

**The following is a response
to the fifty-two documents presented to Westport, Connecticut,
which were meant to justify the request to ban
gasoline powered leaf blowers**



By: Larry Will. BSME, Leaf Blower Information Specialist, ECHO Inc.
Vice President Engineering (retired)

This document is in two parts. The first is general information taken from my [website](#) and other locations on the Internet, which apply to most of the documents presented. The second part is a line-by-line commentary on each document where the leaf blower is specifically mentioned.

Are automobiles cleaner?

Those who use EPA limits to justify that leaf blowers are much worse for the environment than are automobiles are just plain wrong. Automobiles **cannot** be compared directly to leaf blowers using published emission limits without first converting to like units.

The EPA measures emissions by "hydrocarbons per mile" for the automobile and "hydrocarbons per horsepower-hour" for small off road engines. Comparisons must be calculated after converting hydrocarbon emissions to "Total Kilograms per week", for example. To put this in perspective, think in terms of households.

The most common use for a leaf blower is to remove debris from a sidewalk and driveway after mowing the lawn and trimming the hedges. Most people work in their yard once a week and they use handheld equipment for about 1/2 hour. Of

that, about 10 minutes is spent blowing grass clippings. The same household most likely has a car which is driven to work five days a week. A typical number of miles per week is 245 miles.

Using this method, a week's worth of **automobile driving** for a typical homeowner vs. a week's worth of leaf blower use **is 30 times worse for the environment**. An SUV is 45 times worse than a leaf blower. You can easily calculate what happens if two people in the household drive to work separately.

Well, what about the contractor that services 10 or 15 yards per day or 75 households per week? Clearly, 75 households will likely have 75 automobiles and the comparison remains valid.

What about during the leaf season. Okay, this lasts for a month or two in the fall. The blower may be used for an hour, maybe three times over a two month period. Average the extra usage over the entire year and the overall impact is minimal.

To see a detailed comparison of Automobiles to Small Engines prepared by Rob Stegall, Sr. Director Design Engineering, Echo Inc., click the following link: [Comparison, Cars vs. Blowers](#) . Mr. Stegall's chart includes string trimmers, hedge clippers and leaf blowers.

Mr. Stegall is a respected industry expert when it comes to understanding Emission Standards with over 25 years experience working with handheld engines. From 1990 to the present, Rob has worked closely with the California Air Resources Board (CARB), United States Environmental Protection Agency (EPA), Environment Canada and the European Union during the development of Small Off Road Engine Emission Standards.

Consider greenhouse gasses (Global Warming)

At one time hydrocarbons, or unburned fuel in the exhaust, were considered the evil source of environmental catastrophe. It caused smog, sometimes called "ozone". Automobile manufacturers have done a lot over the years to reduce this constituent of exhaust gasses. The leaf blower engine has also been improved. Hydrocarbon emission has been reduced by 90%. See "[Graph, certified Emission Levels](#)".

Diesel engines run clean with respect to unburned hydrocarbons because these engines run on excess air. Unburned hydrocarbons are uncommon, unless the

engine is malfunctioning. You can tell when they are because they will emit a black smoke from the exhaust.

In terms of hydrocarbons, we all know that automobiles are running cleaner than they used to by magnitudes, but what about greenhouse gasses? What about CO₂?

Have you ever given any thought to what happens to the fuel that is burned in an automobile, a diesel semi-truck, or a leaf blower? It oxidizes. That means oxygen combines with the two elements found in fuel, namely hydrogen and carbon. The reason fuel is called a **hydrocarbon** is because it consists of **hydrogen** and **carbon**. Every ounce of it turns into an airborne gas. Hydrogen combines with oxygen to form water (H₂O) and carbon oxidizes to form carbon dioxide (CO₂). CO₂ is the greenhouse gas everyone is talking about.

Aspen, Colorado wanted to know what was causing greenhouse gasses in their community. Where is the CO₂ coming from? They found that 555,660 tons of CO₂ were emitted from the transportation sector. That represents 66% of all the CO₂ emissions in Aspen in 2004. The other major contributor is the power generation sector.

Those arguing that leaf blowers are worse than automobiles when it comes to Greenhouse Gasses (CO₂), are totally incorrect. How many cars in your household are used to drive to work? How many gallons of gasoline do you burn in a week, one tank full (18 gallons)? Two tanks (36 gallons)? How much do you burn in a leaf blower in a week, 10 ounces? 20 ounces? A gallon, by the way, is 128 ounces. The average automobile is 230 times worse than a leaf blower when it comes to the emission of greenhouse gasses.

To say that leaf blowers pollute more than automobiles is an irresponsible, uninformed and absurd statement. Ten ounces of fuel through a leaf blower generates about the same amount of CO₂ as that found in a couple cases of beer.

To learn more about the greenhouse gasses, see the following web sites:

[Aspen, CO Greenhouse Gas Sources
http://www.fueleconomy.gov](http://www.fueleconomy.gov)

<http://www.homebrew.com/articles/article12018101.shtml>

Are leaf blowers hazardous to your health?

Some people feel that one's health might be at risk because of the leaf blower. Since they move air at high velocity, doesn't it stand to reason that they would also generate a lot of dust?

The issue of health risk is often misrepresented as it relates to the leaf blower. According to the EPA, the particulate matter that is potentially harmful to someone's health is known as PM-10 and PM-2.5. These numbers represent the particle size, which is 10 microns and 2.5 microns respectively. A micron is a meter divided by one million (1/1,000,000 meter). PM-10 has a diameter of 0.00001 meter (0.0004 inches or one-seventh the width of a human hair). They are similar in size to the dust you see in a ray of sun light, right within your own living room. For the most part, PM-10 is otherwise invisible. Leaf blowers deal with a much larger sized particle, one that falls back to the earth within a few feet of the nozzle.

PM-10 particles originate from a variety of mobile and stationary sources (diesel trucks, woodstoves, power plants, etc.), their chemical and physical compositions vary widely. Particulate matter can be directly emitted or can be formed in the atmosphere when gaseous pollutants such as SO₂ and NO_x react to form fine particles. Gasoline powered leaf blower engines do not produce these chemicals, however, diesel engines do.

As for leaf blowers raising this particle into the air, PM-10 is already in the air. Because it is so small and lightweight, the wind keeps these particles suspended. The brown haze you see over a city is comprised of these particles.

You can learn more about PM-10 at the following sites:

<http://www.epa.gov/air/airtrends/aqtrnd95/pm10.html>

<http://www.epa.gov/air/particlepollution/health.html>

**Greenwich Department of Health Statement
Taken from Greenwich Patch
by Patrick Barnard, June 29, 2011**

The Board of Health, which drafted the town's (Greenwich's) current noise ordinance in 1984, and amended it in 2004 and 2006 to address the use of leaf blowers, has the power to amend it again and present it to the RTM for approval. However, that seems unlikely since the board's Leaf Blower Research Subcommittee recently concluded that leaf blower noise, although annoying, "does not pose a threat to public health," said Caroline Baisley, Greenwich director of Public Health.

Baisley said the subcommittee, comprised of three doctors, found "there's no conclusive, well-grounded scientific data providing medical evidence of the health risks associated specifically with leaf blower use — and therefore recommended that no changes be made to the ordinance."

BOH Statement to Greenwich Representative Town Meeting

[Email Statement](#)

[Email Response](#)

Dr. Nancy Steele, of the California Air Resources Board

Dr. Steele conducted a yearlong study of leaf blowers for the California legislature. Click to see [Report to California Legislature on Leaf Blowers](#). She and her staff concluded that there is no scientific evidence that leaf blowers are any more detrimental to the environmental than the alternatives. Under certain conditions, brooms are likely to lift more dust than leaf blowers. They can dislodge caked dirt and generate dust that leaf blowers would normally leave behind.

Excessive dust

Excessive dust can be generated if the blower is misused, but to prevent this from happening, Echo has created a training manual that explains what to avoid when using a leaf blower. Under normal conditions, very little dust is raised, especially when used to move leaves or grass clippings from a yard or driveway.

Mr. Patrick Cunningham of the Arizona Department of Environmental Quality (ADEQ) agrees that leaf blowers should not be used on "unstable ground". A state wide law has been developed that will disallow the use of leaf blowers on any surface that has been disturbed from its naturally compacted condition and has not been stabilized by some form of landscaping, such as pavement, decorative rock, chemical stabilizer or grass. Click to see [Arizona Bill SB 1552](#). Click to see Arizona [informational flier](#).

This law will also require any persons operating leaf blowers for remuneration to successfully complete, at least once every three years, training on how to operate a leaf blower in a manner designed to minimize the generation of fugitive dust emissions.

Dust study and comparison

The San Joaquin Valley Air Pollution Control District commissioned Dennis Fitz of the University of California at Riverside to study the potential for leaf blowers to generate dust. His results show that the amount they generate is insignificant. Comparing data compiled in the San Joaquin Valley, daily driving of automobiles generates 100 times more dust than leaf blowers. He also proved that brooms in fact do generate more dust as was suggested above.

Daily amounts of dust entrained in the air within San Joaquin Valley per a Modesto Bee Article:

(Tons per day)
Agriculture 91.33
Paved roads 62.66
Construction 14.09

Leaf Blower 0.52

Click to see [University of California, Riverside Report, Leaf Blower Dust](#) and [Fresno Bee Dust Article](#) for comparison to automobiles.

What do Doctors say?

Doctors have opinions too. They usually live in exclusive communities and in some cases have joined forces with anti-leaf blower activists to lend their title to the cause. It is a powerful tactic.

Understand, however, that they are only offering their personal opinion. It is not a medical opinion. They have no proof that their health claims are true. There are no tests, reports or scientific documents to back up their opinion.

One activist tells that her doctor friend claims that leaf blowers cause asthma attacks. Asthma attacks are caused by allergies, irritants and stress. According to Children's Hospital Boston, asthma causing irritants include such things as cigarette smoke, chemicals, weather conditions, colds and other respiratory illnesses. Pollen can be a primary trigger and one can't hide from pollen. Nowhere can you find a reputable medical document that blames asthma on leaf blowers.

Any material that is lifted into the air by a leaf blower is localized and will not impact anyone at a reasonable distance away. Air velocity dissipates rapidly with distance. You can blow a piece of lint or a mosquito off your hand, but I doubt if you can blow one off your big toe.

Click [asthma triggers](#) to read the statement published by the Mayo Clinic.

Phone: 479-256-0282,

Email: info@leafblownoise.com Website: <https://www.leafblownoise.com/>

Click: [APPENDIX](#) for details and [links](#) to references.

No.	Leaf Blower Mentioned in article	<p style="text-align: center;">Prepared for Westport, Connecticut</p> <p style="text-align: center;">Where leaf blowers are mentioned in the article, a short comment has been added below the item. Where there is no mention of blowers, it means that the article is propaganda and it is left up to the reader to relate this information to the blower by inference.</p>
1	yes	FN 8 - California Environmental Protection Agency AIR RESOURCES BOARD.pdf This document was prepared in 2000, 21 years ago.
2	yes	FN 14 - Leaf blowers fatal to declining insects, Germans warned - BBC News.pdf https://www.leafblownoise.com/Response%20to%20Fiona%20Mitchell%20Presentation%2005-13-2021.pdf
3	yes	FN 15 - Best Backpack Blower Shootout _ Outdoor Power Equipment Reviews.pdf Undignified and demeaning review of leaf blowers. Nothing but inflamitry opinion.
4	yes	FN 16 - Too Loud Too Long CDC.pdf Uses the words "Leaf Blower" out of context for effect, inferring larger than actual applications.
5	yes	FN 19 - Characteristics of Lawn and Garden Equipment Sound- A Community Pilot Study.pdf Discussion of leaf blower testing to no specific test Standard, by Quiet Communities and Harvard Dept. of Environmental Health, comparing results to guideline from 1999 World Health Organization guidelines (22 years old). Variables are not controlled. https://www.leafblownoise.com/#What_has_changed
6	yes	FN 20 - Lawn and Garden Equipment Sound- A Comparison of Gas and Battery Electric Equipment.pdf Document prepared by Jamie Banks, Quiet Communities for Sciforschen, Journal for Environmental and Toxicologyal Studies.
7	yes	FN 21 - LEAF BLOWER NOISE.pdf This is a report from Finland, which I responded to in the following letter to Oakville, Ontarrio: https://www.leafblownoise.com/Oakville%20Ontario%20blower%20issue%20070516.pdf
8	yes	FN 23 - Report in Support of the Leaf Blower Regulation Amendment Act of 2017, Bill 22-234 DC Council of the Whole.pdf This is a letter to Washington DC wherein she advocates for a blower ban via her usual arguments.
9	yes	FN 28 - National Emissions from Lawn and Garden Equipment.pdf Paper prepared by Jamie banks addressing national emission from all lawn care gasoline powered products, not just leaf blowers. Her facts are dubious, especially when stating two stroke engines are a major cause of PM2.5 and PM10. https://www.leafblownoise.com/Table%203%2011%20San%20Joaquin%20Valley%20PM10.pdf https://www.epa.gov/environmental-topics/air-topics
10	yes	FN 30 - Operator Exposure to Emissions from Lawn and Garden Equipment.pdf This summary has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the California Air Resources Board... The contents therefore are primarily opinion.
11	yes	FN 32 - Noisy, But That's Not All - FairWarning.pdf This is an attempt at telling the truth about leaf blowers, but the only truth is that they tell the truth about what others are saying. But most of the quoted sources are not telling truth. The following quote from this article is true: https://www.leafblownoise.com/taken%20from%20fair%20warning.pdf

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12	yes	FN 33 - Industrial Hygiene Survey.pdf There are 164 pages to this report. I did not read or analyze all of the charts, but from what I can tell, the test procedures were not consistent. Baseline or background tests were tested in several different locations within the test area and at different times of day than when product testing was done. It was not clear if the sampling of products were tested from a stationary location or did the technician follow the operator throughout the test. There was no indication as to where the wind was coming from, that is, from the device to the test unit or away from the unit. I see no reference to ambient humidity or the type of ground cover. Was it grass covered, paved, or treated for dust containment. On table I, a weed wacker generated 206,103 pt/cc, while a 21" lawnmower only generated 12,488, which makes no sense.
13	yes	FN 34 - More Pollution Than Cars_ Gas-Powered Gardening Equipment Poses the Next Air Quality Threat _ KQED.pdf This story is based on comments made by Michael Benjamin, Division Chief at the California Air Resources Board. That is not to say that the California Air Resources Board has proven that emission from lawn care equipment will exceed automobiles by 2020. The fact is, total registered on-road vehicles in California is: 29,830,797, not 18 million. The 16 million units of small off road equipment (SORE) includes a lot more than just leaf blowers. Nobody knows how many leaf blowers are in use. Also, Mr. Benjamin is not stating if the engines tested meet current EPA or CARB emission standards. https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/summary-california-vehicle-and-transportation
14	yes	FN 36 - Emissions Test_ Car vs. Truck vs. Leaf Blower _ Edmonds.pdf The Edmonds or American Automobile Association (AAA), Auto Club of Southern California, Automotive Research Center, whichever it is, is testing apples and oranges. The equipment they used is not accurate enough for testing a leaf blower. https://www.leafblownoise.com/edmonds%20test%20response2.pdf
15	yes	FN 37 - Small Engines in California.pdf This states that the exhaust emission from one hour of running a leaf blower equals that of a Toyota Camry traveling 1100 miles. Which leaf blower? How big? Two or four stroke? How many people in the car? Was the A/C used? How old was the leaf blower? Was it built after 2005? How many hours per week is the Camry used? How many minutes per week is a leaf blower normally used? 10 minutes per household.
16	yes	FN 38 (also 34) - More Pollution Than Cars_ Gas-Powered Gardening Equipment Poses the Next Air Quality Threat _ KQED.pdf See FN 34 above.
17	yes	FN 39 - Exhaust Emission Factors for Nonroad Engine Modeling - Spark-Ignition.pdf This document is out of date, being from 2010.
18	yes	FN 42 - (Video link) Blower hygiene.docx This video is unavailable, no doubt taken down from YouTube.
19	yes	FN 45 - Why Leaf Blowers _ Lawn Care Practices are Hazardous to our Health - Green Jay Landscaping.pdf This contains the usual diatribe about leaf blowers with the added support of unnamed doctors from Mount Sinai Hospital. https://www.leafblownoise.com/#What_do_Doctors_say
20	yes	FN 46 - Pollinator Protection in Williamstown, MA.pdf The thrust of this article is not to ban the leaf blower, but to limit its use.
21	yes	FN 47 - What to do With Fallen Leaves • The National Wildlife Federation Blog _ The National Wildlife Federation Blog.pdf This article advocates leaving leaves where they lie. It's good for the insects, even bats. I disagree. My experience shows that a mat of leaves kills grass and more importantly, weeds. My woods is entirely free of unwanted vegetation.

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22	yes	FN 49 - Echo Training Manual.pdf This manual was written as a guide to the proper use of leaf blowers, by Larry Will.
23	yes	FN 51 - Leaf blower bans are coming according to industry experts _ Total Landscape Care.pdf This is an article I wrote to warn landscapers that leaf blowers could be banned in their community if they continue using noisy blowers.
24	yes	FN 52 Video link for spring cleanup.docx This video shows five men using blowers together, making huge amounts of dust. The problem here is with the operators, not their leaf blowers.
25	yes	FN 53 - Link for Video re blowing deep snow on roof.docx This video shows two men using a leaf blower to remove snow from a roof.
26	yes	FN 57 - California looking to ban gas-powered lawnmowers, leaf blowers - Electrek.pdf See FN37
27	yes	FN 58 - Rep. Who Filed Proposal to Ban Gas-Powered Leaf Blowers in Illinois This is about Democratic Senator Laura Fine of Illinois, who introduced a bill to ban leaf blowers. She said she only did this to call attention to the issue.
28	yes	FN 59 - Ann Arbor bans 2-cycle leaf blowers, other equipment downtown - mlive.com.pdf Ann Arbor banned two stroke leaf blowers in the downtown area.
29	yes	FN 63 - AGZA American Green Zone Alliance – The Leader In Zero-Emission Landscape Maintenance Strategies.pdf AGZA supports the replacement of gasoline powered products for lawn care use with battery powered units.
30	yes	Santa Cruz report - The-Science-on-the-Health-Consequences-of-Noise.pdf The Santa Cruz Coalition for a Healthy and Safe Environment has cited a pyramid of "Noise effects", tying this to blowers.
31	no	FN 1 - Particle Pollution _ American Lung Association.pdf
32	no	FN 2 - Integrated Science Assessment (ISA) for Particulate Matter (Final Report, Dec 2019)
33	no	FN 3 - A joint ERS_ATS policy statement- what constitutes an adverse health effect of air pollution_ An analytical framework.pdf
34	no	FN 4 - Particulate air pollution and impaired lung function [version 1_ referees- 3 approved].pdf
35	no	FN 6 - Auditory and non-auditory effects of noise on health.pdf
36	no	FN 7 - Environmental Noise and the Cardiovascular System.pdf
37	no	FN 9 - FACTS Danger in the Air Air Pollution and Cardiovascular Disease.pdf
38	no	FN 11 - Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants
39	no	FN 12 - particulate matter air pollution.pdf
40	no	FN 17 - Guidance _ Regulations on Reducing Noise Exposure _ NIOSH _ CDCace Safety and Health Topic.pdf
41	no	FN 18 - Link for Next Door Decibels.docx
42	no	FN 24 - Info on Levels of Environmental Noise Requisite to Protect Public Health.pdf
43	no	FN 25 - Noise and health in vulnerable groups
44	no	FN 26 - (Abstract only) The Association Between Tinnitus and Posttraumatic Stress Disorder _ American Journal of Audiology(1).pdf

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45	no	FN 27 - The impact of noise on childhood cognitive development _ CHC (1).pdf
46	no	FN 31 - Air contaminant exposures during the operation of lawn and garden equipment.pdf
47	no	FN 35 - Ranking Cancer Risks of Organic Hazardous Air Pollutants in the United States.pdf
48	no	FN 40 - AirPollutionandCancer161.pdf
49	no	FN 41 - (link to video) Good morning commuters, please detour.docx
50	no	FN 43 - Fact #635_ August 9, 2010 Fuel Consumption from Lawn and Garden Equipment _ Department of Energy.pdf
51	no	FN 48 - What to do with lawn clippings _ UMN Extension.pdf
52	no	FN 54 - Tularemia on Martha's Vineyard _ Seroprevalence and Occupational Risk - CDC