The Corporation of the City of Cornwall

Regular Meeting of Council

Report

Department:	Infrastructure and Municipal Works
Division:	Environment
Report Number:	2020-376-Infrastructure and Municipal Works
Prepared By:	Carl Goodwin, Division Manager
Meeting Date:	October 26, 2020
Subject:	Environment and Climate Change Committee Review of Draft Tree Canopy and Natural Vegetation Protection Policy

Purpose

To provide Council with recommendations regarding the proposed Tree Canopy and Natural Vegetation Protection policy.

Recommendation

a. That Council approve the Tree Canopy and Natural Vegetation Protection Policy as presented.
b. That Council direct Administration to prepare a report to address the actionable items / recommendations of the Environment and Climate Change Committee.

Financial Implications

There are no financial implications at this time.

Strategic Priority Implications

Being leaders in Sustainability and climate change impact

1. Create Environment and Climate Change Committee
6. Identify what the City can take the lead on.

Background / Discussion

A Tree Canopy and Natural Vegetation Protection Policy is a requirement of *Municipal Act, 2001*, the *Municipal Conflict of Interest Act*, the *Municipal Elections Act, 1996.* Bill 68 Section 270 and a draft version was presented to Council on Nov 25, 2019. At the time, Council made the following decision: Motion to receive the presentation and refer the presentation to the Environment and Climate Change Committee for recommendations.

The Environment and Climate Change Committee's mandate is to provide a local perspective on climate change initiatives with respect to greenhouse gas emissions targets as well as provide a framework to work towards climate change goals, strategic direction and priority actions, namely:

- Reduce our contributions to climate change while increasing our ability to adapt to climate change conditions.
- Establish a baseline of greenhouse gas emissions with a corresponding plan for achieving a set target in emission reductions.
- Reduce and offset greenhouse gas (GHG) emissions produced within our community.

Specifically, the Environment and Climate Change Committee will work towards the goals, based on the four areas of focus: Focus area 4:

4. Review, research, and provide feedback on community-related climate action items as directed by Council, including strategic planning, by-laws and policy development.

Context

The environment and our ecosystems surround us. Human interaction can improve the natural environment, can benefit from those living systems, and can harm the functioning of the urban ecosystem.

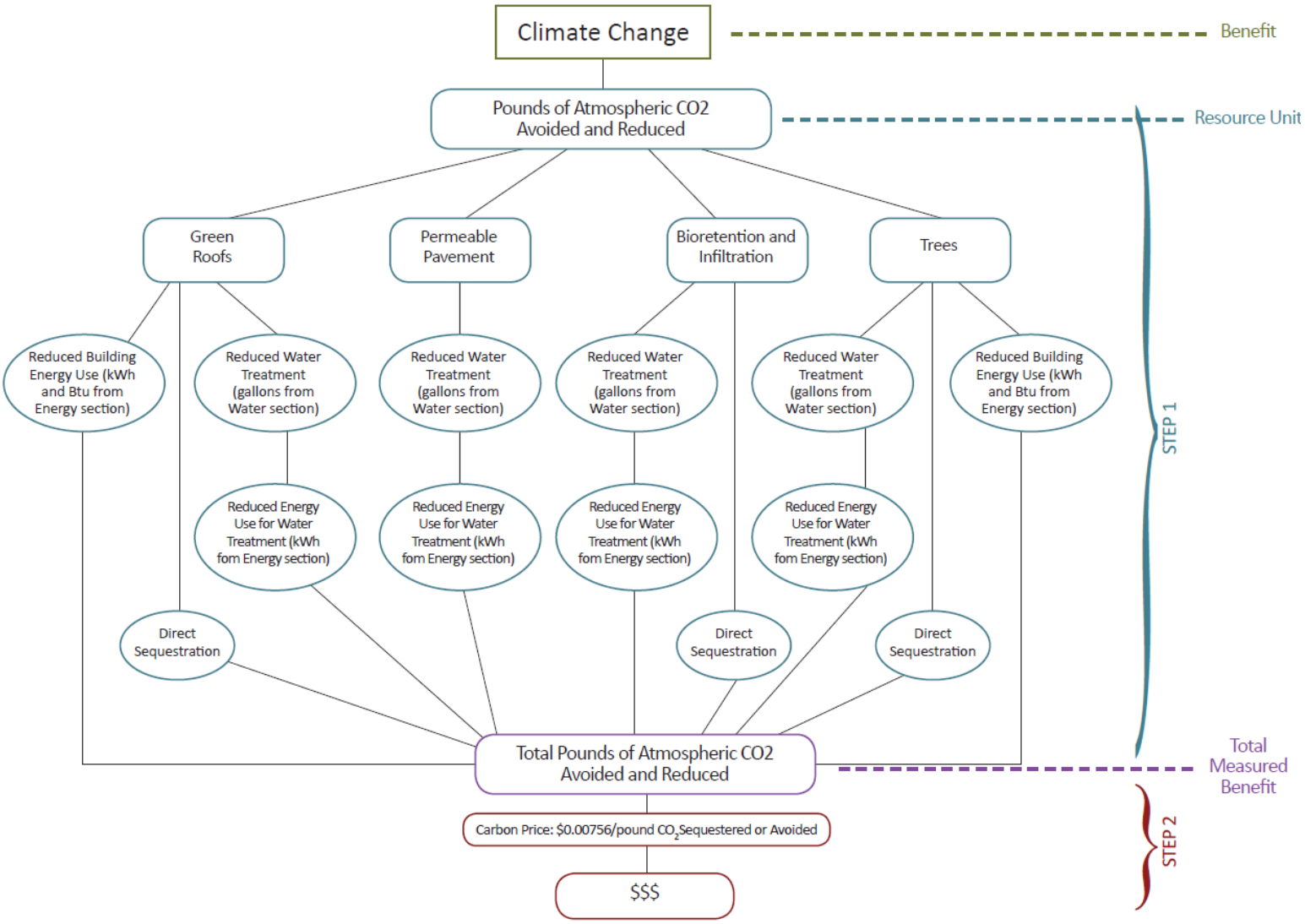

Figure 1. Benefits of Climate Change Mitigation.

The role of Trees and Vegetation in Climate Change Mitigation

The current knowledge level of our urban systems has developed to the point that cities can make important contributions to limiting and reversing climate change. Potentially more important - is the growing body of knowledge that municipalities can improve the health of the residents living in their municipality while improving the health of the natural environment.

As described in the Draft Tree Canopy and Natural Vegetation Protection Policy, trees and vegetation in our urban space provide important contributions as we venture outside our houses.

An understanding of the tree canopy and natural vegetation values can help communities decide where, when and to what extent green infrastructure practices should become part of future planning, development and redevelopment.

Policies like the Tree Canopy and Natural Vegetation Protection Policy can:

- Inform decision-makers and planners about the multiple benefits Tree Canopy and Natural vegetation incorporated into green infrastructure and Low Impact Development (LID) delivers to communities.
- Cultivate Public Education Opportunities through Community tree planting, community flower bed planting as elements in the policy are enacted.

The Environment and Climate Change Committee recognizes that the Tree Canopy and Natural Vegetation policy will have significant positive effects in our efforts to reduce our contributions to climate change while increasing our ability to adapt to climate change conditions.

The following list of actionable items were designed to support the outcomes of the Tree Canopy and Natural Vegetation policy into the activities of the City of Cornwall:

a) The Committee recommends to Council the addition of a schedule of when Tree Canopy will be measured.

b) The Committee recommends to Council that Administration prepare a report, as soon as possible, that assesses the environmental, climate change, social, cultural and economic value to a tree, derived from the tree canopy which can be used to inform policy development.

c) The Committee recommends to Council that Administration investigate methods to create a Tree Inventory to support the growth and/or maintenance of the tree canopy.

d) The Committee recommends that the City prepare a list of native tree species, and prioritize these, for maintaining and growing the urban forest tree canopy. Presently mainly non-native species are on the list in the Policy. Note: the species listed in Schedule “A” do not match the species in https://www.cornwall.ca/en/live-here/forestry.aspx.

e) The Committee recommends to Council that the Tree Canopy Policy, section titled “City Initiated Tree Removals and Replacement Plantings” be amended by changing the ratio 1:1 with 3:1.

f) The Committee recommends to Council that using the tree canopy data and the environmental, climate change, social, cultural and economical value report, establish a budget to grow and maintain the tree canopy which will include creating a tree asset management plan for public land.

g) The Committee recommends to Council that a consultant be hired to write the Best Practices from the Tree Canopy and Natural Vegetation policy into the appropriate City approved site plans, development and subdivision standards, engineering standards, street scape plans, by laws, etc. The adopted Best Practices (green development) should increase climate adaption and lower GHG emissions and contain a measurement element that tracks progress as a companion to the environmental, climate change, social, cultural and economic value report suggested in this list of actionable items.

h) The Committee recommends to Council that the Administration develop a new GIS interactive map which could be placed on the City website that shows current and planned tree canopy.

Accessibility Impact

None at this time.

Report Approval Details

Document Title:	Draft Tree Canopy Protection and Enhancement Policy - 2020-376-IMW.docx
Attachments:	- Urban-Canopy-Assessment-Cornwall-Final.pdf - DRAFT Tree Canopy and Natural Vegetation Policy Climate Change draft edit Oct 15 2020.docx
Final Approval Date:	Nov 2, 2020

This report and all of its attachments were approved and signed as outlined below:

Bill de Wit - Oct 21, 2020 - 9:29 AM

Tracey Bailey - Oct 21, 2020 - 9:53 AM

Maureen Adams - Nov 2, 2020 - 7:13 PM

Urban Canopy Assessment

An estimate of coverage within the City of Cornwall

Raisin Region
Conservation Authority

18045 County Road 2
PO Box 429
Cornwall, ON K6H 5T2

August 25, 2020

Final Report

Abstract

The urban canopy coverage within the City of Cornwall, as of Spring 2019, was digitized using Geographic Information System (GIS) software and high-resolution aerial photography. Through GIS tools, the total urban canopy coverage was calculated to be approximately 19.9 km². This represents a canopy coverage estimate of 32% within the City of Cornwall.

Additional GIS analyses were performed to determine the canopy coverage on a 1 km square grid and 500-meter square grid basis across the city to produce a visual map to identify canopy coverage within the city boundary.

Suggested Citation
Raisin Region Conservation Authority. *Urban Canopy Assessment, An estimate of coverage within the City of Cornwall.* August 2020.

For Internal Use
Primary Author(s): Phil Barnes, Olivia Harrington, Brittany Hum.

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Introduction

An urban canopy can provide many benefits such as heat mitigation, storm water management, carbon storage and sequestration, improved air quality, and shade (Green Infrastructure Ontario Coalition, 2016).

Of interest to watershed management is the role trees and an urban canopy can play in controlling stormwater runoff and protecting surface waters from sediment and nutrient loading. In cities, trees can play an important role in stormwater management by reducing the amount of runoff that enters stormwater and combined sewer systems. Trees, acting as mini-reservoirs, control stormwater at the source (USEPA, 2013).

In 2019, the City of Cornwall created the *Cornwall Environment and Climate Change Committee*, of which the Raisin Region Conservation Authority was a member. The committee was initially tasked with reviewing a *Tree Canopy and Natural Vegetation Protection and Enhancement Policy*.

This report is intended to provide a preliminary estimate of the urban canopy coverage within the City of Cornwall.

Methodology

The urban canopy was digitized manually within ESRI ArcMap software. A GIS technician traced the urban canopy outline in the software using a high-quality aerial image. The image used was from the Digital Raster Acquisition Project Eastern Ontario (DRAPE), 2019.

The DRAPE image for the City of Cornwall was acquired in the spring of 2019 under the best conditions possible to achieve cloud free, snow free, ice free, and smoke free captures. Normally this photo would have been acquired with “leaf-off” conditions; however, due to a late spring thaw and persistent early snow presence, by the time the image was captured, the leaves we fully engaged thus allowing visualization of the canopy (Figure 1).

The orthophotography has a pixel resolution of 16cm and is accurate to 45 centimetres on the ground at 95%. The imagery was acquired by a Vexcel UltraCam X and Vexcel UltraCamEagle digital cameras and was later orthorectified using an elevation dataset generated through image correlation.

Digitization was done at a minimum of 1:500 scale view (Figure 2). The GIS technician would zoom in as necessary to clarify proper delineation of the canopy and to isolate shadows. The canopy of all trees, bushes, and shrubs with an approximate minimum height of 2 meters were digitized (Figure 3). The 2-meter cut-off height is consistent with other North American communities including the 2019 assessment of Canada’s Capital Region (City of Ottawa et al, 2019).

Figure 1: DRAPE image at 1:10,000 scale

Figure 2: DRAPE image at 1:500 scale

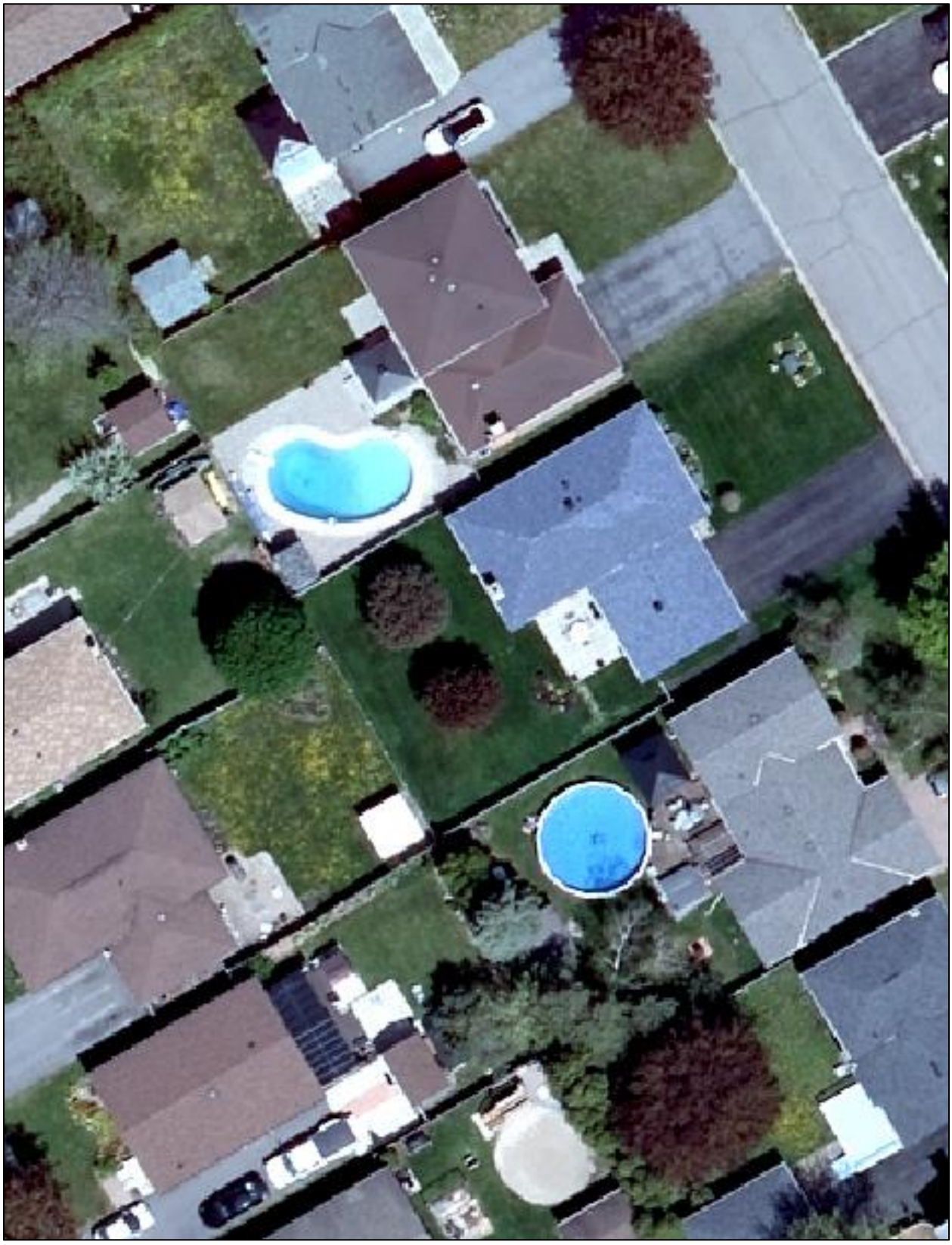


Figure 3: DRAPE image at 1:500 scale with Urban Canopy digitized

Results

The urban canopy within the City of Cornwall was digitized by manually tracing a series of 40,388 discrete polygon shapes overtop of the DRAPE aerial imagery. Using ArcMap tools, the individual shapes were *merged* to remove any overlap and *dissolved* to create a single polygon shape. A *clip* operation was performed by overlaying the City of Cornwall municipal boundary over the canopy layer to produce a final polygon representing the urban canopy for the city (Figure 4).

The area of the urban canopy shape was calculated within the software to be 19.9 km². The total area within the City of Cornwall's urban boundary was determined to be 62.0 km². The urban tree canopy coverage for the City of Cornwall in the spring of 2019 was therefore estimated to be 32%.

Additional Analyses

Since that the urban canopy was digitized in a GIS program, it affords a multitude of additional analyses.

A basic spatial analysis was performed by overlaying a simple 1km x 1km square grid over the city. The percentage of canopy coverage per cell was computed and colour coded. The result is map that permits a quick visual representation of canopy coverage by general location (Figure 5). This process was also repeated for a finer grid of 500 meters x 500 meters (Figure 6).

Additional analyses could be performed such as: urban canopy coverage on public lands, canopy coverage on city owned property, canopy coverage by official plan zoning, canopy coverage by stormsewershed, and canopy coverage by neighbourhood to name a few.

The dataset can also be analysed to estimate the overall or local impact to canopy coverage due to clear-cutting of certain areas (i.e. known future subdivision developments).

The dataset may also prove useful in identifying priority areas for planting and or maintenance.

Limitations

This assessment is intended to be a preliminary estimate and has not been reviewed by a Registered Professional Forester. The canopy delineation was performed manually by hand using operator judgement to determine if the vegetation exceeded the 2-meter height cut-off for tree canopy coverage. This assessment is not intended to be a replacement for field data collection. An improved assessment could be made with multispectral color infrared imagery and light detection and ranging data (LiDAR).

Figure 4: Estimated Urban Canopy Coverage

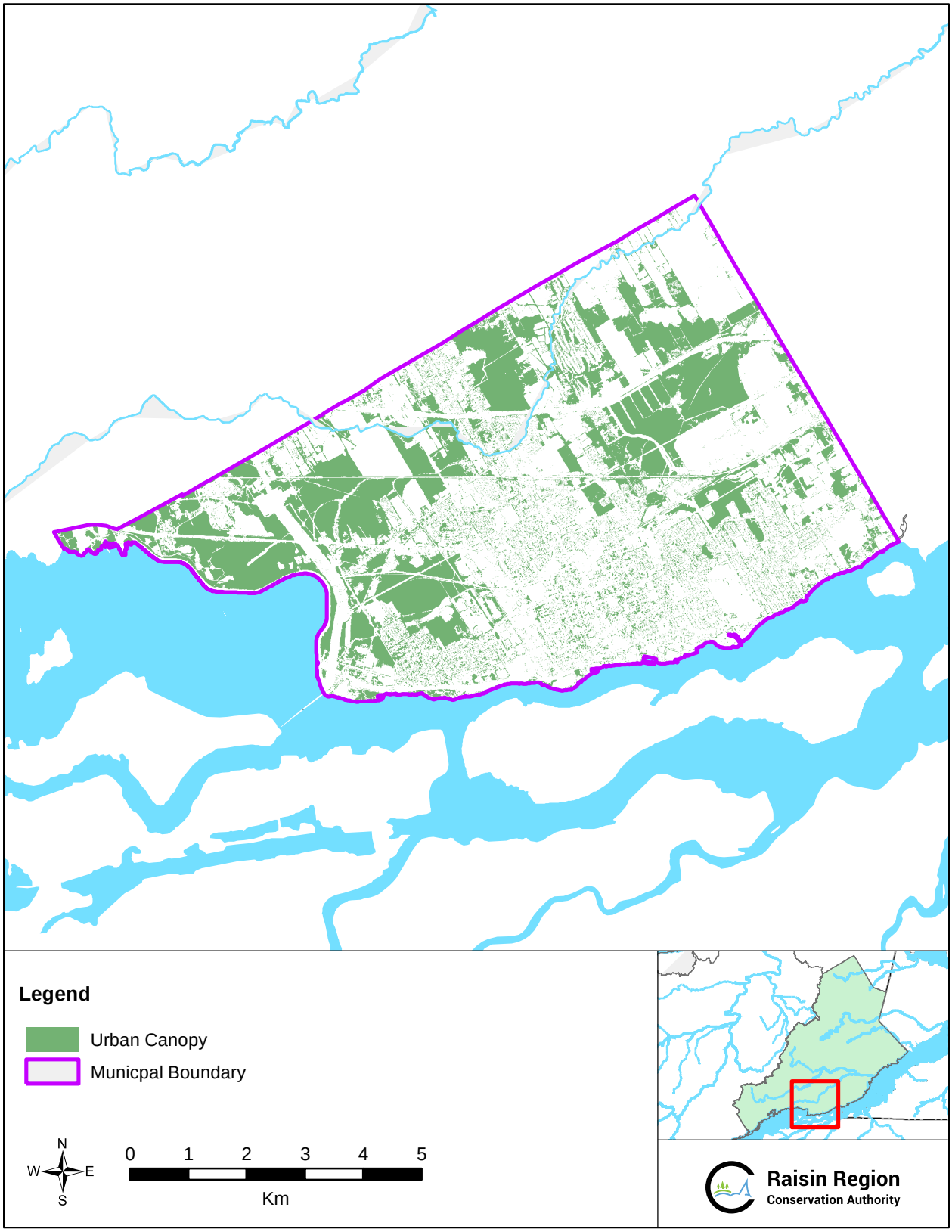


Figure 5: Urban Canopy Coverage Estimate (percent) by 1km x 1km Grid

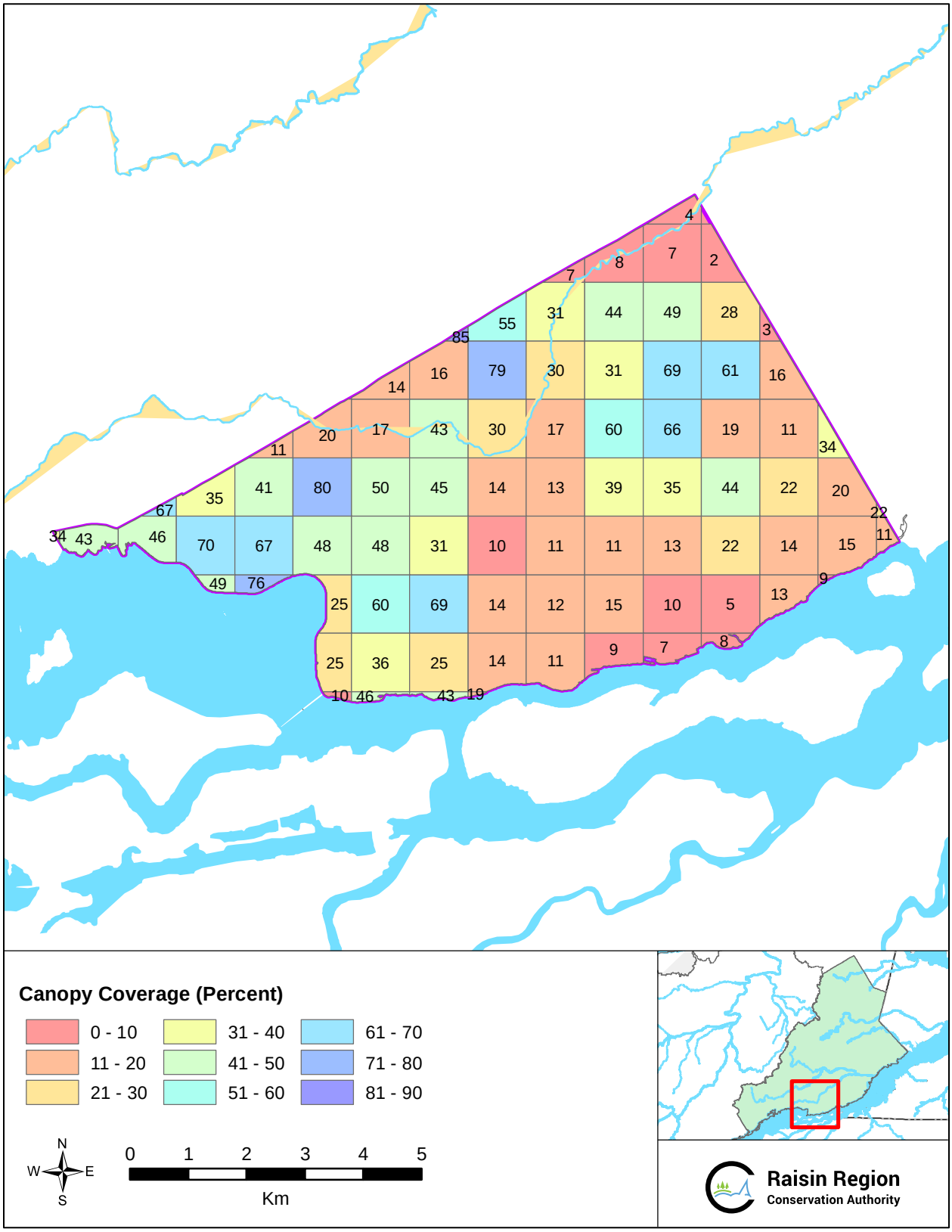
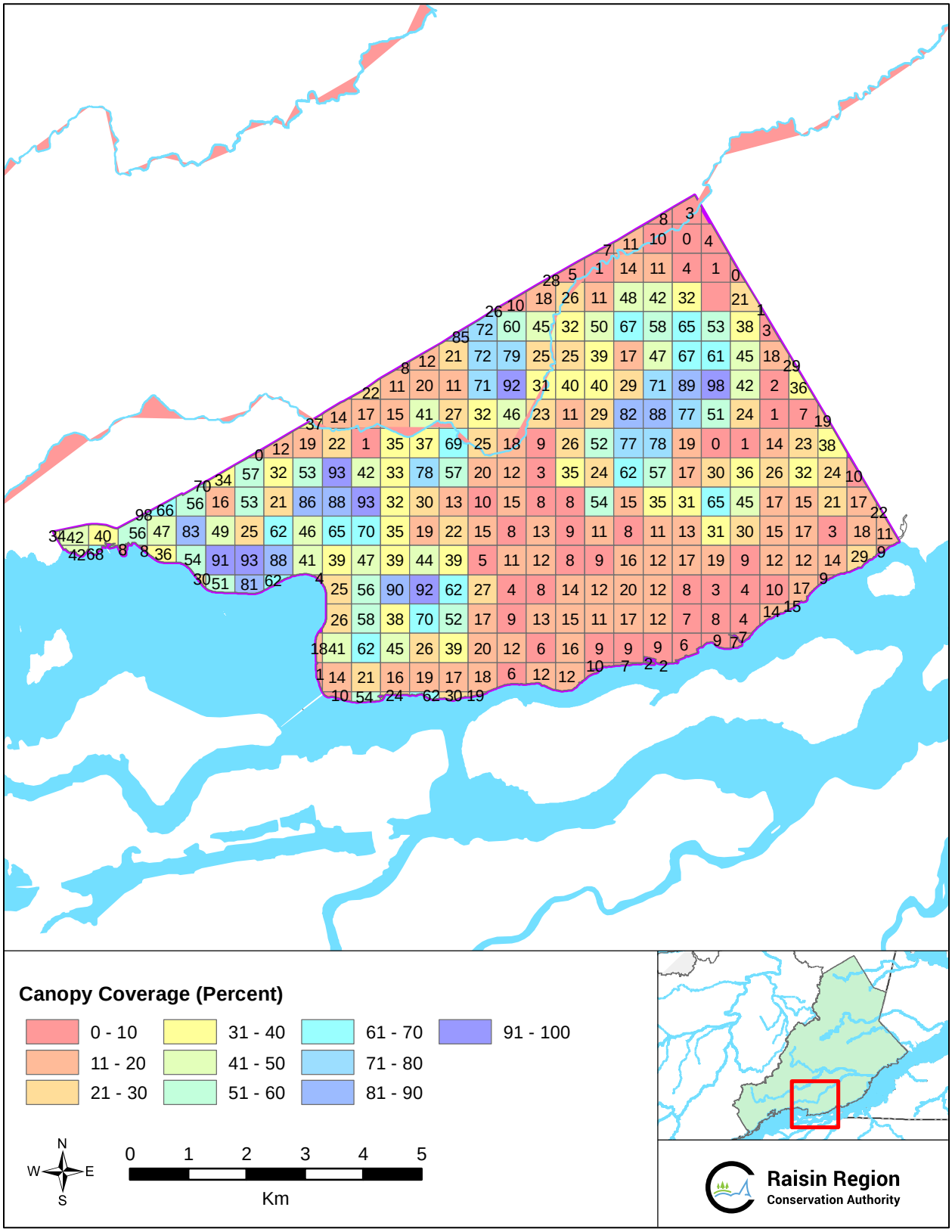


Figure 6: Urban Canopy Coverage Estimate (percent) by 500m x 500m Grid



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DRAFT (Administration)

The Corporation of the City of Cornwall Tree Canopy and Natural Vegetation Protection and Enhancement Policy

Department: Planning, Development and Recreation

Parks and Landscaping

Policy Number: TCNVPEP-2019-03-25

Effective Date: TBD

Council Approval: TBD

Definitions

"Urban Tree canopy" – is defined as the layer of tree leaves, branches and stems that provide tree coverage of the ground when viewed from above. Where a height cut-off of 2 metres be used for separating tree canopy from other vegetation.

"Natural vegetation" – shall mean the native plant life that grows naturally without human intervention in a geographic region.

"Shoreline buffer" "Ribbon of Life"

– shall mean a treed or vegetated strip of land that borders a creek, river or lake.

A. Background and Purpose

On March 30th, 2017 Royal Assent was given to Bill 68. This bill introduced a series of reforms to the *Municipal Act, 2001*, the *Municipal Conflict of Interest Act*, the *Municipal Elections Act, 1996*, *Planning Act* and others. As a whole, this Bill focusses largely on matters of municipal governance and financial accountability, however changes are also introduced that are intended to allow municipalities to be more proactive in combating and mitigating climate change. Of the various reforms introduced, an amendment to Section 270 of the *Municipal Act* has the effect of requiring all municipalities to adopt and maintain policies with respect to the protection and enhancement of the tree canopy and natural vegetation in the municipality. More specifically, Section 270 requires that:

> *270(1) A municipality shall adopt and maintain policies with respect to the following matters (…)*
>
> > *7. The manner in which the municipality will protect and enhance the tree canopy and vegetation in the municipality.*

This section of Bill 68 comes into force and effect on March 1, 2019.

Of note, Bill 68 also:

- Allows for municipalities to conserve the environment in accordance with regulations, including powers to require green roofs or alternative roof surfaces in circumstances specified by the Building Code;
- Empowers municipalities to pass by-laws respecting climate change as part of their powers to enact by-laws relating to the economic, social, and environmental well-being of the municipality;
- Amends Section 2 of the *Planning Act* to make the "mitigation of greenhouse gas emissions and adaptation to a changing climate" an enumerated matter of provincial interest in which decision makers must have regard in considering planning matters.

B. Rationale for Tree Canopy and Natural Vegetation Policy

Tree cover and natural vegetation infrastructure have been found to produce a number of benefits which are broadly broken down into three themes:

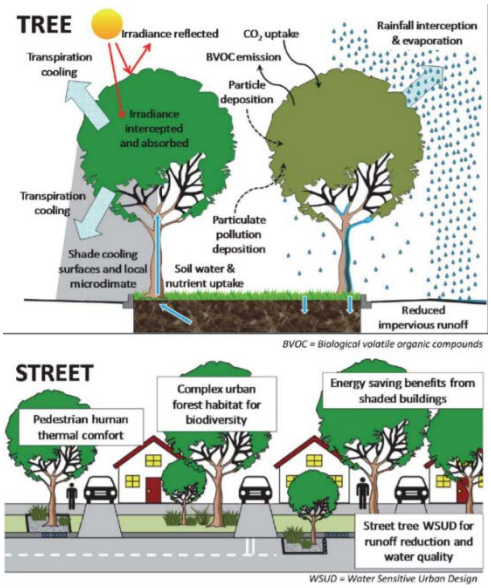
Economic:

- Enhances aesthetic beauty of streetscape – a draw for new businesses and people;
- Increases property values;
- More attractive for tourism;
- Reduces cost of cooling in the summer and heating winter (wind reduction);

- Saves costs through reduced mowing;

Community:

- Creates more walkable communities, public spaces and recreational areas;
- Creates more comfortable and beautiful city;
- Calms traffic and shades parked cars;
- More people outside means safer streets;
- Encourages more walking, jogging and cycling;
- Reduces sun exposure and heat related illness;
- Studies show the presence of trees improves mental well-being, fostering health and healing;



Environmental

- Moderates temperature, especially in the summer;
- Trees provides the vital supply of oxygen needed for humans to breathe;
- Helps manage stormwater run-off, reduces flooding and enhances water quality;
- Creates wildlife habitat for birds, butterflies, pollinators, plants and animals;
- Helps reduce air pollution;
- Prevents erosion, especially along slopes.

For shoreline areas, a vegetative buffer contains pollutants (salt, fertilizer, septic leachate), reduces erosion, encourages infiltration and improves wildlife habitat, which leads to better outcomes for fish.

On a watershed basis, a minimum 30% tree canopy coverage is recommended by Conservation Authorities, Environment Canada and others to allow rivers and lakes within the watershed to maintain a healthy ecological and hydrological function. The Raisin Region Conservation Authority completed a Forest Cover and Trends Analysis in 2019 (Appendix A) which analyzed the forest cover trends within the region. The report determined the forest cover, overall, for the Raisin Region watershed to be approximately 34%. The report also analyzed the forest cover by municipality and determined the percentage of forest cover within the City of Cornwall to be approximately 20%.

An update to the 2019 Trends Analysis report by the Raisin River Conservation Authority Urban Canopy Assessment Aug 2020 using a different and greater detail method (Appendix B) analyzed the urban tree canopy down to trees above 2m in height determined the urban tree canopy to be 32%. The report includes the identification of areas with low tree canopy cover.

Anticipated effects of climate change include heavy rainfall events and unseasonable precipitation. Runoff from rainfall and snowmelt in a forested area has been demonstrated to be significantly less than in a developed or cleared area in both overall volume and peak flow. A healthy forest cover and natural vegetation areas makes watersheds more resilient to effects of climate change and on a broader scale, helps to

sequester carbon and is consistent with the goals outlined for the community in the Official Plan as well as the City's five Strategic Priorities, one of which is Environmental Sustainability.

C. Advocacy

The City needs partners to achieve a higher percentage of tree canopy. The following programs of advocacy and explanation of the benefits of the policy will help with public understanding and will encourage actions by all to meet the desired goals.

- Encourage tree planting and the non-removal of trees on private property through various incentives such as workshops, bulk tree purchases, neighborhood planting bees etc.
- Encourage an adopt-a-tree program for the ongoing care of trees planted by the City.
- Publicise the opportunity for residents to request a City street tree in front of their house.
- Work closely with local arborist companies to promote best tree maintenance practices.
- Work closely with the four school boards to promote adding to and preserving the current tree canopy and to reduce grass mowing areas and introduce naturalized areas wherever possible.
- Seek partnerships with the Raisin Region Conservation Authority and local advocacy groups to create and fund tree canopy enhancements in available vacant spaces, shorelines and public areas such as the 'Tiny Forest @ the Library'.
- Support partner agencies in delivery of programs such as the Raisin Region Conservation Authority Tree Seedling Program, the 50 Million Tree Program and the Edible Cities Program.
- Proactively seek other emerging partnership and funding opportunities, amending the policy to include these.
- Promote and publicize the Commemorative Tree Planting Program to encourage buying and planting of trees.
- Promote and publicize the City Arboretum as a place to learn about all the different city trees available.
- Identify and celebrate 'Legacy Trees' as well as naturalized areas and the importance of the 'Ribbon of Life' along shorelines, providing signs to raise awareness of their value.
- Plan for the publication and distribution of this policy on the City website, in other municipal advertising and at the pre-consultation stage of development applications.

- Support the ongoing assessment of the quality and quantity of the tree canopy condition in the city. Support tree inventory and mapping as resources permit to ensure targets are being met.
- Provide information for the public on cost savings, carbon and energy reductions resulting from city actions such as reduced mowing areas.

D. Municipal Role

The City through its various departments will take the following measures within its own operations to preserve and enhance the urban tree canopy as well as increase areas of natural vegetation within the city. Its actions can also serve a model for the actions taken by citizens on their own property.

Goals and Priorities

- Environment and Sustainability is one of the city's current five key priorities and this Policy provides one of the key means to achieve the initiatives contained in that priority.
- The City endeavours to increase the overall urban tree canopy coverage to at least the 30% recommended by Conservation Authorities and Environment Canada as needed to maintain a healthy ecological and hydrological function, through its own planting initiatives on public property and public advocacy to promote plantings on private property.

Subdivision Development – Boulevard Tree Planting and Parkland Dedication Requirements:

The City's standards for all new subdivision developments are outlined in detail within the Department of Infrastructure Planning's Subdivision Manual. As part of the subdivision development process, Developers enter into a contractual agreement with the municipality called the "Subdivision Agreement". This Subdivision Agreement is a binding contract which specifies the Developer's obligations, including boulevard tree planting and parkland dedication. Typically the Subdivision Agreement stipulates one new boulevard tree for every building unit. (ie. One boulevard tree for every single family dwelling, and two boulevard trees for semi detached dwellings, etc). New boulevard tree plantings are to be native tree species as much as possible and shall be in conformance with the City's tree planting specification. Also the Subdivision Agreement typically specifies that a minimum of 5% of the overall development be dedicated as parkland, unless determined by the Department Manager that the neighbourhood already has adequate parkland. In the event that the neighbourhood is determined to already have

adequate parkland, the Developer is required to provide the City with cash in lieu of a parkland dedication valued at 5% of the raw land value of the entire development.

Site Plan Development – Landscaping Requirements

Development sites subject to site plan approval are required to supply a landscaping plan as part of the review process. Proponents are typically encouraged to include a high degree of landscaping elements typically on private lands which includes planting of a variety of species and callipers as defined in the site plan design guideline manual. There is a key focus on landscaping major streets and City entrances. Every effort to protect and preserve existing mature trees shall be made where practical. It should be noted that removal of trees from the site will likely mean that a higher level of landscaping will be required to compensate. Various City staff will provide commentary during the site plan review process to ensure that the proposed landscaping plan is in concert with their respective by-laws and the governing site plan design manual.

Identify and ensure the preservation of high quality existing trees, whenever City owned property is sold, with the sale process applying the appropriate plan of subdivision and/or site plan controls to ensure the protection of said trees, when reasonably feasible. Parks and Landscape staff will review each City owned property to be listed for sale, and will identify any high quality existing trees that warrant protection.

City Tree Management Operation Policies

The preservation of existing trees will be a key priority, when reasonably feasible, when undertaking City Public works projects such as construction of new sidewalks and roadways or other public works. There are a number of circumstances, however in which the removal of a City owned tree is required. The following explains the tree replacement policies that are in place to protect the City's tree canopy.

City Initiated Tree Removals and Replacement Plantings

- There are a number of conditions in which a City owned tree may require removal, such as due to poor health condition, or a tree may be causing damage to private property, etc. If a City tree is deemed to require removal, the Parks and Landscape Dept. endeavours to plant replacement trees at a 1:1 ratio. As much as possible, staff attempt to locate the replacement planting in the same location as the removed tree, however there are occasions where the same location is

not suitable for a new planting. In those circumstances the replacement tree will be planted in a more suitable location.
- Priority will be given to areas of the City that have little or no tree canopy.
- Provide opportunity to abutting property owners to select preferred species from list.
- New and/or replacement plantings shall be native species whenever possible and shall be in conformance with the City's tree planting specifications.
- The City shall endeavour to ensure that there is a minimum of one boulevard tree in front of every property (provided that the boulevard is capable of supporting a tree planting).

Tree Removals Resulting from City Construction Projects and/or Infrastructure Repairs

- Some tree removals are required as a result of the City's infrastructure renewal projects or as a result of underground infrastructure repairs. Typically, such work is initiated by the City's Municipal Works and Infrastructure Planning Department. Whenever there is a concern that such work may impact the health of a City tree, the Parks and Landscape Department will assist by reviewing the impact and make a recommendation as to whether the tree should be removed. Upon the completion of the project/work the Municipal Works and Infrastructure Planning Department shall work with the Parks and Landscape Department to replace any removed trees with replacement plantings. Replacement plantings shall be native species as much as possible and shall be in conformance with the City's tree planting specifications.

Emerald Ash Borer (EAB) Management Plan

- The City has implemented a management plan to deal with an invasive species, the Emerald Ash Borer, which is an insect that attacks and kills ash tree species. At the beginning of the plan in 2014, the City identified approximately 3500 ash trees located on City owned land (boulevards, parks, City building properties, City owned woodlots). The EAB Management Plan includes three main activities: the removal of infected trees, TreeAzin injection treatment, and planting replacement trees. Each year staff review the condition of the City ash tree inventory and identify infected trees requiring removal and contractors are retained to remove said infected trees. The plan includes a tree replacement strategy at a 1:1 ratio. As much as possible, staff attempt to locate the replacement planting in the same location as the removed tree, however there are occasions where the same location is not suitable for a new planting. In those circumstances the replacement tree will be planted in a more suitable location. Replacement plantings shall be native species as much as possible and shall be

in conformance with the City's tree planting specifications. The plan also includes a TreeAzin injection treatment which is intended to prolong the life of specific ash trees on City boulevards and parks that have been identified and characterized as significant. The purpose of the treatment is not to save the tree from its inevitable demise, but is intended to prolong the life of the tree until such time that removal is required. This delay in the removal of the treated tree will provide new plantings in the area the opportunity to become established so that when the treated tree is removed the impact to the canopy in the vicinity won't be as severe.

Potential Threats

- There is always the potential threat that other invasive species similar to the Emerald Ash Borer or diseases (such as Dutch Elm Disease) may threaten the health of the tree canopy in Cornwall and the surrounding area. Staff from the Parks and Landscape Department endeavour to participate in industry conferences, education and network opportunities in order to remain current on industry trends and threats.

Naturalization of Public Spaces and Shoreline Areas

- All shoreline areas will include a "ribbon of life" revegetation for new and renovated waterfront developments in accordance with the best practices outlined in this policy.
- The Parks and Landscape Department completed a review of its grass cutting operations in 2018 and identified areas for naturalization. Reducing grass cutting operations wherever possible, allows areas to return to their natural state, providing increased opportunities for new tree growth thus improving the City's tree canopy. The Parks and Landscape Department will continue to look for new opportunities to reduce grass cutting operations wherever possible and to naturalize areas.

E. Best Practices

These practices are provided to support residents, staff and others in developing planting plans that ensure the long-term survival of tree and vegetation plantings.

- Encourage native trees that are best adapted to local environment and contribute to the ecological system;
- Identify trees which over the long term may be susceptible to changing climate (ie. Trembling aspen, white spruce) and those that are more likely to thrive (oak). Some examples of these species are included in Schedule "A".

Schedule "A"

Trees	Shrubs	Partial Shade	Full Sun	Shoreline
Riparian Zone	Black Chokeberry	Bearberry	Black-eyed Susan	Blue Flag Iris
Balsam Fir	Nannyberry	Bloodroot	Big Bluestem Grass	Blue Vervain
Red Maple	Northern Bush	Bunchberry	Canada Goldenrod	Boneset
Tamarack	Honeysuckle	False Solomons Seal	Common Milkweed	Cardinal Flower
Black Spruce	Pagoda Dogwood	Jack-in-the-pulpit	Flat-topped Aster	Swamp Milkweed
Eastern Hemlock	Red Osier Dogwood	Wild Columbine	New England Aster	Joe Pye Weed
	Smooth Wild Rose	Foamflower	Pearly Everlasting	White Turtlehead
Medium Sized	Swamp Rose	Ostrich Fern		
Chokecherry	Sweet Gale			
Pin Cherry	Winterberry Holly			
Serviceberry	Common Elderberry			
Striped Maple	Highbush Cranberry			
Ironwood	Lowbush Blueberry			
Eastern White Cedar	Meadowsweet			
	Serviceberry			
Large Sized	Steeplebush			
Bur Oak				
Red Oak				
Silver Maple				
Trembling Aspen				
White Birch				
Red Spruce				
Eastern White Pine				
Butternut				
Sugar Maple				

- Identify trees for planting that are better suited to certain constrained lands such as small spaces and urban conditions (road salt, compaction, etc).
- Planting tips to help ensure the right trees survive in the right places with minimal maintenance.
- For other vegetation, encourage mix of shrubs and flowers to enhance biodiversity, create habitat (pollinators) and improve desirability of public and private greenscapes;
- Where to Plant: Consideration should be given to where trees and vegetation are planted. Prior to planting a tree, property lines, utilities (power lines, buried water/sewer laterals or other 'hard' infrastructure) should be considered. The location of a tree should take into context its future size as it relates to a building's foundation and roof.
- Identify and remove invasive species: Recognizes that the ecological benefit of removing invasive species over the long term exceeds the limited benefits of allowing them to remain in pace;
- Shoreline naturalization: Hardening the shoreline with stone or concrete should be avoided. Vegetated areas adjacent to watercourses, lakes, rivers and wetlands are known as shoreline buffers. Shoreline buffers protect water from pollutants by filtering contaminants, providing habitat for native species and preventing shoreline erosion.
- Shoreline buffers should be at least 15-30 metres upland from the shore as recommended by the Ministry of Natural Resources and Forestry; and composed

of natural vegetation with a broad corridor of undisturbed vegetation. Shoreline buffers should not be grassed.

- Maintenance and Preservation: Trees and vegetation require special care and treatment. If it appears the vegetation is struggling, it is recommended you speak to a professional.
- Commercial / Higher Density Uses: In addition to this applying to single detached homes and smaller residential uses, it can also provide guidance to larger commercial/multiple residential developments. In addition to the benefits listed previously, increased vegetative buffers help beautify commercial properties and match the natural beauty of the Cornwall area.
- Other benefits that can be considered: Green parking lots to reduce stormwater flows and the costs of stormwater maintenance. Vegetated aisles and parking islands to increase shaded areas and reduce micro climates. Green roofs to reduce total stormwater runoff and enhance the urban canopy. The City of Toronto Design Guidelines for “Greening” Surface Parking lots provides an excellent reference.

F. Appendices

Appendix A: Raisin Region Conservation Authority completed a Forest Cover and Trends Analysis in 2015

Appendix B: City of Cornwall Tree Planting Policy