

Andrew, Devonia L.

From: Andrew, Devonia L.
Sent: Wednesday, April 02, 2008 7:35 AM
To: 'Dalma Kalogjera-Sackellares, Ph.D.'
Cc: citycomm; citymgr
Subject: RE: Registered letters sent to City Commissioners - Dates of receipt- To make things easier

Good Morning Dr. Kalogjera-Sackellares,

As requested, I have provided the Mayor and City Commissioners copies of the information you sent to our office in November, 2007. A copy has also been provided to the City Manager for his information.

Per our conversation, you will attend the April 14th City Commission Meeting to discuss this information during citizen comment.

Thank you.

Devonia L. Andrew
Executive Assistant to the Mayor

-----Original Message-----

From: Dalma Kalogjera-Sackellares, Ph.D. [mailto:dkalogjera@gmail.com]
Sent: Tuesday, April 01, 2008 4:03 PM
To: Andrew, Devonia L.
Subject: Registered letters sent to City Commissioners - Dates of receipt- To make things easier

DeVonia Andrew
Executive Assistant to
Hon Mayor Pegeen Hanrahan

Dear Ms Andrew- I just spoke to you over the phone about materials sent to City Commissioners regarding the civic/environmental issue I intend to address during Citizens Comments on April 14, 2008 The materials include a letter, a lengthy review entitled LEAF BLOWER FACTS (18 pages) and excerpts from County Noise Ordinance.

DATES OF RECEIPTS

MAYOR Hr.PEGEEN HANRAHAN	11/9/2007
Commssioner JACK DONOVAN	11/9/2007
Commissioner RICK BRYANT	11/9/2007
Commissioner JEANNA MASTRODICASA	11/13/2007
Commissioner CRAIG LOVE	11/13/2007

I hope this helps. Please make these materials available to City Commissioners as soon as possible so that they make have a chance to review them and respond.

Dalma Kalogjera, Ph.D

2007 NOV 13 PM 3: 27

DALMA KALOGJERA, Ph.D.
9841 SW 55th Road
Gainesville, Florida 32608

November 7, 2007,

The Honorable Mayor
Pegeen Hanrahan
City of Gainesville
PO Box 490 Station 19
Gainesville, FL 32601-0490

The Honorable Mayor Hanrahan - I write out of sense of civic duty as a very committed member of this community in order to bring to your attention a serious problem which is occurring on a daily often hourly basis, namely noise pollution arising from a massive abuse of power tools, particularly leaf blowers. I am asking you to take remedial action and ban them, thus joining a large and ever increasing number of communities across the country (see enclosed list).

Leaf blowers are a documented source of noise pollution and commonly exceed allowable noise ordinances although the current ordinance is almost unenforceable – it would require(I was given to understand) that the user perform the action in the presence of a police constable for 15 minutes straight.

Leaf blowers are problematic for a whole lot of reasons. They contribute to global warming and waste energy. In addition to high levels of noise, they are also a documented source of air pollution. They entrain street dust with all kinds of hazardous substances, including some that are carcinogenic.

Their effects on all different aspects of health and environment are summarized in the enclosed document LEAF BLOWER FACTS (from website NPC QUIETNET CQS)

“Leaf blower motors are inordinately large emitters of CO, NOx, HC and PM according to a study conducted for the ARB (5).. According to the

Lung Association, a leaf blower causes as much smog as 17 cars” Please read on about the composition of street dust from leaf blowers.

The towns and communities across the country that have outlawed or at least are trying to restrict leaf blowers are listed on pages 14-15.

National leadership in this area has been provided among others by the former Los Angeles city councilman Mr. Marvin Braude who “contends that gas blowers emit 1,800 tons of carcinogenic, volatile organic compounds into LA each year “ (from an article by Mr Ted Rueter (Noise free America).

Dear Mayor – my interest is anything but theoretical. I can safely say, that since Thanksgiving of last year (2006) I do not recall taking a single walk in the otherwise extraordinarily beautiful Haile Plantation -at any time of day- without the aggressive and intrusive noise of power tools (this includes electric chain saws and drills) . Holidays and Sundays are especially affected. I have a neighbor who uses extraordinarily loud leaf blowers and other lawn equipment so we could hear it inside our home 100 yards away with television on - she does it as late as 9:45 PM also Sunday dinnertime, weekends and in the rain when it clearly is n’ t safe. Police have been called 5 times. Once the sound of a leaf blower three subdivisions away was so loud that we had to leave our home in the middle of the day. I lived in Chicago for 9 years and I never had to leave my home because I could n’ t stand the noise...Leaf blowers are also used in the small professional area in the Village where I have my office. One day for 45 straight minutes and no leaves around.

Chapter 11o, Noise Control See 110.03 Specific noise prohibitions

*AS to the current ordinance I believe that it addresses leaf blowers under
FIXED MECHANICAL EQUIPMENT*

g) The use and operation of any noise creating air conditioner, compressor unit, POWER FAN OR BLOWER, fixed electric motor or engine which causes such excessive and unnecessary noise unless such noise is muffled and deadened by adequate noise suppression and muffling devices to eliminate annoyances and disturbances to persons within the range of hearing” (page 3)

Leaf blowers are constantly portrayed as part of lawn maintenance – they aren’ t . Lawn maintenance is covered in a totally separate section of the ordinance – Blowers are fixed mechanical equipment.

With sincere thanks for all your help

Greetings

Dalma Kalogjera
Dalma Kalogjera, Ph.D

enclosures

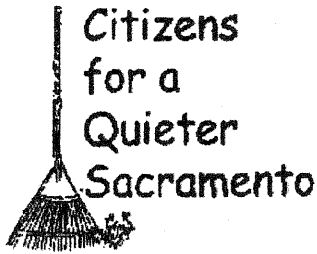
cc: C/Mgr. w/ encl.

cc

Gainesville City Commission
Commissioner Rick Bryant
Commissioner Jeanna Mastrodicasa
Commissioner Craig Love
Commissioner Ed Bradley
Commissioner Sherwin Henry
Commissioner Jack Donovan

cc

Board of Commissioners of Alachua County
Paula M. DeLaney, Chair
Commissioner Mike Byerly
Commissioner Cynthia Moore Chestnut
Commissioner Rodney J. Long
Commissioner Lee Pinkoson



LEAF BLOWER FACTS

Click Below For Information On:

Leaf Blower Noise and Its Consequences

Air Pollution From Leaf Blowers

Leaf Blowers and Health: Letter to California Air Resources Board

A Brief History of the Leaf Blower

CQS Rebuttal to the CLCA Position on Leaf Blowers

Blowers Are Bad For Gardens: One Professional's Opinion

Grandmother Proves Rake and Broom as Fast as Leaf Blowers

Leaf Blower Noise and Its Consequences

Noise interferes with communication, sleep, and work. The U.S. EPA says noise degrades quality of life by impairing communication and social interaction; reducing the accuracy of work, particularly complex tasks; and creating stressful levels of frustration and aggravation that last even when the noise has ceased (1).

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.

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 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.

Don't be fooled by comparison of 65 decibels from a leaf blower to the volume of a normal conversation. You wouldn't want a noise in your home as loud as a normal conversation that you had not invited and could not control. In any case, no backpack blower on the market meets the 65 dB standard. Echo claims to (for one of their seven available models) but Consumer Reports says that's not true (4).

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 can impair gardeners' hearing. A blower measuring 70-75 dB at 50 feet can reach 90-100 dB at the operator's ear. OSHA requires hearing protection for noise over 85, and according to the World Health Organization, "there is an increasing predictable risk" of hearing damage from noise above 75 dBA. Use of certain antibiotics can create vulnerability at lower noise levels. Anecdotally we have examples of hearing loss in gardeners. Sacramento Bee writer Edie Lau quotes one local gardener: "Eventually it's going to hurt everyone who uses it...I'm already a little bit deaf..." Deafness is a serious problem because it causes social isolation by impairing communication. Deafness caused by noise is irreversible. According to the American Academy of Otolaryngology, half the wearers of hearing protectors do not get the expected benefit, due to improper fit or failure to wear them continuously (6).

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." (7)

As Kenneth Maue writes in the Autumn 1997 Right to Quiet newsletter: "When harsh noise hits, instead of reaching out to greet the world with open ears, we shrink back into shells, or try to; in truth the ears can't shut, nor like the eyes turn away. Noise controls space like an occupying army, travels through walls, enters homes, molests bodies, violates privacy, stops thought, batters each of us into isolation." (8) Noise causes loss of community and is both a sign and a cause of aggression and violence.

* the A-weighting (expressed as dBA) is one way of evaluating high and low frequencies to approximate the ear's response

** from 45 to 65 is two ten-fold increases, or 10×10

References:

1. Excerpt from Noise: A Health Problem, United States Environmental Protection Agency, Office of Noise Abatement and Control, August 1978. This can be

obtained from the web site of the Noise Pollution Clearinghouse at www.nonoise.org.

2. Sacramento Bee, November 10, 1997, "Whining leaf blowers leave ears aching for quiet".
3. Environmental Health Criteria 12: Noise, World Health Organization, 1980.
4. Consumer Reports, April 1997, page 8. The magazine reports Echo's new blower measured 69.5 dBA at 50 feet, and says "In field tests, the PB46LN didn't meet its noise claims...When measured at the operator's ear, the noise was at least 90 dBA for most backpack models in our September 1995 report. The Echo PB46LN was no better." A followup article in the August 1997 issue that begins "We have a very low tolerance for companies that make false claims to consumers about their products, and an equally low tolerance for companies that make false statements about our test procedures..." reports that Echo has publicly questioned Consumers Union's integrity, and that CU has demanded a retraction.
5. For the Sacramento Bee article listed at Note 2, reporter Edie Lau interviewed Michael H. L. Hecker, a Los Altos psychoacoustician; Mitchell Sutter, a UCD auditory neuroscientist; and Harvey Wichman, a Claremont psychology professor.
6. "Noise, Ears, and Hearing Protection", a public service brochure of the American Academy of Otolaryngology - Head and Neck Surgery. The warning about the limits of hearing protection are echoed by Dr. Alice Suter (see Note 7), who says: "hearing protectors, as they are worn in the field, provide only a fraction of the attenuation that their 'noise reduction ratings' (NRRS) imply." Dr. Suter also quotes a federally-sponsored consensus conference: "It is extremely foolhardy to regard hearing protection as a preferred way to limit noise exposures..."
7. "Comments on Occupational Noise to the OSHA Standards Planning Committee" by Alice Suter, Ph.D., can also be found on the NPC web site (in the [NPC library](#)).
8. Right to Quiet Society for Soundscape Awareness and Protection, #359, 1985 Wallace Street, Vancouver BC Canada V6R 4H4. Telephone 604 222-0207. www.islandnet.com/~skookum/quiet/

[Top](#)

Air Pollution From Leaf Blowers

The California Air Resources Board (ARB) says air pollution costs our state billions of dollars annually in health care and crop and building damage. It irritates eyes and throats, harms lungs, and causes cancer and premature death (1), including sudden death from heart attacks. Ozone*, a gas, is Sacramento's worst air pollution problem (2), and we also have unhealthy levels of liquid and solid particulate matter (PM**) (3). Blowers, especially gasoline-powered, contribute to both of these. Emissions from the two-stroke combustion engine include PM as well as gaseous carbon monoxide, nitrogen oxides, and hydrocarbons (CO, NOx, and HC). Leaf blowers also raise (entrain) dust from the ground. And evaporative emissions of fuel occur during the refueling process, which sometimes spills gas on the operators, and from the fuel tank. Comparisons that exclude some of these could understate the problem.

Fine PM2.5 particles, which are man-made and do not occur in nature, evade the

body's defense systems. According to the EPA and ARB they can increase the number and severity of asthma attacks, cause or aggravate bronchitis or other lung disease, and reduce our ability to fight infections (4).

Leaf blower motors are inordinately large emitters of CO, NOx, HC, and PM according to a study conducted for the ARB (5). Two-stroke engine fuel is a gasoline-oil mixture, thus especially toxic. Particles from combustion are virtually all smaller than PM2.5. According to the Lung Association, a leaf blower causes as much smog as 17 cars.

Street dust includes lead, organic carbon, and elemental carbon according to a study conducted for the ARB. The Lung Association states "the lead levels are of concern due to [their] great acute toxicity... Elemental carbon...usually contains several adsorbed carcinogens." Another study found arsenic, cadmium, chromium, nickel, and mercury in street dust as well (6). The ARB states that a leaf blower creates 2.6 pounds of PM10 dust emissions per hour of use (7), and based on this a report from the Sacramento Metropolitan Air Quality Management District states that leaf blower dust is responsible for two percent of our PM (8). Blowers are widely used in residential areas where many people are exposed.

The EPA and ARB, in their brochure "Particulate Matter Air Pollution: A threat to our health" advise us, "Avoid using leaf blowers." The multi-agency Best Available Control Measure Working Group agrees.

In November 1997 the Los Angeles Times reported on studies by Kaiser and the California EPA showing a correlation between levels of air pollution and hospital admissions for cardiopulmonary problems (9). These reinforce conclusions reported in the August 1997 issue of Consumer Reports, which described the effect on preschool children as "especially startling." (10) Fifty thousand people in the city of Sacramento are particularly vulnerable to air pollution because of asthma or cardiopulmonary disease (11). Healthy adults and children who play or exercise vigorously are also at risk (1).

Sacramento must reduce its smog-forming emissions by 40 percent by the year 2005 in order to achieve healthier air (3), yet the Portable Power Equipment Manufacturers Association has asked its California members to lobby against stricter emission regulations developed by the ARB for 1999 (12).

- Ozone, three atoms of oxygen in one molecule, is formed by reaction of hydrocarbons (sometimes referred to as "volatile organic compounds," or VOCs) and NOx in sunlight. It is desirable in the upper atmosphere, but irritating to living tissue.
- *PM air pollution consists of particles small enough to remain suspended in the air for a significant period of time (hours to days) unless washed out by rain or otherwise removed. PM is often described by its particle size as PM 10 or PM2.5, a number that refers to maximum diameter in microns. (Thus, PM2.5 is a subcategory of, and contained within, PM10.)

References:

1. "The California Air Resources Board", a brochure currently available at the ARB offices, 2020 L Street, Sacramento CA 95814.
2. "Spare The Air: Improving Air Quality In The Sacramento Region", published summer 1997 by the Sacramento Metropolitan Air Quality Management District, which says, "During the summer, we are among the worst areas in the nation for ozone air pollution" and advises us, "Don't use gasoline-powered lawn and utility equipment..."
3. California Air Resources Board: Status Report 1995-96.
4. "Particulate Matter Air Pollution: A threat to our health", Best Available Control Measure (BACM) Working Group, January 1997.
5. American Lung Association of Sacramento - Emigrant Trails, "Fact Sheet: Leaf Blower Air Pollution Impacts Study Results."
6. County of Fresno, Inter Office Memo, October 14, 1982.
7. July 9, 1991 letter from Terry McGuire, Chief, Technical Support Division, ARB, states, "We estimate that a single leaf blower reentrains about 5 pounds of particulate matter in an hour, about half of which is PM10."
8. Reported in the Sacramento Environmental Commission's "Leaf Blower Recommendations From the Subcommittee", October 27, 1997.
9. Los Angeles Times, November 21, 1997, "Alerts Urged at Lower Smog Levels".
10. Consumer Reports, August 1997, page 36, "Air Quality Special Report: Clearing the air". In this long, forcefully written, informative article, the magazine reports that, "Outdoor air--even air that meets present pollution standards--still can be hazardous to your health." The article explains that the scientific evidence is "remarkably consistent" and significant, in spite of assertions to the contrary by polluting industries. And it says that industry typically threatens ruinous cost increases if new regulations are imposed, "but when regulations have changed anyway, the predicted economic disasters haven't materialized."
11. Sacramento Bee, 1997 (exact date unknown), "Capital-area air labeled bad but legal". The article said 152,000 people in Sacramento County suffer from chronic obstructive lung disease, asthma, or ischemic heart disease. We assume the city's per capita rate matches the county's.
12. Sacramento Bee's California Life, January 17, 1998, "Garden equipment group steps on the gas".

Top

Leaf Blowers and Health: Letter to the California Air Resources Board

This letter discusses some of the health effects of leaf blowers, with information sources noted for further reference (sources listed elsewhere on our web site are not necessarily repeated here). Although certain facts can be and have been documented by studies, a number of conclusions about the health effects of leaf blowers -- as they are used in actual practice today -- can be reached simply by using common sense and logic, and some of these conclusions are included in the following discussion.

General Comment on Level of Danger: In ordinary use, blowers are clearly not being operated according to the manufacturers' own warnings. According to warnings (such as Echo's "Power Blower Operators Manual"), everyone within 50 feet of a blower in use should be wearing hearing, eye, and breathing protection. We all know from our own observations that this is not done, and it is preposterous it ever could be, as blowers are often used within less than 50 feet of bystanders such as pedestrians, cyclists, and even people inside their own homes who can hardly be expected to put on hearing, eye, and breathing protection each time they encounter a leaf blower!

Noise - Effects on the General Public: In 1980, the World Health Organization and United Nations jointly sponsored a report, "Environmental Health Criteria 12. Noise," which contained "the collective views of an international group of experts." The report listed a variety of health effects, both on workers in noisy industries and for populations in noisy living environments. Based on the evidence reviewed and the opinions of these experts, the report recommended these community noise levels:

- "For good speech intelligibility, noise levels of less than 45 dB(A)..."
- "[To avoid] sleep disturbance...a bedroom noise limit of 35 dB(A)..."
- "General daytime noise levels of less than 55 dB(A)[to prevent] significant community annoyance..."
- "To meet sleep criteria... [an outdoor level of] 45 dB(A)"

In the absence of any report to the contrary, we should not have to reinvent the wheel by proving noise is bad. The only question thus remaining is: Do leaf blowers conform to the WHO report standard? The answer is obviously no.

Whether or not any particular leaf blower conforms to its advertised noise level as determined by standards promulgated by the American National Standards Institute is not relevant. The ANSI standards are measurement methodologies, and do not even purport to be limits on noise pollution. Further, demonstrations in California communities show that the standard does not represent actual experience. For example, in Palo Alto, 1998 and 1999 leaf blower demonstrations conducted by the police department revealed that in actual use blowers exceeded their decibel ratings as supplied by the manufacturers based on ANSI standards (April 27, 1998 City Manager's Report; May 12, 1999 Palo Alto Weekly). Consumer Reports has reached the same conclusion.

Manufacturers should not be allowed to divert discussion to the noise levels produced by their quietest models, when they continue to sell louder models in greater numbers.

Noise levels are only one of the factors that determine the nuisance value of a noise source. Another factor is the frequency of exposure. Leaf Blowers are ubiquitous in California. We report some sales figures in A Brief History of the Leaf Blower on this web site. In preparation for my testimony to the Sacramento Environmental Commission in 1997, I kept a week long diary of leaf blower noise as I experienced it, mostly when I was in my home. (And, I must add, there is nothing more miserable than having one's home invaded by unwelcome noise.) I heard leaf blowers up to eight times a day, sometimes for extended periods.

The very fact that you are now engaged in preparing a report on the health effects of leaf blowers attests to their significance as a problem. The battle over leaf blowers reached the state legislature only after being fought for years in cities all over California and the nation. Judging by the number of citizen groups in the U.S. that have organized to ban leaf blowers, it seems entirely reasonable to place leaf blowers among the top ten sources of U.S. noise pollution (a list of "Known Pro-Quiet Anti-Noise Groups" recently compiled by David Staudacher, moderator of the Quiet-List, supports this assertion). There is a good reason that Echo's list of "Cities with noise activity" (my copy is dated August 8, 1997) is 21 pages long!

As Eric Zwerling, Director of the Rutgers Noise Technical Assistance Center, stated by telephone (May 6, 1999), "There is an ample body of literature on the health effects of noise." Studies documenting these effects can be found listed in the WHO report discussed above, and additional sources are listed below. Of course, all these effects, which can be predicted for bystanders to frequent leaf blower use would also occur for the operators:

- Stress. In 1978 the U.S. EPA, in "Noise: A Health Problem," wrote: "Noise causes stress and the body reacts with increased adrenaline, changes in the heart rate, and elevated blood pressure" and quoted Dr. Samuel Rosen of Mt. Sinai Hospital: "We now have millions with heart disease, high blood pressure, and emotional illness who need protection from the additional stress of noise." The report goes on to state: "Noise does not have to be loud to bring on these responses. Noise below the levels usually associated with hearing damage can cause regular and predictable changes in the body..." Even the unborn can be affected. The EPA report says, "[T]he fetus is not fully protected from its mother's response to stress...this indirect fetal response may threaten fetal development if it occurs early in pregnancy...A Japanese study of over 1,000 births produced evidence of a high proportion of low-weight babies in noisy areas... stress causes constriction of the uterine blood vessels which supply nutrients and oxygen to the developing baby."
- Cardiovascular problems. According to the Los Angeles Times (3/27/99), "German environmental authorities have documented a greater risk of heart attacks among people exposed to excessive noise...Investigation of the lifestyles of German cardiac patients has shown about a 25 percent greater chance of heart attacks among those whose work or home environments were persistently exposed to noise above 65 decibels..." The web site of the European Academy of the Urban Environment says, "The effects of noise range from disruption of physical and psychological well-being to rapid increase in cardiovascular disease." The U.S. EPA has stated, "[A] growing body of evidence strongly suggests a link between exposure to noise and the development and aggravation of a number of heart disease problems...even a small increase in the percentage of heart problems caused by noise could prove debilitating to many thousands of Americans."
- Gastrointestinal distress. According to the League for the Hard of Hearing, "Studies have linked noise exposure with increased gastric emptying (Kaus and

Fell, 1984), with increased peristaltic esophageal contraction (Young, 1987), as well as increased anxiety. Another study found an increase in the use of antacids and hypnotics, sedatives and antihypertensives in a noisy community... (Knipschild, 1977)."

- **Depressed immunity.** The U.S. EPA reports: "From a study done with animals, researchers concluded that noise may be a risk factor in lowering people's resistance to disease and infection." A recent study conducted at the University of Utrecht in the Netherlands found that "[an] uncontrollable stressor that lasts 15 minutes can have consequences for health because it may interfere with cytokine interleukin-6 function, which plays an essential role in activating the immune defense... Uncontrollable stressors also produce high levels of cortisol, which suppresses immune system functioning."
- **Interrupted sleep.** It does not take a study to determine that many people must sleep during the same daytime hours that leaf blowers are used in every neighborhood. One need only consider the number of hospitals, police departments, and convenience stores along with a great many other entities and services that operate around the clock. Noise can awaken us from sleep, prevent us from falling asleep, and impair sleep even when it does not awaken us.

Sleep deprivation has a number of well-known consequences including automobile and industrial accidents and diminished mental and physical health. The L.A. Times reported (March 27, 1999) that when noise disrupts sleep, it produces stress hormones that accelerate aging and heart disease.

A 1993 article in the Journal of the American Medical Association (Vol. 269, No. 12) stated, "Inadequate or poor sleep can result in fatigue and impaired alertness and cognitive ability, reducing productivity on the job and increasing the opportunity for human error and fatigue-related accidents. On-the-job accidents and lost productivity carry a staggering cost--about \$64 billion annually... Sleep loss and sleep disturbances also are thought to play a major role in causing automobile accidents. Drowsiness is blamed for some 200,000 to 400,000 automobile accidents annually. These accidents account for almost one half of all accident-related fatalities; as many as 13 percent of these deaths may be caused by falling asleep at the wheel."

- **Social discord.** The League for the Hard of Hearing cites studies that report increased aggression (Donnerstein and Wilson, 1976) and less helpful behavior (Mathews and Cannon, 1975) in noisy environments. Alice Suter, Ph.D., a nationally recognized noise consultant, was quoted in the Spring 1993 Issues in Science and Technology: "Even moderate noise levels can increase anxiety, decrease the incidence of helping behavior, and increase the rise of hostile behavior in experimental subjects."
- **Impaired communication.** Noise disrupts social interaction and can be dangerous by masking warning noises. According to the U.S. EPA, "People who live in noisy places tend to adopt a lifestyle devoid of communication and social interaction.."

For millions of Americans residing in noisy urban areas, the use of outdoor areas for relaxed conversation is virtually impossible."

- Impairment of children's hearing, health, learning, and behavior. The League for the Hard of Hearing cites studies of children and noise. The U.S. EPA reports that learning difficulties, particularly with language development and reading ability, are byproducts of noisy home and/or school environments
- Psychological, social, and emotional problems. The [UK] Electronic Telegraph (March 28, 1999) reports that "[one] American study showed that people living on noisy main roads had far fewer friends than those in quiet suburbs. People living near airports were eight times more likely to suffer mental problems." The U.S. EPA says, "Several industrial studies indicate that noise can heighten social conflicts both at work and at home... And studies of several industries show that prolonged noise exposure may lead to a larger number of psychological problems among workers."
- Particular difficulty for certain subgroups of our population, including the hearing-impaired and sufferers of hyperacusis and tinnitus.

Noise even at 65 dB interferes with the ability of the hard of hearing to recognize speech. This is an increasing problem for Americans who are losing hearing at younger ages and in greater numbers than ever before. For example, the Sacramento Bee reported (October 19, 1998) that a study of 6,928 men and women published in the American Journal of Public Health found that "the prevalence of hearing impairment nearly doubled between 1965 and 1994 in a population based in Alameda County." According to the U.S. EPA, "When exposed to a vent, loud noise, people with partial hearing loss may experience discomfort and pain." [Expanded quote below with source noted.]

Hyperacusis (also known as dysacusis, oxylacusis, hypersensitive hearing, or phonophobia) may include about one in every 100,000 people. It is a heightened sensitivity to sound which causes noise to be traumatic. As many as 40 percent of autistic children are similarly sensitive to sound. (Information obtained from the Internet.)

Noise - effects on the operators. A leaf blower that emits 75 decibels of noise measured from 50 feet, not uncommon for professional blower models on the market today will emit 99 dB at three feet (add 6 dB for each halving of the distance). A backpack model will be even closer than that to the operator's ears and heart. The documented effects of these noise levels include:

- Noise-induced hearing damage. Robert L. Blum, MD, wrote in 1998: "The National Institute of Occupational Safety and Health (NIOSH) has recognized for decades that exposure to sounds over 85 dB causes hearing loss...A search of the National Library of Medicine's database for papers after 1990 ["Medline"] yielded 927 references [including]:
- "(Wu 98) surveyed 9,535 workers who were exposed to noise > 85 dB just in the

past four years (with modern hearing protection programs). 34 percent of these workers had noise-induced hearing loss. 14 percent of the total had severe hearing loss.

- "(Maisarah 93) studied 524 industrial workers and compared them with non-noise exposed workers. Sensorineural hearing loss, was present in 83 percent of the noise-exposed workers versus 32 percent in the control group.. -Although hearing protection devices were provided to 80.5 percent of the workers, only 5.1 percent were wearing them regularly.
- "(Neuberger 92) studied 260,917 noise-exposed workers and showed a highly significant correlation of hearing loss with intensity and duration of noise exposure."

Alice Suter, Ph.D., wrote in 1994, "[I]t is well known that some more susceptible workers will incur hearing losses at levels below 85 dB(A)."

- Vibration-induced hearing damage. Dr. Blum says: "Vibration is significant because commercial blowers are worn on the back... Vibration is transmitted up the spinal column to the skull and temporal bones, which enclose the cochlea...[E]ar muffs do nothing to protect the operators from vibration transmitted by bone conduction... Vibration-induced hearing loss is also well-documented.. -Scores of epidemiological studies have shown hearing losses in farm workers, factory workers, subway operators, and [workers in] many other industrial settings. (See Medline under key words: vibration and noise-induced hearing loss.) Vibration-induced hearing loss is over and above that produced by noise."

It is worth noting here that hearing loss is deeply damaging to a person's life in many ways. It affects employability, impairs enjoyment of music and other entertainment, creates hazards by impairing the ability to recognize sounds of danger, and perhaps worst of all, creates social isolation. In its 1978 report "Noise: A Health Problem," the U.S. EPA stated, "People with partial deafness...do not necessarily live in a quieter world. The many sounds still audible to them are distorted...When exposed to a very loud noise, people with partial hearing loss may experience discomfort and pain...There is even the further pain hard-of-hearing person faces: the emotional anguish caused, perhaps unintentionally, by friends and associates who become less willing to be partners in conversation or companions in other activities. Indeed, the inability to converse normally makes it difficult for partially deaf people to participate in lectures, meetings, parties, and other public gatherings. For a person with hearing loss, listening to TV, radio, and the telephone--important activities of our lives--is difficult, if not impossible...As hearing diminishes, a severe sense of isolation can set in."/LI>

- Stress. (See the above section on stress in "Noise - effects on the general public.")
- Heart disease. Dr. Blum cites Tarter (1990), who showed "a significant correlation between hypertension and hearing loss in workers exposed to 85 dB noise. " At

the very least, the same level of cardiovascular problems experienced by people in noisy environments as discussed above would be experienced by blower operators.

- Gastrointestinal problems. The U.S. EPA says, "In studies dating back to the 1930s, researchers noted that workers chronically exposed to noise developed marked digestive changes which were thought to lead to ulcers. Cases of ulcers in certain noisy industries have been found to be up to five times as numerous as what normally would be expected."
- Combined effects of noise and pollution on hearing. Research mentioned in the May 1998 issue of Noise & Vibration Worldwide says: "...[F]indings suggest that exposure to toluene [an ingredient in gasoline] has a toxic effect on the auditory system." Other information is available in the published proceedings of the Stockholm Fifth International Congress on Noise as a Public Health Problem in the section "Combined Agents" which includes "Interactions Between Noise and Air Pollution" and "Noise and Solvents."
- Generally poorer health. The U.S. EPA reports: "A five-year study of two manufacturing firms in the United States found that workers in noisy plant areas showed greater numbers of diagnosed medical problems, including respiratory ailments, than did workers in quieter areas of the plants." In 1994, Alice Suter wrote that "there is growing evidence that noise adversely affects general health, and the cardiovascular system in particular...which directly affects mortality" and refers to Ising and Kruppa, 1993; Peterson et al, 1978, 1981, and 1983; Rehm, 1983 ; and Zhao, et al, 1993.

Entrained dust (and other substances from the ground). Logically, we must assume that anything on the ground in small enough particles to become airborne will end up in the dust clouds created by leaf blowers and then inhaled by anyone in the area. This would include:

- Molds and pollens. These substances are known irritants to sufferers of asthma or allergies. According to the Asthma & Allergy Foundation of America, 1.8 million Californians, including half a million children, suffer from asthma and 600 of those die of it each year.
- Lead, arsenic, and mercury among other harmful substances (mentioned elsewhere on our website).
- Pesticides. Of the 18 most commonly used herbicides, seven are cancer causing, six cause birth defects, six have reproductive effects, eight are neurotoxic, nine are damaging to the kidney, and liver, and 14 are irritants according to Jay Feldman, Executive Director of the National Coalition Against the Misuse of Pesticides. In an August 27, 1998 article in the Boulder Weekly he cites the EPA and NIH as his sources for this information, and continues, "Even worse, we do not know what we should about the pesticides...EPA officials have stated clearly that numerous tests are not performed as part of pesticide registration and should be...In addition, pesticides are not currently tested in mixtures with other

chemicals for their additive, cumulative, or synergistic effects...The majority of pesticide formulations...are comprised of so-called 'inert' ingredients that are often more toxic than the parent compound and not disclosed on the product label."

Increasing the hazard to lawn care operators, the use of pesticides on home lawns is four times as heavy per acre as in agriculture (The Ecology of Eden, quoting Pollan, "Why Mow?"). And according to Olkowski, Daar, and Olkowski founders of the Bio Integral Resource Center (in their book, Common-Sense Pest Control), inhalation of pesticides is the most destructive form of ingestion.

- Animal feces. For an interesting discussion of this aspect of air pollution, see the L.A. Times article "Fouled Air a Major Pet Peeve for Mexico City."
- Viral disease. In 1995, local Long Island newspapers reported the death of a landscaper, Verod Hopson, from a hantavirus infection. After he died, 24 live rodents were collected from his home and workplaces, and 12 were found to have hantavirus antibodies. Humans contract hantavirus by breathing particles of infected rodent saliva, urine, or feces into their lungs. The virus is fatal about half the time, and there is no cure. Where hantavirus is present, health authorities are unanimous in advising that dust not be stirred up. Because noise can impair immunity as discussed above, it seems especially imprudent to stir up dust with a noisy instrument.

Engine emissions and other fuel-related problems. We recognize the ARB'S leadership role in the study and regulation of air pollution, and certainly don't think there is much we need to say about this aspect of leaf blower health issues. However, we do have a few comments for the sake of completeness.

Included with Echo's warning literature accompanying their gas-powered blowers is this message: "Warning! The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm."

According to the U.S. EPA (Environmental Protection Specialist Betsy McCabe, quoted in E Magazine, March-April 1997), small gasoline engines create up to 20 percent of the air pollution in cities, particularly NOx and particulates. Although leaf blower engine emissions will be reduced with implementation of the ARB'S Tier II emission standards, it should be noted that millions of blowers already in use do not meet these standards, and may continue in use for years.

In addition to the contribution to overall air pollution from engine emissions and fuel spillage and evaporation, it is reasonable to suggest that the hazards are substantially increased for the blower operators, who are exposed to greatly increased concentrations of these substances. And a further hazard for operators arises from gasoline spilled on their hands (or other body parts) when refueling.

Miscellaneous occasional health effects on the operators. According to the U.S. EPA, "Newspaper files and police records contain reports of incidents that point to

noise as a trigger of extreme behavior...sanitation workers have been assaulted, construction foremen threatened, and motorboat operators shot at--all because of the noise they were producing." In a notorious incident, Santa Barbara anti-blower campaigner Ashleigh Brilliant once attacked a gardener and smashed his leaf blower. According to the magazine Lawn & Landscape Maintenance (April 1991), a Los Angeles maintenance contractor cleaning a sidewalk with a leaf blower was stabbed by a man trying to talk on a pay telephone nearby.

"Killer bees" (Africanized honey bees) are known to respond violently to loud noises, and in December 1998 Southern California newspapers reported a gardener stung over 75 times by these bees.

Effects on other living creatures. Any lover of animals can not help but be concerned about the distress and disruption caused pets and small wildlife in our neighborhoods by this unnaturally loud noise.

Economic issues.

- All the above harms have economic costs. The L.A. Times (3/27/99) reports, "Scientists from all 15 European Union countries who are drafting a common noise policy estimate that excessive racket costs governments as much as two percent of gross domestic product in lowered productivity, increased accidents and more-frequent illness." Two percent of the United States GDP is more than \$150 billion and any fraction of that is significant, to say the least.

Additionally, there are costs associated with cleaning blown dust and debris from cars, homes, and furnishings. There is also significant cost of damage to gardens and plants caused by blower-generated, hurricane-force winds. See particularly the information from Steven Dailey (A Letter Opposing Leafblowers) and Steve Zien (Blowers Are Bad For Gardens: One Professional's Opinion), both of whom are professionals in the landscaping industry. The Sacramento Bee carried a column by local garden expert Dan Pratt on June 12, 1999 entitled "Leaf blowers can neatly destroy the landscaping" that describes blower damage to plants and gardens.

- There is no evidence of increase in the cost of lawn care when blowers are banned. CQS has collected information about this issue. In our flier "Effect of Blower Bans on Gardeners' Jobs and Rates," we cite the experience of six California cities that have banned blowers with no ill effects.
- A Los Angeles contest between leaf blower and broom (Grandmother Proves Rake and Broom as Fast as Leaf Blowers) showed no significant difference in efficiency.
- Dick Roberts, organizer of Project Quiet Yards in Greenwich, Connecticut, told House & Garden in 1996, "We did a test on a half acre of grass clippings and found a rake was only ten minutes slower than a blower." That extra time would equate to less than one minute for a typical-size yard in my neighborhood.
- If there is any improved efficiency, from blower use, that efficiency is bought at

the expense of everyone within hearing distance, which is extremely unfair. Noise causes a reduction in the accuracy of work, particularly complex tasks. The U.S. EPA says noise "seems to hinder work efficiency...Noise is more likely to reduce the accuracy of work rather than the total quantity. And it takes a greater toll on complex compared to simpler tasks... Other studies have confirmed additional effects of noise exposure, including exhaustion, absentmindedness, mental strain, and absenteeism--all of which affect worker efficiency."

Alternatives. There are electric blowers on the market today that are dramatically quieter than the typical gas blower, notably, the Blowhard rated at 56 dB and produced by Manutech (800-676-BLOW or <http://www.manutech.com>). Other innovations have reached prototype stage; for example, the L.A. Times reported on January 8, 1998 that a Van Nuys auto mechanic named Gody Sanchez demonstrated his own invention, a whisper-quiet leaf blower, during the hunger strike conducted by the Association of Latin American Gardeners of Los Angeles outside the L.A. mayor's office.

[Top](#)

History of the Leaf Blower

19th century	Japanese gardeners invent hand-held bellows to remove leaves and twigs from moss-covered soil. (1)
About 1970	Japanese engineers modernize the hand-operated blower by attaching a hose and a powerful motor. (1)
1970s	Gas blowers introduced to U.S. (2,3)
1975	Carmel bans the blower.
1976	Beverly Hills bans blowers, saying they are nuisances. (4)
1985	75,000 backpack blowers sold. (1)
1986	West Hollywood, CA bans gas blowers.
1987	·464,000 units sold. (5) · Belvedere, CA bans gas-powered blowers.
1989	·About 800,000 machines sold ·millions now in use with California leading the nation. (1,5)
1990	· Indian Wells, CA bans leaf blowers. · Piedmont, CA bans gas-powered blowers. · City of Claremont stops using leaf blowers in the maintenance of city property and finds no net increase in labor hours. (6)
1991	·Ad Hoc Committee to Ban Leaf Blowers asks the Sacramento City Council to ban leaf blowers; Council passes noise and time restrictions. · Berkeley, CA City Council bans gas blowers.

	<ul style="list-style-type: none"> ·Los Altos, CA bans gas blowers by popular vote. ·Claremont, CA bans gas blowers.
1993	<ul style="list-style-type: none"> ·Laguna Beach, CA bans all leaf blowers. ·Mill Valley, CA bans gas blowers.
1997	<ul style="list-style-type: none"> ·Sales now over a million annually and growing 6-8 percent per year. (4,7) ·After an 11-year battle, Los Angeles bans gas-powered blowers within 500 feet of residences; ordinance remains controversial after passage and is twice revised. ·Lawndale bans gas blowers. ·Citizens' group in Santa Barbara qualifies ban for November ballot; voters approve ban 55 percent to 45 percent.
1998	<ul style="list-style-type: none"> ·Citizens in Palo Alto, Portola Valley, Sacramento, and Sunnyvale work to ban blowers. ·Menlo Park City Council bans blowers (8) ·Los Angeles ban fully implemented February 13. ·California State Senator Richard Polanco introduces <u>SB1651</u> that would prohibit California cities from banning leaf blowers. ·Los Angeles Superior Court judge upholds city's ban.

Sources:

- (1) Sacramento Bee, 12/8/90
 - (2) Lawn & Landscape Maintenance, April 1991
 - (3) Horticulture, November 1992
 - (4) Newsday, 8/11/97
 - (5) Wall Street Journal, 12/4/90
 - (6) City of Claremont agenda report, 10/30/90
 - (7) Ketzler Levine, The Oregonian, ca. 1997
 - (8) Palo Alto Daily News, 3/10/98
- Various city ordinances

Grandmother Proves Rake and Broom as Fast as Leaf Blowers

(January 8, 1998 press release from Zero Air Pollution, Los Angeles)

In fighting the ban on gas powered leaf blowers gardeners have argued that it would take them twice as long to do jobs if they had to use rakes and brooms. But Diane Wolfberg, a Palisadian grandmother in her late 50s, proved them wrong in tests conducted by the Department of Water & Power Leafblower Task Force last Thursday.

In three tests involving gas powered leaf blowers and battery powered leaf blowers, Diane cleaned the areas using rakes or brooms faster than any of the battery powered blowers and almost as fast as the gas powered leaf blowers and she did a better job in cleaning up the areas.

The Task Force, formed at the direction of the Los Angeles City Council, is composed of

two representatives from the gardeners' associations and one representative each from the landscape contractors association, the dealers, DWP, the Department of Parks and Recreation, General Services, the City Council, and the homeowners. It is evaluating electrical alternatives to the gas powered leaf blowers. When it was proposed that the electrical equipment be tested against gas powered leaf blowers which would be the baseline for comparison, the homeowner representative, Jack Allen, also of the Palisades, suggested that rakes and brooms be included in the comparison.

Wolfberg, who like Allen, is a member of Zero Air Pollution (ZAP), volunteered. In the first test, which required each participant to clean a pebbled cement patio area approximately 100 square feet in size with eight chairs placed on the patio, diminutive Wolfberg cleaned the area in two minutes and 30 seconds. The gas powered leaf blower operated by a large, well muscled gardener cleaned the area in two minutes but like all the leaf blowers, did not clean the area of small nuts or leaf stems, something Wolfberg was able to do.

In a second test involving the moving of paper cups and wadded paper down a 50 foot slope and back up again, she was as fast as the gas powered leaf blower and faster than the electric blowers. In the third test, requiring the cleaning of a heavy bed of pine needles and dirt down a thirty foot concrete ramp, she was the fastest and the cleanest. The leaf blowers all sent columns of damp dirt flying into the air as much as five or six feet.

Wolfberg's performance did not impress the gardeners but did impress others who had been convinced that using rakes and brooms was not feasible. The representative from DWP told Wolfberg that she had won him over.

City of Claremont Agenda Report

Prohibition of Leaf Blowers in City Owned and Maintained Property
(excerpt from report dated October 30, 1990)

Following Community Services Commission review in July of this year, staff decided to no longer use leaf blowers in the maintenance of city property. The city's leaf blower ban has added approximately one hour per day of work for each of the two tree crews. There are two people on each crew so we have added about 1/16 of a person in terms of work load. However, the grounds crews have been using a sidewalk vacuum in lieu of a leaf blower and have discovered they are actually saving an hour per day per crew. There are two crews with a total of six people so the city is saving almost 1/5 of a person in terms of workload.

Staff took a noise reading on a vacuum at 50 feet and it read 69 decibels. While this is significantly less than the 73-83 db readings on gas blowers, it is slightly more than the 65-68 db readings on electrical blowers. The vacuum noise is not nearly as annoying as the whining noise of a gas blower. The vacuum is successful in achieving a reduction in dust pollution.

Blowers Are Bad For Gardens: One Professional's Opinion

Note: The statements below are taken from Steve Zien's letter to local Assembly members opposing SB 14, the bill that would prohibit California cities from banning blowers. Zien owns and operates Living Resources Company, an organic landscape management service. In addition, he is Executive Director of Biological Urban Gardening Services (BUGS), an international membership organization of primarily professional landscapers. Zien can be reached at (916) 726-5377.

BUGS has opposed the use of leaf blowers for many years for a variety of reasons. There are many hidden costs when utilizing blowers regularly.

Wind speeds in excess of 180 mph are currently blasting landscapes throughout California. Leaves are ripped from branches, new growth and developing flowers are damaged and precious topsoil is blown away. Nurseries and Extension Agents are receiving more plant samples from gardeners indicating a tornado or hurricane devastated their landscape plants. In most instances the winds are unnatural in origin. Leaf blowers are producing wind speeds with greater force than a hurricane. They are having devastating effects.

Blower winds stress plants causing dehydration, burned leaves, and the suspension of photosynthesis and other natural plant functions. Overall growth is slowed. Natural openings in the leaves that allow for the exchange of oxygen and carbon dioxide are sealed shut. Disease spores laying dormant on the soil or fallen debris are blown back onto plants where a little moisture can renew their cycle of infestation and damage. The severity of damage corresponds to the training of leaf blower operators. Blowers effectively distribute disease spores, weed seeds and insect eggs throughout the landscape (as well as to neighboring landscapes). Blowers create a disposal problem for many landscape managers gathering up a tremendous amount of organic debris. Instead of utilizing it appropriately on site it is generally hauled away for disposal. Most landscapers currently do not have a composting program to utilize this material. Most of this organic material ends up in sanitary landfill sites which are being rapidly filled to capacity. Many communities are passing regulations limiting the disposal of landscape wastes in landfills.

A common practice by professional landscapers is to simply blow plant debris off the property and into the street. Vehicular traffic then blows this material on neighboring landscapes or back onto the freshly blown site. Material is rarely moved into a pile where it can be collected and taken to a compost pile for proper recycling.

Another hidden cost of leaf blowers is that they deprive flowers, shrubs, and trees of life-giving mulch. Without this natural blanket, erosion, water evaporation and the spread of disease all become problems. Mulch, when not blown away, creates a favorable growing environment for plants and beneficial organisms both above and below ground while adding nutrients to the plants root zone. When mulch is removed to the compost and renewed annually many soil borne diseases are kept to a minimum.

Blowers use nonrenewable fossil fuels while creating air pollution. This is a serious problem in the Sacramento area.

Perhaps the major complaint most professional landscapers receive about the use of blowers is noise pollution. This is a serious problem that has resulted in local ordinances regulating the use of power blowers. Clients, their neighbors and the operator are all impacted by the howl.

This paints a bleak picture for the power blower. It is perhaps the most over and inappropriately used landscape tool. Autumn's tremendous amounts of organic debris that requires collection might be considered appropriate use of this tool. However, the weekly routine of blowing abuses the soil and damages landscape plants while the noise generated creates ill will from neighbors and clients alike. Leaf rakes deserve a renewed interest in the maintenance of landscapes.

The landscape maintenance industry should join BUGS and take a positive approach to blower bans. Old fashioned leaf raking can be a renewed service that their business could provide. It could be used as a selling point--no noise and environmentally sound too! Approach it right and they could charge the client an appropriate fee for this service, especially if blowers are banned. This could even become a major selling point for some companies. It could lead to business growth and the hiring of more personnel to meet the demand. Environmentally sound landscapers should be able to turn this kind of legislation into a positive for their businesses, making it work to their benefit.

[Top](#)

Citizens for a Quieter Sacramento:

<u>CQS Homepage</u>	<u>CQS Positions</u>	<u>Current Events in Sacramento</u>
<u>Other Cities</u>	<u>Action Steps & Networking</u>	<u>Politics & Philosophy</u>

pages 3 & 4

CHAPTER 110. NOISE CONTROL*

***Cross references:** Vehicles and traffic, ch. 51; animals, ch. 72; nuisances, ch. 74; buildings and construction, tit. 10; noise and exhaust control of vessels on waterways, § 114.05; alarm systems, ch. 121; zoning, tit. 39; airport impact regulations, § 392.91.

Sec. 110.01. Definitions.

For the purpose of this chapter the following words, terms, and phrases shall be defined as follows:

- (a) *A-weighted sound level:* The sound pressure level in decibels as measured on a sound level meter using the A-weighted network. This network best simulates that of the human hearing.
- (b) *Ambient noise:* The all-encompassing noise associated with a given environment, being usually a composite of sound from many sources near and far.
- (c) *ANSI:* American National Standards Institute or its successor bodies.
- (d) *Daytime:* For the purpose of this chapter the hours between 7:00 a.m. and 9:00 p.m. of the same day.
- (e) *Decibel (dB):* A unit of measuring the intensity of a sound, the mathematical formula for which is expressed as the volume of a sound which is equal to ten times the logarithm of the ratio of the intensity of the sound to the intensity of a specified standard sound.
- (f) *Emergency work:* Any work performed for the purpose of preventing or alleviating physical trauma or property damage threatened or caused by an existing or imminent peril.
- (g) *Enforcement agent:* An authorized and qualified employee of the Alachua County Sheriff's Office, Office of Codes Enforcement, or Office of Animal Control charged with the responsibility of enforcing this chapter.
- (h) *L10:* A measurement which represents the noise level exceeded ten percent of the time.
- (i) *Multiple-family dwelling unit:* Any apartments, condominiums, townhouses, duplex or other multiple-dwelling unit containing two or more living units within a single property boundary, regardless of whether the buildings are connected or stand alone.
- (j) *Nighttime:* For the purpose of this chapter, the hours between 9:00 p.m. of one day and 7:00 a.m. of the next day.
- (k) *Noise:* Any sound which is unwanted or which causes or tends to cause an adverse psychological or physiological effect on humans.
- (l) *Noise level:* The sound pressure level as measured in dB(A) by a sound level meter.
- (m) *Operator:* Any deputy of the Alachua County Sheriff's Office or inspector of the office of codes enforcement charged with the responsibility of making noise measurement as provided herein.
- (n) *Person:* Any individual, association, partnership, corporation, governmental agency, business trust, estate, trust, copartnership, joint venture or any entity public or private in nature.
- (o) *Plainly audible:* shall mean any sound that can be heard by a person using his or her normal hearing faculties. Any person who hears a sound that is plainly audible, as defined herein, shall be entitled to measure the sound according to the following standards:
 - (1) The primary means of detection shall be by means of the person's ordinary auditory senses, so long as the person's hearing is not enhanced by any mechanical device, such as a hearing aid.
 - (2) The person must have a direct line of sight and hearing to the source producing the sound

10. NOISE CONTROL*

so that he or she can readily identify the source of the sound and the distance involved.

(3) In the case of sound recordings, the person need not determine the particular words or phrases being produced or the name of any song or artist producing the sound. The detection of a rhythmic bass reverberating type sound is sufficient to constitute a plainly audible sound.

(p) *Real property line*: An imaginary line along the surface, and its vertical plane extension, which separates the real property owned, rented or leased by one person from that owned, rented or leased by another person, excluding intra-building real property divisions.

(q) *Reasonable time*: Such length of time as may fairly, properly, and reasonably be allowed or required to eliminate or abate a noise found to be in violation of this chapter, after a warning has been issued. The duration of time shall be dependent on the source of the noise and what action can be taken to eliminate the noise causing said violation.

(r) *Sound*: An oscillation in pressure, stress, particle displacement, particle velocity or other physical parameter, in a medium with internal forces. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

(s) *Sound level meter*: An instrument including a microphone, an amplifier, and output meter, and frequency weighting networks for the measurement of noise and sound levels in a specified manner.

(t) *Sound pressure level*: In decibels, of sound, is 20 times the logarithm to the base 10 of the ratio of the pressure of this sound to the reference pressure. The reference is 0.0002 microbar.

(u) *Zoning district*: Any of the several designated categories in the Zoning Regulations of Alachua County, Ordinance 80-3, as amended (title 39 of this Code), which can be broadly divided into four distinct uses, including residential, commercial or business, industrial or manufacturing, and agricultural.

(Ord. No. 91-23, § 1, 12-10-91; Ord. No. 02-34, § 1, 11-12-02)

Cross references: Definitions and rules of construction generally, § 10.02.

Sec. 110.02. Excessive noise prohibited.

It shall be unlawful, except as expressly permitted herein, for any person to make, cause, or allow the making of any noise or sound within the unincorporated areas of Alachua County, Florida, which exceeds the noise levels set forth in this chapter.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.03. Specific noise prohibitions.

The following acts, and the causing thereof, are declared to be a violation of this chapter.

(a) *Horns and signal devices*. The sounding of any horn or audible signaling device of a motor vehicle, boat, engine, machine, or stationary boiler, within the jurisdiction of Alachua County, continuously or intermittently for a period in excess of 60 seconds, except as a danger or emergency warning.

(b) *Radios, televisions, electronic audio equipment, musical instruments, and similar devices*.

(1) The use, operation or playing of any radio, television, phonograph, stereo set, tape player, sound amplifier, musical instrument or similar device which produces or reproduces sound in a manner as to be plainly audible at a distance of 15 meters (50 feet) or more away from the real property line of the source of the sound, to any person in a commercial, industrial, or residential area, or public space.

(2) The operation or playing of any radio, musical instrument, or similar device which produces sound on the public right-of-way in such a manner as to be plainly audible to any person at a distance of 15 meters (50 feet) from the source of the sound.

(c) *Loud speakers and devices for advertising*. The use, operation, or playing of any loudspeaker system sound amplifier or other similar device which produces or reproduces sound which is cast or

emitted upon public rights-of-way for the purpose of commercial advertising or for attracting the attention of the public to any building, structure, vehicle or activity, which is being carried on thereon.

(d) *Street sales and boisterous conduct.* The offering for sale by shouting or outcry within residential areas, in which loud or boisterous conduct is audible across real property boundaries at a volume to disturb the quiet, comfort or repose of the residential neighborhood.

(e) *Animals and birds.* The owning, possessing or harboring of any animal or bird which frequently or continuously howls, barks, meows, squawks, or makes other sounds which create excessive noise across a residential or commercial real property line. It shall not be a violation of this section, however, for any animal or bird to give a sound of danger or warning under particular circumstances reasonably requiring the need for a warning. For the purpose of this section, barking dogs shall include a dog that barks, bays, cries, howls or makes any other noise continuously for a period of ten minutes, or barks intermittently for one-half hour or more to the disturbance of others at any time of day or night regardless of whether the dog is physically situated in or upon private property.

(f) *Construction and demolition activity.* The operation of any equipment used in construction work, building, excavation, grading, pile driving, pneumatic hammering, demolition, dredging, building alteration or repair work between the hours of 9:00 p.m. of one day and 7:00 a.m. of the next day, except for emergency work.

(g) *Fixed mechanical equipment.* The use or operation of any noise-creating air conditioner, compressor unit, power fan or blower, fixed electric motor or engine which causes such excessive and unnecessary noise, unless such noise is muffled and deadened by adequate noise suppression and muffling devices to eliminate annoyance and disturbance to persons within the range of hearing.

(h) *Portable mechanical equipment; domestic power tools.* The use or operation of any power tools or portable mechanical equipment, including a power saw, sander, drill, grinder, lawn or garden tool, or similar device, used outdoors in residential areas between the hours of 9:00 p.m. of one day and 7:00 a.m. the following day so as to cause a noise disturbance across a residential real property boundary.

(i) *Motor vehicles; mufflers.* The use or operation of a motor vehicle without a muffling device at least as effective as that installed as original equipment by the manufacturer.

(j) *Boats and watercraft.* Operating or permitting the operation of any motorboat or watercraft in any lake, river, stream, or other waterway in such a manner as to exceed a sound level of 90 dBA at a distance of 15 meters (50 feet) or the nearest shoreline, whichever distance is less.

(k) The use or operation, of a recreational vehicle (including but not limited to dirt bikes, motocross, all terrain vehicles, dune buggies, and similar off-road vehicles) in such a manner so as to produce a sound that is plainly audible at a distance of 15 meters (50 feet) or more away from the real property line of property used for residential purposes.

(Ord. No. 91-23, § 1, 12-10-91; Ord. No. 02-34, § 2, 11-12-02)

Sec. 110.04. Noise control measurement standards.

(a) *Noise generated across real property lines.* The noise from any activity or from any permissible use of property within the applicable zoning district classifications of Alachua County shall be deemed to be excessive, unnecessary, offensive and unusually loud if the total noise level as measured on the A-scale due to both ambient noise, and the alleged source of the unnecessary, offensive or excessive noise, exceeds the noise levels which are herein prescribed in table I, the measurement of which is based upon decibels, i.e. 0.0002 microbar. All such measurements as well as the method employed shall be consistent with the regulations of the American National Standards Institute, Inc., and shall represent the A-weighted sound pressure level which is exceeded ten percent of the time (L10) during the observation period.

TABLE I

TABLE INSET:

Occupancy Use or Zoning District (whichever is		Sound Level Limit
--	--	-------------------

more restrictive		(dBA)
Residential	Daytime	60
	Nighttime	55
Commercial or business	Daytime	65
	Nighttime	60
Industrial or manufacturing	Daytime	75
	Nighttime	75
Agricultural	Daytime	75
	Nighttime	75

(b) *Interior noise within multiple-family dwelling units.* Notwithstanding any other provisions of this chapter, it shall be unlawful for any person to create, maintain or cause to be maintained any sound for any period of time within the interior of any multiple-family dwelling unit which causes the noise level to exceed those limits herein prescribed in table II, in any other dwelling unit. Any person making a complaint under this section of the chapter must sign a sworn affidavit prior to a warrant being issued; otherwise no such complaint will be honored.

TABLE II

TABLE INSET:

Multiple-Family Dwelling/Units	Allowable Interior Sound Level Limit (dBA)
Daytime	55
Nighttime	45

Exempt
 D
 construction
 eg. if they have permit

(Ord. No. 91-23, § 1, 12-10-91; Ord. No. 02-34, § 3, 11-12-02)

2 Lawn mowers exempt but leaf blower

Sec. 110.05. Exceptions.

The following uses and activities shall be exempt from noise level regulations as herein described:

- (a) Noises resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of emergency.
- (b) Noises of safety signals, warning devices, and emergency pressure relief valves, when utilized for their intended use. This exception shall not apply to safety signals or warning devices for any unnecessary use or unreasonable period of time. Specifically, this exception shall not apply to fixed building or vehicular burglar alarms when sounded for false alarms or sounded for a period in excess of 30 minutes.
- (c) Noises resulting from emergency work as defined in section 110.01(f).
- (d) Construction operations for which building permits have been issued, or construction operations not requiring permits due to ownership of the project by an agency of government; providing all equipment is operated in accord with the manufacturers' specifications and with all standard equipment, manufacturers' mufflers and noise reducing equipment in use in proper operating condition. This exception shall not apply between the hours of 9:00 p.m. of one day and 7:00 a.m. of the next day.
- (e) Air conditioners and lawn mowers are exempt from provisions of this chapter when this equipment is functioning in accord with the manufacturers' specifications and with all manufacturers' mufflers and noise reducing equipment in use and in proper operating condition.
- (f) Nonamplified crowd noises resulting from activities such as those planned by student, governmental, or community groups, or racing/sport events.
- (g) Noises from motor vehicles engaged in a professional or amateur sanctioned, competitive sports event for which admission or an entry fee is charged, including practice or time trials for such event.

(h) Noises consistent with cultural, historical, or traditional observances, holidays, and ceremonies provided that a special permit is obtained in accordance with section 110.10 of this chapter.

(i) All noises coming from the normal operations of railroad trains.

(j) All noises coming from normal operations of aircraft.

(k) Noises from motor vehicles as regulated by F.S. §§ 316.272 and 316.293.

(l) Noises from all equipment tests required by law.

(m) Any other noise resulting from activities of a temporary duration permitted by law and for which a special permit has been issued by Alachua County, provided the activities shall be in accordance with the conditions and limitations stated on the permit as provided for in section 110.10.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.06. Penalties.

Any person or persons, firm or corporation, or any agent thereof who violates any of the provisions of this chapter shall upon conviction be guilty of a second degree misdemeanor offense punishable as provided for under F.S. §§ 775.082 and 775.083. Violations of this chapter may also be processed in accordance with F.S. ch. 162 including but not limited to appearance before the Alachua Codes Enforcement Board.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.07. Additional remedies.

In addition to the criminal penalties provided in section 110.06, the board of county commissioners in and for Alachua County, Florida, is hereby authorized to institute any appropriate action or proceeding, including suit for injunctive relief, in order to prevent or abate violations of this chapter.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.08. Responsibility for enforcement; enforcement procedures.

The primary responsibility for the enforcement of this chapter shall be done by the Alachua County Sheriff's Office. Enforcement concerning section 110.03(e), "Animals and birds," may also be done by the Alachua County Animal Control Department. Enforcement concerning section 110.03(f), "Construction and demolition activity," may also be done by the Alachua County Office of Codes Enforcement. For the purpose of determining and classifying any noise as excessive and unnecessary noise or as an unusually loud noise which is hereby declared unlawful and prohibited by this chapter, the enforcement agency shall apply the measurement techniques provided in section 110.09 to determine if a violation of the noise control measurements standards in section 110.04 have been violated. However, a violation of this chapter may occur without occasion of the measurements being made if specified in section 110.03 regarding specific noise prohibitions. The following procedures shall be followed by the enforcement agent when enforcing this chapter:

(a) The appropriate county enforcement agent shall investigate and determine if any noise is in violation of the specific noise prohibitions provided in section 110.03, or any noise level is in excess of the noise control measurement standards in section 110.04.

(b) Measurement techniques, when required, shall be done in accordance with section 110.09.

(c) If a noise level is found to be in violation of this chapter, the appropriate enforcement agent shall give warning to the person or persons responsible for the unnecessary, excessive or offensive noise.

(d) If the excessive noise is not eliminated or abated within a reasonable time after warning, a notice of violation shall be issued, or the person in possession or control of the cause of the excessive noise may be arrested by the Alachua County Sheriff's Office and charged with violating this chapter.

(Ord. No. 91-23, § 1, 12-10-91)

110.09. Measurement techniques.

- (a) The measurement of sound or noise shall be made with a sound level meter meeting the standard prescribed by the American National Standards Institute (ANSI), S1.4 American National Standard Specifications for Sound Level Meters. The instruments shall be maintained in calibration and good working order. A calibration check shall be made of the system at the time of any noise measurement, both before and after the measurement is taken. Measurements shall be taken so as to provide a proper representation of the noise source. The microphone, during measurement, shall be positioned so as not to create any unnatural enhancement or diminution of the measured noise. No individual other than the operator shall be within ten feet of the sound level meter during the sample period. A windscreen for the microphone shall be used at all times.
- (b) The sound level meter shall be of at least type 2 ANSI requirements. The sound level meter shall utilize the A-weighted network when measurements are taken. The microphone shall be oriented in accordance with instrument manufacturer's instructions.
- (c) The measurement shall be made at the nearest adjacent real property line from the property on which the noise source is located for outside measurements. Such noise measurements shall be made at least four feet above the ground and at a point at least ten feet away from any walls, barriers, or other obstructions. For inside measurements, concerning multifamily dwelling units, measurements shall be at least three feet from any wall, ceiling or partition.
- (d) All noise measurements provided for in this chapter will be made by designated enforcement agents of Alachua County who are qualified to operate the apparatus used to make the measurements as provided for in this chapter.
- (e) The operator conducting noise-measurement tests shall document all noise-measurement results in a written record. Said record shall include the following:
- (1) The instrumentation used, including name, make, type, and serial number.
 - (2) Date of last laboratory calibration.
 - (3) On-site calibration verification before and after each series of measurements.
 - (4) Name and location of the measuring area.
 - (5) A detailed sketch of the measuring area.
 - (6) Time and date of measurements.
 - (7) Names of observers.
 - (8) General weather conditions.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.10. Waivers and special permits.

(a) Applications for a waiver of relief from the maximum allowable noise level limits designated in this chapter shall be made in writing. Such applications for waivers shall be made to the county manager or his duly authorized representative. Any waiver granted by the county manager hereunder must be in writing and shall contain all conditions upon which said permit shall be effective. The county manager may grant the waiver applied for under the following conditions:

- (1) The county manager may prescribe any reasonable conditions or requirements deemed necessary to minimize adverse effects upon the community or the surrounding neighborhood, including but not limited to the use of mufflers, screens or other sound attenuating devices.
- (2) Waivers from maximum allowable noise level limits may only be granted for noises created within an industrial or commercial zone by operations which were in existence on the effective date of this chapter.
- (3) Waivers may be issued for no longer than 180 days, renewable by further application to the county manager.

manager.

(b) Any person desiring relief from the provisions of this chapter not provided for by waiver shall apply for a special permit to cause or create noise which would otherwise be in violation of this chapter. Such applications with the appropriate fee, shall be made in writing, at least 21 days prior to the date for which the relief is requested, to the county manager or his duly authorized representative. The county manager or his duly authorized representative may grant a special permit based upon the following conditions:

- (1) Additional time is necessary for the applicant to alter or modify the activity or noise source in order to comply with the chapter.
- (2) The activity, operation or noise source will be of a temporary duration and cannot be done in a manner that would comply with the provisions of this chapter.
- (3) No reasonable alternative is available to the applicant.

Applicants for special permits granted pursuant to this chapter shall comply with all reasonable conditions and requirements deemed necessary by the county manager including effective date, time of activity, location and equipment limitations, and sound attenuation devices. No special permit shall be issued for a period in excess of 15 consecutive days. Any special permit granted may be renewed upon application to the county manager upon showing that the reasons for which the permit was granted still exist.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.11. Appeals.

Any party feeling aggrieved by the action taken to approve or deny an application for waiver or special permit by the county manager may appeal such decision to the board of county commissioners, such appeal to be filed within 30 days from the date of action taken.

(Ord. No. 91-23, § 1, 12-10-91)

Sec. 110.12. Territorial jurisdiction.

The unincorporated areas of Alachua County, Florida, shall be embraced by the provisions of this chapter. Noises originating in an area not embraced by the provisions of this chapter which emanate into an area embraced shall constitute a violation of this chapter if said noises are in excess of the maximum noise level limits provided herein when measured from within the area embraced. For purposes of enforcement, where the noise source is coming from within an incorporated area and exceeding the maximum noise level provided herein when measured from within the area embraced, the Alachua County Sheriff's Office shall have jurisdiction.

(Ord. No. 91-23, § 1, 12-10-91)