

**Gasoline Engine Leaf Blower Health Hazards,
Environmental Harm, Legislation and Alternatives
For the
White House Environmental Justice Advisory Council**

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December 2, 2021



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1. Introduction

Commercial landscapers, grounds maintenance personnel and private citizens routinely use gasoline engine-powered leaf blowers for lawn, garden and other surface maintenance operations, regardless of the harm to health, hearing, quality of life, and the environment. Numerous communities have enacted legislation banning the use of these machines or restricting leaf blower noise, hours and seasons of operation.

This document contains information on health hazards, environmental damage and other harm caused by the use of leaf blowers, and examples of laws restricting or banning their use. The purpose is to provide information to support enactment of Federal, state and local legislation to effectively constrain the damage to our health and the environment from leaf blowers.¹

2. The Problem

Leaf blowers emit health-hazardous materials, damaging noise and air pollution. This endangers the health, hearing and degrades the quality of life of those exposed, damages nature, and degrades the well-being of multitudes of communities in the United States and worldwide.

“For example, as the Mount Sinai School of Medicine Pediatric Environmental Health Specialty Unit reported, gas-powered leaf blowers pose multiple health threats by spreading airborne particles, which can provoke asthma and other respiratory diseases, and pollutants including ozone, carbon monoxide, nitrogen oxides and hydrocarbons, respiration of which can cause cancer and other diseases. Hearing damage from the engine noise and eye injuries from pebbles and twigs propelled by blowers are also cited.”²

In communities where they are still legal, and in those not effectively enforcing duly enacted legislation banning or restricting leaf blower use, children, the elderly, the infirm, those working at home -- all those exposed -- are relentlessly attacked by the destructive noise and the health-hazardous filth and exhaust from leaf blowers approximately nine months, and in many communities, twelve months of the year.

3. Noise

Unprotected exposure to noise louder than 65 decibels (65 dB) has been found to raise blood pressure and adrenaline levels, and damage hearing. Leaf blowers typically emit noise louder than 77 dB at 50ft. from the blower. Decibels are measured on a logarithmic scale, and 77 dB is 256 times louder than 65 dB. The noise from leaf blowers can irreversibly damage the hearing of all exposed, especially children and landscape workers, but even adult passersby — essentially anyone exposed. Children are especially vulnerable to life-long hearing loss and tinnitus from this noise.³

3.1 Noise Measurement

Communities may require the use of A-weighted dB meters to restrict noise magnitude measurement to frequencies the human auditory system typically detects. However, A-

¹ Growing up in the family landscape/gardening and garden center businesses, my first post-high school degree was a State University of New York, Agricultural and Technical Institute at Farmingdale 1960 Associate of Applied Science (AAS) in Horticulture. That was before somebody (probably) attached a gasoline engine to what had been a hand-cranked dry pesticide blower, like the one I used back then, and realized it could also be used to clear detritus from lawns, walkways and other surfaces. Leaf blowers have been available in the United States since 1977.

² “Landscape Leaf Blower Facts: Office of Sustainability and the Environment, City of Santa Monica, CA. https://www.smgov.net/Departments/OSE/Categories/Landscape/Leaf_Blower_Facts.aspx

³ Also see: “Suburbia's crickets drowned out by roar of jets, earth movers”, By Keith O'Brien, Globe Staff | November 18, 2007 (http://www.boston.com/news/local/articles/2007/11/18/suburbias_crickets_drowned_out_by_roar_of_jets_earthmovers/?page=full)

weighted or not, dBs are measured on a log10, not a linear, scale. On the log10 scale, twice the loudness is approximately 3 dB; for example, 50 dB + 50 dB = 53 dB, not 100 dB.

"A change in power by a factor of two approximately corresponds to a 3 dB change." "The threshold of hearing is 25 dB." "If two machines each individually produce a [sound pressure] level of 90 dB at a certain point, then when both are operating together we should expect the combined sound pressure level to increase to 93 dB, but certainly not to 180 dB!

"...supposed (sic) that the noise from a machine is measured (including the contribution of background noise) and found to be 87 dBA, but when the machine is switched off the background noise alone is measured as 83 dBA. ... the machine noise [level (alone)] may be obtained by 'subtracting' the 83 dBA background noise from the combined level of 87 dBA; i.e., 84.8 dBA."⁴

The following table compares dB and noise increases for background noise levels of 50 dB and 65 dB, leaf blower noise from 0 dB to 140 dB and total noise ranging from background to 143 dB.

Leaf Blower Noise									
Background Noise in Decibels (dBs)	Leaf Blower Noise in dBs	dB Increase due to Leaf Blower Noise	Total Background and Leaf Blower Noise in dBs	Percent of Noise Increase due to the Leaf Blower	Background Noise in Decibels (dBs)	Leaf Blower Noise in dBs	dB Increase due to Leaf Blower Noise	Total Background and Leaf Blower Noise in dBs	Percent of Noise Increase due to the Leaf Blower
50	0	0	50	0%	65	0	0	65	0%
	50	3	53	100%		65	3	68	100%
	53	6	56	200%		68	6	71	200%
	56	9	59	400%		71	9	74	400%
	59	12	62	800%		74	12	77	800%
	62	15	65	1600%		77	15	80	1600%
	65	18	68	3200%		80	18	83	3200%
	68	21	71	6400%		83	21	86	6400%
	71	24	74	12800%		86	24	89	12800%
	74	27	77	25600%		89	27	92	25600%
	77	30	80	51200%		92	30	95	51200%
	80	33	83	102400%		95	33	98	102400%
	83	36	86	204800%		98	36	101	204800%
	86	39	89	409600%		101	39	104	409600%
	89	42	92	819200%		104	42	107	819200%
	92	45	95	1638400%		107	45	110	1638400%
	95	48	98	3276800%		110	48	113	3276800%
98	51	101	6553600%	113	51	116	6553600%		
101	54	104	13107200%	116	54	119	13107200%		
104	57	107	26214400%	119	57	122	26214400%		
107	60	110	52428800%	122	60	125	52428800%		
110	63	113	104857600%	125	63	128	104857600%		
113	66	116	209715200%	128	66	131	209715200%		
116	69	119	419430400%	131	69	134	419430400%		
119	72	122	838860800%	134	72	137	838860800%		
122	75	125	1677721600%	137	75	140	1677721600%		
125	78	128	3355443200%	140	78	143	3355443200%		

⁴ <http://en.wikipedia.org/wiki/Decibel>

4. Health and Safety Hazards

In addition to the noise, leaf blowers blast health-hazardous, polluting exhaust, and 'fugitive dust,' consisting of particles of fertilizer, lead, pesticides, herbicides, insect remains, animal feces, rubber dust, arsenic, cadmium, chromium, nickel, mercury and other toxic substances into the air.

4.1 Exhaust Poisons

Most leaf blowers are powered by two-cycle engines. These burn a mixture of gasoline and motor oil and exhaust many times more hydrocarbons, oxides of nitrogen, carbon monoxide and other pollutants than do cars.⁵ "A gasoline-powered leaf blower generates as much tailpipe emissions in one hour as an automobile does over 100 miles."⁶

"Because the engine lacks an independent lubrication system, fuel has to be mixed with oil. More important, about 30 percent of the fuel the engine uses fails to undergo complete combustion; as a result, the engine emits a number of air pollutants. Carbon monoxide, nitrous oxides and hydrocarbons escape from the engine in large quantities. Everyone knows the acute effects of carbon monoxide, but the other gases are equally worrisome. Both nitrous oxides and hydrocarbons contribute to smog formation. Hydrocarbons can be carcinogenic, and nitrous oxides can cause acid rain.

"In leaf blowers, two-stroke engines have been shown to emit contaminants comparable to large automobiles. A 2011 test by the car experts at Edmunds showed that, 'a consumer-grade leaf blower emits more pollutants than a 6,200-pound 2011 Ford F-150 SVT Raptor.' The company subjected a truck, a sedan, a four-stroke and a two-stroke leaf blower to automotive emissions tests and found that under normal usage conditions — alternating the blower between high power and idle, for example — the two-stroke engine emitted nearly 299 times the hydrocarbons of the pickup truck and 93 times the hydrocarbons of the sedan. The blower emitted many times as much carbon monoxide and nitrogen oxides as well. The four-stroke engine performed significantly better than the two-stroke in most of the categories, but still far worse than the car engines."⁷

Highly regarded medical research shows that breathing these poisons can cause and make asthma attacks worse, cause heart, lung and brain disease, and cancer, and impair the ability to fight infections.⁸

Because of the emissions and noise, leaf blower users violate United States and many state health and air pollution laws.⁹ When using leaf blowers, even municipal and state grounds-maintenance employees and contractors frequently violate local laws,

⁵See: California Environmental Protection Agency, Air Resources Board, "A Report to the California Legislature on the Potential Health and environmental Impacts of Leaf Blowers", Mobile Source Control Division, February 2000. (<http://www.arb.ca.gov/msprog/mailouts/msc0005/msc0005.pdf>), and "Leaf Blower's Emissions Dirtier than High-Performance Pick-Up Truck's, Says Edmunds' InsideLine.com", December 6, 2011 (<http://www.edmunds.com/about/press/leaf-blowers-emissions-dirtier-than-high-performance-pick-up-trucks-says-edmunds-insidelinecom.html>); Washington Post, 16 Sept 2013 http://www.washingtonpost.com/national/health-science/how-bad-for-the-environment-are-gas-powered-leaf-blowers/2013/09/16/8eed7b9a-18bb-11e3-a628-7e6dde8f889d_story.html

⁶ "Landscape Leaf Blower Facts" (https://www.smgov.net/Departments/OSE/Categories/Landscape/Leaf_Blower_Facts.aspx)

⁷ Washington Post, 16 Sept 2013 https://www.washingtonpost.com/national/health-science/how-bad-for-the-environment-are-gas-powered-leaf-blowers/2013/09/16/8eed7b9a-18bb-11e3-a628-7e6dde8f889d_story.html

⁸Fine Particulate Air Pollution and Mortality in 20 US Cities, 1987-1994, Jonathan A. Samet, MD, et al., New England Journal of Medicine, Vol. 343, No. 24, pp. 1742-1749 (Dec. 14, 2000) (<https://www.nejm.org/doi/full/10.1056/NEJM200012143432401>)

⁹Fine Particulate Matter (PM) from Leaf Blowers, (Draft), Alexander D. Blumenstiel, Ph.D., December 11, 2014 (<http://files.meetup.com/4709972/Leaf%20Blower%20Fine%20Particulate%20Matter%20Emissions%20Estimate%20Draft%202022.pdf>)

Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and other federal and state laws and regulations.

4.2 Endangerment

Leaf blower users endanger the safety of pedestrians, vehicle drivers and passengers, and bicyclists.

In addition to the noise and exhaust pollution, leaf blowers blast detritus onto sidewalks, forcing pedestrians, including children, to walk through clouds of hazardous dust, or into the street to avoid it. This endangers them and degrades vehicular safety.

4.3 Disease

“With a muzzle velocity of 150 miles per hour, gas blowers blow herbicides, pesticides, and fecal contaminants up from the ground into the air, especially troubling asthmatics and allergy sufferers, and increasing the threat to everyone.”¹⁰

Leaf blower operators and others inhale the exhaust and detritus blown into the air from the surfaces they clear. Health impacts of leaf blowers include, for example, the consequences of breathing dust containing diseases transmitted by rodents. These include Hantavirus pulmonary syndrome and Lymphocytic Choric-meningitis (LCM). Hantavirus pulmonary syndrome is found throughout North and South America, and LCM worldwide.¹¹

Epidemiological studies have found that particles in the dust, especially those smaller than 10 micrometers in diameter (PM10) and finer than 2.5 micrometers in diameter (PM2.5), contribute significantly to the incidence of and mortality from a variety of respiratory, cardiovascular, cerebrovascular and other diseases.

“The air-jet generated by blowers with velocities of 185 miles per hour or more spreads dust, dirt, pollens, animal droppings, herbicides and pesticides into the air. The effect lasts for hours on particulate matter that is 10 microns in diameter or smaller. The (California Air Resources Board) ARB has estimated that each leaf blower entrains (puts into the atmosphere) 5 pounds of particulate matter per hour about half of which is 10 microns or smaller.”¹²

4.3.1 University of California Study

Findings reported by the College of Engineering, Center for Environmental Research and Technology, University of California, Riverside can be extrapolated to estimate average annual exposures of leaf blower operators and others to these disease-causing particles. However, this study neither measured leaf blower PM emissions from a full spectrum of common leaf blower applications nationwide, nor empirically measured collective emissions from multiple leaf blowers operating in close proximity.

The study measured the dispersion of suspended particles in two enclosed test chambers. “Seventy-two runs were performed using surrogate material on asphalt and concrete surfaces using the 20m(meter) long chamber.” This chamber, at the UCR CE-CERT (Center for Environmental Research and Technology) facility in Riverside, was 2m wide, 2m high and 20m long. A second enclosed chamber, 2m wide, 2m high and 10m long was used to perform tests at additional locations. Emissions detectors were used to measure the airborne particulate matter concentrations in the test chambers.

¹⁰ “Landscape Leaf Blower Facts” (http://www.smgov.net/Departments/OSE/Categories/Landscape/Leaf_Blower_Facts.aspx)

¹¹ (United States Center for Disease Control (<http://www.cdc.gov/rodents/diseases/direct.html>)). Also see: (<http://www.orkin.com/rodents/rats/rat-borne-diseases/>)

¹² Leaf Blower Pollution Hazards in Orange County, Orange County Grand Jury, April 1999; (<http://www.ocgrandjury.org/pdfs/leafblow.pdf>)

The principal purpose of the study was to "develop emission inventories for counties in the San Joaquin Valley". It was not to determine the exposure of operators and proximate others to concentrations of fine particulate matter in fugitive dust emissions from leaf blowers while they are running or for an extended period in the vicinity thereafter. The entrained emissions estimates were calculated for the period from when the leaf blowers stopped operating to 6.5 minutes after their operation ceased.

Extrapolating from the study's emissions factors findings which, since "the (PM in the test) chamber was not well mixed for several minutes," were "calculated by multiplying the concentration once it stabilized (when it became uniformly mixed) by the volume of the enclosure and dividing by the area treated". A homeowner using a leaf blower an average of 1/2 hours per week 26 weeks per year (and others in the vicinity) would, on average, be exposed to a constant 49.7 milligrams per cubic meter (mg/m³) of airborne PM10 per square meter cleared for 13 hours per year while operating a leaf blower, assuming equivalence between the emissions factors .

A commercial lawn/garden maintenance worker using a leaf blower for 10 minutes ten times per day 5 days per week for 26 weeks per year would on average be exposed to inhaling this amount of PM10 at a constant rate for 217 hours per year.

In both cases, the amount of hazardous PM10 inhaled and retained in their respiratory, cardiovascular and cerebrovascular systems would be cumulative.

Though the study found the blowers and the push brooms produced the same average 80 mg/m² of 10 micrometer suspended health-hazardous particulate matter (PM10) and the broom slightly more total suspended particulate matter (TSP) — which includes larger particles that are not as hazardous -- from the concrete surfaces, the blowers in the study entrained on average a 10mg/m² higher level of the most health-hazardous PM2.5 from the concrete surfaces. The blowers' average PM pollution from the other surfaces far exceeded the broom's and especially the rake's.

The report cites U.S. Department of Labor Occupational Safety and Health Administration (OSHA) and California Occupational Safety and Health Administration (CalOSHA) permissible exposure levels for PM up to 10 micrometers. "The OSHA permissible exposure level (PEL) (the level a healthy individual can work in for eight hours) is 10mg/m³ and the CalOSHA level short-term exposure level (STEL) (level that a healthy individual can work in for fifteen minutes) is 20mg/m³."

Assuming their continuous exposure to 49.7mg/m³ of airborne PM10, including 23.7mg/m³ of PM2.5 when clearing surfaces:

For 13 hours/year, private operators' and proximate others' average:

- PM10 exposure exceeds the OSHA 20mg/m³ fifteen-minute PM10 STEL by 29.7mg/m³ and is 0.3mg/m³ lower than the U.S. Environmental Protection Agency's (EPA's) 50mg/m³ total PM10 annual exposure limit.
- PM2.5 exposure exceeds the OSHA 20mg/m³ fifteen-minute PM10 STEL by 3.7mg/m³.
- Private operators average exposure to 23.7mg/m³ of PM2.5 for 13 hours exceeds EPA's 12mg/m³ annual exposure limit by 11.7mg/m³.
- Commercial operators' average PM10 exposure from leaf blowers exceeds the 20mg/m³ STEL by 29.7mg/m³ and PM2.5 exposure by 3.7mg/m³ for 10 minutes ten times per day, or 217 hours per year.

At an average of 49.7 mg/m³, the fine PM emissions from leaf blowers exceed the OSHA respirable mineral dust PEL by 49.7 - 7.5 = 42.2 mg/m³ and the OSHA total

mineral dust PEL by $49.7 - 27.5 = 22.2\text{mg}/\text{m}^3$.

At an average of $23.7\text{mg}/\text{m}^3$, the fine PM_{2.5} emissions from leaf blowers exceed the OSHA total respirable mineral dust PEL by $23.7 - 7.5 = 16.2\text{mg}/\text{m}^3$.

Alternatively, based on the U.S. Department of Labor OSHA milligrams per cubic meter dust PELs, the average respirable mineral dust particle PEL is $(10+2.4+10)/3 = 7.5\text{mg}/\text{m}^3$, and average total mineral dust PEL is $(30+80+2.4+10+15)/5 = 27.5\text{mg}/\text{m}^3$.¹³

In summary, private and commercial leaf blower operators subject themselves and others to high levels of airborne health-hazardous fine particulate matter which exceed United States legal permissible exposure limits.

4.4 Pollution

Although leaf blowers have been sold in the United States since 1977, the author has found neither comprehensive sales nor lifecycle data from which to directly calculate the number of leaf blowers in operation nationally, regionally or by state and municipality in order to directly determine the current total U.S. leaf blower emissions.

However, the “Estimated Reported and Operational Number of Leaf Bowers” table does provide estimates of the number of leaf blowers in use from 1985 to 2015, and the current total annual emissions from those leaf blowers can be extrapolated from secondary information in the referenced sources.

At approximately 1.5 million estimated average annual sales from 1985 to 2015, assuming 50% are discarded annually after four years of use, as of 2015 there were approximately twenty-eight million leaf blowers operating in the United States,

For the estimated 217 hours per year per leaf blower of commercial operation, this comes to 6,076,000,000 total estimated hours of leaf blower operation per year.

Estimated Reported and Operational Number of Leaf Blowers			
Year	Reported and Projected Sales	Discarded*	Total
1985	75,000.00		
1986	389,000.00	-	464,000.00
1987	464,000.00	-	928,000.00
1988	670,689.66	37,500.00	1,561,189.66
1989	800,000.00	194,500.00	2,166,689.66
1990	828,571.43	232,000.00	2,763,261.08
1991	853,061.22	335,344.83	3,280,977.48
1992	874,052.48	400,000.00	3,755,029.96
1993	892,044.98	414,285.71	4,232,789.23
1994	907,467.13	426,530.61	4,713,725.74
1995	920,686.11	437,026.24	5,197,385.61
1996	932,016.66	446,022.49	5,683,379.78
1997	1,000,000.00	453,733.56	6,229,646.22
1998	1,070,000.00	460,343.05	6,839,303.17
1999	1,144,900.00	466,008.33	7,518,194.83
2000	1,225,043.00	500,000.00	8,243,237.83
2001	1,310,796.01	535,000.00	9,019,033.84
2002	1,402,551.73	572,450.00	9,849,135.57
2003	1,500,730.35	612,521.50	10,737,344.43
2004	1,605,781.48	655,398.01	11,687,727.90
2005	1,718,186.18	701,275.87	12,704,638.21
2006	1,838,459.21	750,365.18	13,792,732.25
2007	1,967,151.36	802,890.74	14,956,992.87
2008	2,104,851.95	859,093.09	16,202,751.73
2009	2,252,191.59	919,229.61	17,535,713.71
2010	2,400,000.00	983,575.68	18,952,138.03
2011	2,568,000.00	1,052,425.98	20,467,712.06
2012	2,747,760.00	1,126,095.79	22,089,376.26
2013	2,940,103.20	1,200,000.00	23,829,479.46
2014	3,145,910.42	1,284,000.00	25,691,389.89
2015	3,366,124.15	1,373,880.00	27,683,634.04
Total:	45,915,130.31	22,957,565.15	27,683,634.04
Annual Average	1,481,133.24	588,112.78	10,285,535.82

*Assumes annual discard rate of 50% of unit sales per year after 4 years
 Sales in **Bold** are from: 1985, 1987, 1989 & 1997: <http://www.nonoise.org/quietnet/cqs/leafblow.htm#history>
 2010 from "Blowback" by Tad Friend, New Yorker Magazine, October 18, 2010 (<http://www.newyorker.com/magazine/2010/10/25/blowback>)
 All other annual sales are projected from these.

¹³ Leaf blowers emit these and other types of particles. Both totals include respirable coal dust. “Occupational Safety and Health Standards, Toxic and Hazardous Substances, 1900.1000, Table Z-3, Mineral Dusts”, United States Department of Labor, Occupational Safety and Health Administration, [58 FR 35340, June 30, 1993; 58 FR 40191, July 27, 1993, as amended at 61 FR 56831, Nov. 4, 1996; 62 FR 1600, Jan. 10, 1997; 62 FR 42018, Aug. 4, 1997] (https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9994)

4.4.1 Carbon Dioxide

Assuming half of the leaf blowers are two-cycle and half four-cycle (since the vast majority are likely two-cycle, this is most probably a large underestimate of their number), according to the cited Edmunds study, the average leaf blower emits $(3.714+6.445)/2 = 5.0795$ weighted grams per minute of CO₂, which is 18.4 times more than a 2011 Ford Raptor's 0.276 weighted CO₂ grams per minute.

The estimated 28,000,000 leaf blowers therefore produce $28,000,000 \times 5.0795 = 142,226,000$ grams per minute of CO₂, or the CO₂ equivalent of 515,311,594 Ford Raptors.

At the estimated 217 annual hours of operation each, the 28,000,000 leaf blowers produce $(142,226,000 \times (60 \times 217)) = 1,851,782,520,000$ weighted grams, or 1,851,782.5 metric tons of CO₂ per year.

5. Alternatives

There is no reason to believe leaf blowers are more effective or, other than perhaps marginally, more efficient than non-polluting, non-health-hazardous and safer manual tools.¹⁴ For example, fan rakes and manual brooms do not emit health and environmentally hazardous exhaust, are quiet, have minimal maintenance requirements, and are orders of magnitude less expensive than leaf blowers.¹⁵

Some commercial landscapers have threatened to charge more, if their use of leaf blowers is restricted or banned. However, they have evidently failed to present credible:

- Evidence that they lowered their rates when they started using leaf blowers,
- Comparative data on labor, fuel, maintenance and other expenses when they do and don't use leaf blowers,
- Data-based arguments disputing the applicability of national, state and local health-impact and environmental degradation control laws and regulations to the use of these machines.¹⁶

Competitive commercial landscapers who do not use leaf blowers do currently provide services. For example, Green Newton, a local non-profit environmental organization in Newton, Massachusetts, provides "a list of green landscapers that will use traditional raking and non-gasoline-powered leaf blowers to create sustainable solutions to environmental problems facing our city and our world".¹⁷

6. Legislation

"Many U. S. towns and counties now regulate leaf-blower noise. Some locales ...restrict blower use to certain times of the day or year. Others ban gasoline-powered leaf blowers while allowing only electric blowers."¹⁸

¹⁴See <http://www.terranovalandscaping.com/blog/2012/02/10/open-letter-to-landscapers-and-leaf-blower-operators-in-the-santa-cruz-area-january-31-2012/> and <http://www.noisefree.org/newsroom/noise-display.php?id=416> for fan rake and broom compared to leaf blower efficiency and other information. Also see: <http://www.quietcommunities.org> and <https://www.greendecade.org>.

¹⁵ For example, see: "Impacts of leaf blowers", (<https://www.terranovalandscaping.com/>)

¹⁶See: <http://www.ecomagic.org/blower.shtml> for a comprehensive discussion of costs of using leaf blowers.

¹⁷ <https://greennewton.org/gn-recommended-lawn-care-provider-info/>

¹⁸See: <http://www.consumerreports.org/cro/magazine-archive/2010/september/home-garden/leaf-blower/blower-noise/index.htm>, and <http://files.meetup.com/4709972/Leaf%20Blower%20bans%2C%20etc.pdf>.

6.1 Bans and Other Restrictions

Arizona

Scottsdale: MARICOPA COUNTY ORDINANCE P-25 LEAF SEC. 3: BLOWER RESTRICTION.

Prohibits blowing landscape debris into public roadways at any time by any person. (http://www.maricopa.gov/airquality/divisions/planning_analysis/rules/docs/p25-0802.pdf) Prohibits using leaf blowers on bare, native soil (they can only be used on stabilized surfaces. (http://www.scottsdaleaz.gov/airquality/dust_control/ResidentImpacts.asp) "designed to bring the Valley into compliance with EPA air quality standards for particulates (PM-10)" (http://www.maricopa.gov/airquality/divisions/planning_analysis/state_implementation_plan.aspx)

British Columbia

Vancouver: Noise Control Bylaw 6555: Limited area ban, noise and hours of operation restrictions (<http://vancouver.ca/home-property-development/leaf-blowers.aspx>)

California

Belvedere Municipal Code Chpt. 8.10.030

Prohibition against portable gasoline engine powered blowers. It is unlawful for any person within the City limits at any time to operate any portable machine powered with a gasoline engine used to blow leaves, dirt and other debris off sidewalks, driveways, lawns or other surfaces. (Ord. 2006-3 § 3 (part), 2006; Ord. 87-3 § 1 (part), 1987.)

Berkeley Municipal Code 13.40.070 Prohibited acts:

"Neither the warning procedure nor the measurement procedure must be conducted for a violation of subsection B.10 of this section (emergency tests), subsection B.13 of this section (tampering), or subsection B.14 of this section (gas leaf blowers) to arise. Section B.14: 14. Notwithstanding subsection B.11 of this section, it shall be unlawful for any person, including any City employee, to operate any portable machine powered with a gasoline engine used to blow leaves, dirt, and other debris off sidewalks, driveways, lawns, or other surfaces within the City limits.

"Notice of this prohibition shall be posted in all stores selling such gasoline powered machines within the City limits. (Ord. 7122-NS § 7, 2009; Ord. 6026-NS § 1, 1990; Ord. 5500-NS § 1 (part), Section 13.40.070)1982) Gasoline Powered Leaf Blowers (<http://codepublishing.com/ca/berkeley/>)"

Community Noise Program – City of Berkeley, California

http://www.ci.berkeley.ca.us/Health_Human_Services/Environmental_Health/Community_Noise_Program.aspx

(Ordinance No. 5500-N.S., Section 13.40.070): "... it shall be unlawful for any person, including any city employee, to operate any portable machine powered with a gasoline engine used to blow leaves, dirt, and other debris off sidewalks, driveways, lawns, or other surfaces within the City limits."

"This program is mandated by the Berkeley Municipal Code (BMC) and sets forth standards by which noise is measured. The program is driven by requests for service from the public. Inspectors respond to complaints and enforce, interpret, and educate citizens about the noise ordinance. After-hours complaints are handled by the Berkeley Police Department on a priority basis."

Beverly Hills, 5-1-209: PORTABLE GASOLINE ENGINE POWERED BLOWERS.

“It shall be unlawful for any person within the city to use or operate any portable machine powered with a gasoline engine used to blow leaves, dirt, and other debris off sidewalks, driveways, lawns, or other surfaces. (Ord. 11-O-2613, eff. 10-31-2011)” (http://www.sterlingcodifiers.com/codebook/index.php?book_id=466)

Burlingame, Title 10:Public Peace Morals and Safety.

(a) On and after July 1, 2012, leaf blowers operated within the city of Burlingame shall display a label which certifies that it operates at a noise level of sixty-five (65) dBA or less. Any leaf blower which bears such a certification label shall be presumed to comply with any noise level limit of this chapter provided that it is operated with all the mufflers and full extension tubes supplied by the manufacturer for that leaf blower. It is unlawful to operate a leaf blower within the city which does not bear such a label or which exceeds the 65 dBA level.

(b) On and after July 1, 2012, leaf blowers operated within the city of Burlingame shall only be operated during the times, on the days and in the areas as follows:... (<http://qcode.us/codes/burlingame/>)

Calexico: “It shall be unlawful for any person within the city to use or operate any portable machine powered with a gasoline engine used to blow leaves, dirt, and other debris off sidewalks, driveways, lawns, or other surfaces. (Ord. 11-O-2613, eff. 10-31-2011)”

Carmel: “8.56.080 Combustion Engine Blower. The operation of a combustion engine blower for the purpose of displacing, removing or blowing any materials from or about public or private property in a manner which allows the engine to be heard on public property or causes the materials to be blown into the air in a manner which allows them to settle on public property or on private property not belonging to the same owner of the property on which the blower is being operated is declared to be a public nuisance and unlawful. (Ord. 92-17 § 1, 1992; Ord. 80-4 § 1, 1980; Code 1975 § 699.70).” (<http://www.codepublishing.com/CA/carmel.html>)

Claremont: “8.24.020 Leaf blower use. Leaf blowers powered by installed line current or by battery may be used in the city subject to the provisions of this chapter notwithstanding the noise standards in Chapter 16.154 of this code. Internal combustion engine (gasoline) powered leaf blowers shall be prohibited in the city after March 1, 1991. (90-29) (<http://www.ci.claremont.ca.us/municipalcode.cfm>)”

Costa Mesa: “Article 4 Sec. 20-10. Residential areas. In residential areas, or within fifty (50) feet thereof, the use of leaf blowers is prohibited except during the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, 9:00 a.m. to 5:00 p.m. on Saturdays; and 12:00 noon to 5:00 p.m. on Sundays and legal holidays.

“(b) Maximum noise levels. Notwithstanding provisions of Chapter XIII, Noise Control of Title 13 of this Code, the maximum noise level emitted by leaf blowers shall not exceed sixty-five (65) decibels and shall not exceed fifty-five (55) decibels for more than a total of fifteen (15) minutes at any given location. The noise level shall be measured at a distance of fifty (50) feet from the leaf blower.

“(c) Dirt, dust, debris. Leaf blower operations shall not cause dirt, dust, debris, leaves, grass clippings, cuttings or trimmings from trees or shrubs to be blown or deposited on any adjacent street or property, or upon the property on which the leaf blower is being operated. Deposits of dirt, dust, leaves, grass clippings, debris, cuttings or trimmings from trees or shrubs shall be removed and disposed of in a sanitary manner, to prevent disbursement by wind, vandalism, or similar means.

“(d) Windows and other openings. Leaf blowers shall not be operated within a horizontal distance of ten (10) feet of any operable window, door or mechanical air intake opening or duct.

“(e) Identification required. Each leaf blower shall have the business name, address, and telephone number affixed to it in a clear, identifiable manner.” (Ord. No. 13-04, § 1, 10-1-13) [_ \(https://www.municode.com/library/ca/costa_mesa/codes/code_of_ordinances?](https://www.municode.com/library/ca/costa_mesa/codes/code_of_ordinances?searchRequest=%7B%22searchText%22:%22leaf%20blowers%22,%22pageNum%22:1,%22resultsPerPage%22:25,%22booleanSearch%22:false,%22stemming%22:true,%22fuzzy%22:false,%22synonym%22:false,%22contentTypes%22:%5B%22CODES%22%5D,%22productIds%22:%5B%5D%7D&nodeId=TIT20PRMA_CHIIPRMAS_TART4LEBL_S20-10LEBL)

[searchRequest=%7B%22searchText%22:%22leaf%20blowers%22,%22pageNum%22:1,%22resultsPerPage%22:25,%22booleanSearch%22:false,%22stemming%22:true,%22fuzzy%22:false,%22synonym%22:false,%22contentTypes%22:%5B%22CODES%22%5D,%22productIds%22:%5B%5D%7D&nodeId=TIT20PRMA_CHIIPRMAS_TART4LEBL_S20-10LEBL\)](https://www.municode.com/library/ca/costa_mesa/codes/code_of_ordinances?searchRequest=%7B%22searchText%22:%22leaf%20blowers%22,%22pageNum%22:1,%22resultsPerPage%22:25,%22booleanSearch%22:false,%22stemming%22:true,%22fuzzy%22:false,%22synonym%22:false,%22contentTypes%22:%5B%22CODES%22%5D,%22productIds%22:%5B%5D%7D&nodeId=TIT20PRMA_CHIIPRMAS_TART4LEBL_S20-10LEBL)

Palo Alto, Leaf Blower Ban, June 13, 2005 <http://www.ccblincoln.com/CCBL/Towns/PaloAlto.html>

“Gas-powered leaf blowers may not be used in any residential zones by anyone including residents.

“Electric leaf blowers (no internal combustion engines) may be used only during the following hours:

- Residential zones

Monday – Friday 9 am – 5 pm

Saturday 10 am – 4 pm

Sundays and Holidays not allowed* (see * below for list of holidays)

Non – residential zones

- Electric and gas-powered blowers may be used only during the following hours:

Monday – Friday 8 am – 6 pm

Saturday 10 am – 4 pm

Sundays and Holidays not allowed”

City of Santa Monica:¹⁹ “Leaf blowers pose multiple health risks due to air pollution attributed to their use. The pollution comes in the form of unburned fuel, from the inefficient combustion process inherent in such devices, and from a mixture of fine particles blown into the air, particles that can go deep into the human lungs. To address these concerns and others, many cities have banned leaf blowers; and Santa Monica has recently renewed its commitment to the enforcement of its leaf blower ban, which has been in place since 1991. See Leaf Blower Facts page.

“The Law (S.M.M.C. 4.08.270); “No person shall operate any leaf blower (gas, electric, or battery powered) within the City. A leaf blower is defined as any motorized tool (gas, electric, or battery powered) used to propel fallen leaves and debris for removal. Infractions will be punishable by substantial fines to property owners, property and landscape management companies, individual operators, and/or water customers.”

1. Del Mar, Hermosa Beach, Laguna Beach, Los Angeles, Palo Alto, Solana Beach, Santa Monica and Tiburon ban all leaf blowers
2. Cypress, Dana Point, Los Altos, Malibu, Mill Valley Newport Beach, Piedmont, Santa Barbara, and West Hollywood ban the use of gasoline-powered leaf blowers.

¹⁹ http://www.smgov.net/departments/ose/categories/landscape/leaf_blower_ban.aspx

3. Culver City enforces a partial ban on leaf blower use
4. Davis and St. Helena restrict leaf blower noise.

“Although certainly a conspicuous issue in many U.S. localities, use of leaf blowers has been the subject of particularly intense debate and rulemaking in the State of California. As many as 44 California cities have already enacted bans, laws and regulations regarding leaf blower use.

“Why all the concern over a modest-sized, hand held piece of machinery? Well, these devices have become notorious for noisily stirring up dangerous dust including airborne feces, allergens, molds, and pollens. All of these pollutants aggravate allergy and asthma problems. One study conducted by the American Lung Association examined types of materials or toxins found in street dust. Found among the particulates examined were traces of arsenic, cadmium, chromium, nickel, and mercury.

“The Los Angeles chapter of the American Lung Association has produced research to illustrate how leaf blowers generate as much pollution in one hour as a car driven for 100 miles produces.

“At-Risk groups include the elderly with cardio-pulmonary problems; individuals who exercise outdoors, and young infants. Sudden Infant Death Syndrome has been associated with the negative effects and pollutants from leaf blowers according to a 1997 government study; “The Relationship between Selected Causes of Infant Mortality and Particulate Air Pollution in the United States.

"Gasoline powered Leaf Blowers use two-stroke engines that are not only smoky, but induce pollution from the combustion of oil. Emissions from these machines include particulate materials, carbon monoxide, nitrogen oxides, and hydrocarbons (CO, NOx, and HC).

““One of the most disturbing features of leaf blowers is the major contribution that they make to noise pollution. The Zero Air Pollution Los Angeles (ZAPLA) states that leaf blower use at one residence impacts eight to fourteen neighbors. According to the Occupational Safety and Health Administration, the noise induced by leaf blowers at 90 decibels exceeds the threshold of danger at 85 decibels and can seriously impair hearing. Leaf blowers are used mainly in residential areas where many types of residents are exposed to their pollutants and noise. This population includes homemakers, retirees, day sleepers, young toddlers, the ill or disabled, and pets.

“Those at highest risk are the blower operators--gardeners and yard workers, who regularly omit wearing protective headphones and respiratory gear.

“According to one manufacturer’s lobbyist, at a distance of fifty feet, the average blower measures 70-75 decibels. But the World Health Organization states that in order to have a healthy environment daytime noise levels should not exceed 55 decibels. A decibel level of 65 at 50 feet might still be 100 decibels or more next to a gardener’s ear. California is serious about enforcement of leaf blower regulations, with fines ranging from \$50- \$750. In Toronto, Canada the maximum fine is \$5,000.”²⁰

Colorado

Aspen Gas Powered Leaf Blower Enforcement Began, July 18, 2005 <http://www.ccblincoln.com/CCBL/Towns/Aspen.html>

“The out-right ban has been in effect since April, 2003, when City Council approved the revisions to the existing noise ordinance.

²⁰ http://www.cleanhouston.org/comments/archives/leaf_blowers.htm

“Effective July, 25, 2005, the City of Aspen Environmental Health staff will start conducting daily surveillance throughout town to enforce the City wide ban on gas powered leaf blowers.”

Maryland

Montgomery: Excerpted from: Code of Montgomery County Regulations (COMCOR) Chapter 31B-1: “(a) The County Council finds that excessive noise harms public health and welfare and impairs enjoyment of property. The intent of this Chapter is to control noise sources to protect public health and welfare and to allow the peaceful enjoyment of property. This Chapter must be liberally construed to carry out this intent., Section 31B-2i (i) Leaf blower means any portable device designed or intended to blow, vacuum, or move leaves or any other type of unattached debris or material by generating a concentrated stream of air. Leaf blower includes devices or machines that accept vacuum attachments. Sec. 31B-9. Leaf blowers.

(a) Except as provided in this section, a person must not sell, buy, offer for sale, or use a Leaf blower at any time that has an average sound level exceeding 70 dBA at a distance of 50 feet. This requirement is in addition to any other noise level or noise disturbance standard that applies under this Chapter.

(b) An individual who owns or occupies a residence in a residential noise area may use at the individual's residence a Leaf blower bought or manufactured before July 1, 1990, until July 1, 1998, even if it exceeds the standard in subsection (a). After July 1, 1998, a person must not use any Leaf blower that violates the standard in subsection (a).

(c) The Department must apply the standard in subsection (a) in accordance with the most current leaf-blower testing standard of the American National Standards Institute (ANSI).

(d) The Department may inspect, and on its request a person must produce, any Leaf blower that is sold, offered for sale, or used in the County, to determine whether the Leaf blower complies with this section. A person who relies in good faith on a manufacturer's written representation of the sound level of a Leaf blower that has not been modified is not subject to a penalty for violating this section. (1996 L.M.C., ch. 32, § 1.)” (<http://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/compliance/Noise-control-ordinance.pdf>)

Massachusetts

Restrictions sought on leaf blowers; petition seeks to curb noise of gas machines By Christine Legere, Globe Correspondent, March 9, 2008 (http://www.boston.com/news/local/articles/2008/03/09/restrictions_sought_on_leaf_blowers_1205034599/?page=full)

Brookline: “General By-Laws Article 8. -- .Leaf blowers Section 8.—.

1: STATEMENT OF PURPOSE... limit and regulate the use of leaf blowers as defined and set.forth herein....Leaf blowers are defined as any portable gasoline powered machine used to blow leaves, dirt and other debris (1) ff lawns, sidewalks, driveways, and other horizontal surfaces.

“2. Limitations on Use.a. Leaf blowers shall not be operated except between March 15 and May 15 and between September 15 and December 15 in each year. The provisions of this subsection do not apply to the use of Leaf blowers by the Town and its contractors. The provisions of this section also do not apply to non-residential property owners but only with respect to parcels that contain at least five acres of open space. The provisions of this subsection also shall not apply to the use of leaf blowers by the Town or its designees for performing emergency operations and clean-up associated

with storms, hurricanes and the like.” (<http://www.brooklinema.gov/documentcenter/view/929>)

Cambridge: “8.16.081 - Leaf Blowers: The use of leaf blowers is prohibited except between March 15 and June 15 and between September 15 and December 31 in any year.... The use of leaf blowers is further prohibited on Sundays and legal holidays except Columbus Day and Veterans' Day and prohibited on other days except between the hours of 8:00 a.m. and 5:00 p.m. Mondays through Fridays and 9:00 a.m. and 5:00 p.m. Saturdays, Columbus Day and Veterans' Day. etc. (https://www.municode.com/library/ma/cambridge/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.16NOCO_8.16.081LEBL)

Newton: Chapter 20 Article II: Noise Section 20-13 (g)(3), (4) and (7) (<http://www.newtonma.gov/civicax/filebank/documents/45829>)

“(a) This ordinance may be cited as the "Noise Control Ordinance of the City of Newton.”

(b) Declaration of findings and policy. Whereas excessive sound is a serious hazard to the public health and welfare, safety, and the quality of life; and whereas a substantial body of science and technology exists by which excessive sound may be substantially abated; and, whereas the people have a right to and should be ensured an environment free from excessive sound that may jeopardize their health or welfare or safety or degrade the quality of life; now therefor it is the policy of the City of Newton to prevent excessive sound which may jeopardize the health and welfare or safety of its citizens or degrade the quality of life.

(d) Definitions. For the purposes of this ordinance the following words and phrases shall have the meanings respectively ascribed to them by this section: Noise pollution: a condition caused by a noise source that increases noise levels 10dB(A) or more above background noise level, except that if the noise source produces a tonal sound, an increase at 5dB(A) or more above background noise level is sufficient to cause noise pollution.

Tonal sound: any sound that is judged by a listener to have the characteristics of a pure tone, whine, hum or buzz.

e) Noise Pollution prohibited.

(1) No person shall willfully, negligently, or through failure to provide necessary equipment or facilities or to take necessary precautions permit the establishment or continuation of a condition of noise pollution caused by a noise source (other than a dog or bird) owned, leased, kept, or controlled by such person, or caused by any activity of such person.

(2) When the offending noise source is located in public spaces, noise measurements shall be made at, and noise pollution determinations made in relation to, any location a passerby might reasonably occupy. When the offending noise source is located on private property, noise measurements shall be made at, and noise pollution determinations made in relation to, the boundary line of the property within which the offending source is located, or as close thereto as feasible.

3) All noise level measurements made pursuant to subsection (e) shall be made with a Type I or II A-weighted²¹ sound level meter as specified under the American National Standards Institute (ANSI) standards. (f) Time Restrictions.

(1) Notwithstanding the provisions of subsection (e) and subject to the maximum noise levels listed in subsection (g), the generation of any noise from all electric motors and/or internal combustion engines employed in yard, garden, or grounds maintenance is prohibited except during the following time periods:

(A) Between 7:00 a.m. and 8:00 p.m. on weekdays; or

(B) Between 9:30 a.m. and 8:00 p.m. on Saturdays, Sundays and legal holidays as established in section 2-26 of these revised ordinances.

(3) Yard, Garden, or Grounds Maintenance Equipment

(i) Maximum noise level dB(A) permitted:

Commercial Chipper, 3 1/2 inch or greater limb capacity (running at full speed but not chipping).....	90
Commercial truck-mounted leaf vacuum	90
All other equipment, including home tractor, leaf blower, lawn mower or trimmer	65

“Chapter 20 – page 10: “NEWTON CODE ONLINE – OFFENSES AND MISCELLANEOUS PROVISIONS § 20-13.

“Noise measurements shall be made at a distance of fifty (50) feet from the source, or from the nearest lot line, whichever distance is less.

“(4) Tonal Sound Corrections. When a tonal sound is emitted by a noise source specified in subsections (g)(1), (g)(2) and (g)(3) herein, the limit on maximum noise levels shall be 5dB(A) lower than as specified in subsections (g)(1), (g)(2) and (g)(3).”

New Hampshire

Portsmouth: “City of Portsmouth Ordinances Chpt. 3. Public Health, Art..IV: Noise Control Sec 3.403.Noises Prohibited - Unnecessary Noise Standard, "The following acts, among others, are declared to be loud disturbing and unnecessary noises in violation of this Ordinance, but said enumeration shall not be deemed to be exclusive, namely": "Q. Blowers: The operation of any noise creating blower or power fan or any internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device sufficient to deaden such noise." (<http://www.cityofportsmouth.com/cityclerk/ordinances/Chapter3.pdf>)

New Jersey

Montclair Municipal Code Chpt. 217 Noise.217-6 Internal Combustion Leaf Bowers.

“A. Purpose and intent. The Township of Montclair hereby finds that unlimited use of leaf blowers powered by internal combustion engines impairs the economic and social welfare, health, peace and quality of life of persons residing in Montclair. The purpose of this section is to minimize the adverse impact of such equipment by restricting its use within the Township.

²¹ “A-weighting is applied to instrument-measured sound levels in (an) effort to account for the relative loudness perceived by the human ear, as the ear is less sensitive to low audio frequencies.” For reviews of applications for and deficiencies of using ‘A’ weighted dB measurement see <http://en.wikipedia.org/wiki/A-weighting> and “A-weighting in detail” (<http://www.lindos.co.uk/cgi-bin/FlexiData.cgi?SOURCE=Articles&VIEW=full&id=2>).

B. Hours of use. Leaf blowers powered by internal combustion engines shall not be operated in the Township of Montclair except as follows:

(1) On weekdays between 8:00 a.m. and 6:00 p.m., except that leaf blowers may be used by an occupant or owner of the premises between 8:00 a.m. and 8:00 p.m. on weekdays.

(2) On Saturdays between 9:00 a.m. and 6:00 p.m., except that leaf blowers may be used by an occupant or owner of the premises between 9:00 a.m. and 8:00 p.m.

(3) On Sundays and the following holidays, between 10:00 a.m. and 5:00 p.m.: Good Friday and Thanksgiving.

C. Limitation on use of leaf blowers. The operation of leaf blowers shall be limited in each calendar year to the time period between March 1 and June 30, inclusive, and between October 1 and December 15, inclusive. The Emergency Management Coordinator shall have the authority to extend or modify such dates when extreme or unusual weather conditions warrant.

D. Mufflers. It shall be a violation hereof to operate any leaf blower powered by an internal combustion engine in the Township of Montclair without a properly functioning muffler.

E. Responsibilities of property owners, business operators, landlords and tenants. Property owners, business operators, landlords and tenants of a property shall each have all the duties and responsibilities prescribed in this chapter, and no property owner, business operator, landlord or tenant shall be relieved from such duties or responsibilities by reason of the fact that the other of them or the occupant is also responsible therefor and in violation thereof.

F. Emergencies. The Emergency Management Coordinator is authorized to suspend any one or more of the provisions of this section for a period of 24 hours or more whenever such Coordinator determines that an emergency situation exists in the Township. Such suspension may be renewed each day during the continuance of such emergency.

D. Mufflers. It shall be a violation hereof to operate any leaf blower powered by an internal combustion engine in the Township of Montclair without a properly functioning muffler.

E. Responsibilities of property owners, business operators, landlords and tenants. Property owners, business operators, landlords and tenants of a property shall each have all the duties and responsibilities prescribed in this chapter, and no property owner, business operator, landlord or tenant shall be relieved from such duties or responsibilities by reason of the fact that the other of them or the occupant is also responsible therefor and in violation thereof.

F. Emergencies. The Emergency Management Coordinator is authorized to suspend any one or more of the provisions of this section for a period of 24 hours or more whenever such Coordinator determines that an emergency situation exists in the Township. Such suspension may be renewed each day during the continuance of such emergency.(<http://ecode360.com/7187006>)”

New York

Bronxville: “prohibits the use of gasoline-powered leaf blowers between June 1 and September 30 and carries a mandatory fine of \$250 for the first violation, a mandatory \$500 fine for a second violation committed within 365 days of the first offense, and a mandatory fine of \$1,000 for the third or subsequent offense committed within 365 days

of the first offense.” (http://www.myhometownbronxville.com/index.php?option=com_content&view=article&id=3266:village-board-of-trustees-bans-gasoline-powered-leaf-blowers-with-stiff-fines-during-summer-months&catid=5:bronxville-govt-hist&Itemid=5)

Dobbs Ferry: Ordinance 234-26: "Unnecessary noise. It shall be unlawful for any person to make, continue or cause to be made or continued any of the following acts producing audible sound, which are hereby declared to be loud, disturbing and unnecessary noise in violation of this article: L. Leaf blowers and outdoor power tools.

[Amended 5-13-2008 by L.L. No. 4-2008; 11-12-2013 by L.L. No. 9-2013]

(1) The use of all leaf blowers, excluding electric-powered, between March 15 and May 1 and September 15 and December 15, and then only from 8:00 a.m. until 6:00 p.m. on Monday through Friday and 10:00 a.m. until 5:00 p.m. on Saturday, Sunday and holidays.

(2) The operation of any engine-driven power tool or motorized equipment before 7:30 a.m. and after 6:30 p.m., Monday through Friday, and before 9:00 a.m. and after 5:00 p.m. on Saturdays, Sundays and legal holidays is prohibited, except that grass may be cut with an internal combustion engine lawn mower by the occupant of the premises on any day between the hours of 5:00 p.m. and 8:00 p.m. Any such tool or equipment shall be properly equipped with a muffler or other properly installed manufacturer-approved noise-reduction device so designed and in such condition as to prevent unnecessary noise and to prevent a public nuisance in its operation.

(3) Promulgation of additional rules and regulations. The Village Administrator is authorized to promulgate rules, regulations and standards applicable to the above power tools and equipment in an effort to control such noise and lessen the effect of that noise on the quality of life of the Village. Such rules shall not become effective until approved by the Village Board of Trustees.

(4) Exceptions to this subsection:

(a) Golf course operations, municipal and school employees while in the performance of their regular duties beyond 100 feet from the nearest residence.

(b) Utility companies, municipal and school employees or property owners and/or their subcontractors while performing emergency repairs.”

Eastchester Environmental Committee Resolution 20101; Resolution by the Eastchester Environmental Committee for the Limited Use of Power Tools for Yard Work and Gardening, http://eastchesterenvironmentalcommittee.com/uploads/Eastchester_Environmental_Committee_Resolution_2010-1_Leaf_blower_Restrictions.pdf

Nyack: Resolution by the Eastchester Environmental Committee for the Limited Use of Power Tools for Yard Work and Gardening (<http://nyack-ny.gov/download/issues/leaf-blowers>)

Sleepy Hollow: Recommendation on the Seasonal Regulation of Leaf Blowers of Sleepy Hollow Environmental Advisory Council, May 16, 2010 (<http://sheac.wordpress.com/leaf-blowers/>)

Westchester Cty.: Sec. 863.327. - Leaf Blowers; Licensee Requirements. “Effective January 1, 2009, no licensee engaged in the business of landscaping, gardening, arboriculture, or any similar outdoor vocation, nor its agent, affiliate or employee, shall operate a leaf blower that does not meet EPA Phase 2, 2007 exhaust emission

standards or that does not operate in accordance with manufacturer's instructions or specifications.”

Yonkers: Yonkers City Code Section 91-31. “In 2007, the City of Yonkers enacted a Leaf Blower Ban which is in effect each year from June 1 through September 30th.

The use of gas-powered leaf blowers is a violation of the Yonkers City Code Section 91-31 and is intended to protect the public health by reducing air pollution.

Failure to comply with the ban is punishable as a Class II offense with fines ranging from \$250 to \$5,000. To report violations during weekday hours of 8:30 a.m. - 4:30 p.m., call Yonkers Code Enforcement at (914) 377-6669. To report violations on evenings and weekends, call the Yonkers Police Department at (914) 377-7900.

A. The operation of a gasoline-powered leaf and garden blower is prohibited from June 1 through September 30 of each year. During times of emergency caused by storm, the Commissioner of Public Works may declare a temporary moratorium on the operations of this provision.

B. The Commissioner of Public Works, through the office of the City Clerk, may, in his discretion and upon application, grant temporary special permits for the temporary operation of one or more gasoline-powered leaf and garden blowers otherwise subject to this section to accommodate special circumstances, including but not limited to remediation of abandoned or neglected properties or the cleanup of temporary work sites, and shall charge and collect a fee of \$35 for each permit so granted.

C. Except as otherwise provided, violations of this section shall be a Class II offense as defined in Chapter 1, General Provisions, Article III, Penalties, § 1-21. Penalties for offenses; lesser included offenses, of this Code.” (<http://ecode360.com/15089766>)

Oregon

*The City of Portland, Leaf Blower Regulations*²²

“The use of leaf blowers in the City of Portland is regulated through general operating restrictions and noise restrictions.

“General Operating Restrictions

Residential Zones - City code limits daytime use of leaf blowers to 7 am to 7 pm in all Residential Land Use Zones. Use at night in residential zones is prohibited.

“Noise Restrictions –Effective September 1, 2009

The following noise restrictions apply to all leaf blowers operated within the time limits allowed under the general operating restrictions:

From March 1 through October 31st of each year, leaf blowers which are on the City’s certified list of 65 dBA, or quieter, may be operated within the City of Portland.

From November 1 through February 28th of each year, leaf blowers which are on the City’s certified list of 70 dBA, or quieter, may be operated within the City of Portland.

Leaf blowers that are on the certified list of 65 dBA, or quieter, may be operated within the City of Portland year round.”

7. Fact Sheets, Press Releases and Commentaries

As previously noted: “Leaf blowers create unnecessary noise and air pollution, endangering you, and the community. Mount Sinai School of Medicine’s Pediatric Environmental Health Specialty Unit says gas-powered leaf blowers pose multiple

²² <http://www.portlandonline.com/auditor/index.cfm?a=18498&c=28709>

health threats. They include spreading airborne particles, which can provoke asthma and other respiratory diseases, and potential pollutants like ozone, carbon monoxide, nitrogen oxides and hydrocarbons. Hearing damage from the engine noise and eye injuries from pebbles and twigs propelled by blowers are also cited.”²³

“Diseases directly transmitted by rodents”²⁴

“(a) Hantavirus Pulmonary Syndrome²⁵

- Rodent(s) involved: Deer mouse, Cotton rat, Rice rat, White-footed mouse.
- Where the disease occurs: Throughout most of North and South America
- How the disease spreads: Breathing in dust that is contaminated with rodent urine or droppings.

“(b) Lymphocytic choriomeningitis, (LCM)²⁶

- Rodent(s) involved: House mouse
- Where the disease occurs: Worldwide
- How the disease spreads: Breathing in dust that is contaminated with rodent urine or droppings.

“Some species of rats such as the cotton rat or rice rat are known carriers of hantavirus. Victims may be debilitated and can experience difficulty breathing. Hantavirus is transmitted to humans when they inhale airborne particles from rodent droppings, urine or carcasses that have been disturbed.”²⁷

7.1 Bad Air

“With a muzzle velocity of 150 miles per hour, gas blowers blow herbicides, pesticides, and fecal contaminants up from the ground into the air, especially troubling asthmatics and allergy sufferers, and increasing the threat to everyone.

“A gasoline-powered leaf blower generates as much tailpipe emissions in one hour as an automobile does over 100 miles. The difference is that a car emits all that pollution over a big stretch of road, while a leaf blower deposits it all in one back or front yard. A two-stroke commercial blower generates 277 lb. of volatile organic compounds, 825 lbs. of carbon monoxide and 3.3 lb. of particulate per year.”

“Although certainly a conspicuous issue in many U.S. localities, use of leaf blowers has been the subject of particularly intense debate and rule-making in the State of California. As many as 44 California cities have already enacted bans, laws and regulations regarding leaf blower use.

“Why all the concern over a modest-sized, hand held piece of machinery? Well, these devices have become notorious for noisily stirring up dangerous dust including airborne feces, allergens, molds, and pollens. All of these pollutants aggravate allergy and asthma problems. One study conducted by the American Lung Association examined types of materials or toxins found in street dust. Found among the particulates examined were traces of arsenic, cadmium, chromium, nickel, and mercury.

“The Los Angeles chapter of the American Lung Association has produced research to illustrate how leaf blowers generate as much pollution in one hour as a car driven for 100 miles produces.

²³ *Landscape Leaf Blower Facts*, City of Santa Monica, Office of Sustainability and the Environment (https://www.smgov.net/Departments/OSE/Categories/Landscape/Leaf_Blower_Facts.aspx)

²⁴ Center for Disease Control: <http://www.cdc.gov/rodents/diseases/direct.html>)

²⁵ Pulmonary Syndrome

²⁶ <https://www.cdc.gov/vhf/lcm/index.html>

²⁷ Orkin, <http://www.orkin.com/rodents/rats/rat-borne-diseases/>

“At-Risk groups include the elderly with cardio-pulmonary problems; individuals who exercise outdoors, and young infants. Sudden Infant Death Syndrome has been associated with the negative effects and pollutants from leaf blowers according to a 1997 government study; ‘The Relationship between Selected Causes of Infant Mortality and Particulate Air Pollution in the United States’.

“Gasoline powered Leaf Blowers use two-stroke engines that are not only smoky, but induce pollution from the combustion of oil. Emissions from these machines include particulate materials, carbon monoxide, nitrogen oxides, and hydrocarbons (CO, NOx, and HC).

“One of tDocket ID No. EPA-HQ-AO-2021-068:e most disturbing features of leaf blowers is the major contribution that they make to noise pollution. The Zero Air Pollution Los Angeles (ZAPLA) states that leaf blower use at one residence impacts eight to fourteen neighbors. According to the Occupational Safety and Health Administration, the noise induced by leaf blowers at 90 decibels exceeds the threshold of danger at 85 decibels and can seriously impair hearing. Leaf blowers are used mainly in residential areas where many types of residents are exposed to their pollutants and noise. This population includes homemakers, retirees, day sleepers, young toddlers, the ill or disabled, and pets.

“Those at highest risk are the blower operators--gardeners and yard workers, who regularly omit wearing protective headphones and respiratory gear.

“According to one manufacturer’s lobbyist, at a distance of fifty feet, the average blower measures 70-75 decibels. But the World Health Organization states that in order to have a healthy environment daytime noise levels should not exceed 55 decibels. A decibel level of 65 at 50 feet might still be 100 decibels or more next to a gardener’s ear. California is serious about enforcement of leaf blower regulations, with fines ranging from \$50- \$750. In Toronto, Canada the maximum fine is \$5,000.”²⁸

“Thanks to decades of relentless lobbying by their manufacturers, the two-cylinder engines that drive Leaf blowers have never been regulated by any Federal or State agency. The engines, as a result, are crude, cheap, and inefficient, as well as harmful to the environment and everything living in it. Because they are designed to be air-cooled, the engines release 100% of their tailgate emissions directly into the environment, and since they also burn fuel very inefficiently, a Leaf blower running for one hour emits as many hydrocarbons and other pollutants into the atmosphere as a car driven at 55 mph for 110 miles.

“If that seems extreme, consider that wind blows from the nozzles of these machines at speeds in the range of 180 mph. Subjecting everything at ground level to blasts of hot, dry, hurricane-force winds would be ill-advised at any time, since it cannot fail to injure plants and open pathways for pests and disease, while at the same time aiding and abetting the pathogens by distributing them over the widest possible area. In the summer, though, when the air is hot and the ground is dry and the plants are dehydrated and badly stressed to begin with, subjecting them to tornadic blasts of hot, dry air is, nonsensical, to put it kindly.

“Leaf blowers literally scour the earth: stripping off topsoil, desiccating roots, and killing vital soil-dwelling organisms, while, at the same time, propelling into the air clouds of dirt, dust and dangerous contaminants: volatile compounds, mold and fungal spores, weed seeds, insect eggs, pollen, molecules of the myriads of toxic chemicals people

²⁸ Leaf Blowers: Stirring Up a Mess (http://www.cleanhouston.org/comments/archives/leaf_blowers.htm)

spray and sprinkle on their gardens, trees, and lawns, not to mention bird and rodent feces, and more.

“It goes without saying (but must be said anyway), that Leaf blowers pose the greatest threat to the health and hearing of the untold numbers of landscape workers who use them on a daily basis, in most cases without adequate protective equipment, for intervals that far exceed OSHA guidelines. Unfortunately, the workers themselves tend to exaggerate the benefits and deny the risks of blowing leaves with machines, which they strongly favor over rakes, for reasons that probably have more to do with symbolism than practicality.

“Gasoline-driven Leaf blowers have been banned in scores of California counties, including Los Angeles and hundreds of municipalities across the U.S. and Canada, and none of the horrors that were predicted by landscapers - untidy lawns, escalating costs, declining property values - has ever come to pass.”²⁹

“Vancouver has become the first city in Canada to ban gas-powered leaf blowers. A full ban takes effect 2004.”³⁰

“Your local home center is always eager to sell you the latest “labor-saving” device for lawn and garden maintenance. But few inventions in human history are as useless and obnoxious as the leaf blower.

“These contraptions are absurd wasters of energy and are so loud they have been banned by many municipalities. They stir up dirt and dust, and can throw rocks at cars and people.

“Leaf blowers don’t work as well as the humble rake, which is more precise, more tenacious, offers exercise to the user, and won’t tee off the neighbors by accidentally blowing leaves, grass, and dust onto their lawns.

“Next time a salesperson thrusts a leaf blower at you at a garden center, ask to see their rake selection.

“Another reason to blow-off the blower? Calories! You’ll burn 50 more calories per half hour if you use a rake.”³¹

“Facts about Power Equipment

“The powerful air stream of a leaf blower can strip the land of topsoil, damage otherwise healthy plants by tearing leaves off branches and spread disease, insect eggs and weed seeds.

“The high-velocity air jets whip up dust and pollutants. The particulate matter (PM) swept into the air by blowing leaves is composed of dust, fecal matter, pesticides, fungi, chemicals, fertilizers, spores, and street dirt which consists of lead and organic and elemental carbon. This can result in health risks for people with asthma or other respiratory health problems.

“The average blower measures 70-75 dB at 50 feet and can reach 90-100 dB at the operator's ear. This high noise level not only poses a danger to the operator but can be disturbing to your neighbors, some of whom may be ill or might work nights.

²⁹ “Ban Leaf blowers!” Dr. Andrew Weil <http://www.drweil.com/drw/u/id/ART02059>

³⁰ CBC News Canada, Vancouver bans leaf blowers, 16 July 2001 <http://www.cbc.ca/news/canada/vancouver-bans-leaf-blowers-1.270990>

³¹ Rake for the Planet, http://www.mygreencranford.org/Rake_For_The_Planet.html; Reader's Digest, “What Leaf Blower Makers Don't Want You to Know About Rakes” <http://www.rd.com/home/gardening/what-leaf-blower-makers-dont-want-you-to-know-about-rakes/>

“Emissions from the two-stroke combustion engine include liquid and solid particulate matter as well as gaseous carbon monoxide, nitrogen oxides, and hydrocarbons.

“Benefits of Human Power

“You will reduce your carbon footprint by eliminating the emissions produced by small engines.

“The exercise will burn calories and contribute to better health.

“Get the whole family involved. The time spent together will have a positive effect on the kids and will teach them the value of working around the house.

“Your neighbors will appreciate the quiet and you and your family will not suffer the side effects that can result from the noise level of small engine machines.

“Raking is better for your lawn and garden.

“Save money. A rake cost about \$10 to \$15 and a gas leaf blower will cost \$100 to \$500 plus the cost of gas.”³²

“Hazards of leaf blowing I am impressed by the research study on the leaf blowers done by the Palm Beach State College students and their effort to make a difference for the sake of their community. I want to congratulate the students and their teacher, Edwin Riley, and wish them success in bringing this issue to the attention of the public. Clearly, their study has shown that leaf blowers: Create as much smog as 17 cars. Disperse dust, pollen, spores and other matter into the air, exacerbating allergies, asthma and emphysema.”³³

“City commissioners on Tuesday will consider final approval of changes to the noise ordinance to ban the use of gas-powered leaf blowers within 50 feet of any residence or commercial outdoor dining area.

“The changes would restrict when noisy landscaping equipment (such as lawn mowers, edgers, weed trimmers, electric leaf blowers, chain saws, chippers, stump grinders, pressure washers, and compressors) could be used. The city also would ban the use of lawn-maintenance equipment “in a way that causes objectionable dust or other particulate matter to blow or drift in or through another residential property,” and establishes acceptable decibel limits.

“The amendment would prohibit commercial landscaping companies from using noise-producing lawn maintenance equipment within 75 feet of an occupied home on weekends, and between 6 p.m. and 8 a.m. on weekdays. Residents face less stringent restrictions: non-commercial operation is allowed after 8 a.m. — after 9 a.m. on weekends — until 30 minutes after sunset.”³⁴

7.2 Leaf Blower Noise and Its Consequences

Sacramento's city code states: "Every person in the city is entitled to live in an environment free from excessive, unnecessary or offensive noise levels." Our General Plan states that the normally acceptable ambient noise level in residential areas is no more than 60 dB; 60-70 is conditionally acceptable; and higher levels are normally unacceptable. The decibel scale is logarithmic--each increase of 10, say 60 to 70, represents a noise 10 times louder.

³² California Environmental Protection Agency (www.nonoise.org)

³³ Hazards of Leaf Blowing, http://articles.sun-sentinel.com/2011-10-17/news/fl-letters-1016-20111017_1_leaf-blowers-dive-master-veteran-diver

³⁴ South Miami moves to ban gas-powered leaf blowers, 3 June 2013, Miami Herald <http://www.miamiherald.com/2013/06/03/3431170/south-miami-moves-to-ban-gas-powered.html>

“The average blower measures 70-75 dB at 50 feet according to a manufacturer's lobbyist (2), thus louder at any closer distance. Leaf blowers are routinely used less than 50 feet from unconsenting (sic) pedestrians and neighboring homes that may be occupied by home workers, retirees, day sleepers, children, the ill or disabled, and pets.

“The World Health Organization recommends general daytime outdoor noise levels of 55 dBA* or less, but 45 dBA to meet sleep criteria (3). Thus, even a 65-decibel leaf blower would be 100 times too loud** to allow healthful sleep (which often takes place during daytime hours for night workers and others). Noise can impair sleep even when the sleeper is not awakened.

“Acoustics experts say blower noise is especially irritating because of its particular pitch, the changing amplitude, and the lack of control by the hearer (5).

“Blower noise endangers gardeners in other ways as well. According to Dr. Alice Suter, in a 1994 report to the OSHA Standards Planning Committee, there is recent evidence "that high levels of noise and the resulting hearing losses contribute to industrial accidents" and "hearing protection devices...may actually impair work safety under certain conditions...In addition, there is growing evidence that noise adversely affects general health, and the cardiovascular system in particular.”³⁵

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