as well as improve bylaw compliance.
- Tree incentive programs
Some municipalities have conveyed advantages and success of certain tree incentives programs providing the public with financial support to maintain and retain a specified size of trees on private properties.

4 CONCLUSION

The review of existing processes for tree conservation and management on public and private lands in the City of Kitchener and in other municipalities demonstrates that the City of Kitchener uses all tools available to conserve and manage trees. This includes the Sustainable Urban Forest Strategy, the Official Plan, the Zoning By-law, the Tree Management Policy, the Tree By-law, the Tree Conservation By-law, and the Development Manual.

However, the review also shows Kitchener's approach differs with respect to the mechanisms and processes in place to support tree conservation. There is opportunity to learn from other municipalities and improve Kitchener's tree conservation processes. A second phase of the project is recommended to further evaluate specific enhancement opportunities aimed at strengthening and extending Kitchener's tree conservation tools. Updates are recommended to be based on a measured approach that assesses staff resources needed to achieve the necessary level of improvement, budget implications, the anticipated improvement in level of tree protection, turnaround time for implementation and other possible advantages/disadvantages.

GLOSSARY

Good Forestry Practices – As defined by the *Forestry Act*, means the proper implementation of harvest, renewal and maintenance activities known to be appropriate for the forest and environmental conditions under which they are being applied and that minimize detriments to forest values including significant ecosystems, important fish and wildlife habitat, soil and water quality and quantity, forest productivity and health and the aesthetics and recreational opportunities of the landscape.

Green Infrastructure - Natural and human-made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs.

Tree canopy - The layer of branches, stems, and leaves of trees that cover the ground when viewed above.

Tree canopy, Existing - The amount of urban tree canopy present when viewed from above using aerial or satellite imagery.

Tree canopy, Potential - The amount of area, including all the grass, shrub, and bare soil areas where trees could be planted. This includes all the city's greenspace areas, including many areas that would not be planted with trees because of their current use such as: flower/food gardens, grassed areas, playfields, sports fields, golf courses, public spaces and agricultural lands.

Urban Forest – The trees, forests, greenspace and related abiotic, biotic and cultural components, all elements of green infrastructure, in the City. It includes all trees, and forest cover in the City as well as related components in surrounding rural areas.

Woodland – Treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas.

Woodland, Locally Significant - A woodland less than 4 hectares in size which is ecologically important in terms of: i) features such as species composition, age of trees and stand history; ii) functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or, iii) economically important due to site quality, species composition, or past management history.

Woodland, Significant – A woodland that meets all of the following criteria: i) greater than 4 hectares in size, excluding any adjoining hedgerows; ii) consisting primarily of native species of trees; and, iii) meets the criteria of a woodland in accordance with the provisions of the Region of Waterloo Woodland Conservation By-law.

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APPENDICES

APPENDIX A:

Municipal Urban Forest Management Plans: Actions and/or Recommendations

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|-------------------|---|------------------|---|
| City of Kitchener | Kitchener's Sustainable Urban Forest Strategy 2019-2028 | 2019 | <p>Action 1: Plan for a sustainable urban forest by setting, supporting, developing and monitoring identified priorities and targets.</p> <p>Action 2: Address key gaps required to reduce risk and support implementation of key program components</p> <p>Action 3: Manage the urban forest on city lands as a corporate asset to develop defined service levels, optimize life cycle management plans and long-range funding requirements.</p> <p>Action 4: Develop a sustainable natural area management plan for all city owned natural areas that strives to conserve their natural history and biodiversity, while minimizing the associated risks and costs.</p> <p>Action 5: Increase community awareness and stewardship building community support, participation and ownership</p> <p>Action 6: Embrace Love My Hood helping people to connect and work together to do great things in their neighbourhood.</p> <p>Action 7: Increase communication and build collaboration with citizens, land owners, organizations, agencies, other cities and city departments.</p> <p>Action 8: Improve customer service by providing better and timely information while always looking for ways to improve service</p> <p>Action 9: Create a proactive maintenance program for city trees to improve customer service, tree health, resiliency, and reduce costs / risks</p> <p>Action 10: Create an urban forest emergency response and recovery plan ensuring the city has the ability and resiliency to respond to a changing climate.</p> <p>Action 11: Conserve and protect the urban forest prudently on public and private lands to maximize current and future benefits while minimizing costs and risks.</p> <p>Action 12: Monitor and assess destructive tree pests and invasive species to protect the urban forest and conserve biodiversity.</p> <p>Action 13: Set a tree canopy target and develop a long-term plan ensuring a vibrant and resilient tree canopy for future generations.</p> <p>Action 14: Work with the community to develop a non-profit tree planting and stewardship program to maintain and/or increase the tree canopy on private and public lands.</p> <p>Action 15: Develop a tree planting and soil management plan for city lands, planting trees sustainably with the focus on growing big, long living trees</p> |
| City of Cambridge | Cambridge Urban Forest Plan | 2015 | <p>Action 1: Undertake a comprehensive review of the Urban Forest Plan and report to Council.</p> <p>Action 2: Create an internal "Urban Forest Group" that includes key City staff involved in work related to trees.</p> <p>Action 3: Establish and coordinate an "Urban Forest Plan Steering Committee".</p> <p>Action 4: Build and expand partnerships for securing funding from a range of sources to sustain urban forest stewardship projects across the City.</p> <p>Action 5: Explore opportunities for direct and indirect support for municipally-led or supported urban forest activities from the GRCA, Region, Province and federal government.</p> <p>Action 6: Establish mechanisms for dedicated funding for urban forestry in the form of: (a) a reserve fund for tree-related disaster response on City lands and (b) a "tree account" to support tree planting and young tree maintenance.</p> <p>Action 7: Explore adding policies related to tree planting and replacement as part of the next Official Plan update.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|--------------|----------------|------------------|--|
| | | | <p>Action 8: Develop comprehensive streetscape guidelines for integration of high-quality tree growing environments and trees into urban streetscapes.</p> <p>Action 9: Update the City's existing Public Tree By-law (71-06) and Grading By-law (160-09) to be more supportive of urban forestry objectives in this Plan.</p> <p>Action 10: Draft and explore implementing a private tree by-law to expand the City's tool kit for achieving urban forest targets.</p> <p>Action 11: Undertake a comprehensive tree preservation planning policy and procedure review.</p> <p>Action 12: Review, consolidate and ensure consistency of all development-related tree establishment policies and standards.</p> <p>Action 13: In new or infill developments, require (a) regular maintenance of newly-planted street trees, and (b) developers to deposit funds to cover the costs of planting, maintenance and replacement of trees by City staff or contractors</p> <p>Action 14: Compile a 'master' planting list to guide tree establishment on both public and private lands across the city.</p> <p>Action 15: Undertake a comprehensive review of Forestry Division workload and service levels to determine appropriate staffing levels to ensure adequate service provision</p> <p>Action 16: Utilize 2014 street tree inventory to carry out high-priority tree maintenance and address utility conflicts.</p> <p>Action 17: Develop and phase-in implementation of a cyclical pruning program for City-owned street trees.</p> <p>Action 18: Develop and implement a young tree structural pruning (training) program.</p> <p>Action 19: Undertake inventory of trees in high-use public park areas and along City-owned woodland edges, and carry out priority maintenance.</p> <p>Action 20: Update the tree risk management policy (Policy – Safety and Probability Risk Assessment) to reflect new industry standards and Best Management Practices.</p> <p>Action 21: Revise the City's Property Standards By-law (181-04) to enable the City to order risk mitigation for trees which pose potential high risk to neighbouring public or private property, on a complaints based and proactive basis.</p> <p>Action 22: Undertake an inventory of City-owned woodlands.</p> <p>Action 23: Once an inventory of City-owned woodlands is complete, start to undertake management of priority woodlands.</p> <p>Action 24: Prepare a Pest Vulnerability Matrix or similar pest and disease threat assessment and management options report utilizing 2014 street tree inventory data.</p> <p>Action 25: Develop an Emerald Ash Borer strategy, including use of data from the 2014 street tree inventory.</p> <p>Action 26: Undertake an inventory of ash trees in City-owned parks (if complete park tree inventory not undertaken) and edges of City-owned woodlands.</p> <p>Action 27: Improve tree species and planting stock selection and establishment practices.</p> <p>Action 28: Increase the diversity and number of trees planted per year as part of Forestry operations to help attain Plan targets.</p> <p>Action 29: Improve the format and organization of the City's Forestry webpage to make it more user-friendly and engaging.</p> <p>Action 30: Undertake targeted outreach to various sectors across the City, using the City's plantable spaces tool where appropriate.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|----------------|--|------------------|---|
| | | | <p>Action 31: Increase current efforts to coordinate and implement community-based tree planting, and other urban forest stewardship activities, across different neighbourhoods and land uses in the City.</p> <p>Action 32: Identify and implement incentive programs that could be implemented to support tree planting, maintenance and / or protection on private lands.</p> |
| City of Guelph | Urban Forest Management Plan 2013-2032 | 2012 | Recommendation 1. Create a Senior Urban Forester position |
| | | | Recommendation 2. Create an interdepartmental “Tree Team” of City staff |
| | | | Recommendation 3. Increase capacity to complete an inventory of municipal street and park trees |
| | | | Recommendation 4. Undertake targeted vegetation assessment and management of City parks and natural areas |
| | | | Recommendation 5. Expand the City’s capacity for planting and maintenance of municipal trees |
| | | | Recommendation 6. Undertake an Urban Tree Cover (UTC) Potential Plantable Spaces Analysis |
| | | | Recommendation 7. Develop and implement an Invasive Species and Pest Management Strategy, starting with an Emerald Ash Borer Strategy |
| | | | Recommendation 8. Develop tree risk management policy and train City Arborists in risk assessment |
| | | | Recommendation 9. Complete a State of the Urban Forest report every five years |
| | | | Recommendation 10. Establish a green infrastructure asset valuation |
| | | | Recommendation 11. Assess the effectiveness of current tree-related policies and legislation |
| | | | Recommendation 12. Update City documents to be consistent with new tree-related policies, guidelines and legislation |
| | | | Recommendation 13. Develop and implement a Public Tree By-law |
| | | | Recommendation 14. Implement and assess use of the new Tree Technical Manual |
| | | | Recommendation 15. Implement and monitor success of new rooting technologies downtown |
| | | | Recommendation 16. Develop a Greening Strategy building on the Potential Plantable Spaces Analysis |
| | | | Recommendation 17. Track municipal tree removals and plantings |
| | | | Recommendation 18. Expand the City’s capacity to undertake tree-related plan review and site supervisio |
| | | | Recommendation 19. Create an Urban Forest Advisory Committee (UFAC) |
| | | | Recommendation 20. Pursue targeted urban forest education and outreach |
| | | | Recommendation 21. Increase municipal capacity for coordination of volunteers for stewardship activities |
| | | | Recommendation 22. Pursue targeted stewardship initiatives, partnerships and funding sources |
| | Urban Forest Management | 2020 | Action 1: Review street and park tree inventory protocol; Link GIS inventory to existing work order asset management system (Oracle WAM) |
| | | | Action 2: Compile Forested areas monitoring data to feed into future comprehensive natural area monitoring (NHAP) |
| | | | Action 3: Develop forest management plans in conjunction with NHAP related plans |
| | | | Action 4: Implement Tree Allocation Fund (cash-in-lieu from Private Tree Bylaw compensation) |
| | | | Action 5: Implement TTM |
| | | | Action 6: Hire new Arborist (1 FTE) outstanding from first phase of plan to support tree planting and maintenance program |

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| Town of Oakville | Urban Forest Strategic Management Plan for | 2008 | <p>Action 7: Hire seasonal staff for tree planting and maintenance in natural areas</p> <p>Action 8: Initiate pest and disease monitoring</p> <p>Action 9: Develop invasive management strategy (implement in 2024)</p> <p>Action 10: Develop forest health plan including integrated pest management strategies for tree related pests and diseases (implement 2024 / 2025)</p> <p>Action 11: Continue implementation of EAB plan</p> <p>Action 12: Develop Risk Management Strategy (RMS) (implement in 2024)</p> <p>Action 13: Develop Storm Response Plan</p> <p>Action 14: Hire new Inspector Arborist (1 FTE) to support proactive inspection and maintenance work</p> <p>Action 15: Update Maintenance Protocol</p> <p>Action 16: Prepare 10-year update of UFMP</p> <p>Action 17: Prepare third phase plan</p> <p>Action 18: Review and enhance Private Tree By-law and need for public tree bylaw</p> <p>Action 19: Hire New Forest Technologist (1 FTE) to administer tree related bylaw and undertake tree-related review and site supervision</p> <p>Action 20: Align City policy, plans and guidelines (e.g. Community Plan; Strategic Plan; Official Plan Update; Commercial Built Form Standards)</p> <p>Action 21: Implement TTM</p> <p>Action 22: Audit design and implementation of existing soil cell structures</p> <p>Action 23: Develop and implement tree planting strategy to increase canopy cover; explore tree planting incentives for private land</p> <p>Action 24: Coordinate tree plantings and restoration work through ERIC</p> <p>Action 25: Implement data tracking for tree removals and replacements</p> <p>Action 26: Implement Subdivision Street Tree Plan and Park Planting Plan inspections</p> <p>Action 27: Develop UFMP Communications strategy and Engagement Plan</p> <p>Action 28: Celebrate achievements (National Forestry Week, Earth Day)</p> <p>Action 29: Pursue regional coordination of urban forest management</p> |
| | | | <p>Recommendation 1: The Town should consider amending its Official Plan to designate its municipally owned urban forest as ‘green infrastructure’.</p> <p>Recommendation 2: The Town should develop a separate Urban Forest Strategic Management Plan for the lands north of Dundas Street consistent with the principles outlined in this document</p> <p>Recommendation 3: The Town should use the vision and mission statements cited in this plan to guide urban forest management in the Town of Oakville.</p> <p>Recommendation 4: The Town should use the series of criteria and indicators in Table 1 to track progress towards short- and long-term objectives. This should be used to measure, monitor and evaluate the implementation of the UFSMP at the end of each 5-year Management Plan and report to Council on the State of the Urban Forest. Furthermore, the Criteria and Indicators Table should be added to the Town's 2007-2010 Corporate Strategic Plan in order to help track the Town of Oakville's progress on managing its urban forest on a sustainable basis.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
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| | | | <p>Recommendation 5: The stocking level in all land use types (except woodlots) should be increased by 10% (based on the assumptions of the UFORE Growout simulation) to achieve an estimated overall canopy cover of 30%.</p> <p>Recommendation 6: The Town should consider incorporating an assessment of potential leaf area by land use type into the 2009 UFORE study.</p> <p>Recommendation 7: The Town will develop each 5-year management plan. The second, third and fourth 5-year management plans will be developed based on a review of the successes and challenges of the preceding management plans.</p> <p>Recommendation 8: The Town will adopt the principle of active adaptive management to accomplish urban forest policy objectives in light of the constantly changing ecological, social and regulatory environment.</p> <p>Recommendation 9: The Town should change the name of the “Large Tree Heritage Business Unit” and “Small Tree Heritage Business Unit” to avoid confusion with other common uses of the term “heritage tree”.</p> <p>Recommendation 10: The Town’s Official Plan, Section 10.3(b) should be amended to read: “It is the objective of the Town that there will be no net loss of existing urban forests. As such, for every square metre of leaf area that is removed from Town property or from road rights-of-way, that sufficient trees will be replanted to replace the lost square metres of leaf area.”</p> <p>Recommendation 11: The Town should amend the Environmental Strategic Plan to refer to the Urban Forest Strategic Management Plan where appropriate.</p> <p>Recommendation 12: The Town should create five urban forest management units in such a manner that their areas are distributed more-or-less equally. These management units will be used to allocate activities within the 5- year management plans.</p> <p>Recommendation 13: The Town will complete a tree inventory for all street trees within the first 2 years of the first management plan with a focus on collecting information on trees in the oldest and youngest age classes in the first year.</p> <p>Recommendation 14: The Town should develop an approach to identifying and designating heritage trees based on the approach of the Ontario Heritage Tree Alliance.</p> <p>Recommendation 15: The Town should enter into a partnership with the USDA Forest Service to establish Oakville as a Reference City for STRATUM in Southern Ontario.</p> <p>Recommendation 16: The Town should ensure that there is adequate species diversity throughout the urban forest and where possible ensure that the seed source is within the Collection Zone for Oakville as established by the Forest Gene Conservation Association.</p> <p>Recommendation 17: The Town will complete a tree inventory for all woodlands based on accepted forest stand inventory protocols within the first 5- year management plan.</p> <p>Recommendation 18: The Town should establish 1 permanent sample plot (PSP) per hectare in each woodland tract so that the woodlands can be monitored systematically over time.</p> <p>Recommendation 19: The Town should hire an urban forestry specialist with GIS training to administer the tree inventory software and database as well as other asset management systems in the Department in 2008.</p> <p>Recommendation 20: The Town should consider configuring CityWorks to display a version of the tree layer including location, species and size (crown width, DBH), on the corporate web site for use by the public.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
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| | | | <p>Recommendation 21: The Town's Planning, Development Services, Engineering & Construction and Parks and Open Space Departments should consider adopting minimum soil volume standards as outlined in Table 5 into existing departmental drawings for situations that have the potential to impact municipal trees.</p> <p>Recommendation 22: The Town's Interdepartmental/Interagency Technical Advisory Committee (IITAC) should collaborate in a review of Tree Habitat Design Guidelines, and the potential role of zoning by-laws in reserving sufficient good tree habitat to support the canopy cover/leaf area targets identified for each Land Use Type (Oakville 2006, Action Items 15 & 17).</p> <p>Recommendation 23: The Town's Interdepartmental/Interagency Technical Advisory Committee (IITAC) should discuss and consider for adoption the canopy cover targets proposed in the UFSMP.</p> <p>Recommendation 24: The Town's Interdepartmental/Interagency Technical Advisory Committee (IITAC) should establish canopy cover targets for parking lots and should develop design and implementation guidelines to achieve these targets. (Oakville 2006. Action Items 22).</p> <p>Recommendation 25: The Town's Interdepartmental/Interagency Technical Advisory Committee (IITAC) should collaborate in the development of guidelines for the protection of tree habitat during the maintenance and upgrading of grey infrastructure.</p> <p>Recommendation 26: The Town's Forestry staff and the ITTAC should host a workshop on the use of enhanced rooting environment techniques. This workshop will bring together forestry and engineering staff from across southern Ontario and other jurisdictions with experience in the use of various root zone modifications.</p> <p>Recommendation 27: The Town should develop a set of engineering road cross sections using root zone modifications for implementation in difficult sites.</p> <p>Recommendation 28: The Town should develop removal and replacement plans to increase the age class and species diversity in areas identified as having a canopy dominated by mature Norway and silver maples.</p> <p>Recommendation 29: The Town should reserve appropriate lands for the development of a nursery and conduct a study to determine the feasibility of producing its own nursery stock versus entering into a long term relationship with a local grower.</p> <p>Recommendation 30: The Town should establish a project that will identify (through GIS) areas at risk for exotic invasions (i.e. near natural areas such as woodlots, wetlands, ravines, etc.).</p> <p>Recommendation 31: The Town's tree asset management system, CityWorks, should include a system of tracking survivorship to inform species selection and management.</p> <p>Recommendation 32: The Town should develop a Prime Site strategy which will identify priority sites to amend the soil quantity and quality in accordance with the Town of Oakville's Our Solution to Our Pollution report.</p> <p>Recommendation 33: The Town should conduct a feasibility study for the creation of a municipal arboretum.</p> <p>Recommendation 34: The Town should outline the creation of a pro-active under planting program in those communities at risk of decreasing urban forest canopy cover due to aging trees (Town of Oakville 2006, Action Item 4).</p> <p>Recommendation 35: The Town's Forestry Section should work with the Forest Gene Conservation Association to create a gene conservation program for the Town (Town of Oakville 2006, Action Item 9).</p> |

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| | | | <p>Recommendation 36: The Town's Parks and Open Space Department will identify opportunities for Parks Naturalization that contribute to the forest canopy and prepare capital budget costs (Town of Oakville 2006, Action Item 10).</p> <p>Recommendation 37: The Town should produce a GIS-based planting plan incorporating the UFORETree Locator Module, "Tree Habitat Design Guidelines for Oakville" (Town of Oakville 2006, Table 9) and taking into consideration the "Best Species for Air Quality Improvement" and species best suited to the changing climate.</p> <p>Recommendation 38: The Town should develop an urban forestry emergency response plan that integrates with the corporate emergency plan.</p> <p>Recommendation 39: The Town should adopt a 5-year pruning cycle for all intermediate and mature trees and a 3-year cycle for all juvenile trees. Line clearing operations should be consistent with these pruning cycles.</p> <p>Recommendation 40: The Town must complete the update to its Tree Protection Policy and Street Tree By-law.</p> <p>Recommendation 41: The Town should consider transferring the responsibility for private tree protection from the Development Services Department to the Parks and Open Space Department.</p> <p>Recommendation 42: The Town should hire four additional inspectors to enforce tree protection on both public and private land.</p> <p>Recommendation 43: The Town's Development Services Department should create guidelines for the implementation of the Tree Protection Policy as it applies to various permitting processes and where possible utilize conditions of approval to protect trees on private property.</p> <p>Recommendation 44: The Town should investigate the feasibility of developing and implementing a private tree preservation by-law based on the principle of no net loss of leaf area/canopy cover within the urban forest.</p> <p>Recommendation 45: The Town should develop a strategy for the monitoring and control of alien invasive species. Where appropriate the Town will coordinate its efforts with the Canadian Food Inspection Agency, the Canadian Forest Service, the Ontario Ministry of Natural Resources, Conservation Halton and other area municipalities.</p> <p>Recommendation 46: The Town will use the forest stand inventory data to complete a Forest Management Plan for its remaining 47 woodland properties under the FSC program.</p> <p>Recommendation 47: The Town should develop a Tree Risk Management Plan and establish an inspection protocol based on the data from the Municipal Tree Inventory.</p> <p>Recommendation 48: The Tree Risk Management Plan will prioritize trees requiring further investigation by a tree risk assessment specialist.</p> <p>Recommendation 49: The Town's Forestry staff should conduct a pilot project to fine-tune IR photography as a cost saving technique to identify areas that contain hazard trees (Town of Oakville 2006, Action Item 23).</p> <p>Recommendation 50: The Town should provide the staff and equipment resources required to implement hazard abatement strategies.</p> <p>Recommendation 51: The Town should develop a tree cabling policy that includes the provision of an inspection cycle. This policy will incorporate risk and heritage value.</p> <p>Recommendation 52: The Tree management software (CityWorks) should provide an annual summary of all risk trees to be inspected.</p> <p>Recommendation 53: The Town should hire additional staff to undertake inspections of risk trees in the street and park tree population, in woodlands and along nature trails.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
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| | | | <p>Recommendation 54: The Town should develop a private urban forest stewardship education program (Town of Oakville 2006, Action Item 3).</p> <p>Recommendation 55: The Town should establish a Citizen Urban Forest Advisory Committee (CUFAC).</p> <p>Recommendation 56: The Town's Urban Forestry Services should work with the Parks Horticultural Section to formalize a methodology for Public Engagement, based on their existing Volunteer Recognition Program.</p> <p>Recommendation 57: The Town should hire a Volunteer Coordinator to specifically address the needs of the urban forest.</p> <p>Recommendation 58: The Town should ensure that the sites on which volunteer planting projects have taken place are not sold or developed.</p> <p>Recommendation 59: The Town should develop stronger partnerships with NGOs to implement effective volunteer coordination with respect to urban forest initiatives.</p> <p>Recommendation 60: The Town's Corporate Communications Department should work with Urban Forestry Services to develop effective, wide-spread marketing strategies and branding for various events and workshops.</p> <p>Recommendation 61: The Town should consider an amendment to the Zoning By-law for Employment, Commercial (excluding the C3R zone), and Industrial land use types to regulate the planting area for trees (i.e., the tree growing area) in support of the Town's canopy cover target.</p> <p>Recommendation 62: The Town should undertake a study to assess the impact on the Town-wide canopy cover of implementing a "Planting Area for Trees" policy on all land uses which are subject to site plan approval.</p> <p>Recommendation 63: The Town's Forestry Section should chair an Interdepartmental Technical Advisory Committee, to include staff from the Town's Forestry, Planning, Engineering and Legal departments to assist in implementing the Urban Forest Strategic Management Plan and to prepare proposals for new policies for consideration by Council.</p> <p>Recommendation 64: The Town's Finance Department and the Parks & Open Space Department should review the Forestry Section Business Plan and the 10 Year Capital Forecast to ensure that operating costs for street trees and park trees and Woodland Parks are captured based on a maintenance standard recommended in the UFSMP (Town of Oakville 2006, Action Item 2).</p> <p>Recommendation 65: The Town should hire the staff and equipment resources necessary to implement this Plan as detailed in Appendix J.</p> <p>Recommendation 66: The Town should implement the Tree Seed and Seedling Development Program to support the Town of Oakville's Urban Forest Canopy Cover.</p> |

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| North Oakville Urban Forest Strategic Management Plan | 2012 | | Recommendation 1. Amend the Development Review Process to check for compliance with the canopy cover targets as shown below, including: reflecting the canopy cover target in the design plans; updating Site Plan Approval and Subdivision Approval Requirements; and updating Landscape Standards for Landscape Plan Submissions. <table><tr><th>Land Use</th><th>Proposed Standard</th></tr><tr><td>The NHS & Natural Lands North of 407</td><td>90%</td></tr><tr><td>Agricultural Lands North of 407</td><td>0%</td></tr><tr><td>Residential (all types)</td><td>20%</td></tr><tr><td>Employment/Industrial</td><td>20%</td></tr><tr><td>Parkland</td><td>50%</td></tr><tr><td>Arterial + Avenue Roads</td><td>34%</td></tr><tr><td>Cemetery</td><td>34%</td></tr><tr><td>Commercial/Mixed Use</td><td>15%</td></tr><tr><td>SWM</td><td>15%</td></tr><tr><td>Transit Ways</td><td>34%</td></tr><tr><td>Public Use (schools)</td><td>20%</td></tr><tr><td>Transitional Area</td><td>15%</td></tr><tr><td>Institutional</td><td>25%</td></tr></table> | Land Use | Proposed Standard | The NHS & Natural Lands North of 407 | 90% | Agricultural Lands North of 407 | 0% | Residential (all types) | 20% | Employment/Industrial | 20% | Parkland | 50% | Arterial + Avenue Roads | 34% | Cemetery | 34% | Commercial/Mixed Use | 15% | SWM | 15% | Transit Ways | 34% | Public Use (schools) | 20% | Transitional Area | 15% | Institutional | 25% |
| | | Land Use | Proposed Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | The NHS & Natural Lands North of 407 | 90% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Agricultural Lands North of 407 | 0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Residential (all types) | 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Employment/Industrial | 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Parkland | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Arterial + Avenue Roads | 34% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Cemetery | 34% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Commercial/Mixed Use | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | SWM | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Transit Ways | 34% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Public Use (schools) | 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Transitional Area | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Institutional | 25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 2. Implement new landscape standards. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 3. Adopt new Tree Planting Standard Details to reflect an increase in soil volume to the full potential of each planting location with 30 cubic metres per tree and soil depth in continuous tree planting trenches to 750 millimetre depth (Appendix B). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 4. Revise the spacing for street trees on landscape plans to reflect the optimal growth opportunity of the site | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 5. Implement design guidelines for ‘greening parking lots’. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 6. Amend the zoning by-law to include one (1) tree for five (5) parking spaces in surface parking lots. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 7. Review to incorporate the tree planting details, landscape standards, and green parking lot landscape standards outlined in the NOUFSMP into the development standards south of Dundas Street. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 8. Provide staff training in landscape architecture, planning, urban design and forestry for the implementation of the new requirements and standards. This may require new resources. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 9. Establish incentives or support voluntary stewardship activities (e.g., tree give-away for residential landowners) to enhance tree canopy on low and medium density residential lots (e.g., 10,000 lots with medium stature trees at 78.5 square metres per tree provides 78.5 hectares canopy cover, or 10,000 lots with small stature trees at 7.05 square metres per tree provides 7.05 hectares canopy cover). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 10. Recognize that tree planting requirements in the Natural Heritage System (NHS) are distinct from those in urban areas. Trees planted in the NHS should be 100% native and conform to best management practices in natural areas. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommendation 11. Consider partnering with a university (e.g., University of Toronto, Faculty of Forestry) to conduct performance testing on mycorrhiza fungi products with the intent of generating a peer-reviewed article in a forestry journal. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | | <p>Recommendation 12. Work with Conservation Halton so that agricultural fields not assigned a management prescription in the Glenorchy Conservation Area draft Master Plan be considered for future forest cover.</p> <p>Recommendation 13. Conduct periodic site reviews during construction, and regular inspections to monitor tree health.</p> <p>Recommendation 14. Review maintenance securities such as ‘maintenance holdback’ to ensure that ongoing care is provided to support growth.</p> <p>Recommendation 15. Monitor oak dominated forests and provide silvicultural treatment if oak savannas, woodlands and forests area are to be maintained in north Oakville.</p> <p>Recommendation 16. Form partnerships with Non-Government Organizations whose grassroots greening initiatives include planting events, parkland stewardship and green-space planning.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| City of London | City of London Urban Forest Strategy | 2014 | <p>Action 1.1: Establish canopy cover targets by place type and implement them through a framework of planting strategy, Planning District, Site Plan Control Area By-law and other policies, guidelines or regulations to be developed, and with community engagement (see Table 1).</p> <p>Table 1. Suggested canopy cover goals by current land use types.</p> <table><tr><th>Land Use Type</th><th>Target Canopy Cover by 2035</th><th>Target Canopy Cover by 2065</th></tr><tr><td>Agriculture</td><td>13%</td><td>15%</td></tr><tr><td>Commercial</td><td>10%</td><td>15%</td></tr><tr><td>Institutional</td><td>18%</td><td>20%</td></tr><tr><td>Industrial</td><td>12%</td><td>15%</td></tr><tr><td>Low density residential</td><td>27%</td><td>35%</td></tr><tr><td>Medium and high density residential</td><td>19%</td><td>25%</td></tr><tr><td>Natural area and open space</td><td>55%</td><td>60%</td></tr><tr><td>City-wide</td><td>25%</td><td>32%</td></tr></table> <p>Action 1.2: Increase the requirement for parking lot shade trees in industrial and commercial areas (using canopy cover targets as a percentage of parking surface, or target tree densities).</p> <p>Action 1.3: Following the adoption of the new Official Plan, prepare a planting strategy for the City</p> <p>Action 1.4: Implement a policy of no net loss of tree canopy cover as a fundamental principle or baseline from which to determine and project tree canopy cover targets.</p> <p>Action 1.5: Revise existing policies so there are incentives for developments to protect treed areas (including tree plantings, enhanced landscaping, or other “green infrastructure” features)</p> <p>Action 1.6: Develop creative design solutions to better accommodate trees with cooperation of planners, developers, and engineers. Some examples include: • In new subdivisions, place services under double driveways to leave more plantable space for boulevard trees • Consider designs for some situations with sidewalks on one side of the street only. • Establish prototypical right-of-way specifications that accommodate trees, utilities and road widths (considering both above and below ground)</p> | Land Use Type | Target Canopy Cover by 2035 | Target Canopy Cover by 2065 | Agriculture | 13% | 15% | Commercial | 10% | 15% | Institutional | 18% | 20% | Industrial | 12% | 15% | Low density residential | 27% | 35% | Medium and high density residential | 19% | 25% | Natural area and open space | 55% | 60% | City-wide | 25% | 32% |
| Land Use Type | Target Canopy Cover by 2035 | Target Canopy Cover by 2065 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agriculture | 13% | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commercial | 10% | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Institutional | 18% | 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Industrial | 12% | 15% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low density residential | 27% | 35% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium and high density residential | 19% | 25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Natural area and open space | 55% | 60% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| City-wide | 25% | 32% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | | <p>Action 1.7: Consider the creation of policies that support a system where it would provide greater flexibility for creativity in site planning to meet urban forest and other city objectives including stormwater management. Develop a range of specifications for different types of site plans and different planning districts that would diversify the currently uniform outcomes seen due to specifications such as “zero set-back” and “3 m planting strip”</p> <p>Action 1.8: Consider using zoning bonuses as incentives for developments to protect treed areas (including tree plantings, enhanced landscaping, or other “green infrastructure” features).</p> <p>Action 1.9: Conduct research, and measure woodland canopy, with the aim of developing a woodland canopy target for the City which integrates with the regional Natural Heritage System</p> <p>Action 2.1: Identify plantable space opportunities that are currently underutilized such as the edges of sports facilities, passive use turf grass (including City parks), public walkways, transportation corridors, vacant City lands, pumphouses, City owned farmland outside the UGB, cul-de-sac bulbs and make these areas available for volunteer planting projects.</p> <p>Action 2.2: Develop standards and include species-appropriate minimum soil volumes, planting medium (mixture), and watering in all tree planting specifications.</p> <p>Action 2.3: Apply “right tree, right place” best practices to select trees most suitable for the site, emphasizing large stature trees and native species where possible. The goal is to grow high quality, healthy trees.</p> <p>Action 2.4: Prepare a 5-year planting plan that identifies areas and objectives for community planting projects on City-owned property.</p> <p>Action 2.5: Identify and create improved plantable space through City infrastructure projects.</p> <p>Action 2.6: Prioritize the enhancement of plantable space in areas that are “hot spots” where tree planting could mitigate the urban heat island effect.</p> <p>Action 2.7: Increase tree planting to meet canopy cover targets.</p> <p>Action 2.8: Apply existing guidelines to plant new subdivisions in phases prior to assumption so that tree planting can occur in a timelier manner before the last phase of development is finished.</p> <p>Action 3.1: Improve control over planting stock through a multi-year tree growing contract with specifications for shape, size, and provenance. This will lower costs and improve quality.</p> <p>Action 3.2: Take an adaptive management approach to species selection to help diversify the species profile.</p> <p>Action 3.3: Develop a native tree seed project to promote use of locally adapted seed of native species for new tree plantings.</p> <p>Action 3.4: Encourage community gardens to consider the use of food producing tree species (e.g., fruit and nut bearing trees) and provide education on the required maintenance and management of food producing tree species.</p> <p>Action 3.5: Manage woodlands to improve opportunities for species diversity (thinning and enrichment planting).</p> <p>Action 3.6: Encourage the planting of more tree species that rank low on the OPALS scale (Ogren Plant Allergy Scale) and reducing reliance on species that have a high OPALS rating.</p> |

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| | | | <p>Action 3.7: Support phased tree planting/replacement initiatives to develop a more balanced age distribution in the long-term. Once the baseline urban forest population has been established and the canopy cover goals are on track, more emphasis can then be placed on phased timing for new plantings to help diversify the overall age class distribution in the long-term.</p> <p>Action 3.8: Analyze the tree inventory to identify those species that have required a high level of maintenance over their life cycle to determine whether those trees should be removed from the species list. Identify tree species that have not required a high level of maintenance and consider whether they could be more widely-used.</p> <p>Action 3.9: Ensure that a range of species that are capable of withstanding harsh environmental conditions (wind, asphalt, snow dumping and salt) are available for selection for planting in tree-unfriendly locations such as downtown, industrial areas and busy transportation routes. In some circumstances non-native plantings may be required to address harsh environmental conditions (e.g. Veterans Memorial Parkway only two native species are suitable).</p> <p>Action 3.10: Focus on species selection for long-lived, climatically adapted and low maintenance species in manicured parks and boulevards to reduce the cumulative maintenance burden from new plantings over time.</p> <p>Action 4.1: Investigate the potential to expand the Upper Thames River Conservation Authority management contract to include city owned woodlands as well as ESAs. Alternatively, establish a Natural Areas Crew that manages naturalization and ecosystem restoration in woodlands and has by-law enforcement powers.</p> <p>Action 4.2: Manage natural areas to enhance biodiversity (i.e., enrichment planting, retention of wildlife trees and coarse woody debris, uneven distribution of plantings, proactive management of invasive species to enhance native species, etc.</p> <p>Action 4.3: Collate and synthesize data from existing reports and studies on natural areas and link it to a standardized spatial database.</p> <p>Action 4.4: Develop a City owned woodland restoration and expansion master plan that prioritizes restoration activities across woodlands and includes required budgets and measurable targets for implementation.</p> <p>Action 4.5: Require a water balance study to be completed where warranted when developments are planned adjacent to vulnerable Natural Heritage System features to identify potential impacts from altered hydrology, and identify mitigation requirements. The Toronto and Region Conservation Authority has recently drafted stormwater management criteria for protection of natural features that could serve as a model.</p> <p>Action 4.6: Reintroduce, where appropriate, “lost” or rare native species in natural areas.</p> <p>Action 4.7: Review the buffer required between developments and retained woodlands to assess whether current buffers are adequate</p> <p>Action 4.8: Educate the public about the benefits of controlled access and require controlled access be established at the time of woodland acquisitions.</p> <p>Action 5.1: Enforce the penalties for cutting trees in woodlands without a permit as required by the Tree Conservation By-law.</p> <p>Action 5.2: Strengthen the Parks By-law by linking encroachment to the Ontario Trespassing Act and enabling the City to charge for the restoration of encroachment, including planting.</p> <p>Action 5.3: Increase staff and resources for enforcement of tree protection related by-laws and site plan implementation to protect City assets.</p> <p>Action 5.4: Inspect development sites throughout all phases to ensure objectives and standards are met in the protection of urban forest assets.</p> |

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| | | | <p>Action 5.5: Consider new policies and review/enhance existing policies around tree retention for subdivision developments, including the retention of shelterbelts and hedgerows as desirable features between developments.</p> <p>Action 5.6: Develop and enforce a Heritage Tree By-law that protects trees identified as heritage trees due to their size, age, rarity, cultural value or other significant feature.</p> <p>Action 5.7: Review and revise the current Boulevard Tree Protection By-law to set fines consistent with other by-laws, and to strengthen tree protection.</p> <p>Action 6.1: Revise policies to support opportunities to either retain native topsoil or redistribute more topsoil on-site post development to improve the quality of tree planting sites.</p> <p>Action 6.2: Hire dedicated forest health staff to monitor and manage insect and disease outbreaks and support the Forestry program and urban forest education.</p> <p>Action 6.3: To improve tree health along transportation corridors, consider implementing road, median and boulevard designs that will protect trees and their root zones from salt inputs and snow dumping.</p> <p>Action 6.4: Develop and implement an integrated pest management plan encompassing insects, disease, and invasive species. The plan should address prevention, control and restoration within City-owned natural areas, and identify budgets and measurable targets for implementation. The plan should address pests on private property and provide the authority and empower the City to control pests on private property as required to ensure the overall health of the urban forest.</p> <p>Action 7.1: Undertake inter-departmental staff workshops to promote trees and tree-friendly design concepts, solve tree issues and demonstrate new technology and techniques.</p> <p>Action 7.2: Establish an inter-divisional implementation team for the urban forest strategy that includes individuals from across departments.</p> <p>Action 7.3: Establish a city-wide, consistent, inter-departmental policy approach that encourages landowners to retain trees or include enhanced tree planting in landscape plans at the site planning stage.</p> <p>Action 7.4: Increase the City's emphasis on using trees for place making such as creating neighbourhood "themes", using seasonal colours, canopy shapes, etc</p> <p>Action 7.5: Fund a second urban forest technician/forest health coordinator position to help with specific implementation projects, management of insect and diseases, and enforcement of site plans.</p> <p>Action 7.6: Deliver a state of the forest report to Council on a 4 year cycle and an annual departmental performance review on the urban forest program.</p> <p>Action 7.7: Establish a corporate philosophy whereby trees are managed as infrastructure assets using consistent concepts of "green infrastructure" and related terminology.</p> <p>Action 8.1: Establish quality specifications for London Hydro tree maintenance crews to use.</p> <p>Action 8.2: Establish a scheduled life cycle and area based tree maintenance cycle that includes rural areas.</p> |

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| | | | <p>Action 8.3: Identify pruning dependent and high failure potential species within the street tree population, and consider for phased replacement with more reliable species</p> <p>Action 9.1: Raise public awareness of the SPARKS Neighbourhood Matching Fund for neighbourhood initiated projects and community project funds.</p> <p>Action 9.2: Develop a business case analysis to support a “tree infrastructure budget” for designing and building trees into selected capital projects. For example, the addition of trees and medians to the Horton Street project involved approximately 10% of the total project budget.</p> <p>Action 9.3: Provide annual funding to support Community/not-for-profit planting initiatives. These organizations are currently able to leverage additional funding at approximately 5:1</p> <p>Action 9.4: Reduce the area of turf grass in the City through tree planting, with more selective mowing, to reduce costs. Areas with modified mowing require monitoring for invasive plants.</p> <p>Action 9.5: Increase the annual maintenance budget proportionally to new boulevard tree plantings. The selection of site appropriate tree species, improved soil quality and control of nursery stock should mean that new trees have a lower maintenance requirement than the current street tree population over the long-term. Allocate a portion of the new planting budget toward future maintenance.</p> <p>Action 9.6: The City should develop a mechanism to build a contingency disaster fund for responding to significant damaging events to the urban forest.</p> <p>Action 9.7: Investigate options for funding restoration and maintenance of new woodlands.</p> <p>Action 10.1: Prioritize the new Computerized Maintenance Management System (CMMS) and complete the tree inventory as currently planned.</p> <p>Action 10.2: Develop procedures/approach to include London Hydro maintenance activities in the CMMS to minimize redundancies</p> <p>Action 10.3: Monitor the performance of newly planted species and assess their performance. Adaptively manage future species selection based on monitoring outcomes.</p> <p>Action 10.4: Identify the age distribution and projected life expectancy of trees within the current inventory.</p> <p>Action 10.5: Estimate mortality rates within the current tree population and model the projected effects of natural mortality and losses due to pests and disease.</p> <p>Action 10.6: Monitor budgets over time to refine the cost per tree establishment estimates and actual costs associated with the strategy in order to improve the accuracy of estimates to achieve the canopy cover targets</p> <p>Action 11.1: Conduct an analysis of plantable space across different land use types within London in order to estimate canopy potential.</p> <p>Action 11.2: Monitor canopy cover change over time by land use types to measure strategy performance. An inexpensive, accurate and repeatable method such as the USFS iTree Canopy program is recommended. This should be based on up-to-date summer aerial photography, and repeated at 5 year intervals, prior to or in conjunction with Official Plan reviews.</p> <p>Action 11.3: Monitor urban forest structure, function, and values over time using the USFS iTree Eco program. This should be repeated at 10 year intervals. The 2012 UFORE study can be used as a baseline and results updated with new iTree Eco local inputs. The iTree Eco re-analysis is to be completed and reported no later than 2018. iTree Eco is a new adaptation of the UFORE model.</p> |

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| | | | <p>Action 11.4: Model the projected canopy gain from the current and planned urban forest in order to refine estimates for the number of new plantings required and time to reach canopy cover targets.</p> <p>Action 11.5: Establish long term monitoring plots in forest woodlands.</p> <p>Action 12.1: Expand the testing and use of innovative methods of accommodating trees in locations with limited rooting capacity that will allow air and water to reach the roots and prevent soil compaction (e.g., Silva cells, structural soil, etc.).</p> <p>Action 12.2: Form research partnerships with local institutions to study different aspects of the urban forest such as forest health, the urban heat island effect and rain water interception as the canopy changes over time</p> <p>Action 13.1: Initiate discussion forums with stakeholders to promote the benefits of mature tree retention, provision of suitable plantable space and build recognition that trees will make a project better.</p> <p>Action 13.2: Initiate discussion forums with large land owners or managers to encourage stewardship and to ensure understanding and buy-in to strategic objectives. Consider partnering with other agencies to coordinate this initiative.</p> <p>Action 13.3: Provide education and support for stewardship management planning in rural areas and publicly acknowledge rural stewardship efforts. Consider partnering with other agencies to coordinate this initiative.</p> <p>Action 14.1: Establish a nursery growing contract to supply trees for city plantings and trees used in public planting initiatives. Investigate the potential for a partnership or knowledge sharing with other agencies who already have growing contracts with two nurseries in the region.</p> <p>Action 14.2: Facilitate training and education workshops to communicate and obtain feedback on regulatory changes, professional report standards, canopy cover goals, tree retention techniques, best management practices and City expectations for supervision and tree management plans on development sites.</p> <p>Action 15.1: Develop incentive programs such as an annual tree voucher or tree giveaway program, to promote tree planting on private property.</p> <p>Action 15.2: Prepare tree care or tree information cards for species-specific practices like tree watering and species identification, and identifications of their locations using the tree inventory. Send cards out at seasonally appropriate times to residents who have those trees on the boulevard in front of their house.</p> <p>Action 15.3: Work with neighbourhoods to develop neighbourhood tree plans that will guide implementation of this strategy; neighbourhood plans should define prototypical street tree applications and canopy cover targets for different land use types within that neighbourhood. Plans should also build a sense of shared responsibility for achieving canopy cover targets.</p> <p>Action 15.4: Continue/expand the adopt-a-park program and partner with UTRCA and/or Community and neighbourhood organizations to facilitate neighbourhood workshops to encourage stewardship activities in these parks</p> <p>Action 16.1: Facilitate stakeholder workshops with the local business community, coordinated with the London Chamber of Commerce and the London Development Institute, to discuss with business representatives the implementation of practices that will alter the canopy cover around commercial developments (i.e., malls, sidewalk cafes, car parks). Presentations to the Chamber of Commerce about the value of trees and opportunities for businesses to participate in new plantings through sponsorship or volunteerism will build a greater understanding of the value of the urban forest and reduce potential conflicts now and in the future.</p> |

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| | | | <p>Action 16.2: Provide an avenue for public recognition of outstanding contributions by businesses or institutions to urban forestry in London. The Veterans Memorial Parkway project is a successful model that could be duplicated in other areas of the city.</p> <p>Action 16.3: Provide an avenue for public recognition of outstanding contributions by businesses or institutions to urban forestry in London. The Veterans Memorial Parkway project is a successful model that could be duplicated in other areas of the city.</p> <p>Action 17.1: Maintain an urban forestry website that provides more focus on customer service, is updated with seasonally appropriate information about the urban forest, provides information about upcoming urban forestry events and provides updates related to urban forest strategy objectives.</p> <p>Action 17.2: Continue to use opportunities such as National Forest Week, World Forestry Day, Earth Day and National Tree Day to promote urban forestry and raise the profile of London's urban forest.</p> <p>Action 17.3: Develop and fund an education campaign for stakeholder groups about the benefits of trees, to encourage tree planting, and to foster proper tree care</p> <p>Action 17.4: Provide a synopsis of legislation, policy, and By-laws that apply to tree removals. This can be included in educational materials on urban forest management in London.</p> <p>Action 17.5: Develop and implement a comprehensive communication strategy. Ensure that the strategy is coordinated by Corporate Communications and all City departments participate in its development so that initiatives are coordinated and can be rolled out smoothly in the appropriate season (e.g., green-waste recycling in the fall, water conservation during the summer months, tree cutting permit to avoid the bird nesting season, etc.)</p> <p>Action 17.6: Make the City website and staff directory more accessible/navigable to make it easier for the public to contact staff with questions or concerns about the urban forest.</p> <p>Action 18.1: Establish and facilitate an inter-jurisdictional working group to identify common objectives, build collaborative working relationships, explore greening opportunities, and address funding challenges across the region. A range of regional issues are relevant to implementation and the focus of this working group including canopy cover targets, forest health management, biodiversity management, tree waste management and watershed management and conservation.</p> |
| City of Mississauga | City of Mississauga Urban Forest | 2014 | <p>Action #1: Adopt the monitoring framework developed for Mississauga's Natural Heritage System and Urban Forest</p> <p>Action #2: Monitor the status of the Natural Heritage System and the Urban Forest with support from the Region, local agencies and other partners</p> <p>Action #3: Formalize involvement of City Forestry staff in City planning and information sharing related to trees and Natural Areas</p> <p>Action #4: Develop consistent and improved City-wide tree preservation and planting specifications and guidelines</p> <p>Action #5: Update the inventory of City street and park trees, and keep it current</p> <p>Action #6: Optimize street and park tree maintenance cycles</p> <p>Action #7: Implement a young street and park tree maintenance program</p> <p>Action #8: Develop and implement a street and park tree risk management protocol</p> <p>Action #9: Develop a pest management plan for the Urban Forest</p> |

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| | | | <p>Action #10: Undertake targeted invasive plant management in the Natural Heritage System</p> <p>Action #11: Develop a targeted Urban Forest expansion plan</p> <p>Action #12: Implement a targeted Urban Forest expansion plan</p> <p>Action #13: Track and recognize naturalization / stewardship initiatives on public and private lands</p> <p>Action #14: Implement and enforce improved tree establishment practices on public and private lands</p> <p>Action #15: Update the Public Tree Protection by-law</p> <p>Action #16: Update the Erosion Control, Nuisance Weeds and Encroachment by-laws</p> <p>Action #17: Review the Private Tree Protection By-law and update as needed</p> <p>Action #18: Increase effectiveness of tree preservation as part of private projects</p> <p>Action #19: Increase effectiveness of tree preservation as part of municipal operations and capital projects</p> <p>Action #20: Develop and implement Conservation Management Plans for City-owned Significant Natural Areas</p> <p>Action #21: Create, post and promote short video clips on topics and issues related to the Natural Heritage system and Urban Forest</p> <p>Action #22: Make the City's tree inventory publicly accessible to support outreach, education and stewardship</p> <p>Action #23: Improve and maintain awareness about current Natural Heritage System and Urban Forest policies, by-laws and technical guidelines</p> <p>Action #24: Continue to support and expand targeted stewardship of local business and utility lands</p> <p>Action #25: Continue to support and expand targeted engagement of youth and stewardship of school grounds</p> <p>Action #26: Continue to support and expand targeted engagement of residents and community groups, and stewardship of residential lands</p> <p>Action #27: Continue to work with various partners to undertake stewardship on public lands</p> <p>Action #28: Design and operate a City Arboretum / Memorial Forest for the community that provides a place for spiritual connections to nature</p> <p>Action #29: Partner with local agencies and institutions to pursue shared research and monitoring objectives</p> <p>Action #30: Build on existing partnerships with the Region of Peel and nearby municipalities to facilitate information sharing and coordinated responses</p> |
| Town of New Tecumseth | Tree Management Policy | 2022 | <p>5.1 General Preservation, protection, and enhancement of trees and tree canopy shall be an important consideration in all Town operations and development projects. This tree policy will focus on trees and the urban forest.</p> <p>5.2 Trees and Tree Canopy The Town recognizes trees and tree canopy maintenance, planting, and protection as the basic requirement for the enhancement and sustainability for the urban forest. The Town further acknowledges healthy-maturing trees provide ever-increasing benefits for all in the community and are recognized as green infrastructure. Preservation of existing trees will be a central management approach for the Town to achieve increasing canopy cover through optimal maintenance practices in consultation with the Urban Forest Technician or Designate (UFTD).</p> <p>5.2.1 Routine maintenance and/or protection of protected trees and enhancement goals of the tree canopy is to be referenced in the Town's Technical Tree Guidelines in conjunction with other mechanisms developed or in development.</p> |

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| | | | <p>5.2.2 All Town stakeholders shall reference the Town's Technical Tree Guidelines for all matters relating to trees as it relates to specifications for tree preservation and enhancement guidelines and procedures including but not limited to arborist guidelines, tree preservation, tree protection, tree planting details, tree inventories, tree selection, tree pruning, tree removal, tree compensation, etc.</p> <p>5.2.2.1 Tree compensation will be used for the advancement of the goals set out in this Policy including tree planting and tree maintenance.</p> <p>5.2.3 The Town shall recognize, develop, and adopt protection and enhancement guidelines for Significant Trees and for (potential) Heritage Tree within the Town.</p> <p>5.2.4 The Town is to achieve and maintain a minimal tree canopy cover of thirty percent (30%) within the developed urban areas of New Tecumseth.</p> <p>5.2.4.1 All proposed Town property should have requisite number of trees planted to achieve a 30% UTC after a twenty (20) year projection/maturity.</p> <p>5.2.5 Protected tree removal shall be considered only after all other reasonable preservation efforts have been exhausted.</p> <p>5.2.6 Contraventions of this policy and the technical tree guidelines will be enforced in accordance with the Town's Tree By-law, as amended.</p> <p>5.2.7 Residents who wish to plant or perform work on Town trees shall complete an application in accordance with Attachment #1 to this policy.</p> <p>5.3 Community Engagement The Town will maintain and encourage mechanisms to engage the community to promote, protect, and enhance trees and the tree canopy.</p> |
| City of Toronto | Sustaining and Expanding the Urban | 2013 | <p>Goal 1 Increase Canopy Cover: Protect, maintain and expand the urban forest to achieve a healthy, sustainable forest with a canopy cover of 40%.</p> <p>Goal 2 Achieve Equitable Distribution: Achieve an equitable distribution of the urban forest, increasing canopy where it is most needed.</p> <p>Goal 3 Increase Biodiversity: Increase biodiversity to improve urban forest resiliency and respond to climate change.</p> <p>Goal 4 Increase Awareness: Increase awareness of the value of trees, the natural environment and the sensitivity of these resources.</p> <p>Goal 5 Promote Stewardship: Promote stewardship and education of the multiple benefits of the urban forest and build collaborative partnerships for expanding the forest.</p> <p>Goal 6 Improve Monitoring: Improve information management systems and enhance the ability to inventory, monitor and analyze the urban forest.</p> |
| City of Vancouver | Urban Forest Strategy: 2018 | 2018 | <p>Action 1. Update policies and standards to enable proactive design for retaining healthy, mature trees.</p> <p>Action 2. Develop policy for retaining soil and growing space for trees on private property in coordination with other Planning policy updates and sustainable site design goals.</p> <p>Action 3. Develop forest canopy targets by landuse type or neighbourhood, in coordination with other Planning policy updates and sustainable site design goals.</p> <p>Action 4. Update policy and procedures to enable securities to be taken for tree protection and replacements.</p> <p>Action 5. Track pre- and post-construction tree canopy during the rezoning and permit application process.</p> <p>Action 6. Expand the coordinated permit application review and enforcement of protection of public trees affected by development.</p> |

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| | | | <p>Action 7. Ensure that tree protection standards on public property meet or exceed the standards required on private property.</p> <p>Action 8. Increase street tree planting in the Downtown Eastside, Marpole, False Creek Flats, and other priority neighbourhoods with below average urban forest cover.</p> <p>Action 9. Expand tree planting in residential neighbourhoods using subsidized tree sales and nursery rebate programs.</p> <p>Action 10. Partner with First Nations, the Vancouver School Board, and other groups to support tree planting on private and institutional lands.</p> <p>Action 11. Discontinue the policy of allowing residents to deny street tree planting adjacent to their property supported by improved notification and engagement efforts.</p> <p>Action 12. Enhance natural forests in Stanley, Jericho, Musqueam, Everett Crowley, Renfrew Ravine, and other large parks, and riparian areas, as critical parts of Vancouver's ecological network.</p> <p>Action 13. Plant trees to enhance bird and pollinator populations, including expanded use of native trees in park and street tree planting.</p> <p>Action 14. Update tree selection guidelines to reflect the City's goals for climate adaptation, rainwater management, food production, biodiversity, and reconciliation.</p> <p>Action 15. Work with the BC Landscape Nursery Association, other municipalities, and tree nurseries to grow diverse tree and understorey species suited for Vancouver's urban forest.</p> <p>Action 16. Increase tree planting to create cool streets and parks where vulnerable populations are at risk from urban heat.</p> <p>Action 17. Identify tree species, varieties, cultivars, or geographic seed sources that are suited for Vancouver's future climate.</p> <p>Action 18. Plant trees to strategically improve air quality, especially as buffers between residential areas and truck routes or arterial streets.</p> <p>Action 19. Increase canopy cover in conjunction with green infrastructure initiatives to improve rainfall interception and infiltration.</p> <p>Action 20. Create a "Public Tree Management Guidebook" to guide staff in tree planting, maintenance, inspection, protection, and other operational tasks.</p> <p>Action 21. Update the "Street Tree Guidelines for the Public Realm" to reflect best practices and set targets for soil volume to support healthy mature trees.</p> <p>Action 22. Incorporate increased tree planting, establishment, and maintenance costs into asset management, and capital and operational budgets.</p> <p>Action 23. Update the risk management process used for public trees.</p> <p>Action 24. Match urban forestry staff resources to meet the demand of ensuring the health and establishment of newly planted trees.</p> <p>Action 25. Replace the Vantree inventory and work order management software with a GIS-based tree information system.</p> <p>Action 26. Improve notification, education, and public engagement around public tree management including tree removals.</p> <p>Action 27. Complete the inventory of all ornamental park trees.</p> <p>Action 28. Where appropriate, retain dead or dying trees and downed wood to sustain forest ecosystems and biodiversity.</p> <p>Action 29. Enhance forest ecosystem components in parks such as understorey vegetation to support birds and other biodiversity.</p> <p>Action 30. Control invasive species that degrade forest ecosystems.</p> <p>Action 31. Meet or exceed legal requirements to protect nesting birds and other wildlife during urban forest management activities.</p> |

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| | | | <p>Action 32. Update integrated pest management policies to address current and future threats to Vancouver’s urban forest.</p> <p>Action 33. Work with Vancouver Fire and Rescue Services to update procedures for preventing, minimizing, and controlling wildfire in urban forests.</p> <p>Action 34. Develop and share educational materials that highlight Vancouver’s urban forest.</p> <p>Action 35. Identify a ‘City Tree’ for Vancouver using a public engagement process.</p> <p>Action 36. Support school-based education about urban forests, with emphasis on hands-on experience in parks.</p> <p>Action 37. Expand the Park Stewards program to support volunteer- and school-based stewardship of urban forests in parks.</p> <p>Action 38. Expand the Tree Guardians program to involve residents in watering street and park trees.</p> <p>Action 39. Provide funding, staff support, and resources for stewardship organizations to undertake urban forest projects and programs.</p> <p>Action 40. Work together with local First Nations and the urban Aboriginal community to identify opportunities to manage the urban forest to revitalize culture.</p> <p>Action 41. Work together with local First Nations to develop culturally-appropriate forest stewardship practices.</p> <p>Action 42. Measure Vancouver’s urban forest canopy every 5 years using LiDAR and i-Tree methods.</p> <p>Action 43. Track trees planted and managed across the city on an annual basis.</p> <p>Action 44. Map and assess the distribution and condition of native forests.</p> <p>Action 45. Support knowledge sharing and advocacy, including hosting events such as the Canadian Urban Forest Conference in 2018, and on-going opportunities.</p> <p>Action 46. Partner with academic institutions to test innovative methods for monitoring the abundance, distribution, and health of the urban forest.</p> <p>Action 47. Support citizen-science as a component of urban forest management and monitoring.</p> <p>Action 48. Support the Greenest City Scholar program, City Studio and other academic partnerships with urban forest-focused collaborations.</p> |
| City of Edmonton | Urban Forest Management Plan – Edmonton’s Urban Forest | 2012 | <p>Action 1.1 a: Review and establish tree canopy targets for specific land uses (i.e., residential, commercial, industrial)</p> <p>Action 1.1 b: Identify ways of achieving target canopy levels, such as increasing naturalized tree plantings.</p> <p>Action 1.2 a: Update and develop tree planting standards in industrial, residential and commercial areas to reflect best management practices.</p> <p>Action 1.2 b: Establish planting standards (e.g., soil volume, type, location and use) to improve tree health and ensure an average 50-year lifespan for trees.</p> <p>Action 1.2 c: Ensure that consultants and contractors meet City standards through consistent inspections.</p> <p>Action 1.2 d: Ensure that tree preservation is a priority in all new development designs.</p> <p>Action 1.3 a: Collaborate with stakeholders to incorporate best management practices and emerging industry standards in future updates of City of Edmonton Design and Construction Standards.</p> <p>Action 1.4 a: Base resource requirements on best management practices and standards.</p> <p>Action 1.4 b: Work with educational institutions to ensure availability of personnel with expertise in urban forestry.</p> <p>Action 1.5 a: Research and develop alternative sources of water for publicly owned trees.</p> |

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| | | | <p>Action 1.5 b: Pursue civic partnerships for water recycling opportunities (e.g., drainage, waterpark wastewater, discharge strategies).</p> <p>Action 1.5 c: Research and develop irrigation systems, when feasible, for boulevards, parks and open spaces.</p> <p>Action 1.6 a: Identify risks and develop response plans, monitor for threats such as local and invasive pests and anticipate adverse weather phenomena.</p> <p>Action 1.6 b: Research and develop a Tree Risk Management Plan.</p> <p>Action 1.7 a: Develop a model and a review process to encourage development of low-impact neighbourhoods.</p> <p>Action 1.7 b: Research, develop and adopt industry standards and best practices for low-impact development.</p> <p>Action 1.7 c: Maintain local topsoil in parks, on boulevards and open spaces or replace with soil of equal or better quality where required.</p> <p>Action 1.7 d: Add shade trees in parks, on boulevards and along roadways where tree planting opportunities are available.</p> <p>Action 1.8 a: Promote planting, protection and preservation of trees on public and private land.</p> <p>Action 1.8 b: Maintain tree protection through policies, standards and bylaws, including the Corporate Tree Policy and Community Standards bylaws.</p> <p>Action 2.1 a: Provide accurate, updated information on the website, in the media and through the Master Naturalist Program.</p> <p>Action 2.2 a: Review and update design standards and inform affected stakeholders (contractors, private industry and the public) about actions needed to sustain our urban forest.</p> <p>Action 2.3 a: Distribute urban forestry information through existing networks, such as educational institutions, horticulture and urban forestry organizations, commercial companies and neighbouring communities and districts.</p> <p>Action 2.4 a: Partner with like-minded conservation programs to provide information on urban forest issues using existing communication vehicles (e.g., Master Composter/Recycler, Master Naturalists, Good Growing Neighbours, Tree Donation and Commemorative Tree programs).</p> <p>Action 2.5 a: Include an urban forest module in existing conservation programs, including the Master Composter/Recycler Program.</p> <p>Action 2.6 a: Gain developer and local resident support for planting and caring for trees through education and promotion.</p> <p>Action 2.6 b: Promote the benefits of trees in industrial and commercial areas through education, media and promotional material.</p> <p>Action 2.7 a: Promote benefits of reducing our environmental impacts through brochures, website information and media.</p> <p>Action 2.8 a: Develop collaborative research programs (e.g., core composting) aimed at enhancing the urban forest.</p> <p>Action 2.8 b: Promote the development of urban forest programs at secondary institutions.</p> <p>Action 3.1 a: Identify areas of transition from native forest to landscaped park and ensure uses are sensitive to the needs of both humans and the forest environment.</p> <p>Action 3.1 b: Monitor and control invasive pests to help protect natural areas.</p> <p>Action 3.1 c: Adopt and implement the Natural Areas Management Plan in relation to public safety, tree succession and re-vegetation and tree inventory.</p> <p>Action 3.1 d: Involve volunteers (citizens, neighbourhoods, businesses and organizations) in naturalization plantings.</p> <p>Action 3.1 e: Provide opportunity for hands-on planting experiences to create ownership and appreciation of urban natural areas.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|----------------|----------------------------------|------------------|---|
| | | | <p>Action 3.2 a: Enhance naturalization programs to add tree canopy to roadways and in areas designated for restoration.</p> <p>Action 3.3 a: Create a hazard tree inspection plan for native forests and tree stands that are adjacent to roads, pathways, private property and parks.</p> <p>Action 3.3 b: Review the FireSmart Program, assess the risk of fire in our urban forest and develop applicable plans in conjunction with the Office of Emergency Preparedness.</p> |
| City of Surrey | Urban Forest Management Strategy | 2023 | 1.1 Develop canopy cover targets for each land use type to support an equitable distribution of the urban forest. |
| | | | 1.2 Consider developing policies for soil volume and permeability targets, to support medium to large trees on private property during development. |
| | | | 1.3 Review and update the zoning bylaw to support retention of trees and permeable surfaces for future tree planting on private land. |
| | | | 1.4 Complete a detailed analysis of actions required to enhance canopy cover beyond a 30% target (excluding ALR). |
| | | | 1.5 Integrate the Strategy's goals and objectives into the decision-making process for parkland acquisition. |
| | | | 1.6 Provide sufficient space and soil volume to support medium to large trees along active walking and cycling transportation routes within each community. |
| | | | 1.7 Incorporate canopy cover targets when developing and updating NCPs, with policies requiring sufficient area and soil volume to support future tree growth. |
| | | | 2.1 Update the Natural Areas Management Plan to better reflect current best practices, including a focus on mitigating climate change and protecting biodiversity. |
| | | | 2.2 Implement the Biodiversity Design Guidelines to enhance the urban forest in parks and on private property. |
| | | | 2.3 Complete an ecosystem services analysis every five years to quantify the value of our natural assets. |
| | | | 3.1 Identify and implement tree planting targets for public land that support a 30% canopy cover target. |
| | | | 3.2 Prioritize tree planting in high equity need neighbourhoods with less than 25% canopy cover. |
| | | | 3.3 Develop a standardized process to determine compensation for loss of trees on public land. |
| | | | 3.4 Update the Parks Construction Standards document to reflect best management practices for tree protection and planting, including the review and updating of tree species selection guidelines for public land. |
| | | | 3.5 Review appropriate bylaws to identify opportunities to plant more trees during single family building permit processes. |
| | | | 3.6 Complete annual reviews of standard operating procedures, terms of reference and public bulletins related to implementation of the Tree Protection Bylaw. |
| | | | 3.7 Review and update the Tree Protection Bylaw and Tree Cutting on City Land and Boulevards Bylaw at least every five years to strengthen tree replacement, protection and compensation requirements. |
| | | | 3.8 Ensure City operations follow established tree protection and replacement practices. |
| | | | 3.9 Work with the Engineering Department to prioritize tree retention and planting when updating the Supplementary Master Municipal Construction Documents and Design Criteria Manual. |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|--------------|----------------|------------------|--|
| | | | <p>3.10 Continue to require arborist supervision for construction work that may impact trees on public and private land.</p> <p>3.11 Continue to require replacement tree plans to be submitted, with tree species and location, for tree removals on private land.</p> <p>3.12 Continue to map the location and monitor the status of replacement trees on private land.</p> <p>3.13 Ensure tree species selection guidelines consider new information on climate change impacts and species health, to support the City's goals for climate action (e.g., carbon sequestration), stormwater management and biodiversity.</p> <p>4.1 Assess the health of forested natural areas on public land to identify opportunities for restoration and tree planting.</p> <p>4.2 Establish a dedicated team focused on bylaw enforcement for violations related to permeable surfaces, encroachments, and the Tree Protection Bylaw.</p> <p>4.3 Increase enforcement of the Tree Protection Bylaw to ensure replacement trees are planted as required.</p> <p>4.4 Collect tree removal and retention data related to development, to better inform future decision making.</p> <p>4.5 Schedule annual canopy cover analysis using iTree Canopy or LiDAR data when available.</p> <p>5.1 Develop an "ask an arborist" program for private property owners to access general tree maintenance information from qualified staff.</p> <p>5.2 Develop and distribute new educational materials on best management practices related to the planting and management of trees on private land.</p> <p>5.3 Develop and implement communication plans to promote awareness of the values and current management of the urban forest.</p> <p>5.4 Continue to support schools and community organizations in safely accessing the urban forest as a learning environment, while minimizing their environmental impact.</p> <p>5.5 Regularly share the status of the urban forest with the public.</p> <p>6.1 Develop an Urban Forest Stewardship and Engagement Plan to guide the future development of programs and initiatives to educate and involve the community in caring for the urban forest.</p> <p>6.2 Identify and review opportunities to develop a program encouraging residents to retain and plant trees on private land.</p> <p>6.3 Identify and review opportunities to develop an incentive program that encourages tree retention and planting on private land during development.</p> <p>6.4 Increase stewardship opportunities that support the health and growth of the urban forest, e.g., shade tree and natural area planting, invasive species removal and citizen science projects.</p> <p>6.5 Continue to host events that celebrate the urban forest, e.g., National Tree Day, Arbor Day and Releaf tree planting events.</p> <p>6.6 Continue to support tree planting on residential property with the tree sale program and by reinstating the tree voucher program.</p> <p>7.1 Establish an inter-departmental staff working group to communicate and implement procedures related to the urban forest.</p> <p>8.1 Develop a new sponsorship program, and continue to seek grant funding, to support tree planting and habitat restoration projects on public land.</p> <p>8.2 Explore opportunities to support tree planting on school properties.</p> |

| Municipality | Document Title | Year of Adoption | Policy/Action Items/Recommendations |
|--------------|----------------|------------------|---|
| | | | <p>8.3 Strengthen relationships with the land-based First Nations and urban Indigenous community in Surrey to better integrate traditional knowledge and practice in forest management.</p> <p>8.4 Strengthen existing relationships with local and regional governments to share information and improve management practices.</p> <p>8.5 Continue to work with BC Hydro and FortisBC to refine strategies for tree pruning and vegetation maintenance in utility corridors.</p> <p>8.6 Work with local tree nurseries to ensure availability of appropriate planting stock.</p> <p>8.7 Continue to partner with post-secondary institutions to provide project learning sites, share professional knowledge, and promote further research on the urban forest.</p> <p>8.8 Continue to partner with local community groups, and support the development of new groups, to encourage their involvement in urban forest stewardship.</p> |

APPENDIX B:

Municipal Official Plans: Policies regarding tree conservation

City of Kitchener

SECTION 4: HOUSING

Policies

Additional Dwelling Units, Attached and Detached

4.C.1.24. The City, in accordance with Planning Act and other applicable legislation, will permit a stand-alone additional dwelling unit (detached), as an ancillary use to single detached dwellings, semi-detach dwellings and street townhouse dwellings. The following criteria will be considered as the basis for permitting an additional dwelling unit (detached). d) other requirements such as servicing, parking, access, stormwater management, tree preservation, landscaping and the provision of amenity areas.

SECTION 7: NATURAL HERITAGE & ENVIRONMENTAL MANAGEMENT

7.C.2 Natural Heritage System

Policies

7.C.2.3. Illegal acts resulting, or having resulted, in a reduction in the form or function of a natural heritage feature, including but not limited to such acts as tree removal, wetland filling or draining, or the diverting of watercourses, will not be recognized as existing conditions within the development review process. Restoration of the damaged area may be required prior to, or as a condition of, approval of any development applications.

7.C.2.4. The removal, destruction or injuring of woodlands and/or trees will be regulated through the City's Tree Conservation By-law.

SECTION 8: PARKS, OPEN SPACE, URBAN FORESTS AND COMMUNITY FACILITIES

8.C.2 Urban Forests

Policies

8.C.2.2. The City, in accordance with the Parks Strategic Plan, will develop an Urban Forest Management Strategy including a tree inventory and an update of the Woodland Management Program.

8.C.2.3. The City, in accordance with the Parks Strategic Plan, will protect the natural environment through greening and naturalization initiatives and policies, restoration and management of City-owned natural areas and the urban forest, and natural areas stewardship and education programs.

8.C.2.4. The City, in accordance with the Parks Strategic Plan, will implement a tree planting and replacement program and support natural area and urban woodland retention and maintenance.

8.C.2.5. The City will encourage landscaping on public and private lands to preserve and complement the existing natural landscape. The City will direct the use of a mix of indigenous plant species and trees having historic or cultural significance in these landscape areas.

8.C.2.6. The City will incorporate existing and/or new trees into the streetscape or road rights-of-way and encourage new development or redevelopment to incorporate, protect and conserve existing healthy trees and woodlands in accordance with the Urban Design Policies in Section 11, the Urban Design Manual and the Development Manual.

Trees and Natural Areas on Public Property

8.C.2.7. The City will, where appropriate, reforest and naturalize parks, open space and stormwater management areas.

8.C.2.8. Wherever feasible and appropriate, species native to the region will be used in roadside plantings, stormwater management facilities and park naturalization projects.

8.C.2.9. The City will promote and encourage the protection and wise management of trees located within and outside a road right-of-way and encourage public authorities to give due consideration to their preservation when undertaking infrastructure projects and regular maintenance.

8.C.2.10. The City will require the replacement of any trees damaged or removed from an existing road right-of-way due to a development or infrastructure project.

8.C.2.11. By-laws enacted under the Municipal Act will contain details and regulations pertaining to protection, planting, care and maintenance of City trees within a public right-of-way and regulate and ensure the appropriate use of the City's natural areas including parks.

Trees on Private Property

8.C.2.12. The City will encourage the reforestation, wise management and improvement of privately owned trees and woodlands within the City.

8.C.2.13. Tree removal on private property will be subject to the City Tree Conservation By-law where applicable.

8.C.2.14. The City will, whenever possible, provide guidance and advice for the reforestation, wise management and improvement of privately owned trees and woodlands within the city.

8.C.2.15. The City may require existing trees and vegetation to be retained through the Site Plan Approval process to act as buffers to minimize potential adverse effects to sensitive natural areas.

Development or Site Alteration

8.C.2.16. The City will require the preparation and submission of a tree management plan in accordance with the City's Tree Management Policy, where applicable, as a condition of a development application. Any tree management plan must identify the trees proposed to be removed, justify the need for removal, identify the methods of removal and specify an ecologically sound tree replacement scheme and any mitigative measures to be taken to prevent detrimental impacts on remaining trees.

8.C.2.17. The City will consider the importance of woodlands, not classified as significant, during the development review process by considering the following: a) the potential impact of the proposed development, redevelopment or site alteration on the ecological functions of the woodland; b) the impact of the proposed development, redevelopment or site alteration on the extent and distribution of woodland cover in the watershed, the city and the local planning community; and, c) opportunities to restore or re-establish productive forest habitats consisting of native species following the completion of the proposed development.

8.C.2.18. The City will minimize the impact of development, redevelopment or site alteration on woodlands, not classified as significant through the implementation of appropriate mitigation measures, which may include compensation.

8.C.2.19. When considering development, redevelopment or site alteration proposals, the City may require the protection and enhancement of hedgerows, especially where: a) they link other elements of the Natural Heritage System; b) wildlife regularly use them as habitat or movement corridors; c) they are composed of mature, healthy trees; d) they contain trees that are rare, unique, culturally important or over 100 years in age; or, e) they contribute to the aesthetics of the landscape.

8.C.2.20. Where trails may be permitted within woodlands and natural areas, trails will be designed to allow for educational and/or interpretive opportunities and informal trails and trail widenings will be discouraged.

15.D.2 Urban Growth Centre (Downtown)

Green Areas

15.D.2.33. The City may identify and establish a plan and hierarchy for green areas within the Urban Growth Centre (Downtown) to contribute to a liveable Downtown and develop a strategy for implementing new tree plantings.

Innovation District

15.D.2.56. The City may require new buildings to be set back from the street line to accommodate continuous landscaped promenades for sitting and walking. The City will encourage the enhancement of streetscapes within this District to soften the District's bold building edges by encouraging the maximizing of street trees and the incorporation of decorative landscaping and public art.

17.E.9 Community Improvement Plans

17.E.9.2. Community Improvement Project Areas may be established by Council and designated by by-law, in accordance with the provisions of the Planning Act, as long as the area satisfies one or more of the following criteria: f) there are deficient streetscapes in terms of poor roads, curbs, sidewalk, boulevards, tree planting, street furniture and street lighting

17.E.22 Site Plan Control

17.E.22.3. Proposed development or redevelopment within the Site Plan Control Area may not be permitted until such time as the City has approved drawings showing plan, elevation and cross-section views for all buildings to be erected (including all buildings to be used for residential purposes regardless of the number of units) and for other site development works sufficient to display the following: b) Design elements within and/or adjacent to City and/or Regional right-of-way, including without limitation: i) trees, shrubs and/or hedges ii) other plantings and groundcover

City of Waterloo

3.11 URBAN DESIGN

3.11.1 General Urban Design Policies

(5) Existing Site Features: Identify opportunities to retain prominent site features and vegetation through sensitive or innovative design strategies and to protect adjacent site features and vegetation on abutting properties through the development review process including, but not limited to, the location and massing of buildings, site grading, landscape and buffer opportunities, tree protection measures and alternative stormwater management strategies.

(22) Landscape Design: To design sites with a balanced distribution of hard and soft landscaping that contributes toward a coordinated and enhanced site design, streetscape character, create a sense of place, and an aesthetically pleasing comfortable pedestrian environment. Specific treatment may also be required to address a range of considerations such as screening objectives, landscape buffers to promote land use compatibility, the provision of large canopy trees to provide respite from the sun, streetscape character and opportunity for integrated amenity spaces and sustainable design.

(23) Site Amenities: Design sites and buildings to include a range of on-site amenities such as benches, trash receptacles, bike parking, large canopy trees and/or shade structures to provide for more healthy active outdoor and urban spaces for social gathering, relaxation and enjoyment that results in a higher quality of life.

(24) Sustainable Design: The City shall promote sustainable design practices in the public and private realm through a variety of strategies, including but not limited to: (c) incorporation and integration of trees, shrubs, hedges planting or other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers and bicycle parking in the public and private realm

3.11.4 Urban Design within Station Areas

(4) Pedestrian Oriented: Station Areas shall be pedestrian oriented places that are safe, accessible, connected, and easy to navigate for people of all abilities. Connectivity to and from transit stops to buildings will be a priority and shall be enhanced by: (c) Improving pedestrian comfort with shade trees and landscaped boulevards

(9) Parking: Parking within Station Areas shall be designed and organized here it will not detract from the public realm or mobility. Design of parking areas shall: (f) Require the perimeters of surface parking lots to be landscaped with trees and other appropriate planting materials; and, (g) Encourage the interior areas of parking lots to include landscaped islands. Landscaped islands should be of sufficient size to ensure growth of trees and complementary vegetation.

8.2 NATURAL HERITAGE

8.2.2 General Policies

(16) If illegal acts, including but not limited to tree removal, wetland filling or draining, or diverting of watercourses, cause a reduction in the form or function of a natural feature, such reduced form or function will not be recognized as existing conditions within the development application review process. Restoration of the damaged area may be required prior to, or as a condition of approval of any development application, excluding site plan applications, and where applicable, through the City's Site Alteration By-law.

8.2.5 Supporting Natural Features

(20) Notwithstanding policy 8.2.5(16) and 8.2.5(18), development or site alteration within Other Woodlands that has the effect of disrupting or reducing ecological function may be permitted subject to an evaluation of significance. Significance will be evaluated based on composition, age, size, connectivity, representation in the vicinity, and potential contribution to community design. Where the removal of an Other Woodland, in part or in whole, is permitted, compensation in the form of woodland restoration or enhancement, on-site or off-site, may

be required. Where it is considered appropriate to maintain an Other Woodland, in part or in whole, the protection of trees will be required through such measures as Tree Preservation Plans, landowner stewardship, zoning provisions, or public ownership.

8.2.9 Urban Forest

(1) The City recognizes the urban forest as providing significant ecological, social, and economic benefits. The City will encourage the protection, restoration, wise management, and expansion of the urban forest.

(2) It is the City's intent to protect existing trees and plant new ones where feasible and appropriate. When considering development applications and site alteration permit applications, the City will require that only the trees that directly impede the proposed work be removed and that the applicant replace them in reasonable amount, with trees of sufficient maturity. The amount and maturity of replacement trees will be determined based on the amount, maturity, species, and health of the trees to be removed. A Tree Preservation Plan may be required to provide an inventory of all trees on the site, an assessment of their health and condition, recommendations regarding which trees should be saved and which will be removed, tree protection measures, and replacement trees. As part of any Tree Preservation Plan, the City may require tree- loss totals and corresponding compensation estimates. Tree Preservation Plans must be prepared by qualified professionals.

(3) When considering development applications and site alteration permit applications, the City may require the protection and enhancement of hedgerows, especially where: (a) they link other elements of the Natural System; (b) wildlife regularly use them as habitat or movement corridors; (c) they are composed of mature, healthy trees; 150 (d) they contain trees that are rare, unique, culturally important, or over 100 years in age; or (e) they contribute to the aesthetics of the landscape.

(4) Where the City is undertaking infrastructure work, the urban forest will be protected and preserved, where feasible. If it is necessary for infrastructure work to remove any trees, the City will compensate by re- planting in reasonable amount on or offsite, with trees of sufficient maturity. The amount and maturity of replacement trees will be determined based on the amount, maturity, species, and health of the trees to be removed. A Tree Preservation Plan may be required to provide an inventory of all trees on the site, an assessment of their health and condition, recommendations regarding which trees should be saved and which will be removed, tree protection measures, and replacement trees.

(5) Opportunities for tree planting on City-owned lands will be identified and implemented in coordination with other public agencies and local interest groups, as required. The City will plant native species that are ecologically appropriate and suitable for site conditions, where feasible.

(6) The City will implement planting programs of desired and compatible species, with preference given to native species, on public lands or, in conjunction with landowners, on private lands.

(7) To generate appreciation and stewardship towards the urban forest, the City will encourage public education and involvement.

(8) The City will support and enhance the urban forest by implementing urban design standards that protect street trees, in particular in terms of preservation of existing root structures and preventing soil compaction.

8.2.12 Major Urban Greenlands

(2) The City, in collaboration with the Region, the Grand River Conservation Authority, and other stakeholders, will develop and implement an Urban Greenlands Strategy that: (c) promotes green roofs, community gardens, and tree planting

8.6 AIR QUALITY AND CLIMATE CHANGE

8.6.2 General

(3) The City will promote and undertake tree planting and landscaping initiatives to enhance and improve the urban forest as a means of improving air quality and minimizing contributions to climate change through shading, sheltering, screening, and increasing carbon sinks. The City will also promote the protection, restoration, wise management, and expansion of the urban forest as a means of pollution mitigation and carbon sequestration.

8.7 ENVIRONMENTAL SUSTAINABILITY

8.7.4 Community Gardens

(4) The City will encourage backyard, roof top, and workplace gardening, as well as edible landscaping and fruit-bearing trees to complement community gardens.

10.5 OPEN SPACE LAND USE POLICIES

10.5.2 OPEN SPACE LAND USE DESIGNATIONS

10.5.2.1 Parks and Other Green Spaces

(14) Existing trees within municipal parkland blocks should be saved wherever feasible to support the health of the urban forest. The planting of trees within municipal parkland blocks is encouraged to provide shade and to enhance the urban forest.

(18) The City of Waterloo will endeavour to provide parks and trails that are sensitive to the efficiency and conservation of energy and embrace environmental best practices and will: (b) Undertake design which results in desired microclimate effects such as the planting of large trees to provide cooling shade, and wind protection.

10.5.2.3 Golf Course

(4) Golf courses are encouraged to utilize sustainable best management practices with respect to the functioning of the natural environment and ensure environmental quality remains high. (a) Existing trees within golf courses should be preserved wherever feasible to protect the health of the urban forest. The planting of native tree species on golf courses is strongly encouraged.

12.2.10 Committee of Adjustment

(2) Prior to recommending approval of a variance for a new multiple residential building, or an extension or enlargement of an existing multiple residential building in a designated Node or Corridor where the proposed development does not conform to the Zoning By-Law, the Committee of Adjustment shall place a higher priority on the provision of adequate landscaped open space relative to the provision of parking. The criteria by which adequate landscaped open space will be assessed include: (a) Ability to provide a front yard depth capable of supporting large caliper trees; (b) Ability to provide screening, using trees and other landscaping, on properties that abut low density residential areas; and, (c) Ability to provide snow storage on site.

12.2.14 Complete Applications

(4) In accordance with policy 12.2.14(1), the following supporting information may be required as part of a complete application, to be determined through preapplication consultation with City staff and other public agencies: (e) Tree Preservation Report and Plan

City of Cambridge

Chapter 3: Natural Heritage and Environmental Management

3.0 Objectives

The following are objectives of the natural heritage and environmental management section of this Plan to: g) maintain, replace and enhance, where feasible, street trees and trees on municipal property, with an emphasis on indigenous species;

3.A.6 Restoration Areas and Vegetation Management

2. The City shall require as necessary the preparation and submission of a tree management plan prior to draft approval of a plan of subdivision or site plan approval. Tree management plans submitted to the City shall be prepared in a manner consistent with the “Tree Management Policies and Guidelines for New Developments”.

3. The “Tree Management Policies and Guidelines for New Developments” shall also guide the City in the preservation, protection, management, replacement and possible acquisition of significant tree stands, hedgerows, woodlots and forested areas. They will be applied to tree management practices carried out by the City on City-owned lands.

4. In addition to the “Tree Management Policies and Guidelines for New Developments”, the City will consider other measures, such as the Region’s Woodland Conservation By-law, a local tree protection/preservation by-law under the Municipal Act, designation of heritage trees under the Heritage Act and/or stewardship programs to aid in policy implementation.

3.B.4 Urban Forest and Biodiversity

1. The urban forest in Cambridge is the treed environment, consisting of remnant wooded areas, trees in city parks and open space, street trees and trees on private property. The City recognizes the urban forest as providing significant environmental, social, cultural heritage and economic benefits and encourages its protection, restoration, wise management and expansion.

2. The City recognizes the environmental, aesthetic and heritage values associated with trees lining both urban and rural boulevards and streets. As such, the City shall promote and encourage the protection and management of such trees and encourage public authorities and agencies to give due consideration for their protection when undertaking utility projects and regular maintenance.

3. The City shall protect and preserve street trees located within road rights-of-way wherever feasible. Trees removed from an existing road right-of-way due to development or public utilities projects shall be required to be replaced in the same location or in the vicinity wherever possible by the individual or agency responsible for the removal.

4. The City will encourage private landowners to protect and preserve street trees located outside road rights-of-way through investigation of approaches such as tree preservation by-laws, private stewardship, advice from the City’s Forestry Division and Heritage Conservation District Plans.

5. The City encourages individuals and agencies to use indigenous species as appropriate to the locality when planting within or contiguous to the Natural Heritage System because some non-indigenous species are considered unsuitable and invasive. Guidance in maintaining the biodiversity of the Natural Heritage System will be provided through: the Regional list of trees and shrubs suitable for such use; the list of invasive alien herbaceous species; and any relevant City documents such as the “Tree Management Policies and Guidelines for New Developments” and the “Stormwater Management Policies and Guidelines”.

6. Wherever feasible and appropriate, species indigenous to the region will be used in plantings along local roads and on the grounds of City parks and facilities.

7. All development or site alteration requiring the removal of trees shall meet the requirements of the Region’s Woodland Conservation By-law.

Chapter 5: Urban Design

5.14 Urban Design Guidelines

1. The City will promote and foster the creation of a quality built environment through urban design. In order to provide guidance to the development process in terms of achieving a high standard of design and meeting the urban design objectives and policies of this Plan, the City will prepare and approve urban design guidelines, which do not form part of this plan, to address items such as the following:

l) flexible standards for redevelopment and infilling, such as parking requirements, road allowance widths, tree planting in boulevards, and street lighting;

5.15 Urban Design Studies

1. Development proponents may be required to submit an urban design study to the satisfaction of the City that addresses:

f) landscaping plan including the integration of existing trees and vegetation into the site design and integration with natural features and trails;

7.8 Parkland Dedication

3. Where parkland dedication is required by this Plan, the City will ensure that the land is suitable for development as a park. Generally, the parkland dedication should satisfy the following criteria:

d) the site is oriented to take advantage of favourable topography, vistas and mature stands of trees where possible and desirable;

City of Guelph

4 Protecting What is Valuable

4.1 Natural Heritage System

Objectives

g) To protect and enhance tree canopy cover while providing for meadow habitat at appropriate locations to support biodiversity.

4.1.3.6 Significant Woodlands

Policies

5. All Significant Woodlands require a minimum buffer of 10 metres from the drip line of the trees at the woodland edge, except where existing development precludes it. The established buffer is to be determined through an EIS, and may be greater than the 10 metre minimum buffer.

4.1.3.10 Restoration Areas

Objectives

c) To provide opportunities to increase the City's tree canopy cover, including areas where tree compensation can be directed.

4.1.4.3 Cultural Woodlands

Objectives

c) To protect healthy non-invasive trees within Cultural Woodlands.

e) To compensate for loss of trees from Cultural Woodlands, where development and site alteration is permitted.

Policies

3. Development and site alteration within or adjacent to a Cultural Woodland shall also require a Tree Inventory and Tree Preservation Plan in accordance with Section 4.2.4.

4. Where development is permitted in all or part of a Cultural Woodland that does not meet the criteria in 4.1.4.3.1 healthy non-invasive trees should be protected to the fullest extent possible.

8. A Vegetation Compensation Plan, in accordance with the policies of 4.1.6.4, shall be required for the replacement of all healthy, non-invasive trees measuring over 10 cm dbh that are proposed to be removed as part of development or site alteration.

4.1.6 Urban Forest

The City's Urban Forest, includes plantations and smaller wooded areas less than one 1 ha, hedgerows and individual trees that are not included in the City's Natural Heritage System.

These wooded areas and trees provide various benefits and services to the city including reduction of air pollution, moderation of the urban heat island effect, carbon sequestration, shade, habitat for urban adapted wildlife and mental health benefits.

It is also recognized that in some cases wooded areas in the urban matrix are degraded (e.g., dominated by invasive species) and that new development may provide opportunities for enhancement and restoration of portions of these features, and/or retention of mature and healthy non-invasive trees as part of the proposed development or site alteration.

Objectives

- a) To ensure that opportunities for protection of trees outside the City's Natural Heritage System are fully considered through the planning process.
- b) To recognize that the Urban Forest provides important ecosystem services that benefit current and future generations by:
 - i) identifying opportunities for protection, enhancement and restoration; and
 - ii) supporting initiatives that provide for ongoing management and stewardship of the Urban Forest.
- c) To maintain and increase tree canopy cover within the city, with a target of 40% by 2031.

4.1.6.1 Policies

Plantations and hedgerows will be required to be identified through an Ecological Land Classification (ELC) in conjunction with proposed development applications.

- 1. Healthy non-invasive trees within the urban forest shall be encouraged to be retained and integrated into proposed development. Where these trees cannot be retained, they will be subject to the Vegetation Compensation Plan addressed in Policy 4.1.6.4.
- 2. Where the City is undertaking infrastructure work, healthy non-invasive trees within the urban forest will be retained to the fullest extent possible. Where trees are required to be removed, relocation or replacement plantings will be provided by the City.
- 3. Development and implementation of woodlot management plans may be required prior to the conveyance of woodlands to the City.
- 4. Tree destruction or removal of trees on private property will be regulated by the City's tree by-law.
- 5. Invasive, non-indigenous trees, shrubs and ground covers, such as European buckthorn, will be encouraged to be eradicated without the need for compensation through the Vegetation Compensation Plan.

4.1.6.2 Plantations

1. Development and site alteration may be permitted within all or part of a plantation where it has been demonstrated to the satisfaction of the City, that the plantation or part thereof:

- i) does not meet the criteria for a Significant Natural Area (e.g., Significant Woodland) within the Natural Heritage System; and
- ii) that the plantation does not support an Ecological Linkage within the Natural Heritage System.

2. Development and site alteration within a plantation shall also require a Tree Inventory and a Tree Protection Plan in accordance with Section 4.2.4.

3. A Vegetation Compensation Plan shall be required for the replacement of all healthy non-invasive trees measuring over 10 cm dbh, proposed to be removed.

4.1.6.3 Hedgerows and Trees

1. Development and site alteration may be permitted to impact hedgerows and individual trees provided it has been demonstrated, to the satisfaction of the City, that the hedgerows and trees cannot be protected or integrated into the urban landscape.

2. Tree Inventory and Vegetation Compensation Plans shall be required for all new development and site alterations.

3. Heritage Trees may be identified by the City in accordance with the Cultural Heritage Policies of this Plan.

4.1.6.4 Vegetation Compensation Plan

1. The detailed requirements for a Vegetation Compensation Plan will be developed by the City through the Urban Forest Management Plan. The requirements, once developed, will be applied to determine appropriate vegetation compensation for the loss of trees through development and site alteration.

2. The Vegetation Compensation Plan shall identify, to the satisfaction of the City, where the replacement vegetation will be planted. Where replanting is not feasible on the subject property, the planting may be directed off-site to lands identified in consultation with the City, including lands within the Natural Heritage System and may include:

- i) Established buffers,
- ii) Significant Valleylands,
- iii) Significant Landform,
- iv) Ecological Linkages, or
- v) Restoration Areas.

3. All replacement vegetation should be indigenous species and compatible with the site conditions within which they are proposed. In some cases, re-vegetation may consist of a combination of trees, shrubs and herbaceous species, or may consist exclusively of indigenous herbaceous species and grasses where the restoration objective is to establish a meadow habitat.

4. The vegetation compensation plantings do not replace the normal landscape planting requirements as part of the approval of any development or site alteration.

5. A Vegetation Compensation Plan is required to be implemented through on site or off site plantings or cash in lieu equal to the value of the replacement vegetation will be required by the City.

4.1.7 Natural Heritage Stewardship and Monitoring

Policies

4.1.7.1 Invasive Species

4. Plans prepared in conjunction with development and site alteration applications will require indigenous plants, trees and shrubs except where harsh environmental conditions would limit their survival

4.2 Environmental Study Requirements

4.2.4 Tree Inventory and Tree Preservation Plan

1. Tree Inventory and Tree Preservation Plans shall as a minimum include:

- i) a Tree Inventory measuring all trees over 10 cm diameter at breast height (dbh), including the size, species composition and health, and indigenous shrubs in accordance with the City's tree inventory guidelines;
- ii) a Tree Preservation Plan identifying healthy indigenous and non-invasive trees to be protected, including those that may be transplanted (e.g. smaller specimens);
- iii) the protective measures required for tree protection during construction; and
- iv) measures for avoiding disturbance to any breeding birds during construction.

4.8 Cultural Heritage Resources

Objectives

j) To identify, evaluate and conserve heritage trees which satisfy the criteria for determining cultural heritage value or interest as prescribed by regulation under the Ontario Heritage Act.

4.8.8 Heritage Trees

1. The City shall identify, evaluate and conserve heritage trees which satisfy one of the criteria for determining cultural heritage value or interest as prescribed by regulation under the Ontario Heritage Act.
2. Where heritage trees have been identified by the City, they will be protected through appropriate measures under the Ontario Heritage Act while having regard to the health of the tree and public safety.

5 Movement of People and Goods – An Integrated Transportation System

5.8 Road Design

2. The City shall have regard for and, when necessary, will require measures to mitigate any negative impacts on cultural heritage resources, especially the character of landscapes, streetscapes, tree lines, bridges, views and points of scenic interest and the prevailing pattern of settlement, when considering the construction of new roads and road improvements, including road re-alignment and road widening.

8 Urban Design

8.2 Public Realm

8. The City will maintain a program of tree replacement within its right-of-ways in all areas of the city.
9. The planting of trees, shrubs and groundcover in street medians and shoulders shall be designed to allow for their long term health through the implementation of best practices for planting and maintenance. Planting in street medians and shoulders will generally be undertaken with low maintenance, drought resistant and salt tolerant plant species.

8.4 Gateways

8. Gateways to new neighbourhoods should create a sense of entrance and arrival contributing to community image and identity. Elements contributing to gateway features and design may include: trees and other landscaping, feature lighting, paving and public art.

8.17 Landscaping and Development

3. Where possible existing trees should be retained on-site and where appropriate suitable new trees should be planted on-site, in the street right-of-way or in other City-approved locations.
4. Where appropriate, trees should be used to help define the image of neighbourhoods, streets and parks.

8.20 Urban Squares

1. Urban Squares, such as plazas, courtyards and piazzas, are publicly-accessible open space with sitting areas and shade trees that allow for passive use, special events and social interaction. They are often predominantly hard-surfaced. Urban squares may be included within Community Mixed-use Nodes, along Intensification Corridors and within Downtown. Urban Squares will be framed by buildings with ground-floor uses that provide activity throughout the day.

10 Implementation

10.18 Pre-consultation and Complete Application Requirements

In addition to the requirements noted in the applicable sections of the Official Plan, the City may require additional information and material to be submitted as part of a complete application. The following broad categories describe additional information and material that may be required and the type of studies or documents that may be identified during the pre-consultation process as being required to be submitted as part of a complete development application:

i) Natural Heritage

This may include, but shall not be limited to:

- Tree and/or Vegetation Inventory Report

Town of Oakville

5. CULTURAL HERITAGE

5.3 Heritage Conservation

5.3.13 The Town shall develop a set of criteria for determining trees of cultural heritage value.

6. URBAN DESIGN

6.2 Public Realm

6.2.1 The design of the public realm shall promote creativity and innovation and include:

e) furnishings, trees and landscaping, wayfinding, and public art that provide orientation and a sense of identity

6.4 Streetscapes

6.4.1 Streetscapes shall:

c) provide well designed and coordinated tree planting, landscaping, lighting and furnishings;

6.4.2 New development should contribute to the creation of a cohesive streetscape by:

e) incorporating sustainable design elements, such as trees, plantings, furnishings, lighting, etc.;

6.10 Landscaping

6.10.2 Development should preserve and enhance the urban forest by:

a) maintaining existing healthy trees, where possible;

b) providing suitable growing environments;

c) increasing tree canopy coverage;

d) incorporating trees with historic or cultural significance; and,

e) integrating a diverse mix of native plant species.

6.13 Parking

6.13.4 Surface parking areas should incorporate planted landscaped areas that:

d) are sufficiently sized to support the growth of trees and other vegetation.

6.16 Service, Loading and Storage Areas

6.16.2 The visual and noise effects of activities associated with service and loading areas on the surrounding environment should be minimized by locating such areas behind buildings, erecting noise walls and fences, and screening with tree and shrub plantings

8.4 Rights-of-Way

8.4.6 From a streetscape perspective, the Town may require additional road rights-of-way to provide for improvements such as, but not limited to, median, double row planted street trees, on-street or lay-by parking, and urban design considerations.

8.16 Noise and Vibration

8.16.2 Sensitive land uses shall be buffered through mechanisms such as restrictions on the type of use, building design, location of outdoor living area and the provision of landscaping including street trees and fencing.

10. SUSTAINABILITY

10.12 Urban Forests

The Town considers its municipally-owned urban forest as green infrastructure.

10.12.1 For every square metre of leaf area that is removed from Town property or from Town road rights-of-way, sufficient trees will be replanted to replace the lost square metres of leaf area.

10.12.2 The Town shall ensure that appropriate space for tree protection and tree planting within road rights-of-way are included in the design of new roads or road improvements.

10.12.3 The Town shall develop standards for the protection of trees to assist with the review of planning applications and municipal consents by utilities.

10.12.4 The Town shall develop standards for the planting of new trees to assist with the review of planning applications.

10.12.5 Tree removal on private property shall be subject to the Town's private tree protection by-law.

16. NATURAL AREA

16.1.8 Woodlands

a) Development or site alteration shall not be permitted within regionally significant woodlands or within the required buffer width, which should be a minimum of 10 metres measured from the drip line of the woodland.

b) The final width of the required buffer shall be established through an approved EIS or an approved subwatershed study. A greater buffer width may be required as a result of environmental impacts evaluated by the EIS or subwatershed study. Reduced buffers may only be considered by the Town based upon the existing context and the sensitivity of the woodland.

c) Unless otherwise directed by the Conservation Authority, development proposed on lands within 120 metres of a significant woodland shall require a satisfactory EIS to demonstrate that there will be no negative impact on the woodland or its ecological function.

d) The Town will pursue forest certification for Town-owned and/or managed woodlands.

City of London

Our Strategy

Direction #4 – Become one of the greenest cities in Canada

9. Strengthen our urban forest by monitoring its condition, planting more, protecting more, and better maintaining trees and woodlands.

Our City

99.1 Development proposals at the RuralUrban Interface shall utilize design measures to mitigate conflicts between urban and rural uses. These measures may include such things as subdivision layout, site layout, and the incorporation of buffers such as treed landscape strips or public pathways.

157_ Within urban neighbourhoods, the design and construction of civic infrastructure improvements and replacements within public rights-of-way will strive to retain and enhance safe and comfortable pedestrian and cycling routes and sufficient space for healthy tree growth.

160_ Existing trees, both public and private, should be retained in accordance with an environmental impact study and/or a tree preservation plan, through the review of redevelopment and intensification projects.

City Building Policies

210_ Trees should be recognized as important features of a neighbourhood's planned character and sense of place.

222_ A coordinated approach will be taken during the planning and design of streetscape improvements, including the coordination of signage, sidewalks, cycling pathways, tree planting, lighting, parking areas, landscaping and building face improvements, and adjacent public spaces as applicable.

222A_ The proportion of building and street frontages used for garages and driveways should be minimized to allow for street trees, provide for on-street parking and support pedestrian and cycling-oriented streetscapes.

224_ The paved portion of streets within neighbourhoods should be as narrow as possible, while meeting required design standards, to calm traffic and emphasize the priority of the pedestrian environment. Street rights-of-way should be of adequate size to accommodate all services within an efficient space and allow sufficient room for street tree planting and the long-term growth of mature trees.

236_ All streets, and the associated infrastructure, should be designed to include space for appropriately sized street trees with tree canopy coverage that will provide for pleasant pedestrian environments and enhanced aesthetics, afford cooling to adjacent buildings, improve air quality, and offer habitat for urban wildlife.

237_ Treescapes should be recognized as important features of a neighbourhood's planned character.

238_ In conformity with the Forest City policies of this Plan, neighbourhoods will be designed, planted, and maintained with robust street tree planting to create high-quality treescapes.

239_ Opportunities will be explored for supporting pollinators and food production through landscaping and street tree planting.

245_ Public art, seating areas, enhanced landscaped areas, ceremonial tree planting, and monuments should be incorporated into the design of neighbourhoods and positioned in prominent locations to enhance views or vistas

248_ Public spaces should be designed to accommodate tree growth to assist in achieving the goals of the Forest City chapter of this Plan.

258_ The layout and grading of a site should retain and incorporate desirable trees.

277_ Surface parking lots should be designed to include a sustainable tree canopy at 20 years of anticipated tree growth.

349_ To support walkability, sidewalks shall be located on both sides of all streets, with possible exceptions in the following instances. In most of these instances a sidewalk will be required on one side of the street.

7. Street reconstruction or retrofit projects, where the existing conditions such as mature trees, right-of-way widths, or infrastructure would impede sidewalks on both sides of the street.

398_ To achieve our goals for London's Urban Forest, and to reach our tree canopy targets, we will take actions under three strategic areas:

1. Protect more
2. Maintain better and monitor
3. Plant more

PROTECT MORE 399_ The following policies will be applied to support the strategy of protecting trees:

1. Tree inventories and tree preservation plans will be required for planning and development applications and infrastructure projects where trees exist on the applicable lands.
2. Tree inventories will be prepared to identify the trees on a site that may be impacted by the proposed development. Tree inventories may not be required for those treed areas that are to be retained. Tree preservation plans are to identify trees to be retained, removed, mitigated, and replaced by new tree planting.
3. Distinctive trees that are deemed healthy or structurally sound should be retained.
4. Where, having considered all options, there are no reasonable alternatives to tree removal, the following shall apply to allow for development that conforms with the policies of this Plan:
 - a. A tree inventory will be prepared to record all trees over ten centimetres in diameter, measured at a height of 1.4 metres above the ground. All trees that are identified as species at risk shall be inventoried regardless of their size.
 - b. Trees will generally be replaced at a ratio of one replacement tree for every ten centimetres of tree diameter that is removed. Guidelines, municipal standards, or by-laws may be prepared to assist in implementation of this policy.
 - c. Trees should be replaced on the same site, however, if inadequate land is available on the site from which the trees are removed to accommodate the replacement trees, a cash-in-lieu fee by-law may be established by the City.
 - d. The City will use funds from fees identified in policy 4.c. above, for programs and projects that support the Urban Forest Strategy.
 - e. Street trees required as part of the planning and development approvals process may be counted as replacement trees as required by these policies.
5. Trees that are removed as a result of new municipal development or infrastructure works, will be replaced using the approach identified in 4.a. and 4.b. above and where space permits. Where sufficient land does not exist, the City may plant the required trees on other lands, or

contribute cash-in-lieu as described in 4.c. above. Trees will only be removed for such works based on good forestry practices.

6. Individual municipal trees that are removed in connection with City maintenance operations shall be replaced on a one-to-one basis.

7. Trees that are identified as species at risk will be protected, in accordance with federal and provincial legislation.

8. A tree conservation by-law for private property will be established to prohibit the destruction of trees, unless and until such time as a tree cutting permit is obtained, where required.

9. A municipal tree protection by-law will be established to protect trees on municipal rights-of-way and other Cityowned properties.

10. Building height and densities may be increased, in appropriate circumstances and in conformity with the Bonus Zoning policies in the Our Tools part of this Plan, to support the safe and longterm preservation of existing healthy trees, rare species, and wildlife trees.

466_ The locations of services and utilities will be coordinated to maximize the efficient use of the boulevard and allow the greatest opportunity for street trees, while respecting regulated separation distances.

737_ A Community Energy Action Plan may be prepared to form part of an overall strategy to implement more environmentally-friendly and affordable energy usage and enhance local air quality. This strategy will plan for and implement such things as energy conservation, energy efficient design, passive solar, strategic tree planting, waste heat utilization, and increased local, distributed production of energy through combined heat and power generation, solar thermal and photovoltaic, bioenergy and energy from waste.

Place Type Policies

759_ Our vision is to protect the Green Space Place Type, create new green linkages throughout the city and increase our tree cover. Our Green Space policies together with our Environmental Policies will protect and conserve our natural areas and their delicate ecosystems, keep development an appropriate distance from our hazard lands, and offer a variety of parks that contribute significantly to the quality of life for Londoners.

774_ To prevent or mitigate potential impacts due to site alteration and tree cutting on lands identified as Green Space or within any other place type shown on Map 1 that may contain landscapes or trees that are deemed worthy of protection, City Council may adopt appropriate by-laws to prohibit or regulate activities such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of the site, and any human-made disturbance of soil, destruction, removal, or injuring of trees.

787_ To prevent or mitigate potential impacts due to site alteration and tree cutting on lands identified as Environmental Review or within any other place type shown on Map 1 that may contain landscapes or trees that are deemed worthy of protection, City Council may adopt appropriate by-laws to prohibit or regulate activities such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of the site, and any human-made disturbance of soil, destruction, removal, or injuring of trees.

This section had a lot of hits for the “Tree” key word search, but mostly dealt with how trees would be managed and established in different land uses

Environmental Policies

1385_ In addition to areas that are included in the Environmental Review or Green Space Place Types, vegetation patches in other place types that are larger than 0.5 hectares in size shall be evaluated in conformity with the policies of this Plan to determine the significance of vegetation and identify the need for protection prior to planning and development approvals. Where it is considered appropriate, the protection of trees or other vegetation will be required through measures such as, but not limited to, tree preservation plans for subdivision or site plan applications, acquisition of land through parkland dedication and/or purchase by the City, conservation easements, landowner stewardship initiatives and zoning regulations. Pending an evaluation and decision on long-term protection, vegetation patches that are larger than 0.5 hectares in size will be identified as unevaluated vegetation patches on Map 5 and may be regulated under the City of London Tree Conservation By-law.

1386_ Where a vegetation patch that is larger than 0.5 hectares has been evaluated and determined to be significant, the natural feature shall be retained and the natural feature shall be included in the Green Space Place Type on Map 1 and identified as the appropriate significant natural heritage feature on Map 5.

Secondary Plans

1561_ A secondary plan will consist of policies and maps that provide more specific direction than that offered by the general policies of this Plan. A secondary plan may include policies, illustrations and maps for such things as:

Tree conservation and tree planting plan to implement the Urban Forest Strategy.

City of Mississauga

Chapter 4 – Vision

Mississauga will serve as a steward of the environment by protecting, enhancing, restoring and expanding its Natural Heritage System, making use of sustainable green infrastructure, and preserving and protecting trees.

Chapter 5 – Direct Growth

5.2.1 Mississauga will establish strategies that protect, enhance and expand the Green System and will include a target for the lands within the city that will be included in the Green System. The City's strategy for protecting, enhancing and restoring the Green System consists of initiatives in the following areas:

- a. establishing an appropriate planning framework in strategic planning documents;
- b. information management and monitoring;
- c. regulation and compliance;
- d. land securement;
- e. stewardship;
- f. promotion and education; g. naturalization/restoration; and
- h. management of natural areas.

5.2.2 Mississauga will promote and encourage the restoration of natural forms, functions and linkages.

5.2.3 Mississauga will seek to enhance opportunities for the appreciation and enjoyment of the Green System.

Chapter 6 – Value the Environment

The Urban Forest, comprising trees on public and private properties in the city, also contributes to a healthy and sustainable city, and should be protected and enhanced where possible.

6.2.12 Mississauga will encourage tree planting on public and private lands and will strive to increase the Urban Forest canopy.

6.3.7 Buffers which are vegetated protection areas that provide a physical separation of development from the limits of natural heritage features and Natural Hazard Lands, will be provided to perform the following:

- maintenance of slope stability and reduction of erosion on valley slopes;
- attenuation of stormwater runoff;
- reduction of human intrusion into Significant Natural Areas and allowance for predation habits of pets, such as cats and dogs;
- protection of tree root zones to ensure survival of vegetation;
- provision of a safety zone for tree fall next to woodlands;
- enhancement of woodland interior and edge areas through native species plantings;
- enhanced wildlife habitat and corridors for wildlife movement; and
- opportunities for passive recreational activities, in appropriate locations.

6.3.12 Significant Natural Areas are areas that meet one or more of the following criteria:

F. significant woodlands are those that meet one or more of the following criteria:

- woodlands, excluding cultural savannahs, greater than or equal to four hectares;
- woodlands, excluding cultural woodlands and cultural savannahs, greater than or equal to two hectares and less than four hectares;
- any woodland greater than 0.5 hectares that:

- supports old growth trees (greater than or equal to 100 years old);
- supports a significant linkage function as determined through an Environmental Impact Study approved by the City in consultation with the appropriate conservation authority;
- is located within 100 metres of another Significant Natural Area supporting a significant ecological relationship between the two features;
- is located within 30 metres of a watercourse or significant wetland;
- or supports significant species or communities; g. significant wetlands are one of the following

6.3.17 Residential Woodlands are areas, generally in older residential areas, with large lots that have mature trees forming a fairly continuous canopy and minimal native understorey due to the maintenance of lawns and landscaping.

6.3.18 Lands within Residential Woodlands will be subject to Site Plan Control.

6.3.19 Development proposals and site alteration for lands within a Residential Woodland will have regard for how existing tree canopy and understorey are protected, enhanced, restored and expanded. A site development plan may be required to demonstrate how the following, among other matters, have been addressed:

- a. existing topography and drainage patterns;
- b. maintenance of a high proportion of permeable ground cover to facilitate ground water recharge;
- c. habitat for tolerant canopy birds (both in migration and for breeding);
- d. habitat for urban wildlife; and
- e. connections to other elements within the Green System.

6.3.20 Character area policies may identify additional requirements to protect Residential Woodlands.

6.3.24 The Natural Heritage System will be protected, enhanced, restored and expanded through the following measures:

- a. ensuring that development in or adjacent to the Natural Heritage System protects and maintains natural heritage features and their ecological functions through such means as tree preservation, appropriate location of building envelopes, grading, landscaping, and parking and amenity area locations;

6.3.39 The Urban Forest is composed of wooded areas within the Natural Heritage System and individual trees on public and private property.

6.3.40 Natural Heritage System policies are applicable to the Urban Forest. This includes policies regarding Significant Natural Areas, Natural Green Spaces, Linkages, Special Management Areas and Residential Woodlands and all related policies.

6.3.41 The Urban Forest will be protected and managed with the goals of: a. maintaining and increasing the city's canopy cover; b. improving both species and structural diversity, as well as overall health; and c. being more evenly distributed across the city.

6.3.42 Mississauga will protect, enhance, restore and expand the Urban Forest. This will be achieved by the following:

- a. developing and implementing a strategic planting program, specific to distinct geographic areas within the city;
- b. developing and implementing a strategic proactive maintenance program pertaining to trees on public land;
- c. providing sustainable growing environments for trees by allocating adequate soil volumes and landscaped areas during the design of new development and infrastructure projects;

- d. developing and implementing consistent standards for tree protection and planting across the city;
- e. ensuring development and site alteration will not have negative impacts on the Urban Forest;
- f. increasing tree canopy coverage and diversity, by planting trees appropriate to the location and avoiding the use of non-native tree and shrub species that are invasive
- g. regulating the injury and destruction of trees on public and private property;
- h. promoting the management and enhancement of the Urban Forest on public and private property;
- i. providing public education and encouraging stewardship;
- j. providing strategic partnerships with regulatory agencies and others to address invasive nonnative species and diseases and other management challenges; and
- k. compliance with by-laws pertaining to tree preservation and protection.

6.3.43 The preservation of trees and woodlots on public and private property that serve to connect and enhance the overall vegetative system and improve wildlife habitat will be encouraged.

6.3.44 Development and site alteration will demonstrate that there will be no negative impacts to the Urban Forest. An arborist report and tree inventory that demonstrates tree preservation and protection both pre and post construction, and where preservation of some trees is not feasible, identifies opportunities for replacement, will be prepared to the satisfaction of the City in compliance with the City's tree permit by-law.

6.3.45 Where tree replacement cannot be accommodated on-site, the City may require cash-in-lieu for replacement trees elsewhere or replacement plantings at a location approved by the City.

6.3.46 Mississauga may require ecologically based woodland management plans of a landowner prior to municipal acquisition.

6.3.81 Wherever possible, significant treed areas throughout Mississauga will be incorporated into the Public Open Space network. Where appropriate, these areas will be retained in a natural condition or be permitted to regenerate to assume a natural state. Active recreation will be restricted to lands that have been specifically acquired and developed for such purposes.

Chapter 7 – Complete Communities

7.6.1.2 Built form within Intensification Areas should provide for the creation of a sense of place through, among other matters, distinctive architecture, high quality public art, streetscaping (including street trees), and cultural heritage recognition.

Chapter 8 – Create a Multi-Modal City

8.3.1.1 The City will design its roads in a manner that:

- c. minimizes the disruption to the Natural Heritage System and preserves, where appropriate, existing tree canopies;

Chapter 9 – Build a Desirable Urban Form

9.2.1.36 Streetscape improvements (intensification areas) including trees, pedestrian scale lighting, special paving and street furniture in sidewalks, boulevards, open spaces and walkways, will be coordinated and well designed.

9.2.2.3 While new development need not mirror existing development, new development in Neighbourhoods will:

- preserve mature high quality trees and ensure replacement of the tree canopy;

9.3.3.11 Lands fronting, flanking and/or abutting Mississauga Road, between the Canadian Pacific Railway, located south of Reid Drive, and Lakeshore Road West, are part of a designated scenic route. These lands will be subject to the following:

i. tree preservation and enhancement will be required on public and private lands in order to maintain existing trees;

9.5.2.2 Developments will be sited and massed to contribute to a safe and comfortable environment for pedestrians by:

d. providing opportunities for weather protection, including awnings and trees.

9.5.2.5 Development proponents may be required to upgrade the public boulevard and contribute to the quality and character of streets and open spaces by providing:

a. street trees and landscaping, and relocating utilities, if required;

9.5.2.11 Site development will be required to:

f. preserve significant trees on public and private lands;

9.5.5.3 Where surface parking is permitted, the following will apply. Parking should:

b. incorporate stormwater best management practices, such as, permeable paving, bioretention areas and tree clusters;

f. have appropriate landscape treatment including trees and lighting, throughout parking lots;

Chapter 10 – Foster a Strong Economy

10.6.7 The preservation of existing trees and the planting of new trees will be given priority and coordinated with utility placement within the public boulevard.

10.7.6 Mississauga encourages the creation of innovative strategies such as green site design and green buildings, which utilize technology such as green roofs, white roofs and the use of the urban tree canopy to achieve energy efficiencies.

Chapter 12 – Downtown (Land Use Designations)

12.4.1.9 Public Realm: The Design of the Public Boulevard - The following features should be encouraged to reduce the perceived visual width of the street and improve the level of pedestrian comfort, safety and convenience within the public boulevard

f. provision of street trees, feature lighting and related pedestrian amenities.

12.5.4.4.2 Notwithstanding the provisions of the Residential Low Density II designation on these lands, the following additional policies will apply:

h. preserve existing mature high quality trees to maintain the existing mature nature of these areas;

Chapter 13 – Major Nodes (Land Use Designations)

13.3.5.1.1 To achieve a sustainable community, development will be designed to include sustainable measures such as:

planting trees;

13.3.7.1.5 Streets will be designed to incorporate active transportation and provide views to the waterfront. Lakefront Promenade, Street 'I', Hydro Road/Street 'J' and Street 'K' will be designed with enhanced streetscapes that may include among other things, wide sidewalks, street trees, planting, furniture.

13.3.8.2.1 Development master plans will provide direction and contain built form guidelines to be prepared to the City's satisfaction, addressing issues including, but not limited to:

d. use of public and private open spaces to accommodate innovative stormwater best management practices, including low impact development techniques, reinforce view corridors, enhance the aesthetic quality of the area, increase the tree canopy, and enhanced connections (i.e. connections to the adjoining street network);

g. streetscape and upgraded boulevard treatments that provide appropriate setbacks to reflect planned function, minimize vehicular access points, create an attractive public and private realm and provide opportunities for tree planting;

3.4 General Guidance for Buildings on 'A' and 'B' Street Frontages:

3.4.12 Below grade parking structures shall provide an appropriate clearance between the top of the parking structure and grade to allow for healthy tree growth (typically minimum 1.5m depth of soil, not including the drainage layer). Lesser depths may be considered where planting is limited to smaller stature vegetation (for example, small to medium shrubs) and does not include trees; and

3.11 Ground Floor Conditions for Other Uses

3.11.26 Buildings shall soften the edge where vertical elevations meet the ground plane, through strategies such as canopy trees, seating areas, and planting between the property line and building face. Buildings should be set back approximately 4.0 metres from the property line. Basements should be set back a minimum of 1.0 metres from the property line

3.12 Pedestrian Permeability Conditions

3.12.21 A combination of soft and hard landscape treatments to define the walkway edges and amenity areas such as trees, water features, public art, pavers and planters;

3.12.22 Plant species that create visual and seasonal interest;

3.12.23 A cadence of aligned trees along the walkway, to provide shade and visual interest;

3.12.24 Sufficient uncompacted soil volume per tree (approximately 30 cubic metres for large trees) to ensure that trees flourish (note: structural soil will not be permitted);

3.12.25 Provide an appropriate clearance between the finished grade of the mid-block connection and the top deck of any below-grade structure to allow for healthy tree growth (typically minimum 1.5m depth of soil, not including the drainage layer) or possibly lesser depths for smaller stature vegetation;

4.2 Mid-Rise Elements: All Categories

4.2.27 Street frontage in front of residential units at-grade shall protect the privacy of residents and create a clear definition between public and private realm, through strategies such as providing a sufficient setback (approximately 4.0 metres) to accommodate a buffer. A landscape buffer should provide sufficient space (approximately 2.0 metres) to sustain the growth of small trees, shrubs and other plant materials with substantial height and foliage volume, so the plants collectively can function as a proper landscape screen, contribute to a greener image of Lakeview Village, and a better pedestrian experience;

Chapter 14 – Community Nodes

Streetsville – Urban Design Policies

14.10.1.8 The established residential character of the areas generally located along Queen Street South, south of Barry Avenue, will be maintained through appropriate building masses, setbacks, Map 14-10: Streetsville Community Node Character Area Mississauga Official Plan – Part 3 August 11, 2015 Community Nodes - Streetsville 14-25 intensive landscaping, streetscapes with many mature trees, and a regular street grid pattern.

14.10.6.1.5 Sufficient on-site parking, which will consist of only surface parking, as required by the Zoning By-law, should be provided in the rear yard only at grade without removal of existing trees, except at the discretion of the City arborist.

Chapter 15 – Corporate Centres

15.2.2 Special Site Policies – Site 1

15.2.2.1.1 The lands identified as Special Site 1 are located north of Eglinton Avenue West, south of Matheson Boulevard East, east of the Etobicoke Creek, to Explorer Drive and all lands east of Explorer Drive:

c. Pedestrian Connections Development will promote pedestrian movements to and from transit stations through the local streets and publicly accessible private pedestrian connections or private open space areas (plazas). The location, size and character of the publicly accessible connections will be determined during the site plan review process having regard for the following:

streetscape improvements will be coordinated and well designed, including trees, pedestrian scale lighting, special paving and street furniture on sidewalks, boulevards and important pedestrian and publicly accessible open space areas and walkways;

parking areas will have appropriate landscape treatments, including trees and lighting, throughout parking lots and along their edges, in order to improve the appearance of the parking areas, to contribute to the visual continuity of the street edge. Parking areas should also incorporate defined pedestrian routes for safe and convenient pedestrian movement to building entrances and other destinations to encourage the safe use of these spaces

Hurontario Street Corridor Development Policies

15.3.1.2 The purpose of the following urban design policies is to define principles for the physical form and character of Hurontario Street:

b. encourage a high standard of public and private realm streetscape design that is coordinated and comprehensive, particularly at Major Transit Station Areas, which includes street furniture, public art, building forecourts, open space, transit shelters, bicycle parking, tree planting, and the sensitive placement of utilities with consideration for the public and private realm;

15.5.2 Urban Design Policies Community Identity and Design

15.5.2.1 A business park within a natural setting creates the identity of Sheridan Park Corporate Centre that distinguishes it from other office parks. The campus like setting is achieved by a combination of public and private open spaces of various sizes, forms and functions. To achieve the City's urban design objectives for Sheridan Park Corporate Centre, development proposals should address the following:

g. a Streetscape Master Plan will be prepared to coordinate street tree planting and right-of-way design

15.5.2.2 To achieve and enhance the campus like setting, the following design guidelines will be used to evaluate development proposals:

d. landscape design should incorporate the following:

a consistent pattern of trees lining the streets to unite the elements of the open space system and refresh the green identity within Sheridan Park Corporate Centre;

e. large expanses of surface parking will be softened by landscaped islands with canopy trees;

17.4.4 Special Site Policies There are sites within the Character Area that merit special attention and are subject to the following policies.

17.4.4.1.2 The lands identified as Area A are located north and south of Dundas Street East, from Southcreek Road to the municipal boundary, Etobicoke Creek. These lands function as the primary gateway into Mississauga from Toronto and areas to the east, and should promote distinctive built form, landscaping and street furniture elements as visual landmarks to identify the City entry and reinforce a quality image. Notwithstanding the provisions of the Mixed Use designation of the lands, the following additional policies will apply:

- e. special formal street tree planting at regular intervals is encouraged along the frontage of the gateway properties

Chapter 19 – Implementation

19.4.5 Some or all of the following studies, reports, plans, drawings and/or documents may be required as part of a complete application submission for an official plan amendment, rezoning, draft plan of subdivision, draft plan of condominium, consent or site plan application, dependent on the type of application, the property location and adequacy of services.

Arborist's Report (including Tree Survey/Tree Preservation Plan)

19.4.7 To provide consistent, efficient, and predictable application of environmental planning principles, all applications will have regard for:

- i. tree preservation;

19.14.5 Site plan applications will address the sustainable design elements on the development site and adjoining highways under Mississauga's jurisdiction including without limitation trees, shrubs, hedges, plantings or other ground cover, permeable paving materials, street furniture, curbs, ramps, waste and recycling containers, and bicycle parking facilities.

19.21 Demolition Permits

19.21.3 An approved development plan, archaeological assessment and tree permit may be required prior to the release of a demolition permit.

City of Hamilton

CHAPTER B – COMMUNITIES

B.2.0 DEFINING OUR COMMUNITIES

2.4 Residential Intensification

2.4.1.4 Residential intensification developments within the built-up area shall be evaluated based on the following criteria:

k) the ability of the development to retain and/or enhance the natural attributes of the site and surrounding community including, but not limited to native vegetation and trees;

3.3 Urban Design Policies

3.3.2 General Policies and Principles

3.3.2.10 Streets shall be designed not only as a transportation network but also as important public spaces and shall include, where appropriate:

c) landscaping such as street trees and landscaped boulevards;

3.3.7 Storage, Service and Loading Areas

3.3.7.2 Service and loading areas shall be buffered to reduce visual and noise impacts, particularly when located adjacent to residential areas. Buffering methods should include berms, tree and shrub plantings, noise walls, fences, and/or the use of quality construction materials and methods.

CHAPTER C – CITY WIDE SYSTEMS AND DESIGNATIONS

C.2.0 NATURAL HERITAGE SYSTEM

2.7 Linkages

2.7.7 In addition to the Linkages identified on Schedule B – Natural Heritage System, there may be Hedgerows that are worthy of protection, especially where:

a) they are composed of mature, healthy trees and generally provide a wide, unbroken linkage between Core Areas;

b) there is evidence that wildlife regularly use them as movement corridors or habitat;

c) they contain tree species which are threatened, endangered, special concern, provincially or locally rare; or,

d) groupings of trees which are greater than 100 years old.

2.11 Tree and Woodland Protection

2.11.1 The City recognizes the importance of trees and woodlands to the health and quality of life in our community. The City shall encourage sustainable forestry practices and the protection and restoration of trees and forests.

2.11.2 Opportunities for tree planting on City-owned lands (such as lands designated Open Space and inactive portions of parks) shall be identified and implemented in co-operation with government agencies and local interest groups. In restoration efforts, the City shall plant only native species, preferably those of local origin.

2.11.3 Where the City is undertaking infrastructure work, existing woodland resources shall be protected and preserved, where feasible. If it is necessary for infrastructure works to destroy any trees, excluding trees that

are listed as threatened or endangered species, the City shall endeavour to compensate by re-planting on site and/or planting trees elsewhere.

2.11.4 The City shall maintain and update as necessary a Woodland Conservation Bylaw and Tree Protection Policy. A Woodland Protection Strategy to protect tree cover on new development sites within urban and rural settlement areas and provides technical direction and practices to protect trees and other vegetation during construction shall be prepared to minimize the impacts on trees and woodlands to be retained.

2.11.5 The City shall prepare and update, as necessary, an Urban Forest strategy to protect publicly and privately owned trees and supporting vegetation within the Urban Area, in accordance with Section C.5.6 – Green Infrastructure.

C.4.0 INTEGRATED TRANSPORTATION NETWORK

4.3 Active Transportation Network

4.3.5 The City shall design pedestrian friendly streets by:

g) providing benches to allow pedestrians to rest and street trees for shade, where feasible;

4.5 Roads Network

Special Character Roads

4.5.3.3 Heritage roads shall be conserved and protected by the appropriate road authority without jeopardizing health and safety with a presumption against any works or undertakings that would adversely affect identified heritage attributes. In particular, within the right-of-way, the City shall endeavour to retain and protect:

b) existing trees and treelines;

4.5.3.4 Works or undertakings, such as intersection improvements, may be undertaken at specific locations to remedy clearly demonstrated deficiencies at that location provided that they do not adversely affect the character or attributes of the heritage road. Additionally, development shall not be encouraged where it adversely affects or has the potential to adversely affect the character or attributes of a heritage road, such as the removal of distinctive tree lines and tree canopies, fencelines or hedgerows or the placement or introduction of berms, screens, gateway or entrance features or other unsympathetic barriers.

C.5.0 INFRASTRUCTURE

5.6 Green Infrastructure

5.6.1 The City will encourage the use of green infrastructure in accordance with Section B.3.3 – Urban Design, including but not limited to:

b) increasing the urban tree canopy through approval and implementation of the City's Urban Forest Strategy referenced in Section C.2.11 – Tree and Woodland Protection, and;

CHAPTER E – URBAN SYSTEMS AND DESIGNATIONS

E.3.0 NEIGHBOURHOODS DESIGNATION

3.7 Residential Greenfield Design

3.7.5 New residential development in greenfield areas shall generally be designed and planned to:

b) preserve existing trees and natural features; and,

E.4.0 COMMERCIAL AND MIXED USE DESIGNATIONS

4.3 Pedestrian Focus Streets

4.3.4 In addition to the policies of the specific Commercial and Mixed Use designations, the following policies shall apply to pedestrian focus streets:

- h) Sidewalks shall be required on both sides of the street and shall be of sufficient width to:
- iii) ensure sufficient space for coordinated street furnishings, public utilities, and tree plantings;

E.5.0 EMPLOYMENT AREA DESIGNATIONS

5.3 Employment Area – Industrial Land Designation

Design

5.3.5 The following policies shall apply to the lands designated Employment Area – Industrial Land on Schedule E-1 – Urban Land Use Designations:

- a) New development and the redevelopment of existing sites visible from the QEW and from the non-elevated portions of Burlington Street East shall provide enhanced landscaping, including tree planting, and higher quality building design to improve both the City's and the Employment Area's image.
- b) The City shall promote an improved pedestrian environment within and along the non-elevated portions of Burlington Street East, with elements such as pedestrian amenities, sidewalks, landscaping/road trees, and gateway features.

Town of New Tecumseth

4.5.8 FORESTRY OPERATIONS

a) Forestry operations shall be carried out in accordance with accepted forestry management practices and in accordance with the County of Simcoe Forest Conservation By-law. Further, the Town should consider establishing a Town Tree Cutting By-law.

4.5.11 TREE PRESERVATION/ PLANTING

a) The following policies are intended to promote tree planting and the preservation of trees throughout the Town:

i) There are wooded areas within the Town that are not within the EP1 designation and EP2 Overlay designation, primarily because of their small size or their location within urban areas. However, these areas also contribute to the character of the community. It is a policy of this Official Plan that such areas be retained in their natural state, whenever possible and appropriate, as a condition of development approval;

ii) The Town, in making public work decisions, shall have regard to the existence of trees and make every reasonable effort to protect them. If trees will be lost due to a public work, it is a policy of this Official Plan that replanting programs be initiated to compensate for the loss of trees;

iii) The Town shall require the planting of trees of appropriate quality, size and species as a condition of development approvals wherever possible. Particular attention will be paid to ensure that adequate tree plantings are provided in boulevards of new streets in plans of subdivisions and in and adjacent to surface parking lots and new developments to soften their visual impact on adjacent lands and streets;

iv) The Town may undertake a tree planting program along Town roads wherever possible to create, over time, a canopy of trees that will enhance the character of the community and contribute to the aesthetics of the area; and,

v) The Town should be planned to achieve a tree cover of 30 percent of the total land area of the Town.

4.6.2 KEY NATURAL HERITAGE FEATURES AND KEY HYDROLOGIC FEATURES

a) Key Natural Heritage Features in the Oak Ridges Moraine Conservation Plan (ORMCP) Area include wetlands, habitat of endangered, rare and threatened species, fish habitat, areas of natural and scientific interest (life science), significant valleylands, significant woodlands, significant wildlife habitat, sand barrens, savannahs and tallgrass prairies. Key Hydrologic Features in the ORMCP Area include permanent and intermittent streams, wetlands and kettle lakes and seepage areas and springs.

b) Wetlands, significant woodlands and permanent and intermittent streams are identified in Appendix A.

5.2.2 URBAN RESIDENTIAL DESIGNATION

Infill Development in Established Residential Neighbourhoods

f) Infill development shall be encouraged throughout the Urban Residential designation provided Council is satisfied that:

iv) Existing trees and vegetation will be retained and enhanced where possible and additional landscaping will be provided to integrate the proposed development with the existing neighbourhood;

5.3.2 DOWNTOWN CORE COMMERCIAL DESIGNATION

Public Realm

t) In order to provide the basis for the continuing upgrading of the public realm, the Town shall prepare a Public Realm Sustainable Design Element Plan that will assist in the review of development applications. Sustainable

design elements include trees, shrubs, hedges, planting and other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers and bicycle parking facilities.

5.5 OTHER URBAN LAND USE DESIGNATIONS

5.5.1 URBAN OPEN SPACE DESIGNATION

Cemeteries

g) Cemeteries and accessory uses such as crematoriums, columbariums and mausoleums are permitted in the Urban Open Space designation subject to the policies of this Section:

- The tree planting and landscaping on the site is designed to complement the plot plan, the existing contours and the use of abutting lands;

7.0 Design, Heritage and Parkland

7.1 DESIGN

7.1.5 TOWN ROADS

a) Road designs shall include well designed streetscape features, in accordance with the road function, and incorporate, among other things: street tree planting, street lighting and furnishings, bicycle parking spaces and areas, sidewalk and boulevard treatments, a variety of paving materials, and, where appropriate, bicycle lanes, community mailboxes and future transit shelters.

c) The design of roads shall incorporate a high quality of urban design standards. On this basis:

ii) On collector and arterial roads within Settlement Areas shown on Schedules D1 and D2 a suitable boulevard shall be provided to separate the road curb from the sidewalk and such boulevard shall include hard and/or soft landscape materials, street trees and pedestrian-level street lights, where appropriate;

7.1.8 BUILDING DESIGN

h) New development and redevelopment within residential neighbourhoods shall generally be compatible with adjacent land uses. Factors to consider in this regard include:

vi) The location of driveways, private garages and trees

7.1.10 LANDSCAPING

h) Landscaping can play an important role in delineating a site's side yards and often provides a visual break in large asphalted areas. In this regard, landscape strips planted with trees and/or shrubs and flowers shall be used to separate each development and the associated parking areas. The presence of significant trees on a development site shall be determined through a tree survey and, where appropriate, preserved, maintained and integrated into the new landscape design.

7.1.11 PARKING

b) Where surface parking areas are situated adjacent to a public street in the front yard, their layout should be subdivided into smaller areas to avoid large monotonous asphalt surfaces. In these cases, a certain percentage of the frontage should be reserved for landscaping between the buildings and the street line. The parking areas may be partially buffered and/or screened from the street through the use of landscaping, tree planting, pedestrian facilities, lighting, fencing and/or other landscape elements in order to enhance the visual aesthetics of, and pedestrian activity within, such parking areas.

7.1.13 SERVICES, UTILITIES, OUTSIDE PROCESSING, AND STORAGE

b) Site access, service areas and loading areas shall be located away from streets so as to minimize disruption or conflicts with adjacent land uses, sidewalks and both on-site, and off-site, pedestrian routes and shall be visually screened as necessary from public views. Screening should be designed to use landscaping and/or solid fencing. Loading and service areas should be buffered for noise impacts, particularly when located against residential areas. Buffering strategies include berms, tree and shrub planting and opaque noise walls and fences.

7.1.16 DESIGN IN THE RURAL/ AGRICULTURAL AREA

b) It is the intent of this Official Plan to protect the natural and rural character of the rural landscape wherever possible, in accordance with applicable regulations including the Minimum Distance Separation Formulae. On this basis, Council shall ensure, as a condition of any Planning Act approval for development located within the Rural/Agricultural Area that the following are considered:

ii) Existing trees are maintained wherever possible;

9.3 STORMWATER MANAGEMENT FACILITIES

9.3.4 POLICIES FOR THE RURAL/AGRICULTURAL AREA

a) In the Rural/Agricultural Area, best practices for stormwater management will be incorporated, including the use of tree cover and natural vegetation and other permeable surfacing that reduces run off and facilitates groundwater recharge, grading and drainage to control erosion and siltation.

9.4 MOBILITY AND ACTIVE TRANSPORTATION

9.4.4 POLICIES FOR ACTIVE TRANSPORTATION

To protect the safety of pedestrian and cyclists, the Town will endeavour to utilize traffic calming initiatives such as:

i) Street design that discourages vehicle speeding through ROW design, complimentary streetscape design, building proximity to the street and boulevard street tree planting

9.4.7 PARKING

Design standards for the location, layout, construction, lighting and landscaping of off-street parking areas will be applied through the site plan control review and approval process. The intent of such standards will be to achieve safe access, efficient usage, improved aesthetics and reduced impacts on adjacent land uses and transportation corridors. Key design elements that will be considered by the Town include:

iii) Tree planting and other landscaping elements, including landscaped islands.

10.5 COMPLETE APPLICATIONS

Supplemental Submission Requirements

f) The following may be required to support an application for Official Plan Amendment, Zoning By-law Amendment, Plan of Subdivision/ Condominium, or Consent:

xix) Tree Preservation Study;

10.10 SITE PLAN CONTROL

g) Sustainable design elements, which include trees, shrubs, hedges, plantings or other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers and bicycle parking facilities may be required on a public right-of-way, depending on a proposed development's location and the identified need for such sustainable design elements in Urban Design Guidelines that have been approved by the Town.

City of Toronto

2.3 STABLE BUT NOT STATIC: ENHANCING OUR NEIGHBOURHOODS AND GREEN SPACES

6. Environmental sustainability will be promoted in Neighbourhoods and Apartment Neighbourhoods by investing in naturalization and landscaping improvements, tree planting and preservation, sustainable technologies for stormwater management and energy efficiency and programs for reducing waste and conserving water and energy.

3.1 THE BUILT ENVIRONMENT

3.1.1 THE PUBLIC REALM

6. City streets are significant public open spaces which connect people and places and support the development of sustainable, economically vibrant and complete communities. New and existing City streets will incorporate a Complete Streets approach and be designed to perform their diverse roles by:

a) balancing the needs and priorities of the various users and uses within the right-of-way, including provision for:

ii. space for trees, landscaping and green infrastructure;

13. Sidewalks and boulevards will be designed to provide safe, attractive, interesting and comfortable spaces for users of all ages and abilities by:

a) providing well designed and co-ordinated tree planting, landscaping, amenity spaces, setbacks, green infrastructure, pedestrian-scale lighting, street furnishings and decorative paving as part of street improvements;

b) locating and designing utilities within streets, within buildings or underground, in a manner that will minimize negative impacts on the natural, pedestrian and visual environment and enable the planting and growth of trees to maturity;

16. The preservation, long-term growth and increase in the amount of healthy trees will be a priority for all development. Development proposals will demonstrate how the protection, provision and maintenance of trees and their growing spaces above and below ground will be achieved.

20. Privately Owned Publicly-Accessible Spaces (POPS) are spaces that contribute to the public realm but remain privately owned and maintained. POPS do not replace the need for new public parks and open spaces. POPS provided through development will:

e) include new trees, seating, public art, landscaping and integration of stormwater capture where appropriate;

3.1.2 PUBLIC REALM – HIGHER-ORDER TRANSIT

c) providing safe, attractive and accessible routes and places of public entry, travel and use through the use of design elements such as, but not limited to:

ii. tree planting, landscaping, pedestrian-scale lighting, street furnishings, decorative paving and other sustainable features or green infrastructure;

3.1.3 BUILT FORM

SITE ORGANIZATION & LOCATION

1. Development will be located and organized to fit with its existing and planned context. It will frame and support adjacent streets, lanes, parks and open spaces to promote civic life and the use of the public realm,

and to improve the safety, pedestrian comfort, interest and experience, and casual views to these spaces from the development by:

e) preserving existing mature trees wherever possible and incorporating them into the development site;

IMPROVING THE PUBLIC REALM THROUGH BUILDING DESIGN

10. Development will promote civic life and provide amenity for pedestrians in the public realm to make areas adjacent to streets, parks and open spaces attractive, interesting, comfortable and functional by providing:

a) improvements to adjacent boulevards and sidewalks including sustainable design elements, which prioritize street trees and may include one or more of the following: shrubs, hedges, plantings or other ground cover, permeable paving materials, bio-retention swales, street furniture including seating in various forms, curb ramps, waste and recycling containers, energy efficient lighting and bicycle parking facilities;

f) safe, direct pedestrian routes and tree plantings throughout the site and within surface parking lots, where possible;

PRIVATE & SHARED AMENITY SPACES

13. Outdoor amenity spaces should:

g) accommodate existing and mature tree growth;

3.4 THE NATURAL ENVIRONMENT

The urban forest is essential to the City's character. More than three million trees dominate our ravines, line our boulevards and beautify our parks. They provide shade and habitat, help clean the air, contribute to the green links between our streets, neighbourhoods, employment areas and parks, and support ecosystem diversity. Citybuilding and development pressures, however, can create a difficult environment in which to sustain the urban forest canopy. We must not only protect the existing urban forest, but also enhance it, especially by planting native trees and trees that increase canopy coverage and diversity, or other non-invasive species where urban conditions may limit the survival of native species.

1. To support strong communities, a competitive economy and a high quality of life, public and private city-building activities and changes to the built environment, including public works, will be environmentally friendly, based on:

d) preserving and enhancing the urban forest by:

i. providing suitable growing environments for trees;

ii. increasing tree canopy coverage and diversity, especially of long-lived native and large shade trees; and

iii. regulating the injury and destruction of trees;

4.3 PARKS AND OPEN SPACE AREAS

Development Criteria in Parks and Open Space Areas

6. Any development provided for in Parks and Open Space Areas will:

a) protect, enhance or restore trees, vegetation and other natural heritage features and maintain or improve connectivity between natural heritage features;

4.5 MIXED USE AREAS

DEVELOPMENT CRITERIA IN MIXED USE AREAS

2. In Mixed Use Areas development will:

m) provide opportunities for green infrastructure including tree planting, stormwater management systems and green roofs.

4.7 REGENERATION AREAS

DEVELOPMENT CRITERIA IN REGENERATION AREAS

2. For each Regeneration Area a framework for new development will be set out in a Secondary Plan. Development should not proceed prior to approval of a Secondary Plan. The Secondary Plan will guide the revitalization of the area through matters such as:

c) a green infrastructure strategy including tree planting, stormwater management systems and green roofs;

4.8 INSTITUTIONAL AREAS

5. Universities, colleges and hospitals will be encouraged to create campus plans in consultation with nearby communities that will:

k) identify opportunities for green infrastructure including tree planting, stormwater management systems and green roofs.

5.1.3 SITE PLAN CONTROL

3. To help achieve environmentally sustainable development, the City may use subsection 114(5)(2)(iv) and (v) of the City of Toronto Act, 2006 to secure the following sustainable design features in development that address exterior building and site matters in Tier 1 of the Toronto Green Standard:

b) high-albedo surface materials, open grid paving, shade trees, green and cool roofs to reduce ambient surface temperature to minimize the urban heat island effect;

e) trees to enhance the urban forest and use of native species to protect, restore and enhance the natural heritage system;

5.3.5 GREAT CITY CAMPAIGNS

2. Campaigns and campaign projects will engage community groups, business and industry, non-governmental organizations, our universities and colleges, the arts and cultural communities, Council and representatives of other levels of Government to achieve progress over time in the priority areas:

d) greening Toronto through naturalization, planting trees and acquiring and protecting natural areas;

APPLICATION REQUIREMENTS

Additional Requirements of the Official Plan

In addition to the prescribed requirements of the Planning Act, the following non-prescribed information will also be required to evaluate a planning application, unless it is determined that certain studies, plans, drawings and reports are not applicable.

Arborist Report – for properties with existing trees and/or trees within six metres of all property lines. A technical report that identifies the location, species, size and condition of trees and describes maintenance strategies and protection measures to be implemented.

Tree Protection Plan – for properties with existing trees and/or trees within 6 metres of all property lines. A plan prepared in conjunction with an arborist report that identifies the location, species and size of trees, identifies the extent of injury, where applicable, and illustrates details of protection measures including the location of protective barriers.

City of Vancouver

PART 3: PLAN ASPIRATIONS

3 CLIMATE PROTECTION & RESTORED ECOSYSTEM

- Plant more trees in areas with limited tree canopy to take advantage of all the natural benefits trees provide

PART 4: LAND USE STRATEGY

Neighbourhoods | Directions and Policies

Direction L1.1: Daily Needs

L1.1.4 Mitigate the loss of ecology as neighbourhoods densify by retaining trees and native soils where possible, improving public realm ecology, and integrating ecological function into the design of new buildings.

Direction L1.3: Metro Core/Broadway

L1.3.7 Ecology. Improve tree canopy, especially in DTES, and integrate green space for rainwater and urban drainage.

Direction L1.6: Neighbourhood Centres

L1.6.8 Nature. Explore opportunities to retain trees and preserve native soils wherever possible. Integrate ecological landscaping and function into the design of new private developments.

PLACEMAKING AND URBAN DESIGN

Direction L2.2: Commercial Areas

L2.2.1 Solar access on shopping streets. Provide building heights and massing along shopping streets that allow for adequate sunlight for healthy trees and well-used streets and patios.

L2.2.5 Comfortable shopping streets. Where commercial areas are oriented along busy arterial streets, aim to provide appropriate space, trees or planting, and physical separation to ensure a comfortable pedestrian environment.

PART 5: POLICY AREAS

4. ECOLOGY

Direction 4.2: Make Space for Nature

4.2.1 Establish a healthy, city-wide ecological network through transforming road space, parkland acquisition, and naturalization of parks and other City-owned public property. Increase the urban forest canopy and expand the blue green network.

4.2.4 Retain and grow a healthy and resilient urban forest, using City tools such as zoning, servicing and subdivision bylaws, and upgraded street designs to provide more space for permeability, quality soil, and increased tree canopy across the city.

City of Edmonton

1.4.2.3 Expand and enhance a healthy and sustainable urban forest.

5.1.2.2 Expand and diversify Edmonton's urban tree canopy and native vegetation.

3. Green and Blue Network

Edmonton's Green and Blue Network contains human and ecological elements. In many ways this is about reinforcing better relationships between the two. Edmontonians understand the value of our environment and habitat, so it is protected and, where possible, restored and repaired. People need access to nature for recreation and health. The Green and Blue Network is used by people for cycling, walking, running, rolling, canoeing and relaxation. It is vital to support local biodiversity and ecological connectivity. In addition to protecting our natural systems, the City celebrates its diverse cultures and identities through festivals and events that take place within this network.

We identify strongly with our natural and human-made network of greenspaces and water bodies. It's part of being an Edmontonian. This network is our beautiful boulevard trees, creeks, wetlands and other natural areas. It's our river valley and ravines. Our parks. Our forests. Our wetlands, grasslands and dunes. We will complement our Green and Blue Network with infrastructure and spaces that support its ecological function and in ways that strengthen Edmontonians' relationship with nature. We know our Green and Blue Network exists in the global context beginning with regional connections such as the North Saskatchewan River, Big Lake, Beaver Hills Biosphere and Sand Hills/ Devon Dunes.

The natural environment is also integrated with the city's built environment and mobility system. People have to get to and navigate open spaces. In this regard, the Green and Blue Network is put to its best use if it can be reached by all. Nodes and corridors provide the opportunity to create new and unique ways to combine activity and density with the natural features and connections that Edmontonians want and need in all seasons. This could include vertical parks, living walls, green roofs, swales, urban agriculture and naturalized rights-of-way throughout the city. We are focused on improving ecological function in non-residential areas. Open space, whether in the form of an urban canopy running along a street or an urban forest in the river valley, is going to be a critical part of the conversation as we manage Edmonton's growth and change.

Our system of parks, open spaces and natural areas support celebration, ecology and wellness. The Green and Blue Network is made up of the following components that can be found on map 4.

Urban Greenway comprises enhanced landscaping along transportation routes that improve the human environment and condition through contact with nature and species that move through the greenway. This may include transportation and / or utility corridors adapted to provide new treed boulevards or less formal green linkages connecting people to parks, schools, services and community amenities. Urban Greenways offer a means to enhance our road rights-of-ways with trees and landscaping, clean and conserve our stormwater, and reintroduce nature within public spaces that improve our health and wellness.

City of Surrey

B1 POLICIES: Streets

B1.27 Ensure new and existing streets in Surrey's City Centre accommodate as many street trees as possible. Redevelopment sites shall prioritize the provision of street trees through retention or new plantings and by taking steps to ensure planting conditions are suitable for long-term, healthy tree growth. Species chosen should be adaptable to increasingly warmer summer climates.

B3 POLICIES: Urban Design

B3.9 Encourage development that supports increased transit, pedestrian and cycle use along existing or planned Frequent Transit Corridors, including in Skytrain Corridor Planning Areas, by:

- Providing generous sidewalk widths that are free of obstacles and are finished with a high level of pedestrian amenities such as street lighting, street trees, landscaped boulevards, transit shelters, benches and seating areas

B4 POLICIES: Nature and Green

B4.24 Protect and retain significant trees, forest stands and other natural features within new and existing neighbourhoods.

B4 POLICIES: Street and Walkways

B4.27 Design local streets to allow multiple modes of travel and enhanced pedestrian and cycling opportunities. Wherever feasible, sidewalks and treed boulevards shall be located on both sides of all streets.

B5 Memorable Features

B5 POLICIES: Gateways and Corridors

B5.4 Retain and enhance attractive natural and cultivated landscapes and built structures along major highways and roads throughout Surrey by protecting native vegetation and significant trees, avoiding blank walls and outdoor storage in development and by ensuring high quality signage.

B5 POLICIES: Rivers and Escarpments

B5.9 Work with businesses using the Fraser River to enhance the industrial character and shoreline image of the Fraser River. Use riparian enhancements and the planting of native vegetation, including trees and shrubs, as a screening mechanism, where feasible.

B5.10 Protect and enhance the generally forested character of the escarpment slopes along the Fraser River and the agricultural valleys through tree protection measures and replanting programs.

B6 POLICIES: Public-Private Interface

B6.6 Design buildings to enhance the activity, safety and interest of adjacent public streets, plazas and spaces by:

- Providing a clear delineation between public space and private residential areas by using street trees, landscaping and low walls or fences that do not create a visual barrier

B6 POLICIES: Innovative Design

B6.14 Use Development Permits, where feasible, to ensure the incorporation of green elements into the design of public spaces, including:

- Existing trees retained and incorporated into new and redevelopment projects

B6 POLICIES: Comfort, Accessibility and Safety

B6.19 Consider planting shade trees, particularly in areas with extensive hard surfaces, to provide shade, increase comfort and reduce heat island effect.

B6.21 Promote healthy and comfortable urban areas and environments, work places and health care centres by providing adequate access to trees and natural landscapes.

C2 Transportation

C2 POLICIES: General

C2.7 Consider modifying infrastructure requirements to respond specifically to special considerations such as crossing riparian areas or significant tree retention.

C2 POLICIES: Roads

C2.11 Ensure adequate Rights-of-Way are established to accommodate existing and future transportation needs for pedestrians, cyclists, transit services, vehicle travel, goods movement, boulevards (including street trees) and drainage and utility service corridors, as illustrated in the Major Road Allowance Map of Surrey's Subdivision and Development By-law, as amended.

C2.15 Reduce the impacts of transportation infrastructure on the natural environment including watercourses, vegetation, trees, agriculture and conservation lands by:

- Modifying road layouts and cross sections, where feasible, to protect significant trees and natural areas.

C2 POLICIES: Walking

C2.22 Promote a positive pedestrian experience by designing, constructing and maintaining sidewalks and walkways with sufficient width, curb separation, appropriate surfacing, adjacent street trees and adequate lighting. Consider adding street furniture and weather protection amenities, where appropriate, to enhance pedestrian comfort.

D1 Green Infrastructure and Ecosystem Management

D1 POLICIES: Green Infrastructure Network

D1.6 Work toward protecting existing natural urban forests and natural vegetative coverage to maximize Surrey's tree canopy and reach the target goal of 40 percent (40%) canopy coverage for the entire city

D1.7 Develop and implement strategies for protecting and enhancing biodiversity throughout Surrey, such as:

- Retaining and protecting significant trees and undisturbed natural vegetation areas through the development process and the implementation of Surrey's Tree Protection By-law (as amended) and other regulatory by-laws to achieve the City's conservation objectives

D1.8 Encourage and promote the planting of native vegetation and trees on public and private property to increase overall tree canopy coverage and to enhance wildlife populations and habitat quality.

D2 POLICIES: Flood Hazards

D2.10 Consider and prepare for the projected impacts of climate change on flood hazard areas due to sea level rise and flood risk. Take into account the effects of long-term climate change such as increased flooding events, increased runoff due to development and a reduced percentage of overall mature tree cover.

D3 Greener Site Development

D3 POLICIES: Site Development

D3.9 Provide adequate growing material and soil depth on development sites and public boulevards to properly accommodate tree roots and adequate growth capacity to sustain site landscaping.