Aurora Urban Forest Study

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Toronto and Region Conservation Authority

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York Region

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Toronto and Region Conservation Authority

Outline

1. What is the Aurora Urban Forest Study?
2. Study background and objectives
3. Research results
4. Recommendations

Aurora's Urban Forest

Urban forests provide a host of benefits to the public:

Provide environmental services

Improve livability

Improve mental and physical health

Provide habitat and resources for wildlife

Reduced urban heat island effect

Threats to the Urban Forest

A number of threats to the health of our urban forests have emerged over recent years:

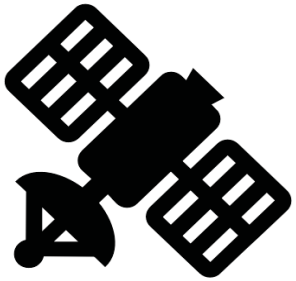
Climate change impacts

Urbanization

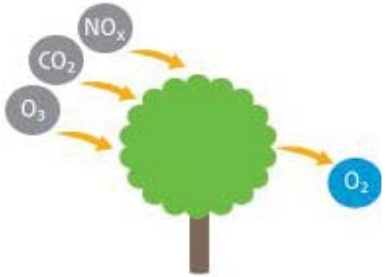
Invasive species

Extreme weather events

What is the Aurora Urban Forest Study?

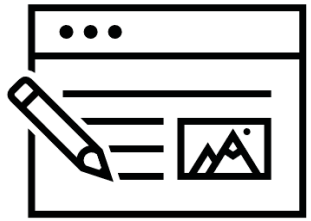


Assessments through remote sensing, GIS tools, and plot-based field surveys



Tells us what Aurora has and where it is, and quantifies services

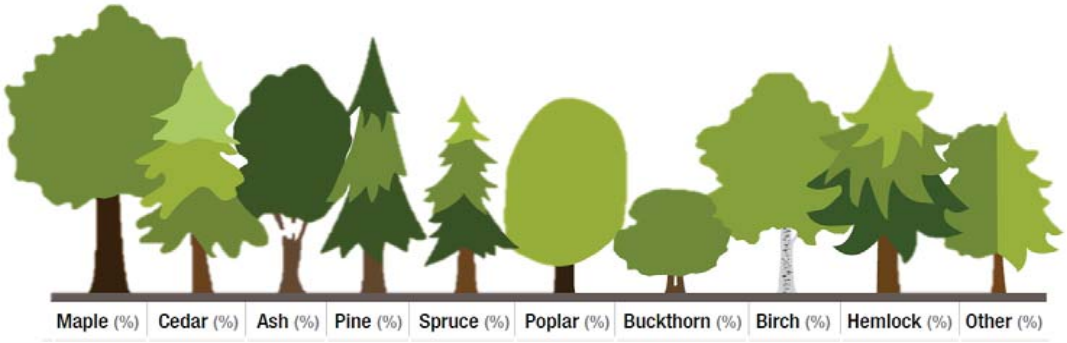
Tells us about the factors that may impact the urban forest



Communication tool

Aurora Urban Forest Study Objectives

- Quantify and characterize existing distribution, structure and function of the forest, including change since the last study



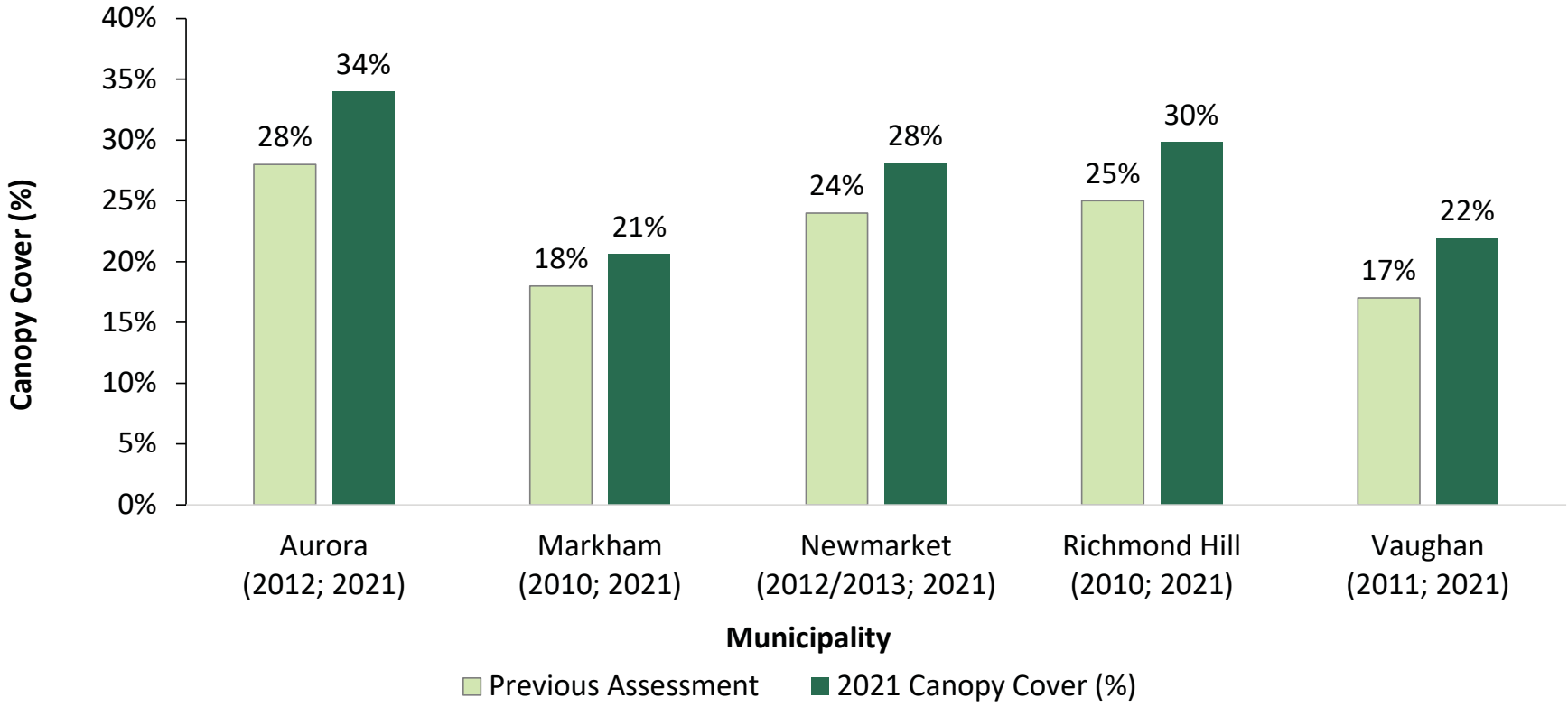
- Quantify and characterize key factors relating to forest health
  - Soil profile
  - Invasive species

- Assess vulnerability of tree species to climate change
- Update and develop management recommendations

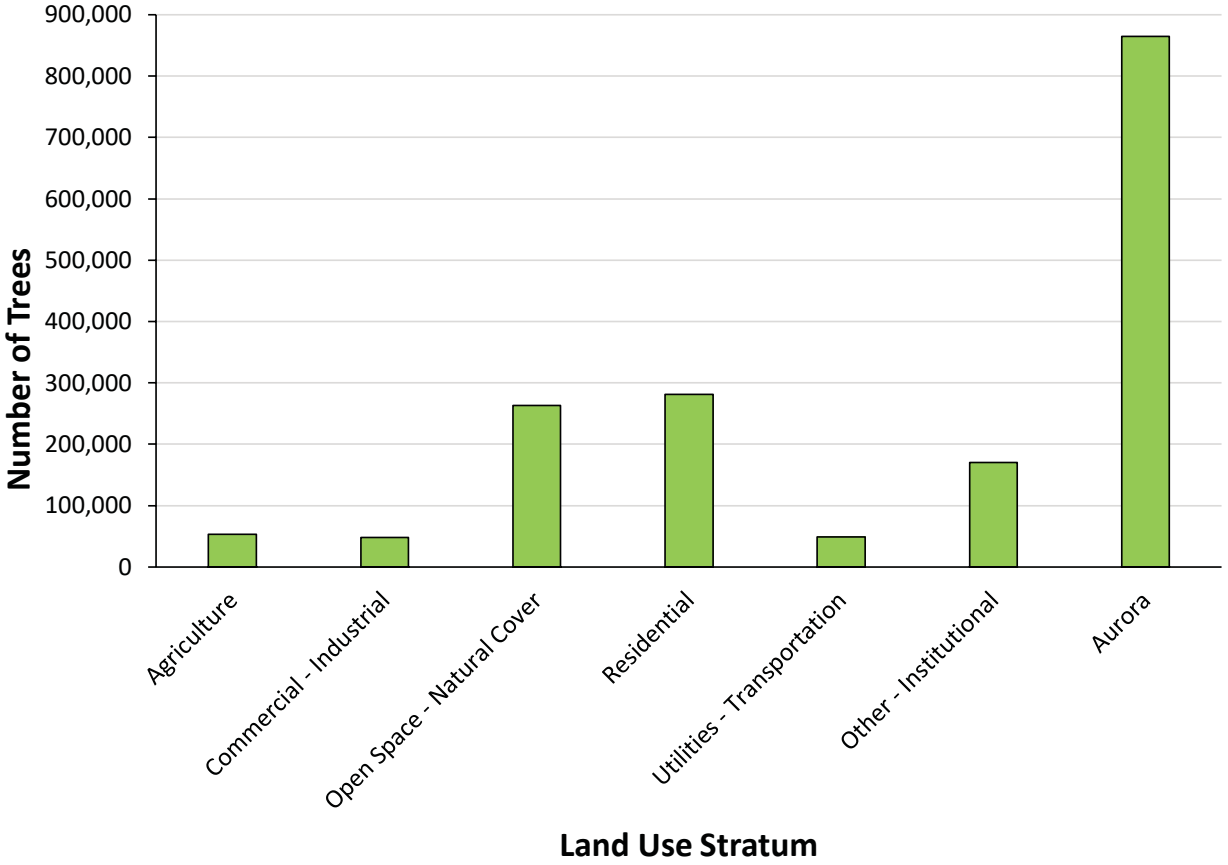
Research Results

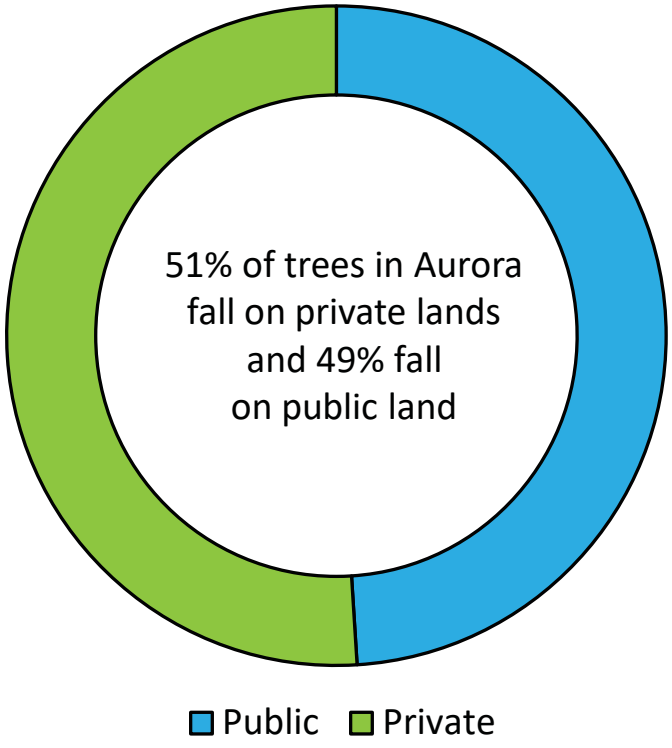
2021 Canopy Cover by Municipality

- Previous and current assessment method – land cover mapping



Aurora Tree Population and Distribution

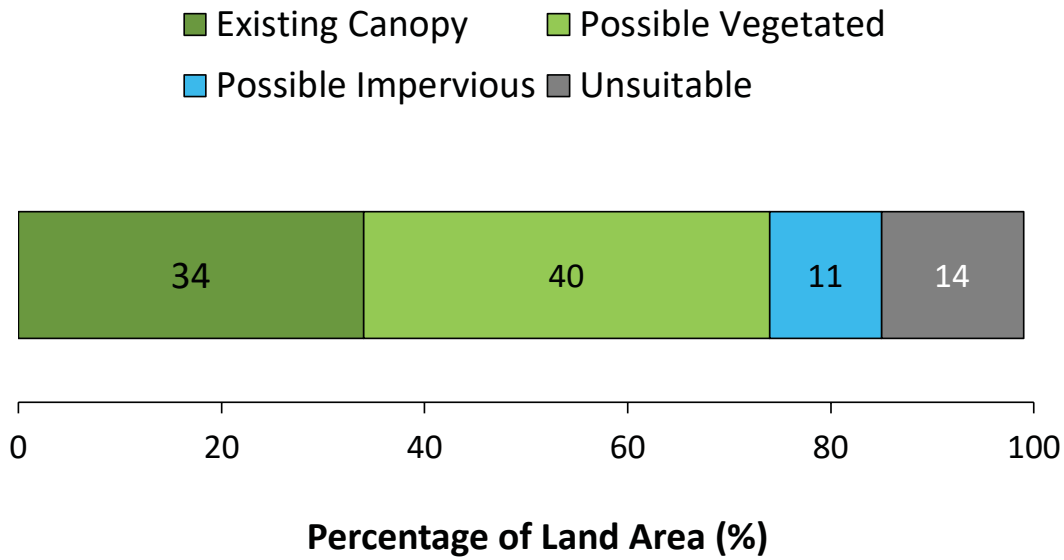




Possible Planting Opportunities

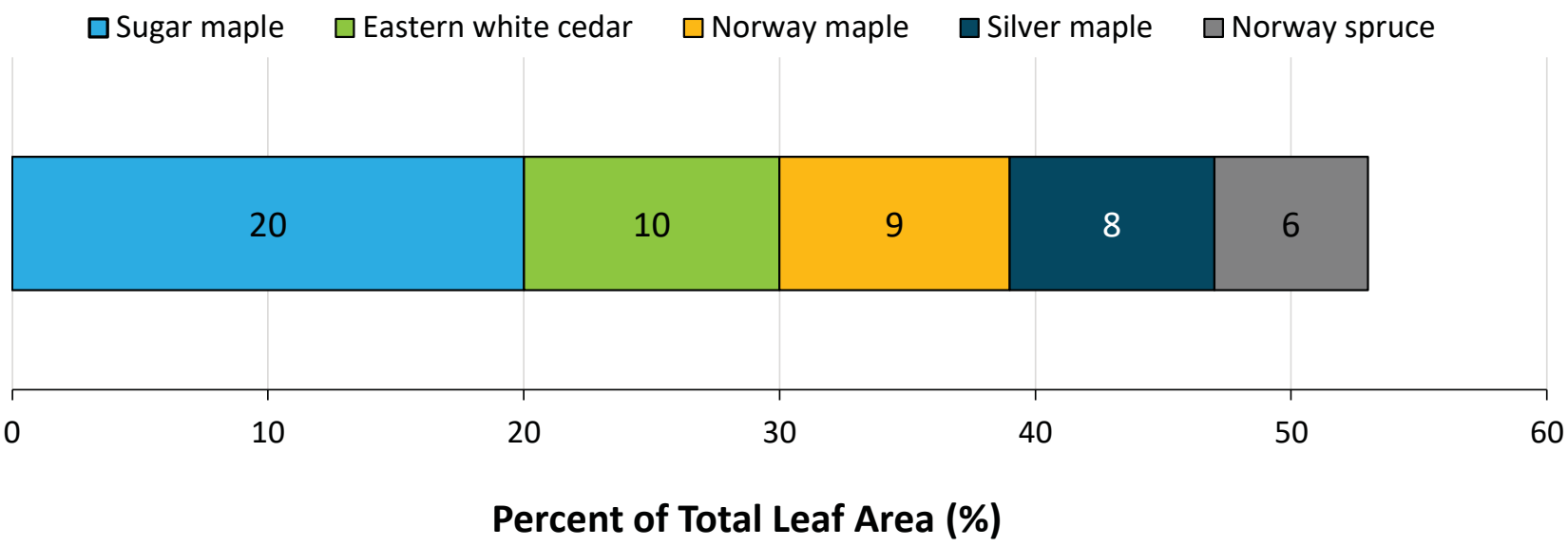
- Excluding agricultural areas, 42 % of Aurora's land area – 2,068 ha – is potentially available for tree planting.

- Low density residential areas offer the greatest potential planting area with 559 ha



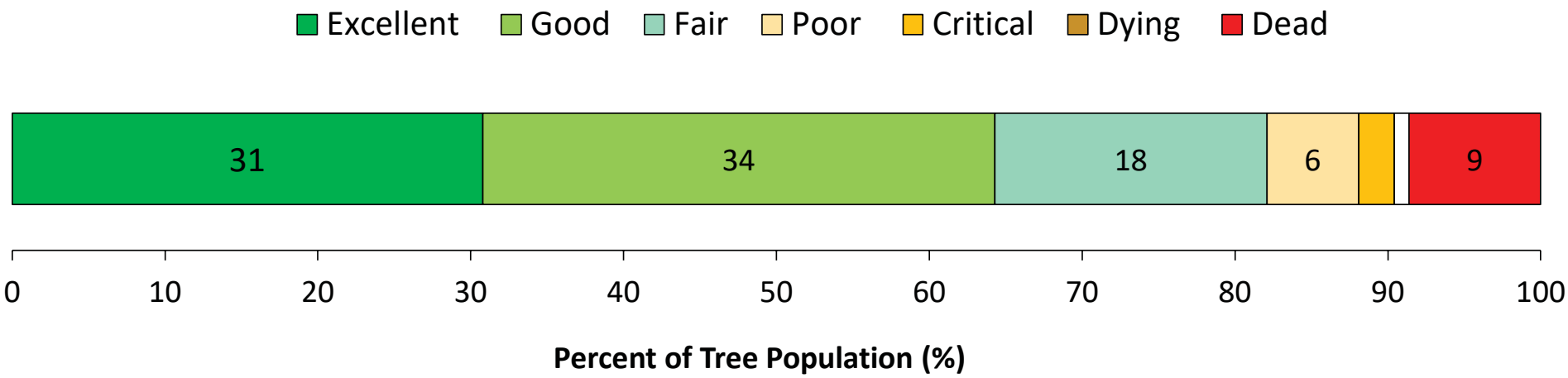
Species Composition:
Top Five Species by Leaf Area

Leaf Area

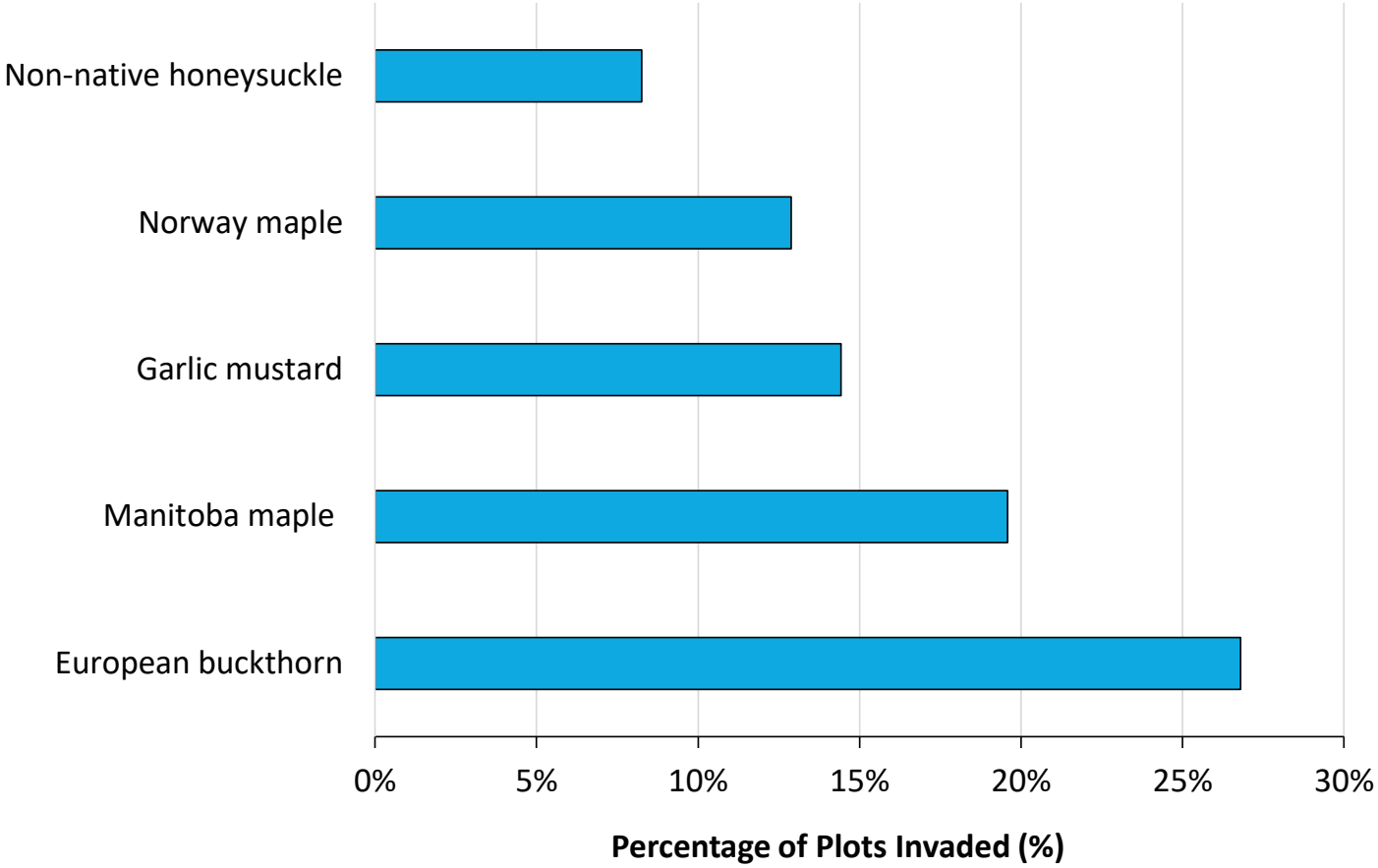


Aurora's Tree Health

- 65% of trees are in good or excellent health



Invasive Plant Presence

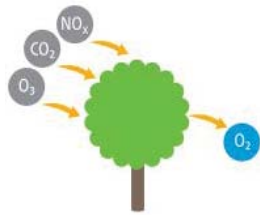


European buckthorn

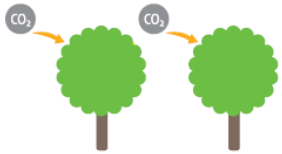
Invasive Pests and Diseases

- Impacts of emerald ash borer beetle were observed at 8 % of plots
- Spongy moth was observed at 15 % of plots
- Oak wilt and hemlock woolly adelgid are incoming pests/diseases and are an active concern for the Town

Aurora's Urban Forest provides many Services and Benefits



49 tonnes/year of air pollution removed

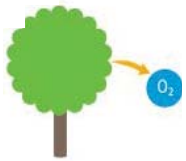


97,270 tonnes of carbon stored

2,988 tonnes/year of carbon sequestered

247,000 m^3/year of avoided runoff

$451,000 saved from reduced heating & cooling



5,574 tonnes of oxygen/year

Shade reduces UV index by 27%

Climate Vulnerability of Aurora's Common Trees

Common Name	Percent of Stems (%)	Vulnerability Score	Tolerances	Sensitivities	Notes
Eastern white cedar	23.4	High	• High resistance to ice damage	• At the southern end of their current range	
Sugar maple	11.2	Moderate		• Sensitive to drought	
European buckthorn	6.5	High			Invasive
Manitoba maple	4.6	Low		• Low resistance to ice damage	Invasive
Norway maple	3.8	High			Invasive

Recommendations

Select Recommendations

Expansion of Canopy Cover

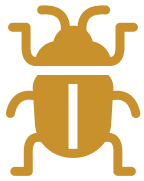
Recommendation 2: Include a commitment to at least 35 percent canopy cover target in the next *Official Plan* update. Recommended to aim for a more ambitious target of 40 percent. Additionally, consider the development of a woodland cover target.

Promoting Mature Trees

Recommendation 12: Continue to promote large, mature trees across Aurora's urban forest by the regulation of tree injury or removal through the application and enforcement of the *Private Tree Protection By-law* and public sector by the *Town of Aurora Tree Removal/Pruning Compensation Policy*.

Select Recommendations

Invasive Species

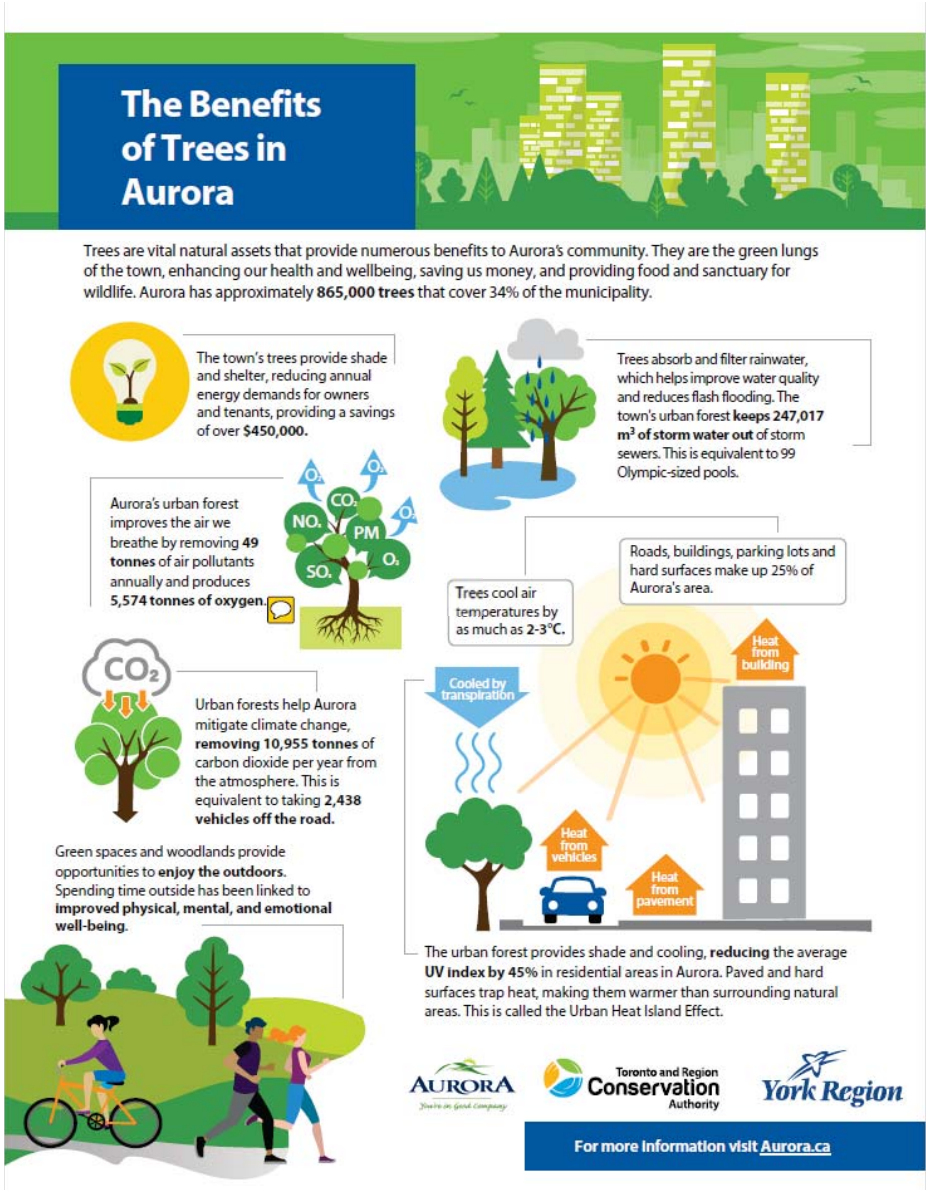


Recommendation 26: Consider targeted removal of high priority invasive plant species at high priority sites following best practices.

Climate Change

Recommendation 35: Assess the Town's current recommended tree planting list based on the climate vulnerability of each species. Shift recommendations to appropriate species that have a higher tolerance and lower vulnerability to climate change impacts.

Forest Benefits Factsheet




Thank You!

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