



STATE OF THE
FORESTS

MARCH 2017



Forests include woodlands, trees and shrubs in all urban and rural areas

SETTING THE STAGE

Forests play a key role in making our communities healthy, livable and sustainable. They provide significant economic, social, environmental, and public health benefits. Forests include trees and shrubs found in woodlands, urban and rural areas. This includes trees in parks and cemeteries, along streets and on farms, in residents' front and back yards and on other private lands. Whether individual trees and woodlands are owned privately (individuals, businesses) or publicly (municipalities, Conservation Authorities), together they form a forest network providing benefits that are shared by everyone in York Region.

One way to measure the impact of our forest is through the percentage of land area covered by tree and shrub canopies, referred to as canopy cover. York Region has a canopy cover of 31 per cent, which includes 23 per cent woodland cover. York Region's Forest Management Plan identifies the goal of increasing overall canopy cover to 35 per cent by 2031 and 40 per cent by 2051. The Regional Official Plan has established a target of 25 per cent woodland cover by 2031.



Woodlands are heavily treed areas that are at least 0.2 hectares in size. York Region has over 41,000 hectares of woodlands.



Our trees and woodlands are vital assets. They are part of our community's green infrastructure – natural vegetative systems and green technologies that provide services to our communities. Some of these services include removing pollutants from the air and water, reducing stormwater runoff, cooling communities, and public health benefits including improving mental health. Providing the same level of service using traditional built infrastructure instead of green infrastructure can be extremely costly and in some cases impossible.



York Region canopy cover is 31 per cent with plans to increase it to 35 per cent by 2031 and 40 per cent by 2051.

CANOPY COVER = EVERY TREE



WHY TREES ARE IMPORTANT

In York Region, there are approximately 29 million trees in woodlands, urban and rural areas with an estimated replacement value of \$12 billion.

Trees contribute far more to our communities when you consider all of the direct and indirect benefits they provide. Some of the benefits of trees can be measured with a monetary value, while many of these benefits cannot be easily quantified. One thing is clear, larger trees and healthy woodlands provide exponentially more benefits.



The urban heat island (UHI) effect is where urban areas are much hotter than nearby rural areas because all of the hard surfaces absorb and radiate heat.

In York Region, UHIs exist as pockets, primarily within the urban areas of the southern municipalities, but they are also found in towns and cities.

Hot spots are found where there is a large percentage of hard surfaces that absorb and slowly release heat – in York Region this coincides with industrial areas, employment areas and new residential developments. The effects of UHIs can be reduced by increasing canopy cover in the immediate area. Reducing UHIs is important for the health of individuals in York Region, especially the young, seniors and chronically ill, who are more susceptible to negative health impacts from high temperatures.

BENEFITS OF TREES



IMPROVED HEALTH

Spending time near trees improves physical, emotional and mental health.



CANCER PROTECTION

Trees and woodlands block UV rays and protect us from skin cancer.



INCREASED PROPERTY VALUE

Properties with trees are valued up to 15% higher.



SAVE ENERGY

Trees properly placed around homes and buildings can reduce air conditioning needs.



SAVE MONEY

York Region tree cover reduces energy costs by approximately \$8 million per year.



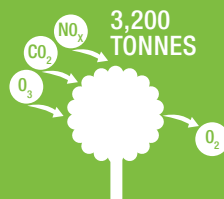
REDUCE FLOODING

Trees and woodlands intercept and absorb rainwater which helps reduce flooding.



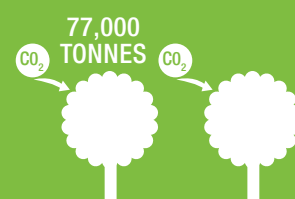
IMPROVED WATER QUALITY

Trees and forests filter rainwater making it cleaner to drink and swim in.



BREATHE EASY

Trees in York Region remove 3,200 tonnes of air pollutants annually and produce oxygen which improves respiratory health and air quality.



MITIGATE CLIMATE CHANGE

Forests in York Region remove and store 77,000 tonnes of carbon each year - that's equivalent to taking 60,000 cars off the roads annually.

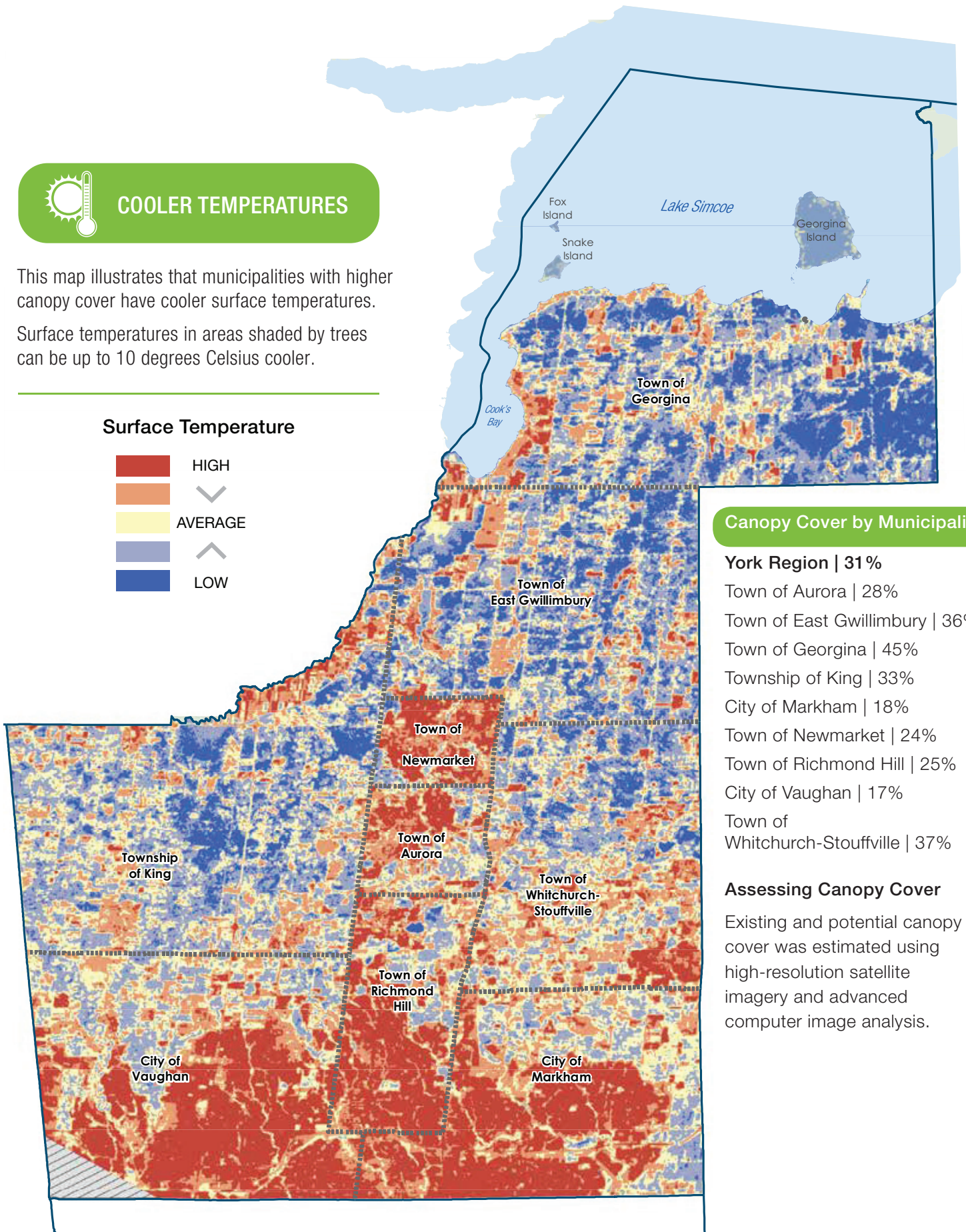
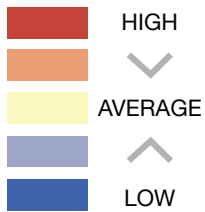


COOLER TEMPERATURES

This map illustrates that municipalities with higher canopy cover have cooler surface temperatures.

Surface temperatures in areas shaded by trees can be up to 10 degrees Celsius cooler.

Surface Temperature



Canopy Cover by Municipality

York Region | 31%

Town of Aurora | 28%

Town of East Gwillimbury | 36%

Town of Georgina | 45%

Township of King | 33%

City of Markham | 18%

Town of Newmarket | 24%

Town of Richmond Hill | 25%

City of Vaughan | 17%

Town of

Whitchurch-Stouffville | 37%

Assessing Canopy Cover

Existing and potential canopy cover was estimated using high-resolution satellite imagery and advanced computer image analysis.

WHAT WE HAVE

WHERE TREES ARE LOCATED

York Region has a canopy cover of 31% (2016) with plans to increase it to 35% by 2031 and 40% by 2051. The rural municipalities tend to have higher canopy cover (as high as 45%) while the urban municipalities have lower cover (as low as 17%). While canopy cover is not expected to be distributed equally across the Region, all towns and cities have the potential to increase their canopy cover.

The distribution of trees and woodlands across each municipality will directly influence the distribution of the benefits provided to communities. Woodlands and neighbourhood parks play an important role in creating habitat and recreation opportunities, and the large number of trees contributes greatly to other ecological services. However, large urban and residential trees (outside of woodlands) can have a significant impact because of their proximity to people, especially for helping to conserve energy, improving mental health, providing UV protection and reducing urban heat islands. It is important to invest in the growth of all trees.

The most significant opportunities for increasing canopy cover are by planting trees on residential, industrial and commercial land, protecting established trees, and caring for the many existing trees across the Region.

Modelling Tree and Forest Benefits

Benefits of trees and forests are calculated using the I Tree Eco model developed by the United States Department of Agriculture Forest Service. The model combines field data collected in each local municipality, local pollution and weather data to estimate forest structure and benefits provided by trees and forests.



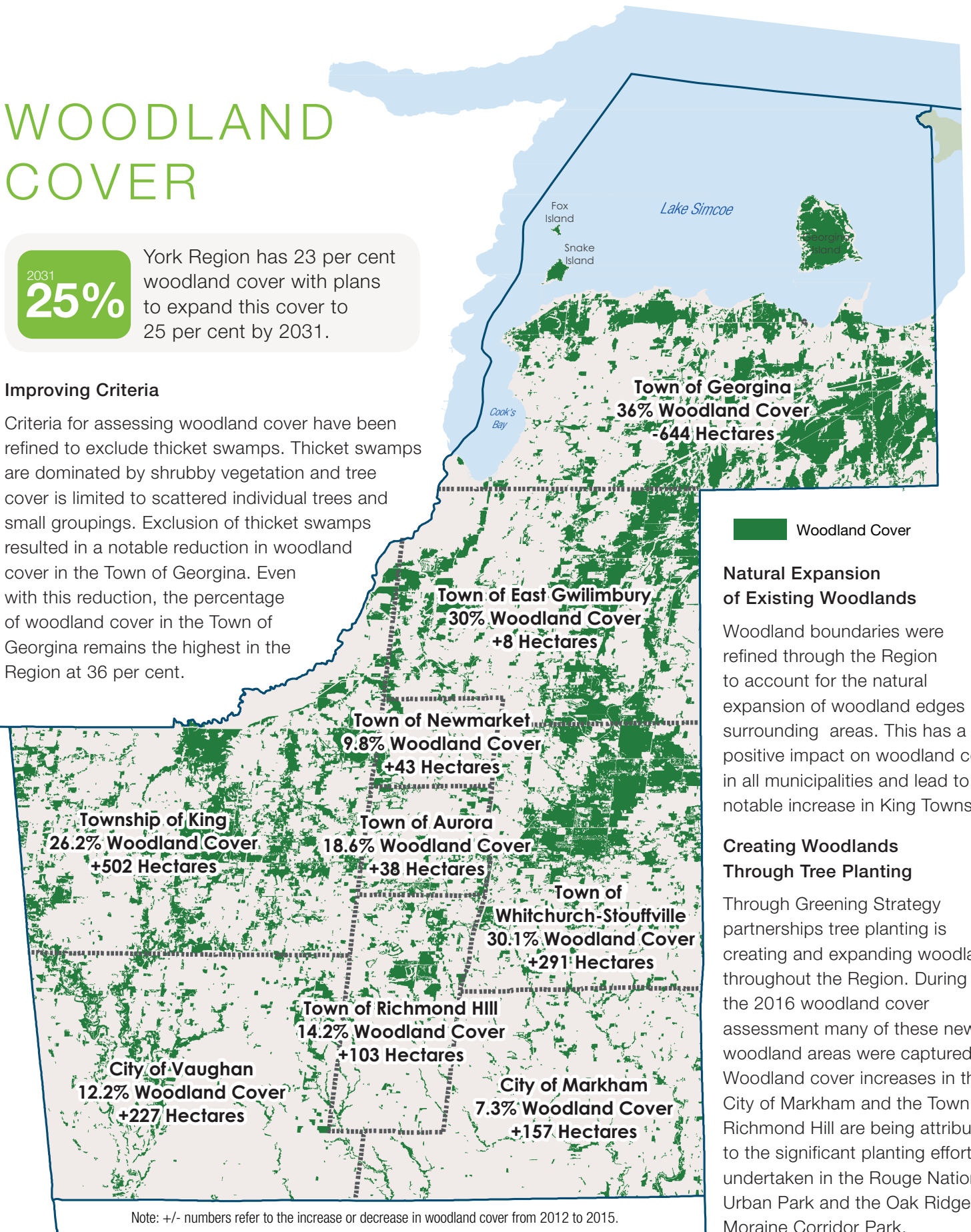
WOODLAND COVER

2031
25%

York Region has 23 per cent woodland cover with plans to expand this cover to 25 per cent by 2031.

Improving Criteria

Criteria for assessing woodland cover have been refined to exclude thicket swamps. Thicket swamps are dominated by shrubby vegetation and tree cover is limited to scattered individual trees and small groupings. Exclusion of thicket swamps resulted in a notable reduction in woodland cover in the Town of Georgina. Even with this reduction, the percentage of woodland cover in the Town of Georgina remains the highest in the Region at 36 per cent.



Note: +/- numbers refer to the increase or decrease in woodland cover from 2012 to 2015.

Woodland Cover

Natural Expansion of Existing Woodlands

Woodland boundaries were refined through the Region to account for the natural expansion of woodland edges into surrounding areas. This has a positive impact on woodland cover in all municipalities and lead to a notable increase in King Township.

Creating Woodlands Through Tree Planting

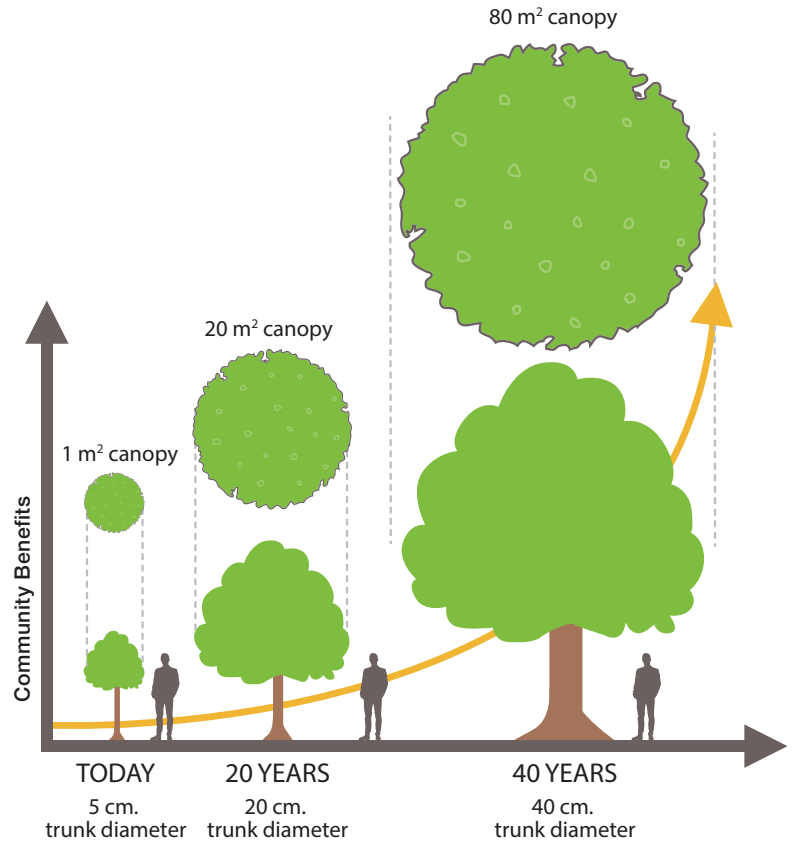
Through Greening Strategy partnerships tree planting is creating and expanding woodlands throughout the Region. During the 2016 woodland cover assessment many of these new woodland areas were captured. Woodland cover increases in the City of Markham and the Town of Richmond Hill are being attributed to the significant planting efforts undertaken in the Rouge National Urban Park and the Oak Ridges Moraine Corridor Park.

TREE SIZE

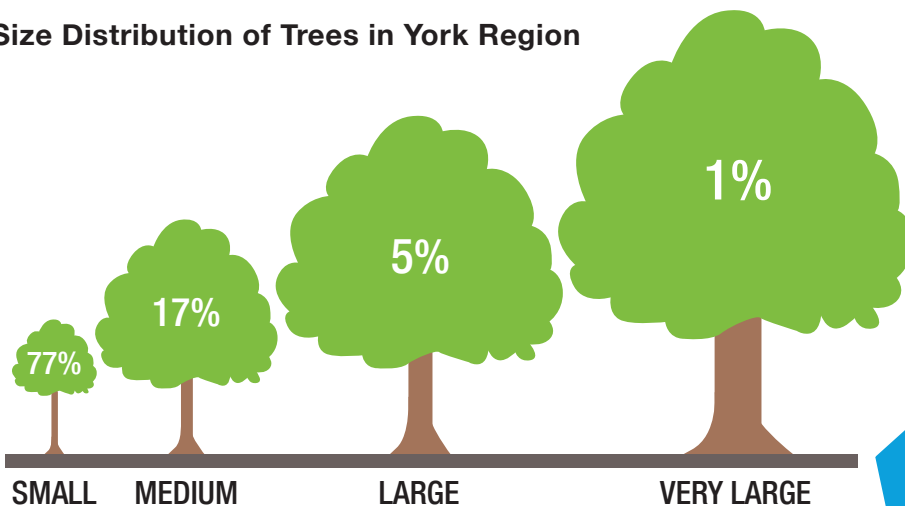
The size and health of a tree greatly affects the benefits it provides. Large trees deliver greater household energy savings, air and water quality improvements, runoff reduction, visual impact, property value enhancements and carbon sequestration capacity. In fact, one large healthy tree can store approximately 65 times more carbon and remove 15 times more air pollution annually than one small tree. Unlike most built infrastructure, trees are a great investment because as they grow their value and benefits increase.

A healthy forest (both individual trees and woodlands), has a good mix of differently sized trees so as large older trees begin to die, there is a next generation of young trees waiting to take their place to continue providing maximum benefits. Small stature trees are also an important feature in a healthy urban forest when planted in spaces too small for large trees.

Forests in York Region have many small, young trees and have few large, mature trees. This means in addition to planting more trees we have to invest in protecting our existing mature trees and caring for our younger trees so they reach their full potential.



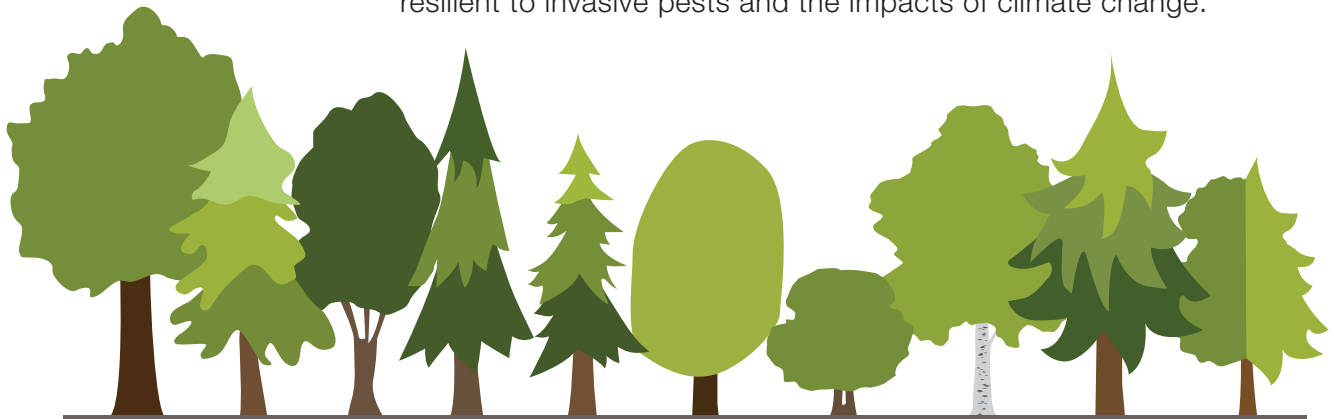
Size Distribution of Trees in York Region



DIVERSITY

Forests in York Region contain approximately 50 different native tree species and are dominated by maple, cedar and ash. Increasing diversity can help ensure a greater number of trees will survive a wide range of threats, including the impacts of climate change. It will also help achieve greater overall biodiversity within our urban ecosystems.

Diversity of York Region Trees Diversity in tree populations is vital to help grow healthy forests more resilient to invasive pests and the impacts of climate change.



	Maple (%)	Cedar (%)	Ash (%)	Pine (%)	Spruce (%)	Poplar (%)	Buckthorn (%)	Birch (%)	Hemlock (%)	Other (%)
York Region	17	17	12	9	7	6	5	4	3	20
Aurora	9	23	8	4	3	1	11	—	3	38
East Gwillimbury	1	14	10	6	4	10	—	4	6	45
Georgina	4	23	16	1	2	3	—	6	2	43
King	14	18	11	6	7	4	—	7	1	32
Markham	10	21	8	—	1	—	11	2	5	42
Newmarket	2	10	3	10	4	2	2	3	—	64
Richmond Hill	7	13	13	—	4	5	19	1	1	37
Vaughan	20	10	7	4	3	3	6	1	5	41
Whitchurch-Stouffville	20	11	8	7	5	1	1	2	3	42



One threat that has recently impacted ash trees in York Region is the Emerald Ash Borer, an invasive wood-boring beetle. All untreated ash trees are expected to die as a result of this infestation. Given that 12 per cent of trees in York Region are ash trees, the impact of this pest has been and will be significant.



In The Regional Municipality of York State of Infrastructure Report, regionally owned trees received a rating of “Good” based on the condition, reliability, and capacity of this asset to provide services to residents. The asset value of the approximately 45,000 Regional street trees was estimated to be \$30 million.

HOW WE ARE CLOSING THE GAP

The Region has developed the York Region Forest Management Plan to define targets and maximize the benefits of all trees and to combat threats to them. Through the 79 actions outlined in the Plan, progress will be made toward achieving Regional canopy and woodland cover objectives.

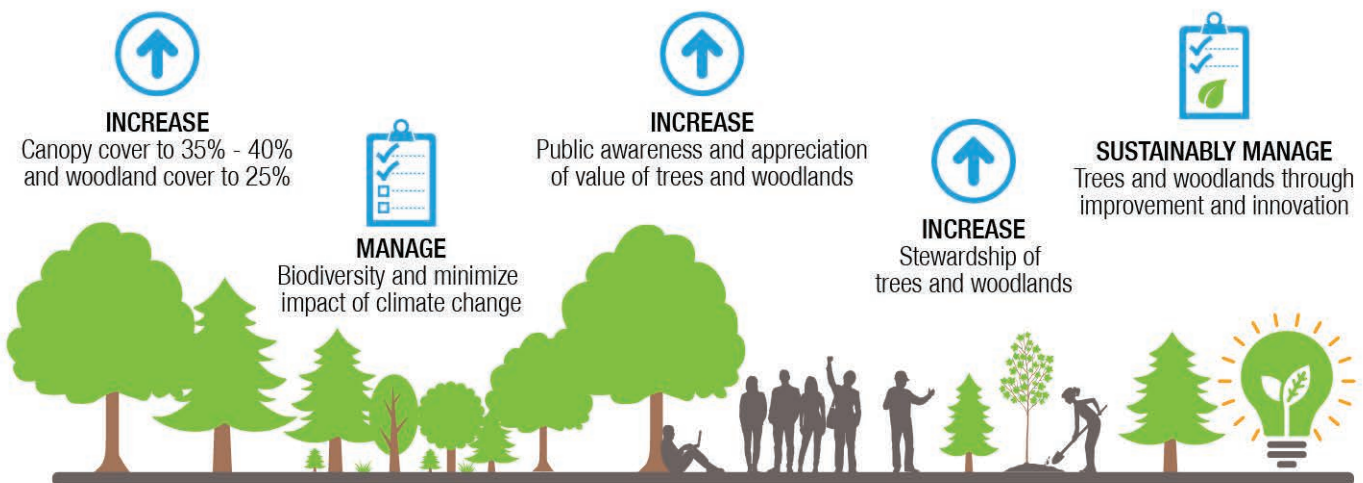
The plan also recognizes the need for partnerships at every level across York Region to improve stewardship of all trees, no matter where they grow. These partnerships could include The Regional Municipality of York, Conservation Authorities, local towns and cities and private landowners (such as homes, businesses and farms).

Planting, protecting and caring for the trees and forests in York Region is a shared responsibility. By working together, we can meet our goals and make sure our trees and forests continue to contribute to healthy, sustainable and livable communities.



A SNAPSHOT OF WHAT WE NEED TO DO

- Look for opportunities to support increasing canopy cover on private and public land, such as tree-planting programs and partnerships
- Support development of local municipal urban forest management plans
- Ensure legislation, policies and bylaws support the protection and enhancement of canopy cover and woodland cover
- Use educational outreach, planting events and marketing initiatives to increase awareness and appreciation of trees and forests
- Increase diversity of species planted
- Expand partnerships, engage community networks and collaborate with the agricultural community to develop more tree-planting opportunities and fight threats to trees
- Develop a framework to manage green infrastructure as a capital asset and better integrating canopy cover and woodland cover initiatives across Regional departments



IN THE GROUND

BEST BETS FOR TREE PLANTING

Focus on a cross section of priority opportunities:

- Residential areas - existing and new
- Conservation Authority properties
- Institutional lands
e.g. school grounds and parks
- Non-Government Organization
partnership initiatives
- Government lands
e.g. Rouge National Urban Park
- Commercial property landscapes
- Natural areas



Partnerships are key to healthy forests



Accessible formats or communication supports are available upon request.

Please contact us by email at accessyork@york.ca or by phone at 1-877-464-9675

york.ca/forestry

