



## **Get your friends and neighbours to join Gasbusters and ban gas-powered leaf blowers in Toronto in 2023.**

Gas-powered leaf blowers may seem like a temporary annoyance, but they are a serious threat to public health and the environment. The toxic exhaust, dangerous dust and extreme noise they create is harmful to everyone – especially children and seniors. You can read about it in this document.

As many people have expressed concern about two stroke gas-powered leaf blowers (GLBs).”is it safe to exercise or take walks with children where workers are using these machines?” The short answer is no. These machines expose the public—and workers—to unnecessary and preventable health risks since they are a major source of harmful pollutants including ozone-forming chemicals, carbon monoxide, and fine particulate matter (referred to as PM2.5). And the adverse effects of PM2.5 and ozone are well known cancer, heart disease, stroke, respiratory disease, and neurological and developmental/reproductive disorders.

A 2020 report by the **California Air Resources Board** found that emissions from small off-road engines, such as leaf blowers, lawn mowers, trimmers and chainsaws, were higher than those emitted from the state’s 14.4 million passenger cars. In most urban areas, it’s estimates that lawn equipment would be contributing 10 to 20 per cent of overall emissions.

“A typical gas powered Leaf Blower in operation for an hour emits as much air pollution as driving a common car nearly 1800 kilometres - the distance between Toronto and Halifax or Vancouver and Regina.” **Environment Canada**

### **Gasbusters**

‘**Gasbusters**’ is a movement of over 500 citizens, across Toronto, and volunteers Gail Bebee (Bayview Village Association), Harold Smith (Lytton Park Residents Association) , John Watt, Dundee Staunton and Chris Keating (Deer Park Residents Group).

We are an activist organization, advising members to spread awareness and if need be, e-mail your Councillor. Our campaign is based on scientific and evidence-based facts to demonstrate the potential harm to health of citizens. **GASBUSTERS** will be pushing Toronto Council in 2023 to ban the use of leaf-blowers on health welfare, environmental and social grounds.

**Please join if you wish to participate in a persistent campaign to get Councillors to pass legislation in 2023 to get these machines banned.**

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### **Gasbusters supporting Partners**

- Climate Fast
- Green Neighbours Network
- Green 11, University-Rosedale
- Lakeshore Environmental Gardening Society
- Toronto Environment Alliance
- Coalition for Green & Quiet Neighbourhoods, Montreal

### **Resident Association supporters of Gasbusters**

- Bayview Village Association
- Bedford Park Residents Organization
- Church Wellesley Neighbourhood Association
- Deer Park Residents Group
- Eglinton Park Residents' Association
- 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

### **In 2022 Councillors were not informed by MLS of all noise complaints**

- On 311 calls, the phone operator may acknowledge your complaint with courtesy, but will not register the complaint on a service report. The reason given is, as there is no prohibiting bylaw, complaints are not documented.
- Because there is no bylaw prohibiting high decibel noise level for leaf blower's, 311 complaints are not recorded by the **Municipal Licensing and Standards (MLS)**. Leaf blower noise is considered acceptable construction noise, like jack hammers
- The MLS has an online compliant process which does not accept complaints about gas powered leaf blowers. When you enter 'a noisy leaf blower complaint' on the form, it tells you: *"Sorry, talk to your neighbour."*
- At their July 19<sup>th</sup> Toronto Council Meeting, Councillors were not well informed of the hundreds of phone attempts and written reports from citizens in their neighbourhoods, who complained of the excessive noise and pollution from leaf blowers.
- A disingenuous report was submitted to **the Economic and Community Development Committee (ECDC)** by the Municipal Licensing and Standards (MLS) (311), entitled *"Outstanding Noise Directives on Leaf Blowers."* The report was presented to Toronto City Council, July 19<sup>th</sup>. It stated, *"compared to other noise categories, such as amplified sound, complaints from leaf blowers and other power devices remain relatively low."*

The process to accumulate leaf blowers' complaints in Toronto is broken. Gasbusters is pushing Councillors to pass a motion, that reports from the Municipal Licensing and Standards include phone calls and written complaints from citizens.

There will always be resistance to change that purports to improve society, such as occurred with the banning of, asbestos, coal in plants in Ontario, lead water pipes, lead in gasoline, smoking, and implementing catalytic converters on cars and seat belts. Air quality is a public health issue. With the cooperation of governing bodies, there are solutions. We can transition to a cleaner environment.

### **Watch for the 2023 Noise Bylaw review**

We recently learned that the City's Municipal Licensing and Standards (MLS) only considers noise complaints where the noise is specifically **not permitted by the Noise Bylaw**. So, complaints during the day, when there are real complaints, are not registered. This problem is now clear to all and Gasbusters intend to play a major role in getting Councillors to change this policy.

In 2023, the City's Municipal Licensing and Standards will undertake a major review of the 2019 Noise Bylaw, regulating leaf blowers. Their past report suggested they will be looking at a new approach to regulating leaf blowers. Watch for opportunities for public consultation in the review process.

## **Information to help persuade your neighbours that gas powered leaf must be banned**

### **The damage is more than noise.**

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### **Cities that have banned gas powered leaf blowers**

Over 200 cities and municipalities across North America. A ban will reduce community greenhouse gas emissions, and help Toronto achieve its TransformTO net zero target which Toronto City Council approved unanimously

#### Montreal

Including Westmount, Outremont, Ville-Marie, Sud-Ouest, Beaconsfield, and Côte-des-Neiges—Notre-Dame-de-Grâce have banned gas-powered leaf blowers.

#### Vancouver

Vancouver city council passed a motion to get the city to phase out gas-powered landscape maintenance equipment, which includes lawn mowers, chainsaws and hedge trimmers, for personal and commercial use by 2024. The motion also includes that the Vancouver Park Board, who has been switching its gas-powered landscaping equipment to low- or zero-emission alternatives as the equipment reaches its end-of-life, expects the transition to be complete in four years.

Ottawa,

Canada's Capital Region—The National Capital Commission (NCC) is banning the use of gas-powered small tools (leaf blowers, line trimmers, hedge trimmers and small chainsaws) on NCC lands and became the first jurisdiction in Canada to enact such a blanket policy.

California

California passed a bill banning the sale of gas-powered landscape equipment, which includes lawn mowers, chainsaws, leaf blowers, pressure washers and generators, by Jan. 1, 2024.

Miami,

Miami Beach's Mayor and City Commission adopted regulation to phase out gasoline-powered leaf blowers as part of the city's commitment to achieve carbon neutrality by 2050.

**Previous bans passed in Ontario:**

- 1976 Ontario's seatbelt law came into effect.
- 2004 Ontario restricted the use of lawn chemicals.
- 2006 smoking indoors became illegal
- 2009 ban passed on cosmetic pesticides.
- 2015 ban Coal-Fired Electricity Generation
- 2023 Canada promises a cap on emissions from oil and gas production

**Why a 143-year-old technology of 2 stroke gas-powered leaf blowers (GLBs) is unhealthy.**

The advantage of a two stroke leaf blower is a high power-to-weight ratio, with few moving parts. During one revolution of the crankshaft, the end of the combustion stroke and the beginning of the compression stroke happen simultaneously, with the intake and exhaust functions occurring at the same time.

But a major disadvantage of this inefficient, 143-year-old technology is its high exhaust emissions. The system feeds into the combustion chamber more of the fuel/oil mixture than is necessary. **This results is 30% or more of a fuel/oil mixture of incomplete, unburned, combustion fumes, exhausting into the air we breathe.**

The pollutants spewing from a two-stroke engine are a major source of harmful pollutants including **ozone-forming chemicals, carbon monoxide, and fine particulate matter** (referred to as PM2.5). The adverse health effects of PM2.5 and ozone are well researched. The mixture of

**hydrocarbons** and **carbon monoxide**, an unburned toxic mix of **Benzene, Formaldehyde, Butadiene, Ozone and Methane** are all carcinogenic components in gasoline. As an emission, the greenhouse gas **Methane** is around 80 times more potent in the environment in the short term than carbon dioxide.

“Benzene is classified as a human carcinogen. Exposure by inhalation can lead to leukemia, various forms of blood cancers and life-threatening blood disorders.” Health Canada.

Residents who smell fumes from a GLB have also ingested the **Benzene** at a level above the exposure limit. The harmful exposure from the emitted smog forming chemicals of the exhaust of a gas-powered leaf blower is **8 times higher** than an automobile and **300 times the number of pollutants** as a pickup truck.

### Fugitive dust or harmful airborne particle pollution is toxic

1. Gas powered leaf blowers are a huge source of dust in residential neighbourhoods. Disbursed air from a leaf blower travels at **200-250 km per hour** pulverizing what it hits into very fine dust, finer than the dust found in nature. It can stay airborne for days.
2. During use, all leaf blowers create copious quantities of airborne, surface particulate matter that anyone in the area will inhale. Much of this fog-dust is less than 10 microns in diameter which gets past the protective cilia in our airways and lodges in our lungs. These are all potentially detrimental to our respiratory system and general health. Some of this pollution is fine particulate matter which has respiratory and cardiovascular effects, even with short term exposure (month or less).
3. Particulate dust from yard cleanup operations contains animal feces, manure, moulds, bacteria, fungus, fertilizer, and pesticides
4. Lawn mowing contractors who blow clippings off the lawn and down the street, kick up even more dust. Street dust contains asbestos from brake pad wear and carbon black from tire residue and heavy metals. These materials are carcinogens in our lungs.
5. City workers use leaf blowers to clean up paved surfaces. Contractors use leaf blowers on construction sites instead of brooms or vacuum cleaners, introducing other toxic materials like silica from masonry and stone cutting which causes **silicosis**, an incurable disease. This material gets broadcast into surrounding neighbourhoods.

*U.S. Environmental Protection Agency (2019) Integrated Science Assessment for Particulate Matter-Final Report, EPA/600/R-19/188*

### Protect the workers from pollution

Landscape workers and others in close proximity to airways of gasoline powered leaf blowers, have elevated exposure to toxic air pollutants that can cause lung disease and dementia. (1) In the air of a workplace in Ontario, the Short-Term Exposure Limit (STEL) for any 15-minute period of **Benzene**, must be no more than **2.5 ppm**. (2) To pass the Ontario emission test, an automobile exhaust must be less than **250ppm** VOCs (1.3% of a GLB exhaust).

(3) An operator with a GLB on his back exhaust's fumes within 2 feet of his face. The **Benzene** in the gas he breathes is **15 times higher** than the Short-Term Exposure Limit (STEL) of 2.5 ppm in the OSHA regulation.

### **Protect the workers from noise.**

The operator is exposed to **noise** at levels that could cause hearing loss. The noise from gas leaf blowers is extremely hazardous to gardeners who work long hours with a leaf blower and those in the vicinity of the blowing. After weeks to years of excessive noise, the damage progresses to the point where hearing loss occurs. Speech comprehension is not usually affected and so the hearing loss goes unnoticed by the individual. Eventually, with continued exposure, the hearing loss spreads to the lower pitches necessary to understand speech. At this point, the impairment has proceeded to the level of a handicap and is quite noticeable. The damage is not reversible. The Centers for Disease Control and Prevention (CDC) lists leaf blowers as a common cause of hearing loss in the U.S. The CDC notes that operating a leaf blower for as little as two hours without noise protection can cause permanent damage to the ear.

### **How Noise affects us**

Hearing loss is pervasive. It is also preventable. Exposure to loud noise damages the tiny little hairs in our inner ear that detect sound. More exposure will result in more damage. The result is permanent hearing loss that cannot be corrected through surgery nor with medicine. Short-term exposure to loud noise can also cause a temporary change in hearing (your ears may feel stuffed up) or a ringing in your ears (tinnitus). These short-term problems may go away within a few minutes or hours after leaving the noisy area. However, repeated exposures to loud noise can lead to permanent tinnitus, hearing loss, or both.

### **Noise from leaf blowers affect the community**

The noise emanating from leaf blowers is damaging to the surrounding community, as well as the environment. The low frequency of GLB noise penetrates walls and windows. The noise evokes the flight or fight response raising cortisol levels. Toronto urban noise levels average 63 dBA (24-hour average), with a range from 50 to 78 dBA at specific sites as reported by Toronto's Medical Officer of Health in the 2017 report, *Health Impacts of Environmental Noise*.

### **Recommended ambient noise limits to prevent health effects:**

- **55 dBA** (Leq 16 hours) average through the day and evening, and 40 dBA (Leq 8 hours) at night - *World Health Organization*. (50 dBA average at night. *Ontario Ministry of Environment and Climate Change*)

The Ontario noise limit for workplaces is 85 dBA over 8 hours. A study of occupational noise exposure for leaf blower and grass cutter workers using gasoline powered equipment found that most had daily exposures above this limit. <https://www.researchgate.net/figure/Summary-of-occupational-noise-exposure-among-leaf->

### Decibel comparison of noise from leaf blowers.

	5 feet	50 feet
<b>Gasoline powered</b>	<b>82 to 100 dBA</b>	65 to 80 dBA
<b>Battery powered</b>	70 to 85 dBA	57 to 67 dBA

### Additional information on two-stroke engines that power the leaf blower.

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#### Many companies got rid of 2 stroke engines. Their history explains why we need to ban

- Production of two-stroke cars ended in the 1980s in the West, due to increasingly stringent regulation of air pollution.
  - Particularly in developed countries, pollution regulations have meant the use for many of these applications for two stroke engines is being phased out. Honda ceased selling two-stroke off-road motorcycles in the United States in 2007.
  - A number of mainstream automobile manufacturers have used two-stroke engines in the past, including the Swedish Saab and German manufacturers. The Japanese manufacturers Suzuki and Subaru did the same in the 1970s. Production of two-stroke cars ended in the 1980s in the West, due to increasingly stringent regulation of air pollution.
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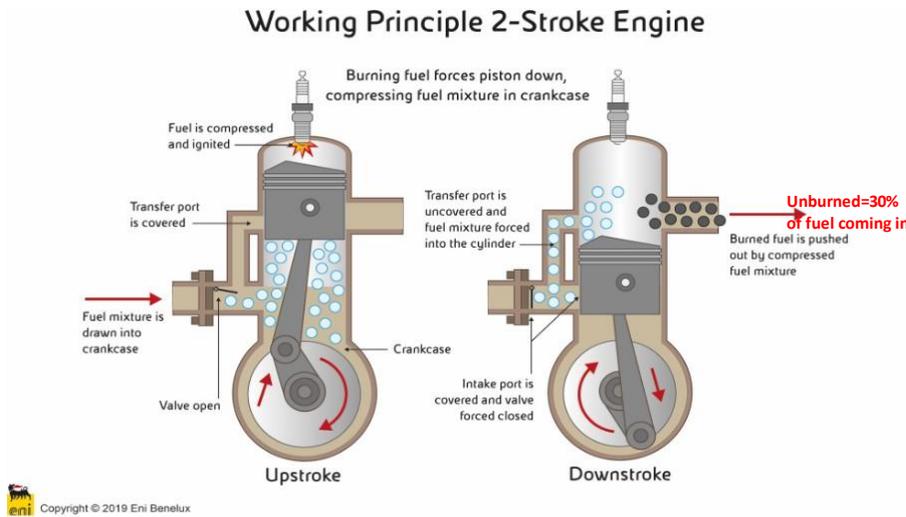
### History

143 years ago on 31 December 1879, German inventor Karl Benz produced a two-stroke gas engine, for which he received a patent in 1880 in Germany. The first truly practical two-stroke engine is attributed to Yorkshireman Alfred Angas Scott, who started producing twin-cylinder water-cooled motorcycles in 1908.

Two-stroke gasoline engines with electrical spark ignition are particularly useful in lightweight or portable applications such as chainsaws and motorcycles. In a two-stroke engine, the exhaust gases transfer less heat to the cooling system, which means more energy to drive the piston.

A **two-stroke engine** (or two-stroke cycle) is a type of internal combustion engine that completes a power cycle with two strokes (up and down movements) of the piston during one power cycle, this power cycle being completed in one revolution of the crankshaft.

In a two-stroke engine, the end of the combustion stroke and the beginning of the compression stroke happen simultaneously, with the **intake and exhaust** functions occurring at the same time.



### Emissions from two-stroke engines

Oil is mixed in with their petrol fuel beforehand, in a fuel-to-oil ratio of around 32:1. This oil then forms emissions, either by being burned in the engine or as **droplets in the exhaust**, resulting in **more exhaust emissions**, particularly hydrocarbons, than four-stroke engines of comparable power output. The combined opening time of the intake and exhaust ports in some two-stroke designs can also allow some amount of **unburned fuel vapors to exit in the exhaust stream**.

Two-stroke gasoline engines are preferred when mechanical simplicity, light weight, and high power-to-weight ratio are design priorities. By mixing oil with fuel, they can operate in any orientation as the oil reservoir does not depend on gravity.

Due to their high power-to-weight ratio and ability to be used in any orientation, two-stroke engines are common in handheld outdoor power tools including **leaf blowers, lawn mowers and lawn trimmers**.

