

24 September 2020

Attention: Members of Council/City Clerk,  
City of Toronto,  
City Hall

## RE: IE15.8 - Request to Study the Environmental Impact of Two-Stroke Engine Garden Equipment

Attention: Members of Council/City Clerk.,

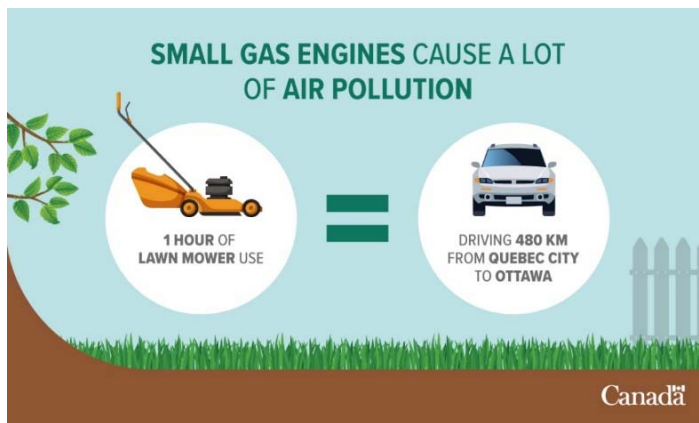
I urge you to pass this motion and to ban all leaf blowers to help protect public health, our environment and climate. Grandfathering existing gas powered equipment is unacceptable as would render the motion ineffective.

### 1. Small Engine Pollution is Significant.

2 cycle garden equipment like gas leaf blowers and mowers are the dirtiest small engines.

Environment Canada states:

*“1 hour of lawn more use equals driving 480 km from Ottawa to Quebec City.” and,*



*“Small gasoline-powered engines like the ones found on lawn mowers and hedge trimmers haven't changed much in recent decades and lack advanced technologies to keep emissions low.” and*

*“While new Canadian regulations help, we can further reduce emissions by moving toward electric options. These offer comparable performance to gasoline-powered engines at a competitive price.”*

<https://www.facebook.com/EnvironmentandClimateChange/>

The California Air Resources Board (CARB) states:

*“Gas-powered lawn and garden equipment (GLGE) can contribute heavily to local and regional air pollution. There are many options available for electric lawn and garden equipment, as well as landscapers and lawn maintenance companies that use all electric equipment.”* and

*“By 2031, small engine emissions will be more than twice those from passenger cars.”*<sup>1</sup>

The US EPA’s considers small engines as one of the “Mobile sources of air pollution”. It categorizes Small engines and tools (lawnmowers, etc.).

<https://www.epa.gov/mobile-source-pollution/how-mobile-source-pollution-affects-your-health#mobile%20sources>

In 2011, GLGE emitted approximately 26.7 million tons of pollutants (VOC=461,800; CO=5,793,200; NO<sub>x</sub>=68,500, PM<sup>2.5</sup>=20,700; CO<sub>2</sub>=20,382,400), accounting for 24%–45% of all nonroad gasoline emissions. Gasoline-powered landscape maintenance equipment (GLME; leaf blowers/vacuums, and trimmers, edgers, brush cutters) accounted for 43% of VOCs and around 50% of fine PM. Two-stroke engines were responsible for the vast majority of fine PM from GLME<sup>3</sup>

## **2. Economics**

1. According to Mark Carney; Former Governor Bank of Canada and Bank of England, Vice Chair, Brookfield:<sup>4</sup>

*“An accelerated transition to a net zero economy (is) imperative for climate sustainability and one of the greatest commercial opportunities of our time,”*

2. Noise and pollution are public health issues like smoking, cancer SARS or AIDS; not economic development ones. Toronto’s regulatory regime allows a wealth transfer from the public (health care costs, lost productivity, declined well-being) to noisy polluting businesses who resist adapting to quieter cleaner quieter equipment.

3. Transitioning conventional lawns and gardens to pollinator friendly, native plant landscapes is providing profitable business opportunities to innovative landscapers like Ecoman, Bumble Bee Gardens and Paul Jung Gardening.

4. Banning GLGE will help boost quiet, non-polluting Green Technology job opportunities and educational programs in land care that cover advanced battery technologies.

5. Refer the AGZA (American Green Zone Alliance) testimonials appended to this submission. According to AGZA data based on US\$ and gallons:

a) A battery operated mower’s annual energy cost is 33% lower than a gas one.

b) A battery operated leaf blower’s annual energy cost is 17% lower than a gas one.

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<sup>1</sup> <https://ww2.arb.ca.gov/our-work/programs/zero-emission-landscaping-equipment>

<sup>2</sup> “PM” represents fine particulate matter

<sup>3</sup> National Emissions from Lawn and Garden Equipment, Jaime Banks PhD, Robert McConnell, Environmental Engineer, Quiet Communities, Inc.,

<sup>4</sup> Ex-BoE Governor Carney to head green investments at Canadian asset manager Brookfield, David Milliken, Reuters, Aug 26, 2020

### 3. Public Health

*"...according to a recent Harvard study, long-term exposure to the type of pollution that GLBs (gas powered leaf blowers) produce may significantly raise the risk of death from COVID-19. .... researchers found that a one microgram increase in concentration of fine particulates was associated with a 15% increase in risk of COVID-19 related death. Even short-term elevations in particulate matter, both fine and coarse, have been linked to acute respiratory infections, asthma, COPD, heart attacks, heart failure, and mortality."*<sup>5</sup>

GLGE including GLBs emit millions of tons of toxic, carcinogenic air pollution into our air each year. The pollution is generated in high levels and close to the ground where it is easily inhaled by workers and people nearby.

The American Lung Association, Children's Environmental Health Center and the US EPA warn explicitly against GLGE. The American Lung Association advises:

*"Ditch the gas-powered lawn mower. Use hand-powered or electric lawn care equipment rather than gasoline-powered. Old two-stroke engines like lawnmowers and leaf or snow blowers often have no pollution control devices. They can pollute the air even more than cars, though engines sold since 2011 are cleaner."*<sup>6</sup>

Leading medical organizations broadly agree that even short term exposure to these types of pollution can cause or contribute to cancer, early death, attack, strokes, congestive heart failure, asthma, chronic obstructive pulmonary disease, and other serious conditions. Harvard School of Public Health researchers found increasing evidence linking fine particulate pollution exposure to autism in children.<sup>7</sup>

These pollution exposures are especially hazardous to children, seniors, people with chronic illness, and workers. The US EPA says even short term exposure is dangerous.

While Toronto is getting louder from increasing construction, mechanized gardening, traffic and pollution, noise regulations have not kept up. City Hall knows noise is dangerous as per Toronto Public Health's May 29/17 report below:<sup>8</sup>

*"A growing body of evidence indicates that environmental noise at levels that are common in urban environments have an impact not only on quality of life issues and hearing loss, but also on health. Building on the 2009 and 2011 reports of the World Health Organization, TPH reviewed the current evidence on the health impacts of environmental noise. The health impacts included in this review were:*

- *Cardiovascular Effects: myocardial infarction, hypertensive heart disease, ischemic heart disease, high blood pressure, cerebrovascular disease (stroke), coronary heart disease*
- *Cognitive Impacts: impairment (attention, memory adults, errors upon testing in children)*
- *Sleep Disturbance: increased arousals, changes to sleep structure*

<sup>5</sup> <https://www.silencity.com/2020/04/15/leaf-blowers-pollution-and-covid-19/>

<sup>6</sup> <https://www.lung.org/blog/earth-day-checklist>

<sup>7</sup> <https://www.quietcommunities.org/air-pollution/>, Jaimie Banks, PhD

<sup>8</sup> Health Impacts of Environmental Noise in Toronto May 29, 2017, Dr. Eileen de Villa

- *Mental Health: annoyance, depression, quality of life*
- *Pulmonary Effects: chronic obstructive pulmonary disease, pneumonia*
- *Other Effects: diabetes, behaviour in children”*

Major health and environmental organizations, including the US Centers for Disease Control and Prevention, the American Lung Association, the National Institutes of Health, physician groups in California, New York, and Utah, and various medical societies, warn against their use and/or the use of GLGE. The New York State and Massachusetts Medical Societies passed resolutions discouraging GLB use because of its detrimental effects on workers and public health.<sup>9</sup>

#### **4. Enforcement**

Enforcement must employ effective and faster measures used elsewhere instead of its slow and inefficient procedures. Suggested strategies are ticketing workers with gas powered equipment, accepting time stamped emailed photos as evidence and stationing inspectors in neighborhoods crews frequent.

#### **5. Social Equity**

GLGE health risks are highest for equipment operators exposed daily to high levels of toxic pollutants, fine particulates and noise. Workers have no say in the equipment they use. Toronto Public Health reported that:

*“There is a risk of hearing loss for commercial leaf blower operators due to the high sound levels and the likelihood that few (less than 10%) wear hearing protection”<sup>10</sup>*

And workers lack breathing protection. No one will benefit more from the elimination of GLGE than the workers.

#### **6. Environmental Goals**

Today lawn maintenance crews disperse concentrated noise and pollution levels regardless of harm to people, beneficial insects including pollinators and our environment. Toronto must stop treating gas powered lawn equipment especially leaf blowers as sacred cows. South Pasadena, the first US AGZA Green Zone City is light years ahead of Toronto:

*“In keeping with our pledge to become a more sustainable city, South Pasadena worked with AGZA to transition municipal grounds maintenance from fossil fuel based operations to advanced cordless battery equipment, manual tools, and ecologically friendly landscape practices. As a result, the city has been able to eliminate all fossil fuel consumption and toxic emissions, and has reduced noise by half.”<sup>11</sup>*

Banning GLBs cuts fuel consumption and spillage, exhaust emissions, noise, toxic maintenance solvents, and dirty engine parts and non-recyclable containers ending up in landfills. Workers benefit from reduced exposure to toxic pollutants and noise. The

<sup>9</sup> [https://www.quietcommunities.org/wp-content/uploads/2020/05/FINAL-QC\\_White-Paper\\_GLBs-COVID\\_v1.2\\_2020.05.03.pdf](https://www.quietcommunities.org/wp-content/uploads/2020/05/FINAL-QC_White-Paper_GLBs-COVID_v1.2_2020.05.03.pdf) Jaimie Banks, PhD

<sup>10</sup> Leaf Blowers and other Lawn/Garden Equipment: Noise, Air Pollution and Regulation, Staff report Dr. Sheela V. Basrur, Medical Officer of Health, July 3, 2001

<sup>11</sup> <https://agza.net/> American Green Zone Alliance

public benefits from quieter, cleaner, and healthier environments in their neighborhoods, schools, businesses and communities and a better quality of life.

## 7. Non-compliant and Excessive GLBs Use

Workers run gas blowers at the highest setting generating excessive noise and large clouds of fine particulate matter and dust. Landscapers blow grass clippings weekly, an unnecessary and environmentally unsound practice harming lawn, soil, and plant health while depriving flower beds of nutrient rich organic matter and causing insect and biodiversity loss. Weekly dust and debris dispersion with 200+ mph air jets, is dangerous and contrary to industry recommendations. These machines are inappropriately used for dirt, sand and snow removal.

Instead of removing leaves, they should be used to support wildlife. Credit Valley Conservation advises:

*“Skip raking and bagging leaves. Leaves make good mulch for your garden..... You can also add them to your compost bin. Leave plant stems and grasses standing. Put away the pruners. Standing dry seed heads provide food for birds while stems and long grasses provide nesting sites for insects. Don’t till or turn soil. A layer of compost covered with mulch and leaves will help keep soil healthy for spring.”<sup>12</sup>*

## 8. Battery Equipment Use Is Growing

Mariusz Maj, Horticulturalist at Manulife for 25 years, uses an electric lawn mower in order to trim down a section of grass of the Manulife building in Toronto, on Monday, August 26, 2019. – see below<sup>13</sup>



The above photo shows battery equipment used on a large commercial lawn. Battery Garden equipment manufacturers include Green Machine, HUSQVARNA, ECO, Haaga’s Mechanical Sweeping Machine, etc.

## 9 Education

Toronto needs a robust public education program informing residents and industry about the health and environmental risks with gas powered equipment and reasons for the ban to increase acceptance. It must also advise how replacing lawns with pollinator friendly native plants increases biodiversity and aligns with Toronto’s environmental initiatives.

<sup>12</sup> [https://cvc.ca/conversations/when-it-comes-to-fall-yard-clean-up-doing-less-is-best/?mc\\_cid=3f91a4ec35&mc\\_eid=f34a9c7a61](https://cvc.ca/conversations/when-it-comes-to-fall-yard-clean-up-doing-less-is-best/?mc_cid=3f91a4ec35&mc_eid=f34a9c7a61)

<sup>13</sup> Is it time to decolonize your lawn? Christopher Katsarov/The Globe & Mail, Sept 5/20  
<https://www.theglobeandmail.com/canada/article-is-it-time-to-decolonize-your-lawn/>

## 10. Conclusions:

To be truly livable, Toronto must improve our environment, make our air cleaner and streets quieter, boost biodiversity and encourage sustainable naturalized gardening over conventional lawns; not target them because neighbours complain. Carbon intensive immaculate lawns are the old economy. TO should do more to encourage property owners to replace some or all of their lawns with native plants gardens augmenting Toronto's Biodiversity and Ravine Strategies while reducing water consumption. Polar ice caps are accelerating while catastrophic wildfires rage. 2019 was among three warmest years on record.<sup>14</sup> 136 cities/towns across the U.S. and 4 in Canada have already enacted some form of legislation to restrict or ban the use of GLBs. Israel has banned them completely. Toronto should as well.

Sincerely,

Harold Smith, B. Arch, MBA, LEED AP,  
Director, Lytton Park Residents Org. Inc.  
Toronto Noise Coalition member,  
150 Hillhurst Blvd. Toronto, ON, M5N 1N8

cc Dr. Eileen DeVilla, Medical Officer of Health  
Jim Baxter, Director, Environment & Energy Division  
Councillor Shelly Carroll, Lytton Park Residents Org. Inc., Bedford Park Residents  
Organization, SAHRA, FoNTRA

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<sup>14</sup> <https://www.ncei.noaa.gov/news/reporting-state-climate-2019>

### AGZA Verified EGO Testimonials

AGZA verified testimonials are entirely independent of tool manufacturers and ensure accurate unbiased information is available for the public. AGZA works hands on with these companies verifying their physical fleet of tools, batteries and chargers. AGZA confirms their workloads and hourly use of tools to understand battery cycles and how the tools stand up to wear and tear. All of these companies are AGZA certified and have been trained in the use and care of electric tools for longevity and ROI.



**Dan Delventhal MowGreen, LLC** - *"The EGO power plus line has been a cornerstone of our zero emission lawn care practice. We use their mowers, blowers, hedgers, multi-head edgers, pole hedgers, pole saws, snow blowers, inverters, trimmers and chain saws. The common battery across the line has simplified things while making it easier to use all electric tools all day. We enjoy the long run times of the 5 amp and 7.5 amp batteries. The self-propelled 21 inch mulching mower from EGO is our standard for small units.*

*MowGreen has been able to grow 30% for 7 years straight and managing the growth has been easy with EGO, as it is readily available in variety from a local Home Depot or Amazon. We have been using EGO as a standard for 5 or 6 years. Our prior small mower standard Black and Decker was replaced by EGO back then, and EGO also replaced a prior standard of using Worx trimmers. Mow Green plans to continue standardizing on EGO gear, and is considering upgrading to the new commercial line EGO has recently released."*



**Jeff K, 818 Land Maintenance** – *“I am an independent operator servicing five to seven single family homes a day in Southern California. I was introduced to electric tools by the American Green Zone Alliance five years ago. One of the equipment choices introduced to me was the EGO Power Plus line of tools. I preferred the ergonomics of EGO compared to the other brands I was introduced to. I have since purchased two self-propelled and one push mowers, one backpack blower and two handheld blowers, one stick edger, and one string trimmer. I have replaced my string trimmer after three years of commercial service. Five out of my 7 batteries are going on five years old now. I was able to get almost four years out of the two batteries I replaced. With the cost savings on gas purchasing, replacement batteries are worth the cost so far. My clients who do not like gas are happy I have EGO tools on my truck.”*

**Kevin E, Kevin's gardening services** – *“Time is money for my business. I hire two to three helpers and speed is the key to making a living. My guys are hard on gas tools so when considering electric I needed sound advice. I need tools that are durable, reliable, and affordable. EGO Power Plus and 56V Commercial has fit that bill so far with my specific business model. There is no doubt that I am saving money on gas and two-stroke oil mix. I will have to come clean and admit that my EGO Commercial string trimmer and hedge trimmer perform just as well as my gas ones. I have not lost any work productivity. I use the blower every day for hardscape surfaces mostly. I look forward to a commercial 21” walk behind mower from EGO soon.”*





**Brian Daugherty, grounds maintenance operations WU School District, Lancaster, CA** - *"I have been using EGO's equipment for over a year and couldn't be happier. The equipment I use is very light and convenient and the batteries have been holding up for over a year now with no troubles. I could not imagine not having my ego equipment for my daily use in my profession. It has made my job as a groundskeeper a lot easier to handle. EGO has exceeded my expectations and is a great company and I hope to be using it for years to come."*



**EGO BATTERIES -  
AGZA testing of EGO batteries over a five year span**



**TEMPERATURE EXPOSURES:**

**Heat** - EGO batteries were operated, charged, and stored in high heat conditions in desert communities where temperatures reach up to 116 degrees Fahrenheit.

EGO batteries were purposely charged in a metal storage container subjected to extreme heat for a period of six months. There were no safety issues regarding thermal runaway, fires, or expanding cells.

**Cold** - EGO batteries were purposely charged and stored in temperatures less than 15 degrees Fahrenheit for a two month period. Batteries were used in blowers, chainsaws, and hedge trimmers on dead vegetation, and stick edgers with no negative effects on performance. Batteries were also used on EGO's snow blower with exceptional performance.

**ABUSE TESTING:**

**Drop tests** - 100 waist level drops of EGO 2.5, 5.0, 7.5, and backpack battery on asphalt (50), concrete (25), and turf grass (25). 100 drops off the back of a Ford F250 pick-up truck of EGO 2.5, 5.0, 7.5, and backpack battery on asphalt (50), concrete (25), and turf grass (25). There were no cracks or significant damage of the battery housings, and no battery failures as a result of the drop testing. In extreme abuse testing EGO batteries were slid inside the bed of a Ford F250 pickup truck from the tailgate and crashed into the front of the bed with robust force. This was repeated 125 times in a one week period. No cracks or damage to the housing resulting from this abuse. All of the batteries were still functional in all of the tools.



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