ELECTRIC VERSUS COMMERCIAL GAS LEAF BLOWERS

The following report covers the factors that the Cape May Point Environmental Commission researched on the topic of the possible ban of gas-powdered leaf blowers.

- Environmental Factors
- Health Concerns
- Operational Impact
- Similar Ordinances in the State of New Jersey
- Leave the Leaves Education

Executive Summary

This is a complex topic comprising many facets. Environmental and Health factors are clearly in favor of electric blowers over gas-powered blowers. The hurdle will be the use of electric blowers in commercial applications due to performance differences and battery requirements. There would be a learning curve and capital outlay for the landscapers. Therefore, a formal, total system cost comparison between gas and battery powered leaf blowers is recommended. This needs to include not only capital, but all pertinent factors such as cost of consumables, ability to charge batteries, labor hours, life expectancy of equipment.

In NJ, Montclair, Princeton, and South Orange have a ban on gas-powered blowers between May and September but allow them for cleanups prior outside of those times. A seasonal ban may be more feasible at this time. Battery technology continues to improve, which impacts power output and run time.

Two educational topics can be pursued by the EC:

1. Leave the Leaves, rather than blowing and bagging.
2. Reduction of lawn size by conversion to native plants, thereby eliminating the need to cut lawns with cleanup afterwards

ENVIRONMENTAL FACTORS [Isabelle Neary]

NOISE

Electric - 65 to 70 decibels which is considered a low noise level.

Commercial Gas (backpack) - 80 to 90 decibels which is considered a **HIGH** noise level.

OSHA considers noise levels above 85 decibels for long durations unsafe.

EMISSIONS

Electric – NO dangerous emissions

Commercial Gas - Dangerous emissions such as butadiene, formaldehyde (known carcinogens or known respiratory, cardiovascular neurological health risks)

AIR POLLUTANTS

Electric – NO air pollutants

Commercial Gas - Emits more air pollutants than an automobile including carbon monoxide, non-methane hydrocarbons and oxides of nitrogen. Because leaf blowers typically use fuel-hungry two-stroke engines, running a gas leaf blower for an hour is equal to an 1,100-mile drive in a gas-powered car.

CARBON DIOXIDE EMISSIONS

Electric – LOW levels of emissions (power plants)

Commercial Gas (backpack) – Emits **HIGH** levels of CO2.

BLACK CARBON EMISSIONS

Electric – NO dangerous emissions

Commercial Gas – Emits **BLACK CARBON.** Black carbon is considered a major contributor to global climate changes, possibly only second to CO2.

HEALTH CONCERNS [Paula Massanari]

MENTAL HEALTH

Frontiers – Does noise affect learning? A short review on noise effects on cognitive performance in children

The reviewed studies document harmful effects of noise on children's learning. Children are much more impaired than adults by noise in tasks involving speech perception and listening comprehension. Non-auditory tasks such as short-term memory, reading and writing are also impaired by noise.

Science Magazine – Evidence builds that dirty air causes Alzheimer's, dementia

Some of the health risks of inhaling fine and ultrafine particles are well-established, such as asthma, lung cancer, and, most recently, heart disease. But a growing body of evidence suggests that exposure can also harm the brain, accelerating cognitive aging, and may even increase risk of Alzheimer's disease and other forms of dementia.

HEARING LOSS

CDC – Too Loud! For Too Long! Loud noises damage hearing

This report from the US Centers for Disease Control describes sources of harmful environmental noise, highlighting lawn and garden equipment, and includes a powerful infographic.

ASTHMA AND AIR POLLUTION

Mount Sinai – Medical Grounds for a Restriction on Internal Combustion Power Tools and Leaf Blowers

Internal combustion power tools and leaf blowers pose multiple hazards to human health. Children are the most susceptible members of our population to these hazards because they breathe more air per pound of body weight per day than adults and thus inhale more of any pollutants that are thrown into the air by this equipment.

EPA – Health and Environmental Effects of Particulate Matter (PM)

Exposure to such particles can affect both your lungs and your heart. Numerous scientific studies have linked particle pollution exposure to a variety of problem.

Asthma and Air Pollution

Particles in the air like dust, dirt, soot, and smoke are called particulate matter and can cause increased hospital visits, worsened asthma symptoms, adverse birth outcomes, breathing problems, decreased lung grown in kids, lung cancer, and early death.

OPERATIONAL IMPACT OF BANNING GAS LEAF BLOWERS [Elise Geiger]

Methodology

Three landscaping /maintenance companies that have clients in Cape May Point were interviewed. One was a recent small start-up who only recently evaluated and purchased equipment. The other 2 companies were established firms. It should be noted that in general these companies are small local businesses and not large entities or even franchises. Of those interviewed, all were aware of the noise issue and took steps to mitigate the noise. One did not use backpack blowers to reduce noise impact on the operators.

Gas vs Electric Performance

Electric blowers are not as powerful as gas blowers. This is due to volume output and fan speed. They simply are not equivalent to electric blowers. Electric blowers are not effective on leaves and any wet debris. This makes spring and fall clean-ups problematic, which is why the three townships have instituted such a ban only in the summer months. To account for the loss in power, electric blowers need to operate for a longer period to accomplish the task. For example, a 5-minute gas-powered job, would require 10 to 15 minutes of run time. One landscaper advised that it would take 20 minutes of run time for an electric blower, which would essentially deplete the battery.

The fan mechanism in an electric blower requires significant energy. Batteries last approximately 20 minutes per job. Lawn companies do 40 to 60 properties in a workday lasting 10 to 12 hours. This would require 26-40 batteries per day. Landscapers would need to carry these on their trucks, since there is no opportunity to recharge during the day. Recharging these many batteries every evening will be logistically challenging. An alternative to blowing would be raking and sweeping. This would add significant time to every job and have a significant impact on business operations.

Business Implications to Landscapers

A significant capital investment would be required. The cost of a battery is approximately $250. Landscapers would be faced with a $10,000 battery investment.
Lawn maintenance is a very low margin business. The margin is less than 10%. It is often a loss leader since the profits are usually made with mulching and clean-up services.

Volume is key to business success, necessitating a high volume of jobs per day. Any increase in time per job will have a negative impact on an already tight margin. The start-up landscaper interviewed was very concerned that the more established firms would be able to absorb more of a margin loss that he can. He felt this would make it harder for him to compete and result in more of a monopoly.

Impact on Cape May Point Residents

All those interviewed felt that the financial impact would be significant and would pass on that cost to the customer. Estimates of a cost increase to customers were 75-100%. For a lawn cut costing $30, they may increase to $50 per cut. They may also be less willing to take on new CMP customers. Clean-up costs would be substantial if CMP did not consider a seasonable ban.

Enforcement Issues

There was concern about how such an ordinance would be enforced and how a level playing field would be maintained. It is a very competitive business environment and due to the financial consideration, there is an incentive to not comply with the ban. Those who do not comply would have a competitive advantage.

This raises the question of CMP's rigor in compliance. It is doubtful that Cape May Police would play a role in enforcement. Therefore, it becomes a situation of neighbors calling to report on neighbors. The Borough will need to establish a mechanism of how to deal with the calls and how to ascertain whether a landscaper or a homeowner is not in compliance. Note that it is not that easy to distinguish between the types of blowers and it is assumed that the user would need to be caught in the act.

SIMILAR ORDINANCES

[Elise Geiger & Paula Massanari]

To date in the US, over 100 cities and towns have banned gas-powered leaf blowers or limit their use.

A bill has been introduced to the NJ State Senate that would ban the sale and use of gas blowers. This bill introduced by Senator Bob Smith has been idle in this session as well as the 2020-2021 session. There is no companion bill introduced in the Assembly. In the opinion of the Legislative aide to Senator Michael Testa, this bill has only a slim chance of being considered.

Montclair

By law in Montclair, gas-powered ("internal combustion") leaf blowers may only be used at certain times of day and during certain times of year. As of 2021, the law allows their use only from March 15 to May 15 and from October 15 to December 15, except in emergencies.

Princeton

Princeton passes a Sustainable Landscaping Ordinance in 2021. The ban on gas blowers is all inclusive, it applies to landscapers and homeowners. Gas blowers are only banned seasonally, from May 16 to September 30. This allows for the use of gas blowers for clean-ups and leaf removal. In terms of enforcement, all landscapers doing business in Princeton must register with the Township yearly. There is a $10 registration fee, and all landscapers must provide evidence of insurance. The Township then lists the approved landscapers on the website. If a landscaper does not comply with the ordinance, which includes restrictions on when landscaping activities take place then it is possible to then be removed from the approved list.

South Orange

A seasonal gas leaf blower ban was adopted by the Village of South Orange in 2022. The ban is in effect from May 1 to September 30. This ban applies to any user, homeowner or landscaper.

ALTERNATIVES TO BLOWING – LEAVE THE LEAVES

[PAULA MASSANARI]

Audubon Society – To Help Birds This Winter, Go Easy on Fall Yard Work

Leaf litter isn't just free fertilizer—it's also a pretty happening patch of habitat for a variety of critters such as salamanders, snails, worms, and toads. "If you're digging in the garden and come upon these squirmy little coppery-brown dudes, and you don't know what they are—those are moth pupae," Winston says. A healthy layer of undisturbed soil and leaf litter means more moths, which in their caterpillar phase are a crucial food source for birds.

The Independent – Leaf blowers contributing to 'insect Armageddon' and should be avoided, German government warns.

The official statement said there was not enough scientific evidence of the harm caused by leaf blowers to support a ban, but did say: "Leaf blowers are not only deafeningly loud and pollute the air through their internal combustion engines, but they also harm the soil biology seriously."

Reference Information

New York Times, the environmental and health reasons that gas leaf blowers should be banned: https://www.nytimes.com/2021/10/25/opinion/leaf-blowers-california-emissions.html

Example Economic Analysis – needs to be edited for Cape May Point criteria
The Economics of Switching to Battery-Powered Leaf Blowers: A Cost Comparison, June 2022 by Santa Cruz Coalition for a Healthy & Safe Environment