

**From:** [Chris Keating](#)  
**To:** [Infrastructure and Environment](#)  
**Subject:** [External Sender] item IE25.13-  
**Date:** October 28, 2025 3:21:08 PM

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**October 28,2025**

**Matthew Green**

Hi Matthew

This is my letter on the above IEC item

Please attach to file.

Thanks,

Chris Keating

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## **Why Gas Leaf Blowers Are So Harmful**

**Most professional backpack gas-powered leaf blowers are two-stroke engines,** which burn a mixture of gasoline and oil. Because of their inefficient design, combustion is incomplete—**up to one-third of the fuel mixture is emitted directly into the air** as fine aerosolized droplets. This exhaust contains **cancer-causing chemicals, toxic gases, and particulate pollution**, which contribute to poor air quality and pose serious health risks for operators and nearby residents.

They're among the dirtiest engines in everyday use today. In fact, running a gas leaf blower for just **one hour** produces as much smog-forming pollution as driving a car from **Toronto to Halifax—over 1,700 km.**

These lower-cost engine types emit harmful pollutants, including:

- **Fine particulate matter (PM2.5):** tiny particles that penetrate deep into the lungs and bloodstream.
- **Carbon monoxide:** a dangerous gas that limits oxygen delivery throughout the body.
- **Volatile organic compounds (VOCs):** precursors to smog and linked to cancer

and other serious health risks.

- **Toxic chemicals:** lingering in the air, posing particular harm to children, seniors, and people with heart or lung disease.

Restricting gas-powered leaf blowers is a **practical, science-based measure to protect public health and improve air quality** in our communities.

## Air Pollution

Among the harmful agents in polluted air are tiny floating specks known as Particulates, mainly from fossil fuels. Lodging deep in the lungs, they may contribute to serious health issues. Air polluted by exhaust fumes may contain a cocktail of chemicals that affect the lungs, heart and brain and may even trigger certain forms of cancer.

Pollutants can harm health in different ways depending on **the type, amount, and duration of exposure**, as well as a person's age, health status, and genetic susceptibility. A recent study confirms links between [air pollution](#) and cardiovascular and respiratory death rates.

**The dangers generally fall into a few main categories:**

### 1- Respiratory System Effects

Air pollutants like Particulate Matter (PM<sub>2.5</sub>, PM<sub>10</sub>), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) can:

- Irritate airways, causing coughing, wheezing, and shortness of breath.
- Trigger or worsen **asthma** and **chronic obstructive pulmonary disease (COPD)**.
- Increase the risk of **lung infections**.
- Long-term exposure can lead to **reduced lung function** and **lung cancer**.

### 2- Cardiovascular System Effects

Air pollution doesn't just stay in the lungs — fine particles can enter the bloodstream.

- Increased **blood pressure** and **heart rate**.
- Greater risk of **heart attacks, strokes, and heart failure**.
- Acceleration of **atherosclerosis** (narrowing of arteries).

## The leaf blower story.

The two-cycle gas-powered leaf blower is notoriously inefficient. The engine technology is 150 years old.

**Because the combustion is incomplete, 30% of the fuel/oil mix is emitted unburned,**

**releasing toxic pollutants into the air we breathe.**

The 2 stroke/cycle leaf blower remains more popular among professional for hand/backpack blowers. But it is a major source of unsafe air pollution, releasing cancer-causing chemicals into the air. One example is the concentration of benzene in a gas leaf blower exhaust can be nearly 100 times higher than that emitted by cars. Decades of research have shown that inhaling emissions from gas-powered leaf blowers is unhealthy. Pollutant chemicals and particles from hundreds of two-stroke gas-powered leaf blowers in Toronto degrade air quality.

**25% to 30% of the leaf blower emission released into the air is a toxic mix of unburned gas and oil.**

## **Pollution from Gas-Powered Leaf Blowers**

Leaf blowers pollute on a larger scale than one might expect for their size. It's tempting to assume the air is safe once a gardener finishes using a 2-cycle leaf blower—but research shows otherwise. Scientists warn that these machines emit high levels of harmful pollutants and greenhouse gases, with serious consequences for both human health and the environment.

The use of two-cycle (2-stroke) hand and backpack blowers are more popular among professionals because they are not as heavy and less expensive than the 4 cycle. The 2-cycle engine requires a gas and oil mix and releases far more pollution.

According to the **California Air Resources Board**, (CARB) just 1 hour use of a typical 2 cycle gas-powered leaf blower can pump out as much smog-forming pollution as driving a car from Toronto to Halifax—a staggering comparison.

**The U.S. Environmental Protection Agency explains that the problem lies in the inefficient combustion of 2-cycle engines. Roughly 30% of the fuel is released unburned, emitting fine particulate matter (PM2.5) into the air.**

These microscopic particles can penetrate deep into the lungs and even enter the bloodstream, contributing to asthma, heart disease. On top of that, the exhaust contains a mix of known carcinogens, including nitrogen oxides, benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and carbon monoxide—all posing long-term cancer risks. McGill University reports 15,000 premature deaths are annually caused by pollution in Canada.

The risks are highest for those operating the equipment and for anyone nearby—

especially children, seniors, or individuals with preexisting conditions.

Because of the serious health and environmental impacts over 200 cities in the U.S.A. have a ban or a restriction. The State of California bans the sale of new gas-powered lawn equipment. **Montreal has banned gas-powered leaf blowers in six boroughs** and restricted their use in eight others.

As communities continue to grapple with air quality and climate change, rethinking the use of gas-powered landscaping tools is an important step toward healthier, more sustainable urban environments.

## Comparison of grams per hour of pollution emitted from a car and gas powered leaf blowers.

**Pollutants** Car Emissions **2 Stroke Leaf Blower** 4 Stroke Leaf Blower

Unburned Hydrocarbons (HC) 0.05 **10.0** 1

Carbon Monoxide (CO) 3.4 **200.0** 100

Particulates (PM) 0.01 **1.0** 0.3

### Here's a professional opinion.

**Greg Evans**, a professor in the department of Chemical Engineering and Applied Chemistry at the University of Toronto, an expert in the study of pollution, describes the environmental and health impacts of one gas-powered leaf blower and his concern about the exhaust fumes the worker breathes:

*“Two stroke (cycle) engines are known to be high emitters of numerous air pollutants. One such pollutant is ultrafine particles, which are particles less than 100 nm in diameter. We measured the concentrations of these ultrafine particles at different distances from a single leaf blower that was operated at different powers.*

*The ultrafine particle concentrations generated by one specific leaf blower we tested exceeded a million particles per cubic centimeter; someone breathing this very polluted air would inhale over a billion of these particles with every breath.*

*Ultrafine particles are a strong indicator of emissions from combustion processes such as those that occur in the combustion engines of vehicles and planes. Though there are no in-Canada guidelines, the World Health Organisation has proposed a one-hour high particle number ambient air quality guidelines for ultrafine particle exposure concentration “good practice” criterion of 20,000 particle/cm<sup>3</sup>;*

*The concentration that we measured for this specific 2 cycle gas leaf blower was 50*

*times higher than this World Health Organisation criterion.”*

Greg J. Evans, Ph.D., P.Eng., Director, Institute for Studies in Transdisciplinary Engineering Education and Practice (ISTEP); Director, Southern Ontario Centre for Atmospheric Aerosol Research

## **Wildfire smoke and gas-powered leaf blowers:**

Wildfires are worsening with climate change. This summer, as wildfire smoke blanketed the city, Toronto recorded the **worst air quality in the world**. The **Downtown Air Quality Health Index (AQHI) spiked to Level 10: *Very High Risk***. Residents were urged to stay indoors, schools cancelled outdoor activities, and hospitals braced for a surge in patients.

Air quality on the **Air Quality Health Index (AQHI) – AQHI 7–10** the "**Very High Risk**" category – threatens the health of children, seniors, outdoor workers, and anyone with heart or lung conditions

Despite these warnings, thousands of gas-powered leaf blowers continued running across the city, adding even more toxic emissions and fine particles to already dangerous air. On smoky days, when pollution is already at crisis levels, the last thing our neighborhoods need is more dirty air.

### **A call to action.**

**Ban or restrict the use of gas-powered (2-cycle) leaf blowers when fire smoke pollution is AQHI Level 7–10 alerts.**

We call on Toronto City Council to recommend that the **city, residents and contractors pause the use of gas-powered leaf blowers on days when the Air Quality Health Index reaches high to very high-risk levels (7–10).**

This is a simple, science-based step Toronto can take to cut harmful emissions, protect residents' health, and show real environmental leadership.

That's why **GASBUSTERS** is urging City Council to act now:

#### **Air Pollution Is a Silent Killer**

Air Pollution is one of the leading environmental threats to human health worldwide. Decades of scientific research confirm that even short-term exposure can increase the risk of heart disease, stroke, asthma, and lung cancer. Just like smoking, the damage may not be felt immediately, but it builds silently over time.

Children, older adults, and people with existing health issues are especially vulnerable. Yet exposure affects everyone—and reducing it can lead to significant improvements in public health outcomes.

Global health authorities, including the **World Health Organization (WHO)**, **Centers for Disease Control and Prevention (CDC)**, and the **American Heart Association**, all warn of the serious health risks of polluted air.

### **The Problem with two cycle Gas-Powered Leaf Blowers**

2-cycle engines of gas-powered leaf blowers (GLBs) are among the most polluting tools used in urban areas. These **back pack blowers** are by far the dirtiest, with massive emissions of unburned fuel and toxic pollutants. This includes fine particle combustion matter, (PM2.5) carbon monoxide, and toxic volatile organic compounds, released directly into the air we breathe—at close range.

Their emissions are not only harmful to those operating the equipment, but also to neighbors, pedestrians, and vulnerable populations nearby.

**In fact, a single gas-powered leaf blower can emit as much pollution in one hour as a car driving over a thousand kilometers.**

**Harmful airborne particle pollution can linger in the air for a week or longer.**

**The high wind speed generated by a leaf blower is a main source of harmful dust in residential neighbourhoods.**

- The hurricane-force winds jetting out of the front end of a gas leaf blower is moving over 200 miles an hour. The disburshed air pulverizes what it hits into very fine dust. Leaf blower dust can stay airborne for days. Dust can cause long term health issues. Evidence indicates that the quality of outdoor air directly influences indoor air quality, including within homes.
- Much of this resuspended dust is fine Particulate Matter( PM ) , is less than 2.5 microns, small enough in size to enter the bloodstream when inhaled, lodging in our lungs. Children are especially vulnerable to the harm caused by air pollutants. Their smaller bodies, developing brains, and respiratory systems make them more vulnerable to the health effects of poor air quality and have lifelong consequences.

- The blown dust from yard cleanup operations blows all the stuff that's on the ground up into the air contains animal feces, molds, bacteria, fungus, fertilizer, and pesticides.
- Dust from the street contains metals, including lead, carbon black from tires and asbestos from brake pad wear. All are carcinogens.
- According to a recent [report](#) issued by researchers at Imperial College London, *“There is emerging evidence that microplastic particles released from car tire wear and tear, and other particulate matter may contribute to a range of negative health impacts including a greater risk of heart and lung disease, cancer, neurodegenerative disease, infertility, birth defects and organ damage .”*
- *“ Outdoor fine particulate air pollution (PM2.5) contributes to millions of deaths around the world each year, but much less is known about the long-term health impacts of other particulate air pollutants including ultrafine particles (a.k.a. nanoparticles) which are in the nanometer size range (<100 nm), widespread in urban environments, and not currently regulated. Long-term exposure to outdoor ultrafine particulate matter was associated with increased risk of mortality. It's estimated the mortality burden for outdoor ultrafine particles in Montreal and Toronto, to be approximately 1100 additional non accidental deaths every year. As outdoor ultrafine particles are not currently regulated, there is great potential for future regulatory interventions to improve population health by targeting these common outdoor air pollutants. “*

American Journal of Respiratory and Central Care Medicine, June 24, 2024

## supporting partners

### Residents' Associations

- [Avoca Vale Residents](#)
- [Bayview Village Association](#)
- [Bedford Park Residents Organization](#)

- [Church Wellesley Neighbourhood Association](#)
- [Deer Park Residents Group](#)
- [Eglinton Park Residents' Association](#)
- [FoNTRA](#)
- [Friends of Farquharson](#)
- [Grange Community Association](#)
- High Park North Residents Association
- [Lytton Park Residents' Organization](#)
- [North Rosedale Residents Association](#)
- [Rathnelly Area Residents Association](#)
- [Republic Residents Association](#)
- [South Armour Residents Association](#)
- [South Eglinton Davisville Residents Association](#)
- [West Willowdale Neighbourhood Association](#)
- [Wychwood Park Residents Association.](#)

**Supporting partners:**

- [Climate Action Network, Canada. \( CAN-Rac \)](#)
- [No More Noise Toronto](#)
- [David Suzuki Foundation](#)
- [Toronto Environmental Alliance \( TEA \)](#)
- [Climate Fast](#)
- [Coalition for Green & Quiet Neighbourhoods, Montreal](#)
- [Friends of Cedarvale](#)
- [Green Neighbours Network](#)
- [Green 11, University-Rosedale](#)

- [Lakeshore Environmental Gardening Society](#)

[WWW.GASBUSTERS.CA](http://WWW.GASBUSTERS.CA)