



STATE OF THE FOREST

REPORTING PROGRESS ON CANOPY AND
WOODLAND COVER

MAY 2026


York Region

TREE COVER IS PROGRESSING TOWARDS REGIONAL TARGETS

York Region contains over 47 million trees on public and private lands. These trees purify the air and water, absorb and store carbon, reduce energy needs, prevent flooding, provide shade and recreational spaces, and are essential habitat for wildlife.

Canopy cover in York Region includes every tree, whether in a forest, on a farm, in a backyard, or growing along a street. Woodland cover is a subset of canopy cover and is made up of densely treed areas of at least 0.2 hectares, about the size of a standard hockey rink.

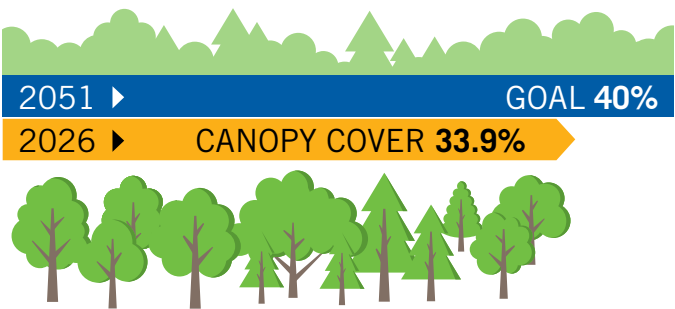
York Region reports on the state of the forest every five years. This report updates previous findings from 2021 and 2017. Updating information about canopy cover at regular intervals allows the Region to assess trends and informs future management.

The Region’s canopy cover is currently estimated at 33.9% of the total land area of the Region, up from

33.4% in 2021. Woodland cover is estimated at 24.8% of the land area, or about three-quarters of the total canopy. Woodland cover was estimated at 23.6% in 2021.

The updated figures show that the Region is approaching its longstanding goal of 25% woodland cover, which is a key factor in achieving its goal of 40% total canopy cover.

Progress Towards Canopy Cover Target



CANOPY COVER = EVERY TREE



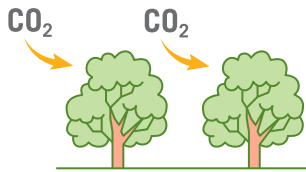
CANOPY COVER
Area of land across the Region under every tree

WOODLAND COVER
Area of land across the Region under heavily treed areas that are at least 0.2 hectares in size

AS YORK REGION'S FOREST GROWS, SO DO THE BENEFITS

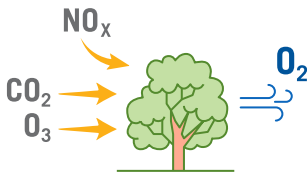
Trees and woodlands provide a wealth of health, social and economic benefits. It would be very costly and in many cases impossible to replace these services with built infrastructure. Beyond that, natural areas have intrinsic value to residents that cannot be quantified.

Urban Forest Benefits and Services Provisioning Across York Region



CLEANER AIR AND CLIMATE PROTECTION

Trees in York Region remove about **500,000 tonnes** of carbon dioxide each year—similar to taking 111,000 cars off the road. This is worth about **\$151 million** in reduced healthcare and property damage costs.



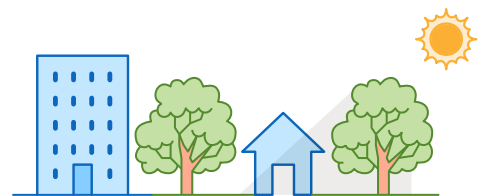
BETTER AIR QUALITY

Our forests remove **2,000 tonnes** of air pollutants annually and produce oxygen. This benefit is valued at **\$17 million** in reduced healthcare costs.



STORMWATER CONTROL

Trees and shrubs help manage rainwater by reducing **3 million cubic metres** of runoff every year, equal to 1,200 Olympic-sized swimming pools. This saves about **\$8 million** in stormwater treatment costs.



COOLING OF COMMUNITIES

Trees help reduce the urban heat effect by shading streets and buildings. This can lower temperatures by **up to 5°C**.



CANOPY GROWTH IS A BALANCING ACT

As York Region's population has increased, nurturing canopy cover has allowed the benefits provided by trees to grow as well.

The canopy has grown because:

- Individual trees have become larger
- New saplings have appeared through natural processes such as seed dispersal
- Governments, non-profits and private landowners have planted new trees

The gains have been achieved despite challenges to the canopy:

- Diseases and pests like the emerald ash borer have killed thousands of trees
- Climate change is already stressing some species at the southern limit of their range
- Older trees have died off
- Some woodlands and smaller stands of trees have been removed for other land uses, including agriculture and development

This is a reminder that the Region, its partners and landowners will need to continue protecting and enhancing the forest if the goals for canopy cover and woodlands are to be met. Since more than two-thirds of trees in the Region are on private land, the role of private landowners continues to be crucial.



REGION MOVES CLOSER TO GOALS FOR CANOPY AND WOODLAND COVER

In the last five years, York Region's canopy cover has increased by 786 hectares, or about 1,900 acres, reaching 33.9% of the land area. This brings the Region as a whole closer to its target of 40% canopy cover.

Woodland cover makes up about three-quarters of the total canopy. For this analysis, the Region refined the techniques for measuring woodland cover, as explained in the box as shown on page 10. Reflecting up-to-date measuring technologies, the new figure of 24.8% for woodland canopy is very close to its 25% woodland cover goal. This new figure provides a solid baseline for tracking progress in the future.

Within the Region, target ranges for both total canopy and woodland cover for the nine local municipalities were recommended in the 2016 York Region Forest Management Plan. As the tables that follow show, four largely rural municipalities – the towns of Georgina, East Gwillimbury and Whitchurch-Stouffville and the Township of King – have higher target ranges than more urban communities. That's because these areas started off with greater canopy and woodland cover.

The more densely populated parts of the Region generally have lower canopy cover. Combined with more paved and built-up areas, lack of tree cover contributes to higher surface temperatures – also known as “urban heat islands” – that can harm health and reduce quality of life. These areas are also the most exposed to air pollutants from vehicles and other sources. This is a reminder that even though not all parts of the Region can have the same level of canopy cover, increasing tree cover is beneficial for all communities.

Canopy cover has increased by
786 hectares, or almost
2,000 acres over the last
five years



The Region and local municipalities are working on that goal through tree-planting programs, by-law protections, educational programs and other efforts to protect existing trees and plant new ones. For example:

- Municipalities continue to promote, protect, and plant trees across both urban and rural natural spaces. This ongoing work, whether urban-focused or restoration-driven, helps to strengthen and expand the Region's overall tree canopy.
- York Region is using \$10 million from the federal government's Disaster Mitigation and Adaptation Fund to carry out an eight-year, \$25 million natural infrastructure project. Results will include planting over 400,000 trees and shrubs, including adding 100 hectares of new woodland by 2028. The first trees planted will reach measurable canopy height in the next 10 to 15 years.

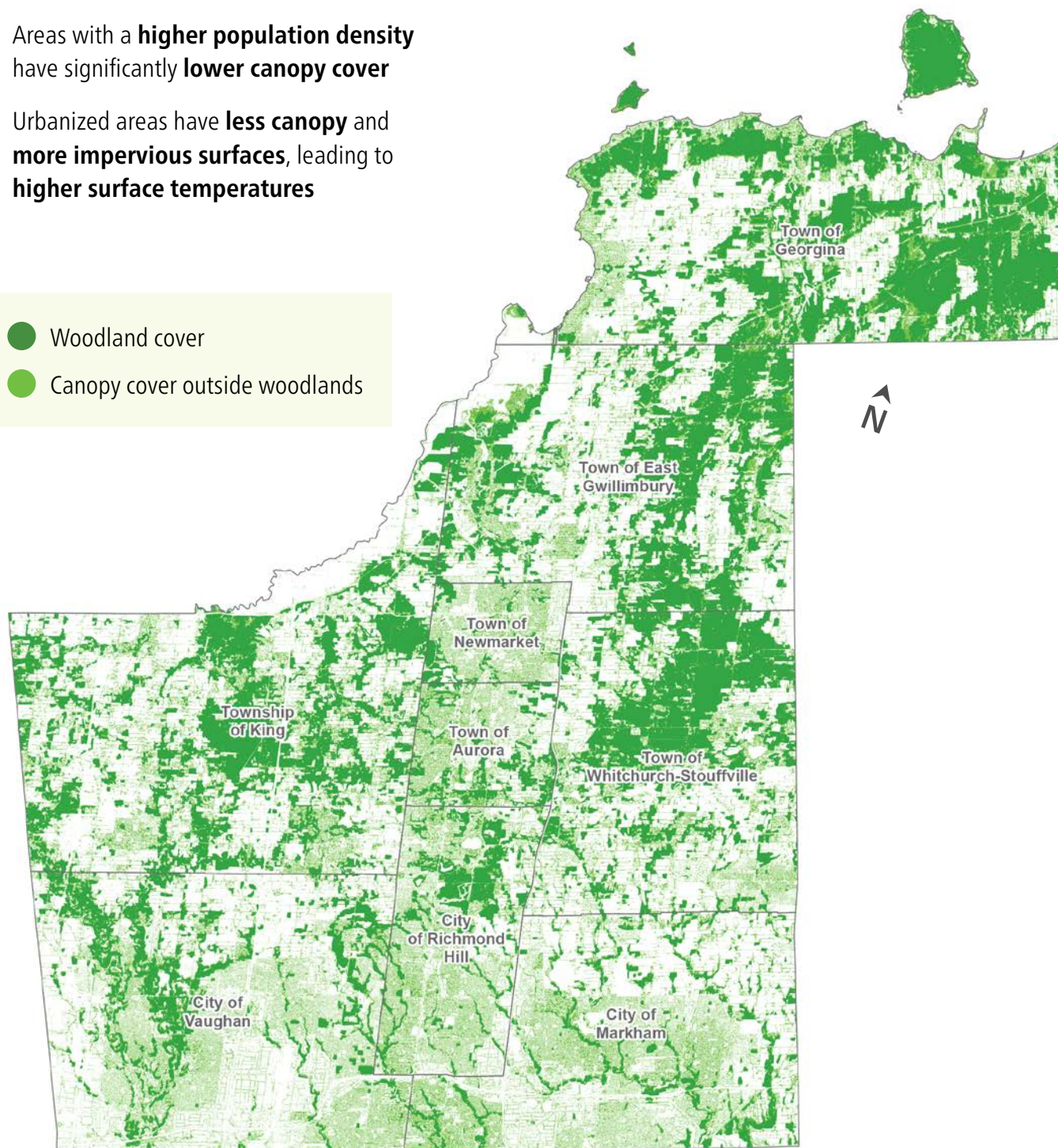
A significant forestry restoration project around Bond Lake in the City of Richmond Hill became clearly visible in aerial imagery since the last assessment. This helped Richmond Hill's canopy grow from 29.8% to 31.0%, the largest expansion within the Region.

Canopy and Woodland Cover across York Region

- Areas with a **higher population density** have significantly **lower canopy cover**
- Urbanized areas have **less canopy** and **more impervious surfaces**, leading to **higher surface temperatures**

● Woodland cover

● Canopy cover outside woodlands





ALL MUNICIPALITIES ARE MAKING PROGRESS ON TOTAL CANOPY COVER

As the table below shows, all local municipalities in York Region made progress over the past five years toward their target ranges for total canopy cover.

Four municipalities – the cities of Richmond Hill and Markham and the towns of Newmarket and Aurora – are now within their recommended range.

Canopy Cover Contrast and Progress Towards Targets by Municipalities

First Nation/Municipality	2021	2026	Target range
Chippewas of Georgina Island FN	88.9%	85.5%	Not applicable
Town of Aurora	34.0%	34.4%	29% to 35%
Town of East Gwillimbury	37.4%	38.1%	39% to 44%
Town of Georgina	44.4%	44.6%	46% to 47%
Township of King	34.3%	35.0%	36% to 41%
City of Markham	20.6%	21.1%	20% to 35%
Town of Newmarket	28.1%	28.8%	25% to 35%
City of Richmond Hill	29.8%	31.0%	26% to 35%
City of Vaughan	21.9%	22.5%	25% to 35%
Town of Whitchurch-Stouffville	38.9%	39.3%	40% to 45%
York Region	33.4%	33.9%	40% by 2051

WOODLAND COVER TARGETS ARE BEING MET IN MOST MUNICIPALITIES

As with total canopy, all municipalities in the Region increased their woodland cover between 2021 and 2026. Results show that five of the nine local municipalities in the Region – the cities of Markham and Richmond Hill, towns of Aurora and Whitchurch-Stouffville, and Township of King – have now met or surpassed their recommended ranges for woodland cover. This is an increase from three municipalities in 2021. Most of the other municipalities are now very close to their recommended ranges.

It is difficult to determine at a Regional level how much of the reported gain reflects woodland expansion and how much is due to new measuring methodology. For this reason, the table below does not provide 2021 figures. Nonetheless, the impact of tree planting programs is clear in specific cases of large-scale restoration, such as in some tracts of the York Regional Forest.

Woodland Cover Progress Towards Targets by Municipality

First Nation/Municipality	2026	Target range
Chippewas of Georgina Island FN	81.3%	Not applicable
Town of Aurora	19.5%	19% to 20%
Town of East Gwillimbury	30.7%	31% to 33%
Town of Georgina	36.5%	39% to 40%
Township of King	27.4%	26% to 28%
City of Markham	8.9%	8% to 10%
Town of Newmarket	10.7%	11% to 13%
City of Richmond Hill	16.8%	14% to 15%
City of Vaughan	13.8%	14% to 17%
Town of Whitchurch-Stouffville	31.5%	30% to 32%
York Region	24.8%	25% by 2051

Refined methods resulted in higher estimates of woodland cover

The 2021 assessment introduced the use of LiDAR (Light Detection and Ranging) to help measure total canopy cover. LiDAR uses a laser beam projected from an aircraft to measure the distance to earth and above-ground objects such as trees and buildings.

Other data sources used in canopy measurement include satellite imagery, geospatial datasets, and aerial photos that are manually corrected for viewing angle and earth's curvature (orthoimagery). Together, these sources provide a picture of several classes of land cover, including buildings, farmland, bare ground and canopy.

Previous assessments used human interpretation of orthoimagery to estimate woodland cover. In the most recent assessment, LiDAR data was used to measure woodlots and woodlands as a specific land class. This computer-aided process identified trees at least 4.5 metres (close to 15 feet) tall growing in wooded areas of at least 0.2 hectare, or about half an acre.

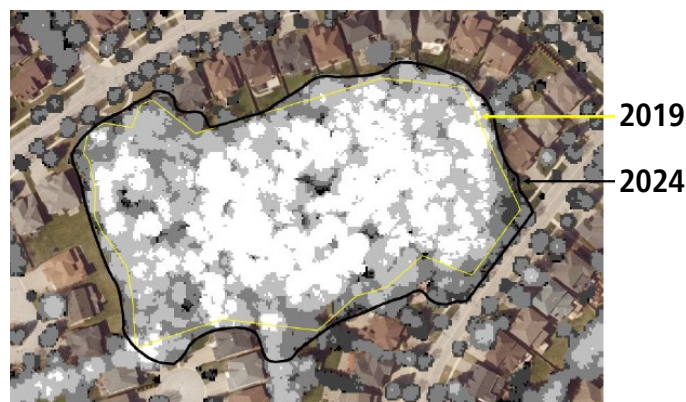
The updated methodology used for this assessment more precisely outlined the outer limits of tree crowns at the edges of woodlands. This added two to ten metres along woodland edges across much of York Region.

In addition, the use of LiDAR with a 4.5 metre height threshold in the new methodology picked up woodlands

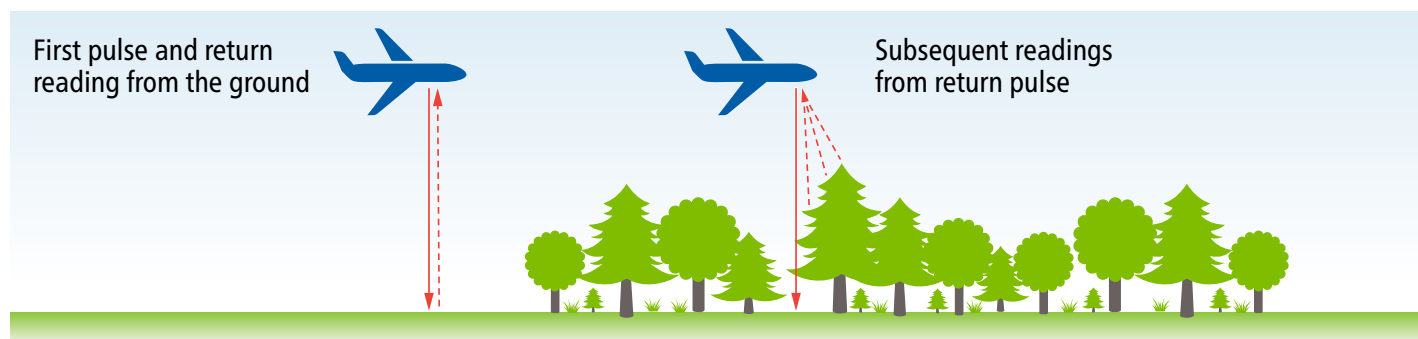
in hard-to-assess conditions like wetlands, sparsely treed areas and successional growth. This is especially relevant for the large treed wetlands found in the north of York Region. Finally, the new methodology put some narrow bands of trees that link larger wooded areas into the new woodlands land class.

Because LiDAR was used to assess total canopy cover in 2021 and 2026, the shift to using LiDAR for woodland cover had no impact on changes in total canopy cover. Woodland canopy gains reported here were to some extent the result of reclassifying as woodland some non-woodland cover in the previous assessment.

Improved Crown Edge Delineation Using LiDAR Over Human Interpretation



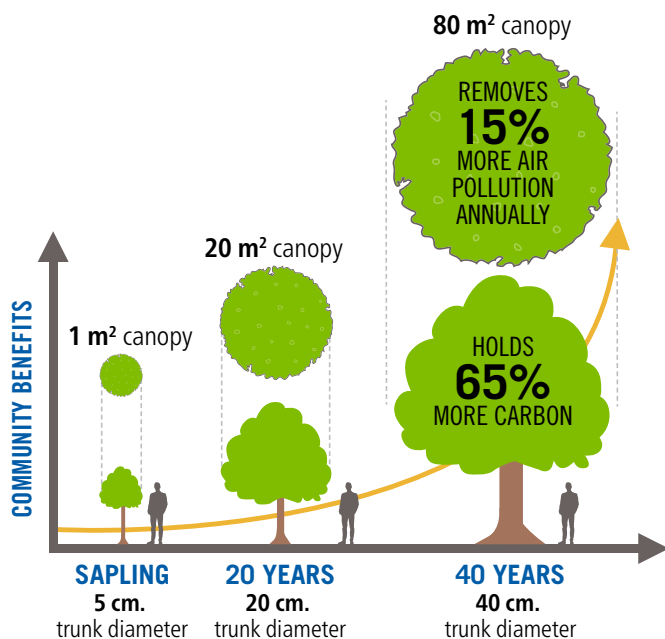
Aerial LiDAR data collection process



THE BENEFITS OF LARGER TREES

As trees age and grow, they provide exponentially more canopy cover and associated benefits. For example, a healthy tree that's around 40 years old stores about 65% more carbon than a young sapling and can remove 15% more air pollution each year.

Community Benefits Improve With Tree Growth



The current age make-up of trees in York Region reflects many factors. Up until the twentieth century, the focus was on clearing land for farming, so few old-growth trees from before the 1920s have survived. Starting in the early 1920s, however, thousands of trees were planted on abandoned farmland under provincial-municipal agreements to combat widespread erosion. This resulted in the creation of the York Regional Forest. Some farmland outside Forest tracts also reverted to woodland. As the century progressed, rapid population growth in southern Ontario translated into the building of subdivisions and new roads, increasingly accompanied by the planting of trees.

As a result, the oldest trees in the York Regional Forest and on other former farmland are now just over a century in age, while post-war street and subdivision trees can be as old as 70 years. Because population growth has continued and governments have invested in replanting woodlands, there are also many more recently planted trees in both urban and rural settings. Overall, the Region's average tree size as measured by trunk diameter, which is a good proxy for age, is 14.4 cm or just under six inches, with all age classes represented.

This variation in age is good for the future of the forest, because it means that as old trees naturally die off, younger trees of the right maturity will be in place to succeed them. To maintain this healthy variation in tree age, it's important to continue expanding woodlands and planting new trees in urban areas. There is still ample land available – an estimated 40% to 60% of commercial, industrial, residential, and utilities/transportation areas have potential for planting. Leveraging these private as well as public opportunities is essential in reaching canopy targets.

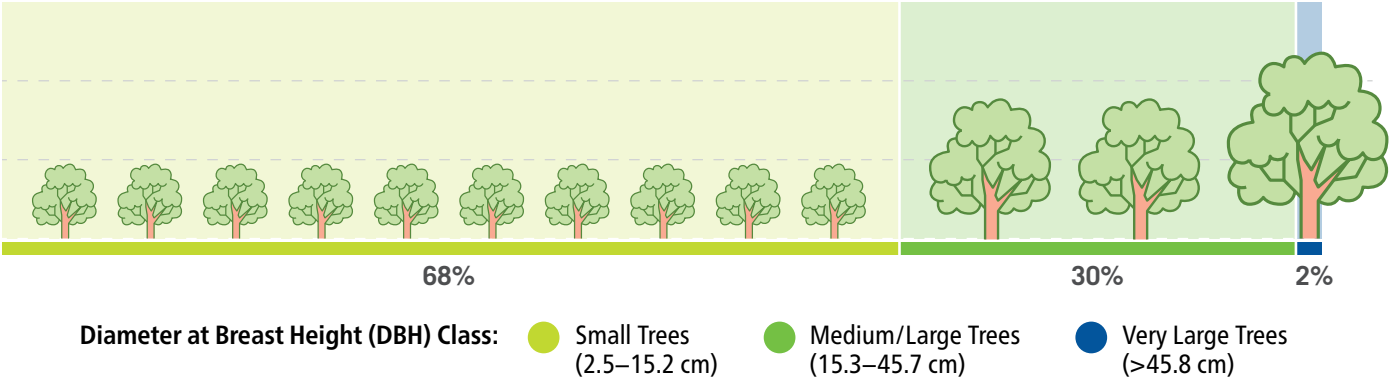
40-60% of commercial, industrial, residential, and utilities/transportation areas have potential for planting



Caring for newly planted trees, especially in urban areas, is critical. Trees are most vulnerable in the first few years after planting, so investing in healthy growth from the start is the best way to ensure they will provide progressively larger benefits as they mature. As well, trees that are properly cared for grow faster, enabling them to deliver benefits sooner. Because urban trees are planted further apart than would occur naturally in a forest, each of them has greater potential to develop a large crown, which provides more canopy cover. Nurturing them today helps the Region enjoy the benefits of large, old-growth trees in the decades to come.

About 9% of trees in the Region are classified as large, with a diameter of more than 30.6 cm or 12 inches. Almost one-quarter of these have a diameter of more than 45.7 cm or 18 inches. Because large trees have taken decades to grow, provide very high levels of beneficial services and cannot be immediately replaced, their protection is critical. The Region has put in place a Forest Conservation Bylaw and Street Tree and Horticultural Design Guidelines and Standards to support this goal.

Tree DBH Size Classes Across The York Region Forest



RISKS TO FOREST HEALTH

The recent York Region Integrated Forest Study found that most of York Region's trees are in excellent, good or fair condition. Those that were struggling, however, tell the story of the three main threats to York Region's forest:

- **Pests** like the emerald ash borer, which killed thousands of ash trees in the past two decades, leaving the remainder stunted and likely to die off before reaching maturity
- **Diseases** like Dutch elm disease, which devastated the elm population starting in the late 20th century and continues to kill off surviving trees
- **Climate change**, which is particularly stressful for species at the southern end of their range that require cooler temperatures, such as yellow birch, tamarack, trembling aspen, red pine, and balsam poplar

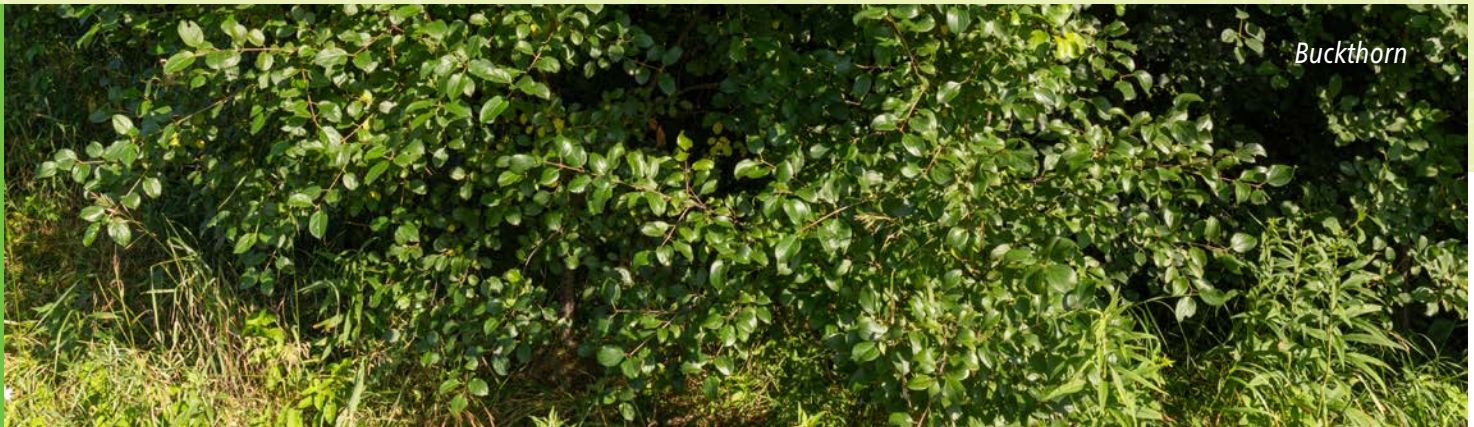
York Region monitors for new pests and diseases found in southern Ontario, including oak wilt and the two pests discussed in the box [location].

Threats to trees can call for changes in planting and care strategies. For example, oak wilt is currently the greatest threat to oak trees in the United States and has recently been detected in Ontario, including near Barrie. Caused by a fungus, oak wilt causes leaves to wilt and trees to eventually die. The disease can spread throughout the tree and transfer through the roots. Above ground, spores stick to sap beetles that feed on mats formed by the fungus and move with the beetles to wounds on healthy trees. Red oaks are especially vulnerable and can die in as little as two months. To counter oak wilt spread, oaks should not be pruned between April and November when the sap beetles are active. In addition, all accidental wounds to trees should be sealed. Tools should always be sanitized before and after work. Such proactive interventions can help ensure that valued species in the Region that are under threat continue to be represented in the forest's composition.



Planning for emerging threats

Hemlock woolly adelgid and spotted lanternfly are emerging invasive pests. The woolly adelgid is an aphid-like insect that targets and kills hemlock trees by feeding at the base of needles, taking nutrients and sap. Spotted lanternfly affects a wider variety of plant and tree species by sucking sap from leaves and stems, leaving behind a sugary excretion called honeydew that promotes the growth of grimy, black sooty mould. While neither species has been detected in York Region, the woolly adelgid has been found in portions of Ontario and the spotted lanternfly has not yet been confirmed. Priority forest stands in the York Regional Forest are being actively monitored for the hemlock woolly adelgid, and the Region is increasing awareness of both species to ensure early detection and rapid response.



Buckthorn

NATURAL TREE DIVERSITY FACES THREATS

Native species predominate across the Region's tree population, as the graphic [location] shows. In most settings, including front and back yards, farm hedgerows, municipal parks, woodlots and forests, native species grow robustly on their own without needing a lot of care. They also support biodiversity, having developed mutually beneficial relationships with native wildlife over thousands of years.

One non-native species on the list, however – European buckthorn – signals a major environmental threat. Fast-growing and highly invasive, buckthorn can quickly shade out native saplings, hindering efforts at reforestation. As a host for agricultural pests, it is also a threat to farmers. Its abundant berries are of little or no value to birdlife. The Region works with local municipalities, conservation authorities, provincial and federal agencies and neighbouring jurisdictions to manage buckthorn and other invasive species and collaborate on educating residents about the threat it poses.

This serves as a reminder that intervention is sometimes needed to help maintain the natural diversity of the tree population.

Climate change is having a similar impact. Eastern white cedar is currently the most common tree across the Region, growing both in natural woodlands and as a landscape plant. It is vulnerable to climate change,

however, and the impacts will likely need to be managed in the coming years. This will require efforts to identify, plant and promote more climate-resistant native species and encourage greater diversity in its place.

The Region continuously looks for opportunities to plant the most suitable tree in every situation, from largescale reforestations to street trees. Native species are always the first choice in settings where they will thrive. But where a native tree is likely to struggle, for example in a concrete planter by a busy roadway, a non-native tree that is shown to be non-invasive may be the only viable option. The Region also works to create an urban forest, including street trees, that is as diverse as possible.

Beyond urban constraints, the Region must also adapt to a shifting climate that threatens native species, as seen with the concerns around eastern white cedar. To address this, the Region and local landowners may assist in the migration of species from further south. While these trees are not historically native to the Region, they are North American species better suited to a warmer and possibly drier climate, helping to maintain the tree population and speed climate adaptation.

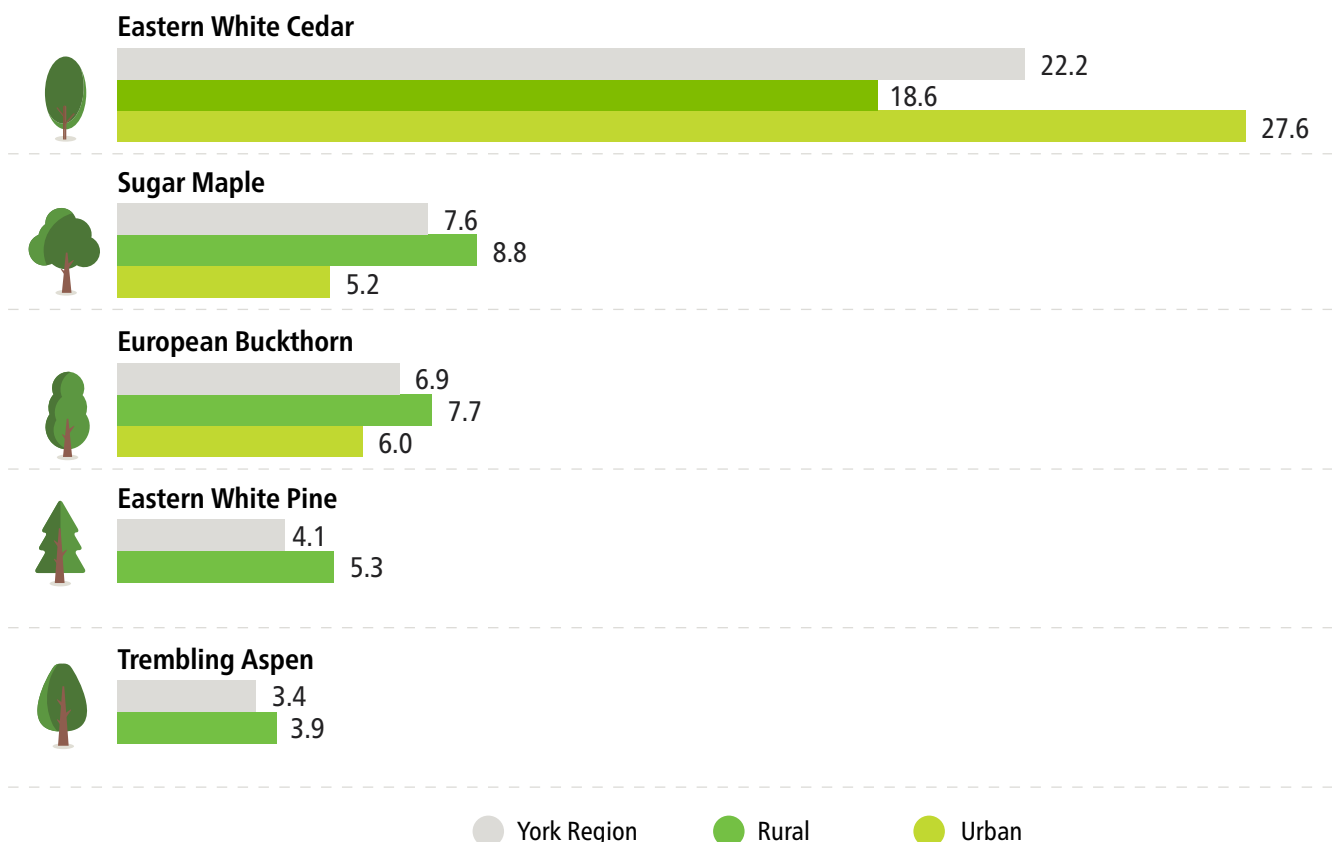
York Region Forest Study Data Collection.
Photos courtesy of Toronto and Region
Conservation Authority.



Seeing the forest by looking at the trees

Every summer from 2021 to 2024, Regional staff armed with calipers, tape measures and other tools of the forestry trade fanned out across York Region. Their goal was to check up on trees at 1,800 sites – 200 in each local municipality – on both public and private land. The data they collected, following established protocols, included the number of trees at each site, the species and the general health and size of each tree. They also looked for evidence of invasive species, pests and disease. This exercise, carried out every 10 years, gives an in-depth picture of forest health across the Region. Their findings informed the recent York Region Integrated Forest Study, an initiative carried out every 10 years.

Most common tree species across York Region (%)



Completed or ongoing actions by the Regional Municipality of York to maintain and grow the forest include:



Expanding the York Regional Forest and **planting 400,000 more trees** by 2028 by leveraging \$10 million from the federal Disaster Mitigation and Adaptation Fund



Continuing to **assess canopy and woodland cover** every five years and conducting forest studies every ten years



Educating residents on the benefits of trees via social media, websites, Regional Forest events, and community events



Updating the **Urban Forest Management Tool Kit**, providing guidance to local municipalities to develop urban forestry plans



Updating the **Street Tree and Forest Preservation and Compensation Guidelines**



Completing a **Green Infrastructure Asset Management Plan** for Regional assets, including street trees, and expanding it to forests



Expanding the York Regional Forest by **253 hectares** since 2020 through the land securement program, bringing the Forest's total area to 2,673 hectares



Collaborating with partners to **manage invasive species and pests** such as emerald ash borer and hemlock woolly adelgid



Becoming the first municipality in the world to be **certified by the Sustainable Forestry Initiative** for meeting its urban and community forest sustainability standards



PLANNING FOR STRONG GROWTH INTO THE FUTURE

Based on the trend from 2021 to 2026, canopy cover in York Region could increase to 35.4% by 2034. This will, however, require concerted public and private efforts. To help ensure that, the Region is working toward a more comprehensive and coordinated approach.

The Region developed the Forest Management Plan in 2016 to guide forest enhancement and protection. Other Regional plans, including the Greening Strategy and It's in Our Nature, the management plan for the York Regional Forest, outline similar actions.

To provide overarching strategic direction, York Region is consolidating these strategies and plans to create a single Forest Master Plan. Already in the development stage, the Forest Master Plan will set out a long-term, evidence-based roadmap to ensure York Region residents enjoy the benefits of healthy, thriving trees and woodlands out to 2051 and beyond.

