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Attachments: [Case for Restricting Leaf Blowers.rtf](#)
[FAQ's and Common Objections.rtf](#)
[Gas Powered Leaf Blowers White Paper-1.pdf](#)

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Town Board Members:

Attached is background material that the CALM executive committee will draw on during our work session on Feb. 8th. You will find a summary of the case for phasing out internal combustion blowers; FAQ's that address common concerns about restricting leaf blowers; and a white paper with scientific research about gas-powered leaf blowers. The [CALM website](#) includes much useful information, including links to news articles. We all look forward to a fruitful, focused discussion of the issues.

Thank you for your time,

CALM Executive Committee Members

The Case for Restricting Internal Combustion Blowers

Quality of Life

Many of us in Pound Ridge have noted a recent escalation in the use of gas leaf blowers. The whine and wail of both backpacks and walk-behind wind machines are an assault on our town's quality of life. One homeowner's "right" to rid his landscape of every last leaf tramples on the rights of many more neighbors for peace and quiet.

Noise

Gas-powered leaf blowers produce up to 112 decibels of deafening, wall-penetrating sound, which is above C.D.C. guidelines to protect hearing. Loud, persistent noise raises stress levels and affects the health of both residents and workers.

Air Pollution

Gas-powered leaf blowers spew carbon dioxide, the pollutant most responsible for climate change; carbon monoxide; smog-forming nitrous oxides; and carcinogenic hydrocarbons. Their primitive two-stroke engines emit as much as a third of their fuel as an unburned aerosol. The force of leaf blowers also raises dust, spreads pollen and disperses harmful molds into the air that we all must breathe.

Bad for Lawn and Garden

Denuding yards and blowing gardens down to bare dirt is harmful to wildlife, including in winter, when many insects hibernate among fallen leaves. Leaf blowers kill butterflies, moths, fireflies and scores of

species of native bees and other pollinators, all of which are also food for birds. Clearing leaves removes beneficial mulch and exposes plant roots to harm.

Alternatives Exist

“Mulch mowing” – using the mower to shred leaves as it cuts the grass – adds nutrients and improves the health of lawns and planting beds. Battery-powered or electric blowers produce less noise and no air pollution and can easily clean leaves off walkways and drives when needed for safety.

Pound Ridge Is Behind the Curve

California recently passed a law to phase out gas-powered leaf blowers statewide. Hundreds of U.S. cities and towns have limited or banned their use, including Washington D.C. and Larchmont, N.Y., the first community in the Northeast to pass a complete ban. Scarsdale, Bedford, Dobbs Ferry, New Rochelle, Sleepy Hollow, Tarrytown, White Plains and Yonkers have all enacted leaf blower regulations.

Frequently Asked Questions and Common Objections

1) A gas leaf blower ban will cause undue hardships for our landscaping business. We'll have to buy new electric blowers.

Commercial landscapers already replace their blowers periodically. If the cost of two new battery blowers, extra batteries and chargers is somewhere between \$800 and \$2,000, passing the entire cost on to customers, even at the high end, would amount to only a couple of dollars per property per week for one year.

With the cost of fuel, the American Green Zone Alliance estimates that it costs \$7 to \$8 per hour to operate a gas-powered leaf blower vs. \$1.05 for an electric blower.

2) Homeowners want their properties to look a certain way. How are they and their landscapers supposed to do that now?

Homeowners can become good stewards of the land. The Pound Ridge Conservation Board promotes mulch mowing instead of denuding lawns of all leaf matter. Whole leaves left in beds are healthy for plants, shrubs and insects. Leaf cover provides a home for bees, butterflies and other beneficial insects, according to the [Cornell Cooperative Extension](#). And homeowners who adopt these practices can pocket the cost of commercial fertilizers.

In Pound Ridge, we have chosen to live in deciduous woods. The pristine yard is a recent development — historically, we had beautiful lawns before leaf blowers.

3) I have a right to do what I please on my property and have it look the way I want. This is a regulation overreach.

A homeowner's rights end where they infringe on the rights of others to enjoy their properties. Pound Ridge has many regulations limiting what

you can do on your property.

Loud noise and noxious fumes don't stop at property lines. They intrude on a neighbor's right to peace and quiet and clean air.

In November, New York State voters amended the state constitution to read: "Each person shall have a right to clean air and water, and a healthful environment."

4) Individual homeowners are not covered by the current noise ordinance. Why should a resident who owns a leaf blower not be allowed to use it?

If gas leaf blowers are unacceptably noisy and emit unacceptable levels of pollution when used commercially, then they are too noisy and too polluting when residents use them. As neighbors, we share the air the same way we share our ground water. We wouldn't tolerate toxic chemicals being introduced into our shared water.

5) I have four acres. There's no way an electric blower will move all those leaves, especially wet leaves.

We want to put to bed the notion that battery leaf blower technology is "not there yet." Electric equipment can readily meet the demands of large and small properties to clear walkways, patios and driveways. One local landscaping company maintains over 60 acres a week with all-electric technology. Can battery blowers move massive piles of wet leaves as "efficiently" as gas blowers? No. But that's when alternatives to blowing — mulch mowing, leaving leaves in place — are good options.

6) Why are you singling out gas leaf blowers? They are not the only noise and air polluters.

Gas leaf blowers are in a category by themselves. You couldn't invent a better machine for turning gas and oil into harmful pollution. They do so in three ways:

Exhaust emissions An idling 2-stroke engine can produce up to 60,000

times the safe levels of benzene, a known carcinogen. Two-stroke engines are being phased out in many places and industries. Landscaping is one of the last holdouts.

Noise A gas leaf blower can be as loud as an airplane taking off. Noise at this level can begin to cause hearing loss after just two hours. Persistent loud noise has been shown to cause increased stress, heart problems, higher anxiety, sleep loss, decreased immunity and other health problems. It has also been shown to negatively impact our children's ability to learn.

Dust Gas leaf blowers create a toxic cloud of particles, including mold, animal feces, pollen, spores, residue from tires and brake linings, and heavy metals from herbicides and pesticides. One gas leaf blower blows five pounds of particulate matter into the air per hour. The dust menaces the health of workers and residents alike. It can travel for miles and take hours, even days, to settle.

Vehicles in New York State must pass emissions and muffler tests. A car can't be louder than 82 decibels. A gas leaf blower at full power would pass neither.

7) Your proposal allows the use of electric leaf blowers. Don't these blowers damage and desiccate the soil much like gas blowers do?

Electric leaf blowers also desiccate the soil, but their power is less than that of gas leaf blowers. By requiring the use of less powerful tools -- and encouraging homeowners to leave leaves as mulch and ground cover -- Pound Ridge would lessen, if not eliminate, the negative impact of leaf blowers on soil.

If responsible yard care measures are taken, the only areas that would ever really need to be cleared by blower would be sidewalks and driveways. Even then, a rake or broom often works just as well.

8) Pound Ridge isn't Larchmont, where homes are much closer together. Noise is less of a problem here where we live farther apart.

Most people in Pound Ridge live within earshot of their neighbors. Backpack blowers at the point of operation can reach as much as 105 decibels, which can be heard from a mile away. Experts in acoustics say that blower noise is especially irritating because of its strong low-frequency component, its changing amplitude and the powerlessness of the hearer to control it.

Bedford, which has more large estates than Pound Ridge, has moved to ban gas leaf blowers.

9) As a landscaper, how am I supposed to recharge my blower batteries while in the field?

You will need a charger at your base and have enough batteries to get through the day. Most homeowners will allow you to charge batteries while servicing their property. Batteries can recharge in 30 minutes.

10) What about enforcement? We don't want our police distracted enforcing this law.

One possible solution is to hire or designate volunteer code enforcers. Residents can report violations via email to the code officers. The enforcers can call, email or send a letter to violators reminding them of the law. But police, who diligently respond to complaints now about noise, unknown parked cars, loose dogs and other lifestyle issues, should not be entirely disassociated with this enforcement.

Gas Powered Leaf Blowers: Their Negative Impact and Alternatives for a Healthier Environment

Introduction

In recent years the negative impact of gas powered leaf blowers has become more obvious with hundreds of municipalities across the country enacting legislation to restrict their use. The onset of Covid-19, necessitating many Pound Ridge residents to work from home and students to attend school from home, heightened our awareness of the negative effects of gas blowers and prompted increased requests from our community to address their use. This report highlights the negative effects of gas blowers on our health and the health of the environment and presents environmentally-friendly alternatives. As climate change has an increasing impact on our lives, reducing our carbon footprint is a responsibility we all share.

Negative Impact on Our Health and Our Environment

Impact on the Health of Landscape Workers

Seeing and hearing landscape workers with a two-stroke, gas powered leaf blower on their back is now a common occurrence almost all year round. The air and noise pollution from gas powered leaf blowers are bad for everyone, but the health effects are experienced most intensely by landscape workers whose lungs breathe in more of their fumes and whose ears absorb more of their noise day in and day out.

Two-stroke engines are some of the most polluting gas engines in the world, spewing out as much as one third of their fuel as an unburned aerosol. A 2014 study published in *Nature Communications* showed their harmful emissions to be “124 times higher than an idling truck and included benzene, butadiene, and formaldehyde, which are listed among the four top ranking cancer-causing compounds”. A 2011 study by Edmunds said, “to equal the hydrocarbon emissions of about a half-hour of yard work with this two-stroke leaf blower, you'd have to drive a Ford Raptor truck for 3,887 miles, or the distance from Northern Texas to Anchorage, Alaska.”

Gas blowers also create noise levels upwards of 100 decibels for the operator. The CDC guidelines state that any noise above 70 decibels begins to cause hearing damage and explicitly lists gas powered leaf blowers as a frequent cause of hearing loss. In addition, toxic levels of noise are associated with psychological stress.

The risks to landscape workers are clear. While protective equipment for their lungs and ears can mitigate some of these risks, it is rarely used and there are no laws or regulations mandating such protections. We need to ask ourselves if we want someone to risk their health and well being for a job that can otherwise be done safely.

Air Pollution

While the worst effects of gas blowers fall on the workers who use them, the inefficiency of these two-stroke engines means that they spew an inordinate amount of highly toxic pollutants into the air we all breathe.

In 2010 doctors from Mount Sinai wrote, “Other potential pollutants from leaf blowers and internal combustion power tools are carbon monoxide, nitrogen oxides, hydrocarbons, and even ozone, formed from some of these other pollutants. Even lower-level exposures have been associated with respiratory and central nervous system effects.” Confirming that assessment was a 2015 study by Dr. Jamie L Banks, a PhD in Health Economics, together with Robert McConnell, an EPA environmental engineer, writing, “Extensive evidence exists on the adverse health effects of exhaust emissions and other fine particulates which include cardiovascular disease, stroke, respiratory disease, cancer, neurological conditions, premature death...”. Banks and McConnell cite sources for these claims including the American Heart Association, American Lung Association, United States EPA, World Health Organization, as well as peer-reviewed scientific journal articles.

In a 2017 article in *Science* magazine, Emily Underwood wrote, "Evidence builds that dirty air causes reduced cognitive functioning. That is, fine-particulate pollution, of which there are many sources, and that two-stroke engines create to a disproportionate degree, is associated with mental problems in addition to its other known health effects. A growing body of evidence suggests that inhaling fine and ultra-fine particles can also harm the brain, accelerating cognitive aging, and may even increase risk of Alzheimer's disease and other forms of dementia."

Noise Pollution

It cannot be overstated that noise hurts. Noise travels and it impacts everyone, which is why noise ordinances are universal.

In a 2000 study published in *Environmental Health Perspectives*, it was estimated that more than 100 million Americans are at risk for noise-related health problems including hypertension and increased risk of heart attacks. In 2010, pediatricians from Mount Sinai Hospital issued a letter to Eastchester urging their local government to restrict gasoline leaf blowers. The doctors wrote, “The ears of infants and young children are especially vulnerable to the high intensity noise that leaf blowers produce because their auditory systems are undergoing rapid growth and development, and these developmental processes are easily disrupted.” Subsequently, Tuckahoe adopted restrictions on leaf blower use in 2011.

In a 2017 study for the *Journal of Environmental Toxicology*, researchers showed what kind of noise bystanders are exposed to from a two-stroke leaf blower at varying distances of 50, 100, 200, 400, and 800 feet. The study produced two key findings. First, even at 800 feet, bystanders were exposed to levels of noise that exceeded the World Health Organization's recommended standard for community, outdoor, daytime sound of 55 dBs. At 50 feet,

bystanders were exposed to levels above 80dBs, loud enough to cause hearing damage. The second key finding was the dominance of low-frequency sound waves in the noise from two-stroke engines, which penetrates walls and windows.

Wildlife Habitat Destruction

The use of leaf blowers is universally acknowledged by environmentalists and ecologists to be detrimental to the health and biodiversity of plant and animal life.

The 200 mph toxic air coming from gas blowers are fatal to beneficial insects and other small creatures, many of which require fall leaves to create their winter homes. This is especially important in light of recent warnings that our insect population is rapidly declining, threatening global biodiversity and our food supply. One report has referred to it as a coming insect armageddon.

Other animals are threatened by the noise of gas blowers. Certain species of birds, such as the wood thrush, are adversely affected by loud noises and will avoid areas where gas blowers are used.

Alternatives for a Healthy Environment

The Benefits of Mulch Mowing

In 2017, researchers at Cornell University published the results of a project that looked at the effects of mulch mowing on lawns and at management practices that improve soil health. This project was conducted to see if mulching leaves in place provided benefits to turf and soil without adding excess nutrients to the soil, smothering the underlying turf, or providing a suitable habitat for insect pests to proliferate. Soil testing showed an advantage in long-term mulch mowing for improving available water capacity, soil proteins and soil respiration. In terms of turf quality, lawns that had been mulch mowed showed significantly higher pest tolerance, significantly better color, and a significantly greater percent of living ground cover than those where leaves had been removed. Drought tolerance also increased over time on sites where mulch mowing had been in practice for greater than four years. Mulch mowing did not improve the habitat for ticks. Mean number of ticks collected was significantly greater on lawns and around the perimeter than on sites where mulch mowing was practiced. Based on the results of this three-year study, mulch mowing of leaves provides health benefits to the soil and turf, and does not increase the habitat for pests. And it uses less fuel than community pick-up.

When It is Best to Leave Leaves Alone

The damaging winds emanating from gas blowers erode topsoil, exposing the crowns of plants and damaging the roots close to the surface. Leaving leaves at the base of trees and shrubs provides a protective layer that holds moisture in the soil and prevents them from drying out. Leaving leaves and grass clippings to be mulched into the soil adds nutrients and improves soil texture and the health of lawns and plant beds. Leaf blowers are a big culprit in compacting soil, making it difficult for oxygen to circulate and water to permeate the surface.

Leaving leaves at the base of trees and in flower beds also supports pollinators and other invertebrates, providing them with the winter cover they need. The vast majority of butterflies and moths overwinter in the landscape as an egg, caterpillar, chrysalis, or adult using leaf litter for winter cover. Beyond butterflies, bumble bees also rely on leaf litter for protection. At the end of summer mated queen bumble bees burrow only an inch or two into the earth to hibernate for winter. Many other insects and wildlife also need a thick layer of leaves for protection from the elements.

Electric Leaf Blowers

Electric leaf blowers are a better alternative to gas blowers. In addition to being a viable alternative in terms of air power, electric leaf blowers have several advantages over gas blowers. Electric leaf blowers are zero emissions at the point of use and emit no harmful fumes around the user or into the environment. They are significantly quieter and less disturbing to residents than gas blowers. Along with these benefits, commercial, electric leaf blowers still create sufficient airflow to efficiently handle yard-work in conjunction with the aforementioned practices of mulch mowing and allowing leaves to remain where they improve the soil and provide habitat to beneficial insects and other species.

Regarding the costs associated with the transition to electric leaf blowers. The most powerful electric blowers cost about \$300. With the added cost of a rapid charger, \$200, plus 3 extra batteries, \$150 each, and tax, it comes to about \$1,000. A typical landscape truck with a crew of 3 men, one of whom is operating a leaf blower, services approximately 6 properties per day, 6 days per week, 36 weeks per year, totalling 1,296 service visits. If the entire cost of the electric leaf blower was passed on to the property owner the first year, it would average 77 cents per customer per visit or about \$28 per property. Even if the landscaper wanted 2 leaf blowers per crew, the cost would be under \$60 to cover the cost of transition.

Electric blowers require little maintenance and have a longer life than gas blowers which typically need replacing every 3 years. Electric blowers are cheaper to operate costing about 25 cents per hour in electricity while gas blowers currently cost about \$2.50 per hour. In speaking with landscapers who use electric equipment, they report that property owners are happy to provide electrical outlets to recharge batteries.

Electric blowers are less powerful than gas blowers and that is why they are less harmful to the environment. However, combined with mulch mowing as the primary way of “removing” leaves from turf, electric blowers can handle the rest of the leaves, particularly in the summer months when blowers are primarily used to blow grass and pollen off hardscape.

Testimonial from a Happy Homeowner

“Our property is just over 3 acres including a pond, woods, a garden and about an acre of lawn. About 5 years ago we began to question how we maintained our lawn. We stopped treating the weeds with chemicals, and after seeing less fish in the pond and an algae bloom, we started using less fertilizer. We became aware how common landscaping practices were becoming a huge detriment to everything we valued about living where we do. What we'd seen previously as “weeds”, we came to learn were really important sources of food for insects that the fish, birds, bats and dragonflies we loved to observe in our yard all relied upon for survival. Two years ago we switched to an all electric landscaping company when I had finally had enough of the gas blowers and my husband was tired of hearing me complain. The blowers were used for everything - to clean hardscapes, to blow the (beneficial) clippings and leaves off the yard for a more "tidy" appearance, to clean out the gutters or clear the roof of debris from the trees overhead. The fumes would permeate our house. If I happened to be home when the crew was here, I was unable to do anything productive while they were here due to the noise and the smell of the machines. More research into these machines illuminated just how polluting and detrimental the exhaust was to the natural environment and also to the people who had the unfortunate experience of operating them countless hours per day for employment. We love the electric lawn care experience. The reduction in noise and smell on their own is reason for us to never go back at this point. I'm often not even aware that there is anyone doing work in our yard when the electric company is here. While our yard aesthetic has changed over the years, it hasn't been due to an inability to maintain a certain "look" because of the shift to electric, but rather our own education and desire to have our yard be more welcoming to the critters that need nature to survive. The look of the "perfectly manicured" yard now just makes me sad for the sterility and inhabitability it implies.” Annie Fernald, Pound Ridge Resident

Summary

Gas powered leaf blowers are outliers. They run counter to the progress that has been made with all other gas powered engines. Today's jet engines are 80% more efficient than in 1950 and today's cars are almost 200% more efficient; with smog causing emissions down 99%. And while two-stroke engines have been eliminated in vehicles for transportation around the world because of their polluting effects, they have been allowed to flourish unregulated for decades as landscape tools; despite our increased knowledge and awareness of climate change. These little engines that could, should be no more. Delaying this transition is just kicking the gas can down the road.

Appendix

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