SMITHS FALLS
RISE AT THE FALLS

Report # CPWG 2024-011

To: Climate Protection Working Group
From: Richard Grant, Planner I
Date: August 13th, 2024
Title: Urban Tree Canopy Assessment Report

Recommendation: That the Climate Protection Working Group receive this report for information

Purpose: To advise the Working Group on the Town's current tree canopy coverage and present the baseline inventory as per Section 7.1 of the Tree Canopy and Vegetation Preservation and Enhancement Policy.

Background: Planning staff initiated a tabletop tree canopy assessment exercise to establish a baseline assessment of the Town's urban tree canopy by utilizing a 2019-2020 orthophoto taken of Smiths Falls through the Digital Raster Acquisition Project Eastern Ontario (DRAPE) program. An orthophoto is a geometrically corrected aerial photograph that displays ground features in their tree ground position (determined once the effects of tilt and terrain relief are removed from the aerial photograph by orthophoto rectification) with a constant scale throughout the image. The DRAPE program produces mapping based on orthophotography for the entire Eastern Ontario region. For staff, the DRAPE program is integrated into the town's CGIS software, powered by CGIS Spatial Solutions. Please note that the orthophotography produced through the DRAPE program is also publicly accessible as a dataset feature layer, common for Geographic Information System (GIS) analysis, and can be viewed at any time on the Ontario GeoHub website.

A baseline assessment of the Town's urban tree canopy was required to initiate the Town's goal of establishing a 30% tree canopy cover as prescribed by Section 1.0 of the Tree Canopy and Vegetation and Enhancement Policy. Section 7.1 - Tree Canopy Assessment outlines the Town's commitment to completing the assessment within three years of the Policy's adoption, recognizing that the assessment will serve as a basic foundation for ongoing monitoring. The Tree Canopy policy recognizes the importance of a healthy urban tree canopy. *Environment Canada's How Much Habitat is Enough Guideline (2017)* recommends a minimum tree canopy goal of 30%, as that minimum tree canopy coverage allows rivers and lakes to maintain a healthy ecological and hydrological function within the watershed.

Analysis and Options: In consultation with CGIS technicians, Staff assessed the Town's urban tree canopy[1]. Through a tabletop exercise, each tree is reviewed to create a zone-by-zone map of the town's tree canopy cover (See Appendix A – Communities of Interest Zone Map). The Communities of Interest map was created using a tree canopy assessment methodology designed in consultation with CGIS technicians to assess the state of the

[1] Tree canopy density or canopy coverage is the ratio of vegetation to ground as seen from the air.

Town's canopy. The Urban Tree Canopy Assessment Methodology involved a detailed mapping exercise of plotting the town's tree canopy into pre-defined zones, titled "Communities of Interest," on a binary "covered or not covered" basis for tree canopy coverage (see Appendix C – Urban Tree Canopy Map details). This allows for a zone-specific comparison over time that can be replicated periodically upon the arrival of an updated DRAPE photo. The Tree Canopy Assessment, based on the 2019 DRAPE air photo, thus forms the baseline by which future assessments will be compared over time.

The Urban Tree Canopy Assessment only measured the Town's canopy coverage. The urban tree canopy assessment used high-resolution DRAPE imagery of Smiths Falls, acquired in the spring of 2019/2020 (April 25th, 2019- May 22nd, 2020) under the best conditions possible (i.e., free of visual barriers such as ground snow coverage, cloud cover, smoke-free skies, and leaf-off conditions). Leaf-off conditions refer to trees with little to no foliage, which allows for better visual analysis of an area's tree canopy and better visibility of ground features. This is helpful for mapping features such as buildings and roads, which may be obscured by tree foliage during the growing season. Leaf-off imagery is also used in forestry applications because the lack of leaves on some trees facilitates the classification of tree types. An assessment of the Town's urban canopy tree health, species distribution and identification of urban forest management strategies as prescribed by Section 7.2 – Tree Inventory was not undertaken. Staff have identified that implementing Section 7.2 will require specialized skills and services in order to undertake an inventory to assess the mix of species, size and condition of public trees.

Based on the data collected in 2021, the Town has an overall tree canopy coverage of 35%. **Table 1 – Urban Tree Canopy Coverage Distribution Chart** breaks down the Town's overall tree canopy coverage into "Communities of Interest," which are colour-differentiated zones loosely based on the Town's zoning designations and general understanding of the Town's land use development patterns, created for ease of use in counting the Town's urban canopy.

Understanding Smiths Falls' historical land use and development patterns can help one rationalize the distribution of the Town's urban tree canopy. Heavily developed areas such as the Downtown Core, identified on the Communities of Interest zone map (See Appendix A – Communities of Interest Zone Map), one can comprehend the 12.6% urban tree canopy coverage (UTCC) value (within that zone) given that the Downtown Core is the Town's historic centre of commercial and cultural activity and shares proximity to the Rideau Canal. In contrast, the Gallipeau Centre & Lorne Street Development Area" has a 60.4% UTCC value (within that zone). The surrounding lands around the Galipeau Centre have been designated a Development Reserve, which is a specific Official Plan designation (in the outer ring and surrounding lands), and Gallipeau Centre Mixed Use for the main Gallipeau lands (in the inner ring) in the Official Plan and have long enjoyed existing residential, institutional and industrial uses, with ample vacant open space. Due to the area's development history, it remains the Town's most significant area of tree coverage.

With an established tree canopy baseline categorically organized and differentiated by zone, a tactical and strategic approach can be taken to improving the Town's urban canopy, going above and beyond the 30% minimum tree canopy goal recommended by Environment Canada. The Tree Canopy Policy, Section 7 – Implementation and Schedule C – Municipal and Partner Initiatives to Promote Tree Canopy and Vegetation Enhancement outlines the

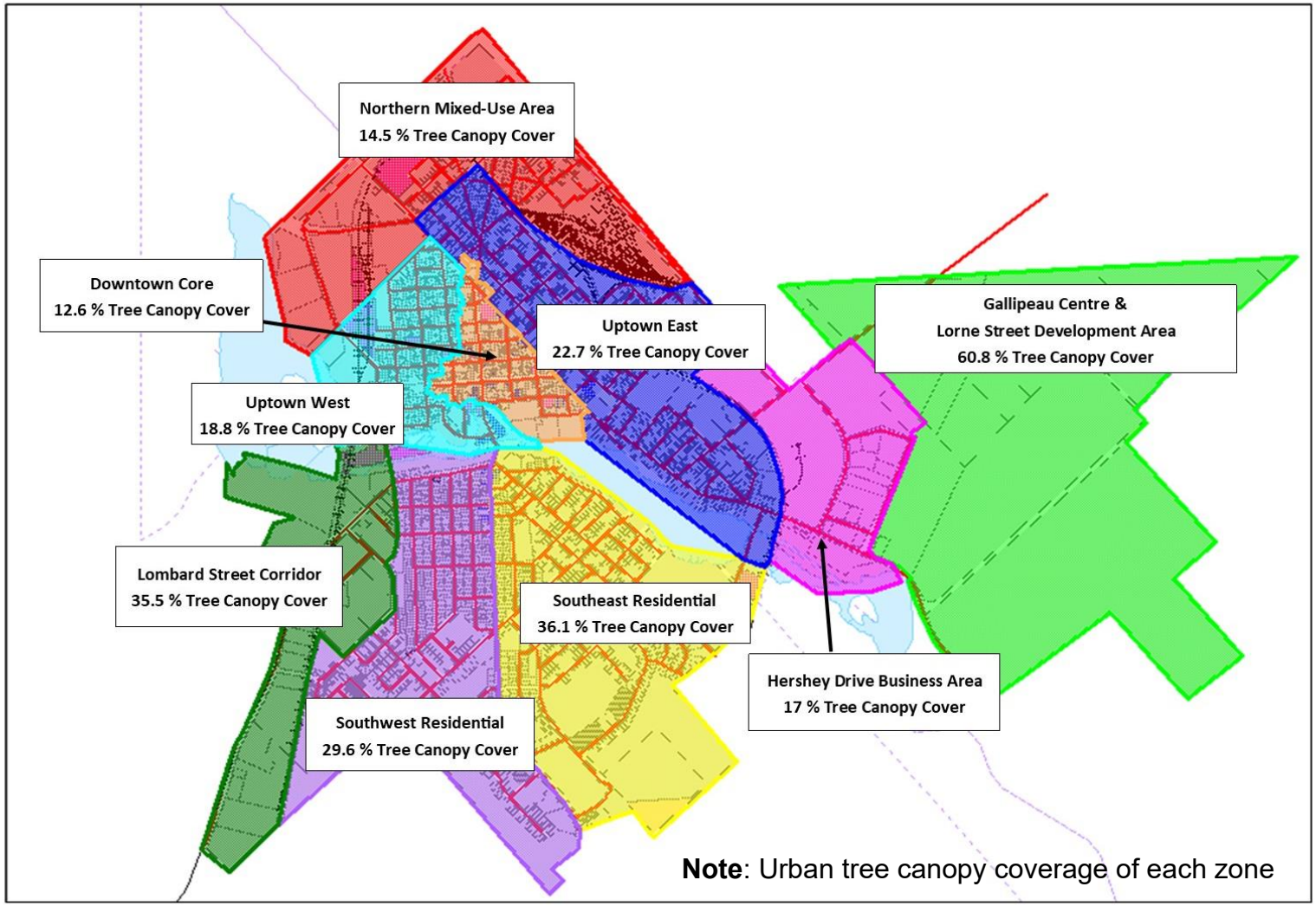
roadmap to further operationalize the Town's goal for an enhanced urban tree canopy. Furthermore, there can now be a broader conversation about the future of the Town's urban canopy with respect to future growth and development.

For more details, see Appendix A—Communities of Interest Zone Map and Table 1—Urban Tree Canopy Coverage Distribution Chart in Appendix B—Urban Canopy Tree Canopy Coverage.

Respectfully Submitted:	Reviewed by:
Original copy signed	*Original copy signed*
Richard Grant Planner I	Karl Grenke, MCIP, RPP Manager, Development Services

Appendix A – Communities of Interest Zone Map

Town of Smiths Falls 2019 Urban Tree Canopy Baseline Assessment



Appendix B – Urban Tree Canopy Coverage Distribution

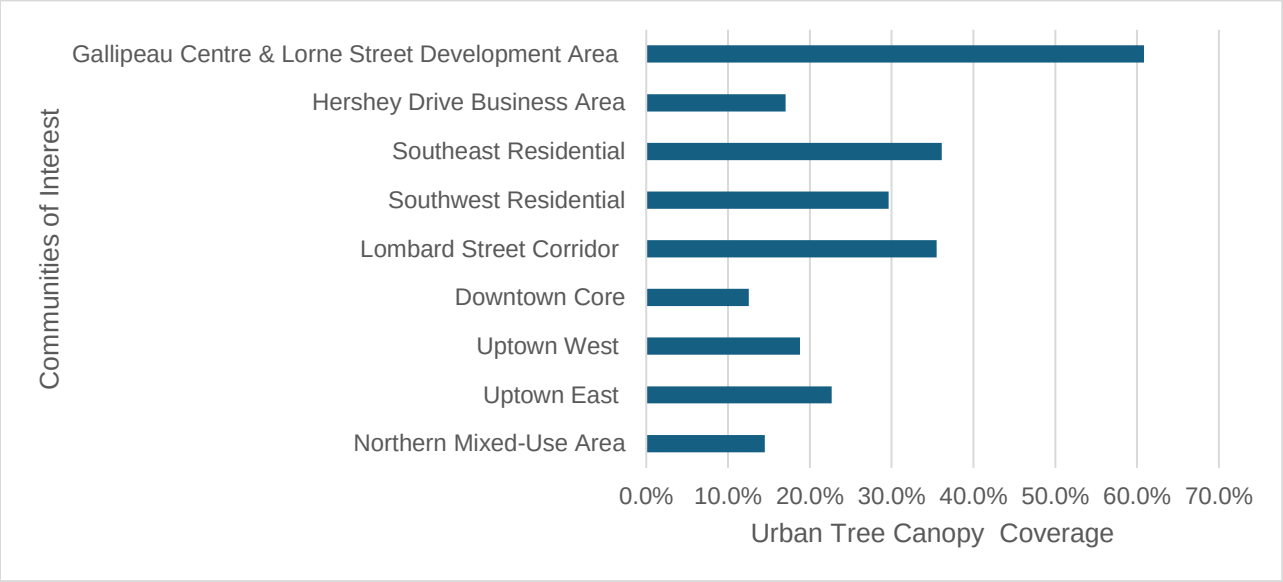


Figure 1 Urban Canopy Coverage Distribution

Table 1 Urban Tree Canopy Coverage Distribution Chart

DATE	AREA OF INTEREST	TOTAL LAND AREA (AC)	TREE CANOPY COVER (AC)	URBAN TREE CANOPY COVERAGE VALUE
2019	Northern Mixed-Use Area	288.37	41.83	14.5%
	Uptown East	297.57	67.45	22.7%
	Uptown West	133.84	25.13	18.8%
	Downtown Core	69.86	8.77	12.6%
	Lombard Street Corridor	196.63	69.83	35.5%
	Southwest Residential	297.01	88.01	29.6%
	Southeast Residential	388.98	140.48	36.1%
	Hershey Drive Business Area	172.8	29.45	17.0%
	Gallipeau Centre & Lorne Street Development Area	679.93	413.61	60.8%
	Entire Town	2524.99	884.56	35.0%

Appendix C – Urban Tree Canopy Zone Map Details

Note: UTC Zone Map Details show an aerial view of the tabletop tree canopy assessment exercise. The radius of each individual tree identified as a green halo in the image above is calculated to determine its approximate tree canopy. Within each zone, the tree canopy of all the evaluated trees is aggregated to give a total tree canopy expressed in acres per zone.