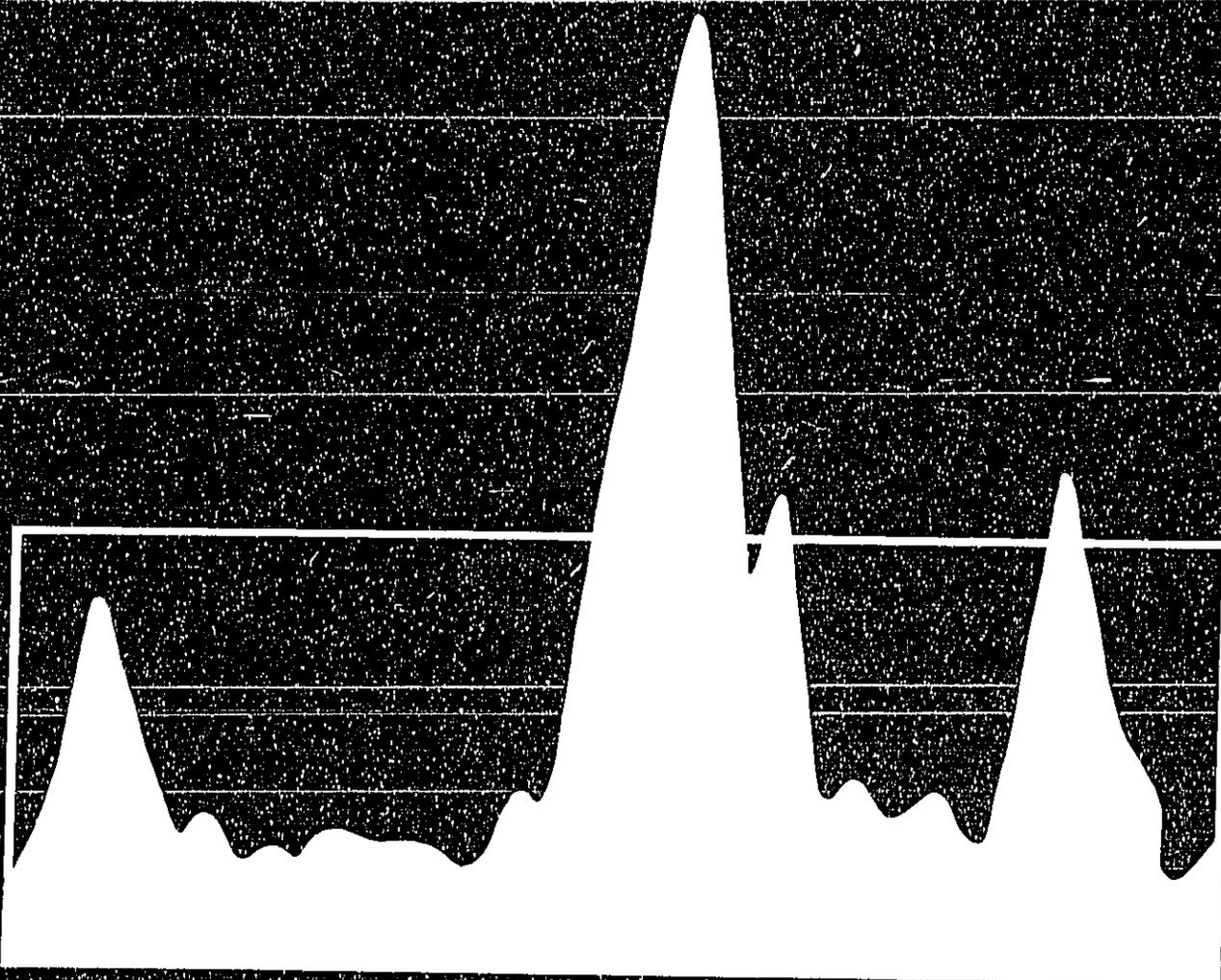


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Sound Advice

A VOLUNTEER NOISE COUNSELOR'S GUIDE



Developed by
Special Events Section
Program Department
American Association of Retired Persons
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CONTENTS

Introduction	1
The Effects of Noise	1
Noise Levels	2
Community Activities	3
School Programs	3
Fairs	3
Hearing Tests	3
Quiet Day	4
Community Presentations	4
Barking dogs	5
Changes in the Home	5
Referral Service	5
Noise Ordinances	5
Public Hearings	5
Problem Solving	6
Gathering Information	6
Publicity	7
Summary	9
Appendixes	11

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INTRODUCTION

In neighborhoods across the country, people are realizing that noise is a serious matter, and that practical steps are available to reduce noise. Many communities have been successful in reducing or eliminating noise problems. The success is usually the result of many individuals and groups working together. As a volunteer noise counselor, you can work with other volunteers to control or reduce noise. "Sound Advice" is a noise abatement program which can help to make your community a healthier and better place to live.

This handbook will help volunteers interested in acting as noise counselors in a community noise abatement program. It explains the reasons for a noise abatement program, the role of the noise counselor, and some of the techniques a noise counselor can use to reduce neighborhood noise. Also included is an appendix to help locate resource materials and key people in the community.

THE EFFECTS OF NOISE

Noise can be defined as any loud or disagreeable sound. We are confronted with noise daily in our working and living situations. Sounds from trucks, motorcycles, airplanes, lawnmowers and appliances are some of the noises that are part of modern life.

In addition to being a nuisance, noise can be a serious health hazard. It can cause irreversible hearing loss as well as physical and psychological stress.

Hearing Loss. Of the many health hazards related to noise, hearing loss is the most clearly



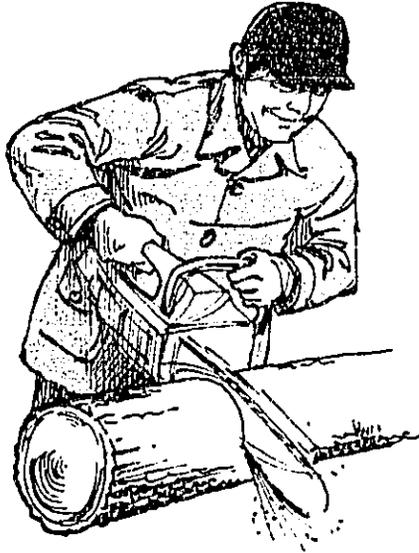
observable. Noise loud enough to cause hearing loss is common. The places where we live, work, and play are filled with potentially harmful levels of noise. The Environmental Protection Agency (EPA) estimates that over 20 million Americans are exposed daily to noise that is permanently damaging to their hearing.

Hearing loss is usually gradual. People become aware of the damage when they start to miss occasional words in general conversation and have difficulty understanding telephone conversations. Unfortunately, there is no cure for this kind of hearing damage. Hearing aids do not repair noise-damaged hearing, although they can be of limited help to some people.

People with partial deafness from exposure to noise do not necessarily live in a quieter world. Many sounds they hear are distorted in volume, pitch, or clarity. Consonants of speech, especially high frequency sounds such as "s" and "ch" are often lost or indistinguishable from other sounds. Speech frequently seems garbled, and is difficult to understand. When exposed to a very loud noise, people with partial hearing loss may experience discomfort or pain. They also frequently suffer from tinnitus—irritating ringing or roaring in the head.

Stress. Many of us know the irritation and annoyance of noise we cannot control. Our bodies automatically react to sudden or loud sounds as a defense for possibly dangerous or harmful situations. Generally blood pressure rises, heart rate

and breathing speed up, muscles tense, hormones are released into the blood stream, and perspiration increases.



Frequent or prolonged exposure to loud noise keeps our bodies in this state of tension and can lead to stress related ailments. Research has linked noise with the development or aggravation of heart and circulatory diseases. Noise in the workplace may cause the listener to develop ulcers. Workers in certain noisy industries have ulcers at a rate five times that of the general population. Other research has shown that noise may be a factor in lower resistance to disease and infection.

Sleep Disruption. Sleep is a restorative time of life, and a good night's sleep is probably crucial to good health. But everyday experience suggests that noise interferes with our sleep. Noise can make it difficult to fall asleep, it can wake us, and it can cause shifts from deeper to lighter sleep stages.

Human response to noise before and during sleep varies widely among age groups. The elderly and the sick are particularly sensitive to disruptive noise. Compared to young people, the elderly are more easily awakened by noise and, once awake, have more difficulty returning to sleep. As a group, the elderly require special protection from the noises that interfere with their sleep.

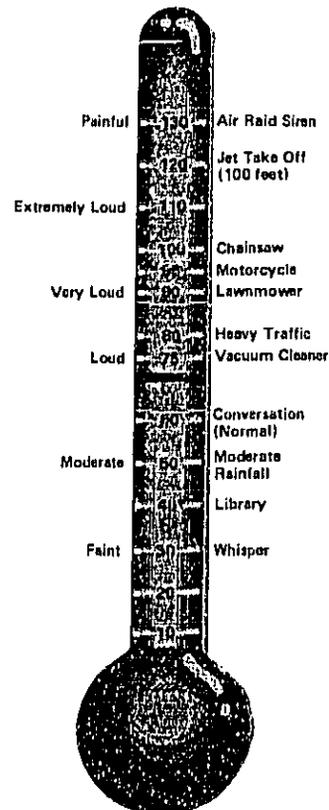
Other Effects. Noise in school and in the home can affect children's learning. In a school

located near an elevated railroad track, students whose classrooms faced the track did significantly worse on reading tests than did similar students whose classrooms were further away. Some school districts have built new schools in quieter neighborhoods to alleviate this serious concern.

The effects of noise are also seen in the workplace. Workers in noisy environments are more likely to be tense, irritable and upset. Their efficiency may be hampered by exhaustion, absent-mindedness, mental strain and absenteeism.

NOISE LEVELS

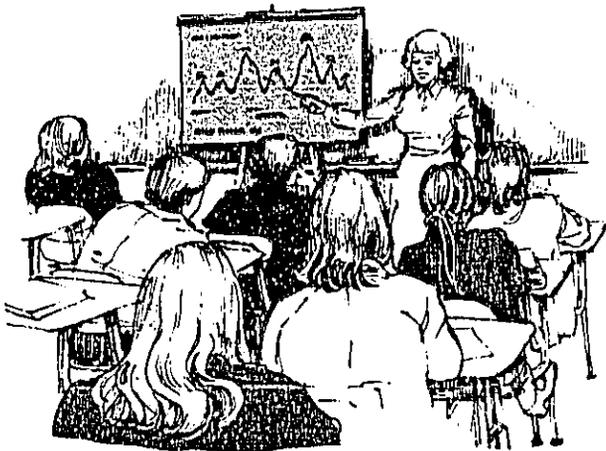
Decibels, often abbreviated as "dB" are measures of the intensity of sound. Typically people are exposed to decibels ranging from 0, the point where hearing starts, to 140, which represents a very loud sound. Noise can begin to harm hearing at about 70 decibels, particularly when constant exposure occurs. Some common examples of sounds and their measurement are shown on the chart below.



COMMUNITY ACTIVITIES

There are many activities which can be implemented in a community to help reduce noise. As a volunteer noise counselor, you will be able to work with other volunteers to help determine the kinds of activities best suited to the community and its needs. You can then volunteer for those community activities which meet your interests and capabilities. An individual noise counselor would not be expected to do all of these activities, but some volunteers working together might develop several of these activities in the community. Some activities which could be implemented in a community program for noise abatement include:

School Programs. One of more volunteer counselors may wish to undertake educating students to noise and its possible effects. Teachers and school principals will often agree to having a noise counselor present a lesson about noise to their classes.



Begin by contacting the school principal. He or she may want to talk to you directly, or may put you in contact with the appropriate teachers. Science or health teachers are usually interested in the topic of noise. You may also want to contact the curriculum directors for the school system, or the Parent-Teachers Association (PTA).

A series of courses on noise has been developed by the Environmental Protection Agency for inclusion in school curricula. An excerpt from *Sounds Alive*, for children from kindergarten through sixth grade, is included with this guide book. An excerpt from *Preparing for a Quieter*

Tomorrow, for grades seven through twelve, is included in Appendix A. Counselors might also choose to develop their own materials for class presentations.

EXAMPLE

One noise counselor in New Mexico had her own ideas about the best ways to teach children about noise. She developed materials for different age groups and made class presentations herself. Younger children saw a puppet show with puppets, stage, and story all developed by the noise counselor. Older children received a homework assignment to keep a record of the noises around them for a few days before the class. They could then discuss the noises they heard with the noise counselor.

Because of the special effort she gave to the project, most teachers claimed that their students really enjoyed the lesson, and more importantly, learned a lot about noise.

Fairs. Many communities have fairs which are open to everyone in the community. This includes county fairs, health fairs, or state fairs. Noise counselors staffing a fair booth can be very effective in educating fair attendees about noise and its effects. Distributing brief educational materials is recommended. Many people will take these home to read them, and may also pass the information on to family and friends. A brief explanation of the health effects of noise, suitable for photocopying, is given in Appendix B.

Hearing Tests. Another valuable project is making arrangements for hearing tests for community residents. In addition to helping persons identify hearing problems, the testing project can also help raise the level of awareness about hearing and noise effects throughout the community.

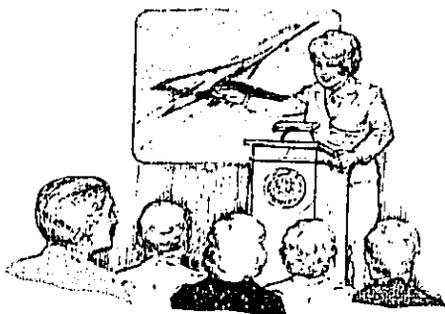


The local school system may be able to conduct student hearing tests by the school nurse or by an audiologist. Many communities have free or low-cost speech and hearing clinics, some areas have mobile diagnostic units. Arrangements might be made for these clinics to do testing at senior centers, nursing homes, fairs, or at community group meetings. Or noise counselors might volunteer to transport interested persons to the clinic for a hearing test.

Quiet Day. Some noise abatement groups have successfully organized a community-wide event which emphasizes the importance of noise control to a large number of residents. A "Quiet Day" in your city or town can help to build interest in your program and to provide information and education to the general public. There are many activities which can be incorporated into a "Quiet Day" to help achieve your goals, for example:

- free speech and hearing tests
- kite flying
- frisbee competition
- free muffler tests for motorcycles and cars
- silent films
- mime show
- magic show
- nature walks
- demonstration of sign language
- hot air balloon rides
- hang glider demonstration

Community Presentations. There are a large number of community groups that invite speakers to their meetings. These groups are often looking for new and interesting topics, and you might approach them about making a presentation on noise. Addressing community groups is an excellent way to disseminate information about noise and to enlist interested persons in your efforts for noise control. Local organizations you might consider include:



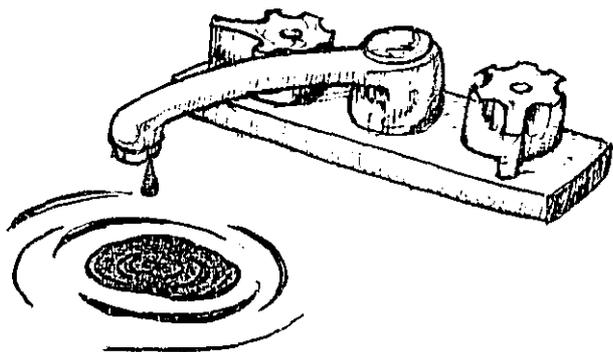
- Altrusa International
- American Association of Retired Persons
- American Legion
- Area Agencies on Aging
- Audubon Naturalist Society
- B'nai B'rith International
- Boy's Clubs of America
- Boy Scouts of America
- Business and Professional Women
- Camp Fire Girls
- Chamber of Commerce
- Church and synagogue groups
- General Federation of Women's Clubs
- Girl's Clubs of America
- Girl Scouts of the U.S.A.
- Gray Panthers
- Izaak Walton League of America
- Junior Chamber of Commerce (Jaycees)
- Kiwanis International
- Labor Unions
- League of Cities
- League of Women Voters
- Lions Clubs International
- National Urban League
- Neighborhood Associations
- Parent-Teachers Association
- Pilot Club International
- Professional Associations (Medical, Hearing, Gerontological, Architectural, Urban Planners, Engineers)
- Quota International
- Retired Teacher's Association
- Rotary International
- Senior Nutrition Centers
- Sertoma International
- Tenant's Associations
- Veterans of Foreign Wars of the U.S.
- Zonta International
- 4-H Clubs

Using a film or a slide-tape show is a good way to start your presentation. This can be followed by a general question-and-answer session, or a description of a specific community noise project. An introductory level slide-tape program, *The George Show*, is available with this kit. Other slide or film programs may be available from your community library. You should make arrangements for the necessary audio-visual equipment with the group receiving your presentation. Previewing the film or slide show is also recommended.

Barking Dogs. A common noise complaint in many communities is barking dogs. The Humane Society of the United States and other groups have developed an effective training method to control most dogs' barking. A copy of the dog training information is given in Appendix C. This copy of "Quiet, Man's Best Friend" is suitable for photocopying.

Noise counselors may be able to cooperate with the local S.P.C.A. or local veterinarians to promote this training. Distributing copies of the information to pet stores or veterinarian's offices or at special sessions for training dog owners can help to cut down on excessive barking.

Changes in the Home. There are many sounds in our homes, and several of these can combine to make the home a very noisy place. Fortunately, there are some simple ways to reduce noise in the home. Quieting noisy appliances, fixing dripping faucets, and reducing the noise from a neighbor's apartment are just a few of the changes which can be made.

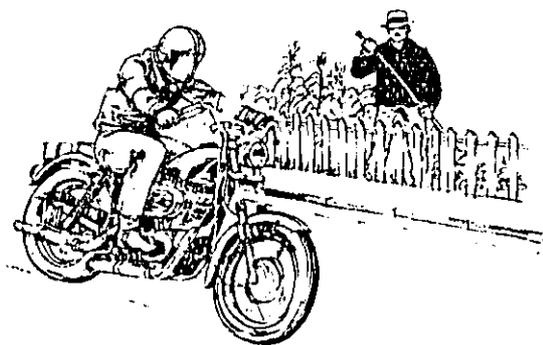


Noise counselors can advise local residents about some simple techniques to decrease noise. A list of possible solutions is provided in Appendix D as a starting place for advice to community residents. This list is suitable for photocopying, and can be distributed during group presentations, at county or health fairs, or in schools.

Referral Service. Volunteers can gather information about community organizations responsible for certain noise problems, and can develop a referral service. Callers with complaints can be referred to the individual or agency best able to help them. While supplying a valuable service to the community, this program also acts to inform the noise counselors about the most common noise complaints.

It is best to use a phone in an office or public place rather than someone's home. Various volunteers can staff the phone on a regular schedule, and the phone number can be well publicized.

Noise Ordinances. A growing number of local jurisdictions have enacted noise control ordinances. Many communities have developed legislation that sets specific noise decibel levels and establishes the agencies responsible for enforcement.



Some model community noise control ordinances are available. These model ordinances may help in developing an appropriate ordinance for your community. Contact some of the agencies in Appendix E for copies of various models. One noise ordinance success story is outlined below.

EXAMPLE

Boulder, Col. has a noise ordinance because one man was disturbed by the increasing number of loud motor vehicles going up and down the street in front of his house. He liked to putter around in his yard and flower beds, and the noise really bothered him. So he formed a committee of citizens, and started working on an ordinance.

His committee, composed of an acoustician, some professional engineers, and a few high school students, published a questionnaire in the local newspaper asking people which noise sources annoyed them most. The responses, in order, were motorcycles, traffic, barking dogs, and aircrafts. The committee collected evidence for about a year and a half, including a survey on the health effects of noise.

The committee presented their findings to the city manager and city attorney. An ordinance was drafted, and the city council passed it in January, 1970.

Public Hearings. State, county, and municipal authorities hold regular hearings on public issues.

When the issue is noise, ask to be invited to give testimony and answer questions. Keep in mind also that hearings on building codes, zoning ordinances, and even recreation facilities can also involve the noise situation. Find out what hearings are scheduled, particularly in your county or municipal government. If these hearings relate to noise, make sure your concerns are represented. Generally, attending hearings is a good way to learn about community activities.

Problem Solving. Many of the noise problems in your community will not have a simple straightforward solution. You will need to work with the various people or groups involved to determine some possible solutions to the problem, and then help the groups agree on one course of action. Being a problem solver is one of the most challenging aspects of your role as a volunteer noise counselor. It can also be one of the most rewarding aspects!



EXAMPLE

For years, the residents of a neighborhood in one part of a large city lived in a quiet, almost small town environment. Often people would gather on a neighbor's stoop on a weekend or after dinner and visit for several hours at a time.

But as the city and the outlying suburbs grew, that neighborhood began to undergo a change. A new bus route was established to service the suburbs and several times an hour commuter buses rumbled through the narrow streets of the neighborhood.

"It got to the point," said one resident, "that we'd just stop talking when the buses went by. But they come so often we could hardly carry on a conversation." So a group of concerned citizens decided to take action.

They gathered one afternoon on one of the front stoops and counted the number of buses that passed in an hour. They then met with the consumer representative of the transit company. Within three weeks, the transit company agreed to change the bus routes for most of the buses. The result was a slightly longer ride for commuters, but a quieter and more pleasant community for residents.

GATHERING INFORMATION

Noise counselors in the "Sound Advice" program will want to gather as much information about noise as possible. This will involve developing a list of names, addresses, and telephone numbers of various officials and agencies involved in noise enforcement and legislation. Determine what kinds of noise an agency is involved with and what the agency does regarding noise complaints or concerns. This list will be a useful resource for the noise abatement program as it begins community noise control activities. Many organizations have noise or hearing experts who can act as resources from your program. Some may wish to join forces in the fight to decrease noise.

Some agencies you should contact are:

- local police or sheriff's department
- Mayor's office
- airport control tower and planning officer
- health department
- humane society
- park and recreation department
- port authority
- various industry complaint departments
- transportation systems
- refuse collection agencies and businesses
- public works department
- planning and zoning authorities
- the office in charge of emergency vehicle sirens
- local representatives at each level of government

Other organizations or agencies which can act as resources include:

Acoustical Society of America (ASA). This group has regional coordinators who can act as technical resources to noise counselors. The regional coordinators, who are members of the Coordinating Committee on Environmental Acoustics, can answer technical questions on sound, sound

measurement, and noise. To find the coordinator in your area, contact:

The Coordinating Committee on
Environmental Acoustics
Acoustical Society of America
335 E. 45th Street
New York, New York 10017
(212) 661-9404 ext. 564

American Speech-Language-Hearing Association. This national organization is working toward preventing noise-induced hearing impairment and reducing environmental noise. The local office may be able to provide technical information or program support. To find the office near you, contact:

American Speech-Language-Hearing
Association
10801 Rockville Pike
Rockville, Maryland 20852
(301) 897-5700

Department of Defense (DOD). The DOD has a program to address the problem of noise generated by military airfields. The objectives of the program are the protection of the integrity of military operations at DOD bases and the protection of the safety, health and welfare of affected public. The program involves technically assisting communities in land use planning and controls that will ensure that local development is compatible with the noise levels generated by the airfield.

Department of Labor/Occupational Safety and Health Administration (OSHA). The Department of Labor is concerned with noise as an on-the-job hazard and deals with it through OSHA. OSHA programs include the development of noise exposure standards for workers; enforcement of those standards by inspections; and training, education, and information programs to assist employers, employees, and others in complying with standards.

Environmental Protection Agency (EPA). This agency has in the past been actively involved with noise education and noise abatement programs at the local, state and federal levels. However, because of funding cut-backs, most EPA regional offices and the federal office in Washington, D.C. no longer have noise control departments. You may want to contact your regional EPA office (see Appendix F) for advice on sources for assistance in your area.

Approximately half of the states still had a state-wide noise control program as of 1982. These state offices are also included in Appendix F.

Federal Aviation Administration (FAA). The FAA has a program to reduce noise exposure at civil airports. The objectives of the program are to reduce the noise at the airport boundary to a prescribed level as much as possible and to assist communities in achieving compatible land use for the remaining areas. The FAA encourages citizen participation in the process of noise compatible land use planning.

Federal Highway Administration (FHWA). The FHWA noise policy addresses noise associated with highway construction and use. The focus of the policy is to consider noise exposure in federal-aid highway location and design decisions by requiring studies of expected noise levels where the highway will be located.

FHWA also provides for noise reduction on existing federal-aid highways. This primarily involves the placement of noise barriers at particularly loud locations which present a problem to nearby residents.

National Association of Noise Control Officials (NANCO). NANCO is a non-profit organization dedicated to environmental noise control. The national NANCO office can act as a technical resource on noise legislation, and can refer you to interested persons or agencies in your area. NANCO publishes a monthly newsletter, *Vibrations*, for its members. A senior associate membership rate is available to interested older persons. For information, contact:

National Association of Noise Control
Officials
P.O. Box 2618
Fort Walton Beach, Florida 32549
(904) 243-8129

PUBLICITY

Radio, television and newspapers can be important assets in your effort to reduce noise in your community. You can use the media to educate people about noise and its effects and to inform the community about efforts to decrease noise.

The most effective step in good media relations is to get to know personally those who report

the news in your community. A good working relationship with an editor, news director or reporter is very important.

Your basic goals should be to make the editor or manager aware of your group and its involvement in the community, and to let him or her know that your group is a source of news and feature material of interest to community residents. You should also get to know the working reporters and radio or TV newsmen whose job it is to cover community service programs such as yours. Here are some tips on working with the media:

- Be available. Make sure reporters who cover your group know how to reach you.
- Know the deadlines and other working requirements of the newspapers and radio and television stations you work with. Don't hesitate to ask reporters and editors for this information; you'll be making their jobs easier in the long run by doing so.
- Plan ahead. Give your news contacts as much notice as you can before deadlines.
- Always remember to say "thanks." When someone is particularly helpful in reporting on your program, a short note of thanks will be appreciated and remembered.

Newspaper Articles. Newspapers reach a large number of persons in the community, and are a valuable promotion source for your program. You can make use of newspapers for news stories, feature stories, and editorials. You should begin by contacting key individuals to inform them about noise and your noise-reducing activities. Be prepared to discuss your ideas for possible articles now or in the future. The titles of the individuals you should contact include:

- publisher
- editor-in-chief
- managing editor
- news editor
- feature editor
- reporters and writers on environmental issues
- reporters and writers on education

Photographs of an event can be used to interest a newspaper in carrying the story. Sometimes a picture and caption will be used without an article, especially if the photograph and caption can tell a whole story by themselves. Be sure to use black-and-white photos and to check the required size for prints.



When writing an article, try to write the way reporters write their stories. The first sentence or two—the "lead"—must contain the WHO, WHAT, WHEN, WHERE and WHY. The lead is designed to give the readers information quickly and to interest them in reading the rest of the story. It should be kept to thirty words or less, if possible.

After the lead, write other details of the story in declining order of importance. This permits the editor to cut the story from the bottom, if necessary, without leaving out important facts.

Press Releases. When you are ready to prepare a news release about a specific event, there are several basic rules to follow. A sample is included in Appendix G. Remember to:

- Use standard size (8½ x 11) white paper, preferably without decoration.
- Type your release, double-spaced, on only one side of each sheet. Leave about one-third of the first page blank at the top for the editor's use. Leave at least an inch margin on both sides and at the bottom.
- Reproduce the release on some type of copying machine, or type an original for each recipient. Carbon copies generally make a poor impression.
- Type your group's name in the upper left-hand corner of the first page, and the date, your name, title, and telephone number in the upper right-hand corner.

- Two or three lines below your name and address, type "For Immediate Release" or instructions for a specified release date, if it is important that your story be held until a particular time.
- Try to hold your release to a single page. If you must use a second page, end the first page with a complete sentence and paragraph, then type the word "More" at the bottom of the page. On the second page, type your group's name at the upper left and "Page 2" at the upper right. Do not write headlines.
- At the end of the release, type "end."

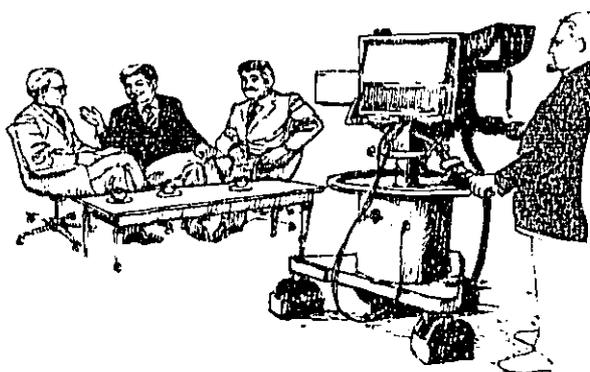
Radio or TV News. Like newspapers, radio and TV can be a useful way to inform the public about noise. Again, begin by contacting appropriate personnel and discussing your noise abatement program. While you will not be working with the manager closely, you will want to meet with him or her to gain acceptance for your program. The manager will identify the staff people to contact, and these may include:

- news director
- public service director
- public relations/public affairs director
- program director

Timing and scheduling are of great importance to ensure adequate TV or radio coverage for your program and its events. In your initial planning, you should develop a schedule of events and milestones that are newsworthy. Provide your activity schedule to the contacts you have developed at the radio and TV stations. Most stations need this kind of advance information to coordinate their assignments and coverage of activities.

Talk Programs. Most cities have at least one radio or TV talk program. Try to persuade the producer to do a segment on noise in your community. You may want to be on the program yourself or you may arrange for others to participate. Keep in mind that the producers of these programs have a

continuing need to develop good local stories. Noise issues might be on the program two or three times in one year as new angles for noise stories develop. For instance, one presentation might address the health effects of noise, another might deal with the major sources of noise in the community, and yet a third might review the status of a municipal noise control ordinance.



Public Service Announcements (PSAs). Radio and television stations usually provide free air time for announcements that are in the public interest. PSAs are brief, usually between 10 to 60 seconds. Because of time limitations, the PSA is best used to get across one single message. The most important information, such as telephone numbers, addresses, times or places, should be repeated if possible. Some samples are given in Appendix H.

SUMMARY

Noise affects all of us. Almost everywhere we go, we hear noise. But it does not have to be that way. This guide has outlined many practical and simple ways to control and reduce the noise around us. As a volunteer noise counselor in a noise abatement program, you can play an important part in the effort to make your community a quieter place to live.

NOTES

APPENDIX A

Objective: The purpose of this lesson is to develop an awareness of the adverse effects that excessive noise has on human health and welfare. Through this knowledge, students should become more concerned about protecting themselves from excessive noise exposure.

LECTURE SUMMARY

It has been estimated that over 20 million Americans are working, playing, and living around environmental noise that is dangerously loud. Excessive noise exposure is a well documented cause of permanent, irreversible hearing damage. Generally, the onset of noise-induced hearing loss is gradual. Hearing of high-frequency sounds is affected first. As a result, the individual begins to confuse high-frequency consonant sounds such as "s" and "f" and describes speech as slushy or unclear. As exposure continues, the hearing loss increases and ability to hear lower frequency sounds is also affected. The individual begins to experience greater difficulties in understanding conversational speech. Sometimes a hearing aid will help, however, it cannot in any way make speech sound normal again. A hearing impaired person often feels isolated from his/her environment because of the problems experienced in trying to communicate, listen to the radio, or participate fully in social gatherings or public meetings.

It is important for students to recognize that not all noise-induced hearing losses are caused by noise exposure in the workplace. In fact, the noise levels associated with many popular hobbies and recreational activities exceed the levels believed to cause hearing damage over a prolonged period of exposure. Therefore, students should be aware of the noisy activities in which they participate and consider protecting themselves both by limiting the length of exposure and using properly fitted earplugs or earmuffs during exposure.

Our bodies respond to noise as a form of stress. Researchers have observed temporary stress reactions to loud noise which include increased blood pressure, dilation of the pupils of the eyes, and changes in heart rhythm and respiratory rate. Since noise is one cause of stress and stress is known to have a wide range of adverse health effects, noise may well contribute to stress related illnesses such as heart disease, high blood pressure, fatigue, and irritability. Researchers are presently involved in numerous studies to learn more about the effects of the interaction of noise with other variables on our bodies.

Noise also results in annoyances which detract from rest and relaxation. Generally, noises which are higher in pitch, intermittent in occurrence and unlocalized are the most annoying. Other factors which influence the degree of annoyance include the location of

the noise, the time of day, whether the noise is considered necessary or appropriate, the type of living activities affected, the degree to which fear is associated with the noise, and the individual's overall attitude about his/her environment. The most commonly mentioned noise related annoyances are loss of sleep and the interference with communication. Restful sleep is an essential element in the maintenance of good health. Noise affects our sleep by interfering with getting to sleep, waking us up, or causing changes in our sleep cycle. Noise disrupts communication by making it difficult and, sometimes impossible, to converse above the background of noise. We try to compensate by speaking louder, moving closer together, and watching the face and gestures of the speaker. However, as noise levels increase in loudness, it soon becomes impossible to carry on a meaningful conversation. Sometimes loud noise obscures particularly important communications such as warning signals or shouts for help.

It is also known that noise sometimes adversely affects work efficiency, and our social and emotional behavior. Noise also interferes with the educational process. Excessive noise disrupts the development of the language and reading skills which are so vital to a successful educational experience. In addition, noise interrupts and distracts both teacher and students in the classroom, thereby interfering with and prolonging the time required to understand a concept.

In summary, noise does present a significant health problem. Its effects on our hearing ability, its contribution to stress and its probable impacts on sleeping, communication, work efficiency, learning, and social and emotional behaviors should definitely be of concern to us all. It is important that we work with our state, local, and Federal officials in controlling the noises everywhere around us. In addition, as individuals and families we need to be aware of our personal noise environment and protect ourselves from the adverse effects of excessive exposure.

QUESTIONS FOR CLASSROOM DISCUSSION

1. Can you think of situations in which you have had trouble talking to someone else because of noise interference?
2. Do you remember times when friends or family have complained about noise interfering with an activity such as relaxing or studying?

3. Describe some of the effects associated with excessive noise exposure. If you know someone who works in a noise environment, discuss how noise affects them.
4. Do you think you would be bothered by a lot of noise when you are taking an important test or trying to read a good book?
5. Do your parents or neighbors ever complain about noise in your community? What noise sources seem to concern them?
6. Can you think of some economic impacts associated with high noise levels in working or living arrangements?

CLASSROOM EXPERIMENTS AND PROJECTS

1. The most effective way to create an understanding of the adverse effects of excessive noise is to personally experience the situation. If there is a printing company, a mill, or some other noisy industry in your community, arrange a site visit. The students will benefit from learning about the particular industry, while experiencing the noise levels associated with the process. Encourage them to try to communicate while in the noisy environment. It would also be useful to arrange for them to try ear protectors to see how the noise levels are reduced. Also, the students should have the opportunity to talk to workers who have noise induced hearing loss. If possible, hearing tests for some of the students, both before and immediately after the plant tour would

demonstrate the adverse effects of noise on the hearing mechanism. Arrangements for the hearing tests might be made through the school health program, or a university, community, or hospital speech and hearing clinic. Check the yellow pages of your telephone directory for a listing of area speech and hearing clinics.

2. Have the students prepare an article for the school newspaper to educate fellow students about the adverse effects of exposure to excessive noise.
3. Have the students prepare a display for the hallway bulletin board or the school or community library to share what they have learned about the health effects of noise.
4. The students could conduct a survey about noise, exploring individual reaction to noise, knowledge about ways to control noise, etc. Through interviewing community residents, the students can obtain information and also give information about what they have learned about noise pollution. The results of the survey could then be condensed into a report about noise in your community. The students might wish to consider transmitting their findings to your local government or writing a letter to the editor of your local paper.

This material was excerpted from a publication from the Environmental Protection Agency: *"Preparing for a Quieter Tomorrow."* It is appropriate for grades seven through twelve.

APPENDIX B

NOISE: A HEALTH HAZARD

Racket, din, clamor, noise. Whatever you want to call it, unwanted sound is America's most widespread nuisance. But noise is more than just a nuisance. It constitutes a real danger to people's health. At home, at work, and at play, noise can produce serious physical and psychological consequences.

Hearing Loss. Noise loud enough to cause hearing loss is virtually everywhere today. Twenty million or more Americans are estimated to be exposed daily to noise that is permanently damaging to their hearing.

When hearing loss occurs, it is in most cases gradual. At first there is the loss of occasional words in general conversation and difficulty understanding speech on the telephone. Many sounds are distorted in loudness, pitch, apparent location, or clarity. High frequency sounds such as "s" and "ch," are often lost or indistinguishable from other sounds. Speech frequently seems garbled.

The hard of hearing person faces other problems. Their 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.

Heart Disease. 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. Noise causes stress and the body reacts with increased adrenaline, changes in heart rate, and elevated blood pressure. Some studies have shown that workers in high noise levels had a higher incidence of circulatory problems than did workers in quiet industries. The danger of stress from noise is even greater for those already suffering from heart disease.

Noise and the Unborn. While still in the mother's womb, the developing child is responsive

to sounds in the mother's environment. Particularly loud noises have been shown to stimulate the fetus directly, causing changes in heart rate. The fetus is also affected by its mother's response to noise, with the physical changes she experiences being transmitted to the fetus. These fetal responses may threaten fetal development, particularly early in the pregnancy.

Special Effects on Children. Good health includes the ability to function mentally as well as physically. Research has shown that children may have learning difficulties because of noisy schools, play areas and homes. Students in classrooms near railroad tracks, airports or other noise sources may learn less than students in quiet classrooms.

Sleep Disruption. Sleep is a restorative time of life, and a good night's sleep is probably crucial to good health. But everyday experiences suggest that noise interferes with our sleep. Noise can make it difficult to fall asleep, it can wake us, and it can cause shifts from deeper to lighter sleep stages.

Human response to noise during sleep varies widely among age groups. The elderly and the sick are particularly sensitive to disruptive noises. Compared to young people, the elderly are more easily awakened by noise and, once awake, have more difficulty returning to sleep. As a group, the elderly require special protection from the noise that interferes with their sleep.

A Final Word. Except for the serious problem of hearing loss, there is no human illness known to be directly caused by noise. But in dozens of studies, noise has been identified as an important cause of physical and psychological stress, and stress has been directly linked with many of our most common health problems.

This material was excerpted from a publication from the Environmental Protection Agency: "Noise: A Health Hazard."

APPENDIX C

QUIET: MAN'S BEST FRIEND

GOOD DOG OR NUISANCE?

Determine for yourself whether your dog is a good companion, a good watchdog, or a neighborhood nuisance, by answering the following:

Does your dog bark excessively—

- When he is left alone and lonesome?
- When another dog barks?
- When the kids next door come out to play?
- When he's outside and wants to get in the house?
- When the neighbors leave or return home?
- When you come home?
- At garbage collectors, passing cars?
- When he hears a siren?

If your answer is "yes" to any one of these, your dog could be a neighborhood noise nuisance.

Dogs bark for many reasons: when other dogs bark, when they are generally excited or frustrated, or when a stranger intrudes on their territory.

Excessive barking can be extremely annoying to neighbors as well as to those who have to live with a noisy dog. A constant barker is more likely to be ignored if there is an intruder, since he seems to "cry wolf" all the time.

One of the most common public complaints is about neighbors' barking dogs. Is your dog an excessive barker and a potential public nuisance? The National League of Cities, together with the Humane Society of the United States, would like to pass on an *effective training method* to responsible owners.

WATER TRAINING METHOD

The Water Training Method *WORKS* for almost all dogs.

If possible, consider going to a reputable local obedience school. An obedience trained dog will stop barking on command, and knowing obedience signals will help you control your dog in other situations and make life happier for all.

Consider the times when your dog's barking is a nuisance. If it's when he's left alone all day, help his loneliness by leaving the radio on. If your dog is an outside pet, allowing it more freedom or movement in a fenced yard or pen may quiet its barking. If practical, you might consider a companion pet. Be sure you have plenty of toys available for amusement.

Don't make a big thing out of leaving or returning home. Over-excited dogs are more likely to bark and yelp.

- The first training rule is to *be consistent and persistent*. You can't expect a dog to learn—if barking for the wrong reason is corrected one time and not the next.
- Second, be ready for an *immediate response*. Have ready a plant mister filled with water.
- Say "QUIET DOG" (or whatever its name is) and give one or two squirts of water at the dog *while it is barking*. He will stop at once. If you wait until he stops barking it may confuse him.
- If the dog moves away, *repeat* saying "Quiet" as you go to him and give one more squirt of water at him. Repeat each time he barks needlessly.
- Usually *a day or two of training is enough* if you are consistent. (5 to 10 water treatments)
- Remember to reassure the dog that you are still friends by petting him later when he's quiet.
- With this conditioning procedure your dog will soon learn to expect a squirt of water when you shout "Quiet" for once he has made the association, you won't need to squirt him again—only rarely, should he forget.

DEFINITION

Do you know what a nuisance barker is? According to the new law passed by the city and county of Honolulu in cooperation with the Hawaiian Humane Society and Citizens Against Noise, their definition is given as an example of the way one community is adopting a "Barking Dog Ordinance."

"(d) 'Barking dog' shall mean a dog that barks, bays, cries, howls or makes any other noise continuously and/or incessantly for a period of ten minutes or barks intermittently for 1/2 hour or more to the disturbance of any person at any time of day or night regardless of whether the dog is physically situated in or upon private property; provided, however, that a dog shall not be deemed a 'barking dog' for purposes of this Article, if, at the time the dog is barking or making any other noise, a person is trespassing or threatening to trespass upon private property in or upon which the dog is situated or for any other legitimate cause which teased or provoked the dog." (End definition.)

Honolulu also has a penalty for owners keeping or permitting a barking dog, within the limits of the city and/or county. After receiving a warning citation, the owner is required to follow specific instructions for the dog's training by the Humane Society.

TIPS FOR DOG OWNERS

- Always find out WHY your dog barks. Unless it has a watchdog reason, then you must correct it at that time.
- Do not turn a garden hose on a dog or throw rocks or tin cans at him.
- Spanking/hitting is an ineffective substitute for water treatment and rarely solves any problems.
- Whenever your dog barks for a trained watchdog reason, praise it or pat it.
- Remember, dogs are companion animals and should be kept in the house during the normal night hours whenever possible.

IS YOUR DOG TRAINABLE?

A dog that is chained up or left alone indoors and is allowed to bark hour after hour may no longer be

trainable. Such a dog may have become too neurotic for an inexperienced trainer. If this is the case with your dog, consult your veterinarian or qualified dog trainer.

REWARDS

Correcting unnecessary barking is more convenient during the day, but getting up a few times at night will prove worthwhile. After that, you and your neighbors will know when your dog barks, there's a real reason. If your neighbors are home and you're not, they will check to see if police should be notified.

The security of knowing you have a real watchdog, as well as enjoying a peaceful and quiet night, and allowing your neighbors to enjoy one too, is well worth the effort.

This material was reprinted with permission from the Humane Society of the United States. It was adapted from materials provided by the City and County of Honolulu, the Honolulu Humane Society, and Citizens Against Noise.

APPENDIX D
REDUCING NOISE IN THE HOME

PROBLEM	POSSIBLE SOLUTION
1. Noise intrusion from outside	<ul style="list-style-type: none"> • install storm windows and doors • caulk cracks around doors and windows
2. Noisy washing machine and other appliances	<ul style="list-style-type: none"> • lubricate motor • VIBRATION—isolate heavy equipment from a floor using a rubber pad or thick rug • isolate appliances from walls and cabinet enclosures; where practical and safe, surround with sound absorbing materials • undercoat garbage disposals with damping compound (similar to auto undercoating); can also be used on outside drain of washers and dryers
3. Noisy power tools	<ul style="list-style-type: none"> • use variable speed tools when possible • use isolated area of home to work in • don't use late at night or early in the morning • wear hearing protector
4. TV or stereo too loud	<ul style="list-style-type: none"> • install fireproof acoustical tile behind TV or stereo • turn down volume • use earphones
5. Noisy car	<ul style="list-style-type: none"> • drive sensibly • check muffler and wheels • adjust or replace fan belt if there is a screeching noise under the hood
6. Too much noise from neighbor's apartment	<ul style="list-style-type: none"> • caulk along wall and floor after removing molding • use rugs and drapes where possible • ask neighbors to be more quiet
7. Dripping faucet	<ul style="list-style-type: none"> • place a sponge or facecloth under the drip • tie a string or a shoelace to the faucet so the drip is channeled as a miniature stream down the string • a more permanent and cost-saving solution is to replace the worn washer
8. Creaking doors and hinges	<ul style="list-style-type: none"> • install weather stripping to tighten door seal • lubricate hinges with oil or silicone
9. Door slamming	<ul style="list-style-type: none"> • install door closure dampers on exterior or spring loaded self-closing doors • install a resilient gasket or weather stripping around the door • substitute a solid-core door for a hollow-core door
10. Fans and exhausts	<ul style="list-style-type: none"> • remember the saying "slow and low"; the slower the motor speed, the quieter the fan
11. Window rattle	<ul style="list-style-type: none"> • if window panes rattle, look for breaks in the putty; if the entire frame rattles, check the adjustment of springs or weather stripping • double-hung windows in aluminum guides can have the guide spacing adjusted for a good fit
12. Air conditioning noise	<ul style="list-style-type: none"> • select a unit with adequate power capacity • mount window units on resilient pads • install perimeter gasket of soft rubber to isolate unit from wall or window structure • locate unit away from neighbor's bedroom
13. Noisy plumbing	<ul style="list-style-type: none"> • reduce water pressure • install air lock
14. Noisy ventilation (forced air heating and cooling systems)	<ul style="list-style-type: none"> • reduce air flow velocity • install more grilles • install padding around ducts where possible
15. Loud furnace blower	<ul style="list-style-type: none"> • align blower pulley and motor • lubricate properly (at least once a year)

APPENDIX E
MODEL COMMUNITY
NOISE CONTROL ORDINANCES

T. Michael Taimi, Commissioner
 Kentucky Department of Environmental Protection
 18 Reilly Road
 Fort Boone Plaza
 Frankford, Kentucky 40601
 (502) 564-3382

National Environmental Health Association
 1200 Lincoln Street, Suite 704
 Denver, Colorado 80203
 (303) 861-9090

League of Minnesota Cities
 183 University Avenue, East
 St. Paul, Minnesota 55101
 (612) 227-5600

Florida Department of Environmental Regulation
 Twin Towers
 2600 Blair Stone Road
 Tallahassee, Florida 32301
 (904) 488-0300

APPENDIX F
EPA REGIONAL OFFICE
STATE NOISE CONTROL PROGRAMS
(AS OF 1982)

REGION I
 Connecticut*
 Maine
 Massachusetts
 New Hampshire
 Rhode Island
 Vermont

***State Offices:**

Connecticut Department of Environmental
 Protection
 Office of Noise Control
 122 Washington Street
 Hartford, CT 06115
 Joseph B. Pulaski—(203) 566-7494

REGION II
 New Jersey*
 New York*
 Puerto Rico
 Virgin Islands

***State Offices:**

New Jersey Department of Environmental
 Protection
 Office of Noise Control
 65 Prospect Street
 Trenton, NJ 08618
 Edward J. DiPolvere—(609) 292-7695

New York Department of Environmental
 Conservation
 Division of Air
 50 Wolf Road
 Albany, NJ 12233
 Barbara Allen—(518) 457-7454

Regional Office:
 JFK Federal Building
 Boston, MA 02203
 (617) 223-5708

Regional Office:
 26 Federal Plaza
 New York, NY 10007
 (212) 264-2110

REGION III
 Delaware*
 District of Columbia*
 Maryland*
 Pennsylvania
 Virginia
 West Virginia*

***State Offices:**

Delaware Department of Natural Resources
 and Environmental Control
 Edward Tatnall Building
 P.O. Box 1401
 Dover, DE 19901
 Charles W. Wilkins, III—(302) 736-4791

**Metropolitan Washington Council of
 Governments**
 Department of Environmental Programs
 1875 Eye Street, N.W.
 Washington, D.C. 20006
 George Nichols—(202) 223-6800

Maryland Environmental Health
 Administration
 Division of Noise Control
 201 West Preston Street
 Baltimore, MD 21201
 Michael Hurney—(301) 383-2727

West Virginia Department of Health
 Bureau of Industrial Hygiene
 151 Eleventh Avenue
 South Charleston, W. VA 25303
 William Aaroe—(304) 348-3526

REGION IV

Alabama
 Florida*
 Georgia
 Kentucky*
 Mississippi
 North Carolina*
 South Carolina*
 Tennessee

***State Offices:**

Florida Department of Environmental Regulation
 Noise Control Section
 2600 Blair Stone Road
 Tallahassee, FL 32301
 Denis E. Wile—(904) 488-0300

Kentucky Department of Natural Resources
 and Environmental Protection
 Noise Control Section
 1050 U.S. 127 South
 Frankfort, KY 40601
 Thomas Jackson—(502) 564-3560

North Carolina Department of Natural Resources
 and Community Development
 Division of Environmental Management
 P.O. Box 27687
 Raleigh, NC 27611
 David Johnson

South Carolina Department of Health
 and Environmental Control
 2600 Bull Street
 Columbia, SC 29201
 Samuel H. McNutt—(803) 758-5506

REGION V

Illinois*
 Indiana*
 Michigan
 Minnesota*
 Ohio*
 Wisconsin

***State Offices:**

Illinois Environmental Protection Agency
 Division of Land/Noise Pollution Control
 2200 Churchill Road
 Springfield, IL 62706
 James Reid—(217) 782-9469

Indiana Association of Cities and Towns
 Noise Control Program
 150 West Market Street, Suite 600
 Indianapolis, IN 46204
 Bradford C. Garton—(317) 635-8616

Minnesota Pollution Control Agency
 Division of Air Quality, Noise Section
 1935 West Country Road, B2
 Roseville, MN 55113
 David Kelso—(612) 296-7373

Regional Office:

345 Courtland Street, N.E.
 Atlanta, GA 30308
 (404) 881-4861

Ohio Department of Health

Bureau of Environmental Health
 P.O. Box 118
 Columbus, OH 43216
 Richard Martin—(614) 466-1390

REGION VI

Arkansas
 Louisiana
 New Mexico*
 Oklahoma*
 Texas

Regional Office:

First International Bldg.
 1201 Elm Street
 Dallas, TX 72570
 (214) 749-3837

***State Offices:**

New Mexico Occupational Health
 and Safety Bureau
 P.O. Box 968
 Santa Fe, NM 87503
 Dave Marble—(505) 827-3563

Oklahoma Department of Health
 1000 Northeast 10th Street
 P.O. Box 53551
 Oklahoma City, OK 73152
 Dale McHard—(405) 271-5221

REGION VII

Iowa*
 Kansas
 Missouri
 Nebraska*

Regional Office:

1735 Baltimore Street
 Kansas City, MO 64108
 (816) 374-3307

***State Offices:**

Iowa League of Municipalities
 Noise Control Program
 900 Des Moines Street
 Des Moines, IA 50316

Nebraska ECHO Program
 Lincoln-Lancaster County Health Department
 2200 St. Mary's Avenue
 Lincoln, NE 68502
 Gary L. Walsh—(402) 474-1541

REGION VIII

Colorado*
 Montana
 North Dakota*
 South Dakota
 Utah
 Wyoming

Regional Office:

Lincoln Tower, Suite 900
 1860 Lincoln Street
 Denver, CO 80295
 (303) 837-2221

***State Offices:**

Colorado Department of Health
 Noise Program
 4210 East 11th Avenue
 Denver, CO 80220
 David Gourdin, Jr.—(303) 320-8333

North Dakota Department of Health
 Noise Control Program
 1200 Missouri Avenue
 Bismarck, ND 58505
 Jeffrey Burgess—(701) 224-2348

REGION IX

Arizona*
California*
Hawaii*
Nevada
Pacific Trust

Regional Office:

215 Fremont Street
San Francisco, CA 94105
(415) 456-4606

***State Offices:**

Hawaii Department of Health
Noise and Radiation Bureau
P.O. Box 3378
Honolulu, HI 96801
Thomas Anamizv—(808) 548-3075

***State Offices:**

Arizona Department of Health
Noise Program
411 North Twenty-Fourth
Phoenix, AZ 85008
A.J. Battistone—(602) 255-1156

California Department of Health Services
Office of Noise Control
714 P Street, OB8-692
Sacramento, CA 95814
Ross A. Little—(916) 322-2097

REGION X

Alaska
Idaho
Oregon*
Washington

Regional Office:

1200 Sixth Avenue
Seattle, WA 98101
(206) 442-1253

***State Office:**

Oregon Department of Environmental Quality
Noise Pollution Control
522 S.W. 5th Avenue
Box 1760
Portland, OR 97207
John Hector—(503) 229-5989

APPENDIX G
SAMPLE PRESS RELEASE

Please retype this release, substituting the correct information about your particular program in the underlined spaces, and take it to your local newspaper and radio and television stations.

* * * *

FOR IMMEDIATE RELEASE

The Newtown Sound Advice Program
November 5
John Jones
234-5678

Are you tired of motorcycles and buses disturbing your peace and quiet?
Is the barking dog next door driving you crazy?

Unwanted noise is a serious matter that affects all of us. Noise will be the program topic at a meeting of the Newtown Chapter #11 of the American Association of Retired Persons scheduled for 11 a.m., Thursday, November 12. The group will meet in the auditorium of the First National Bank, 123 Main Street.

The program will include a slide presentation that discusses the effects of noise and suggests some simple ways to reduce noise in our everyday lives. Mary Smyth, a volunteer noise counselor, will answer questions from the audience.

For further information, contact John Jones at 234-5678.

#

APPENDIX H
SAMPLE PUBLIC SERVICE ANNOUNCEMENTS

10 seconds:

The Sound Advice program invites you to a lecture on the health effects of noise. Come to the Knights of Columbus Hall at 7:00 p.m. on Wednesday, March 3rd.

20 seconds:

Are you tired of being kept awake all night by barking dogs? Loud all night parties? Motorcycles roaring through the neighborhood at 1:00 a.m.? Act now to reduce noise in Newtown. Complain to the noise counselor at 123-4567. That's 123-4567!

30 seconds:

Noise is a health problem. It is estimated that 20 million Americans are exposed daily to noise that is permanently damaging to hearing. Noise may also contribute to such conditions as high blood pressure, ulcers, asthma, headaches and colitis. Noise is all around us, in our homes, at work and outside. But there are ways to reduce noise. If you would like more information on noise and what can be done about it, call Mrs. Bea Quiet at 123-4567! That's 123-4567!

**Developed by Special Events Section • Program Department
American Association of Retired Persons**

The "Sound Advice" program was developed by the AARP Program Department under a grant from the U.S. Environmental Protection Agency. It was the culmination of an EPA funded project, administered by AARP, which utilized older persons as noise counselors.

This material is part of a kit on noise abatement, which includes: a volunteer noise counselor's guide, a volunteer organizer's guide, a slide-tape program *The George Show*, and a slide-tape program *Sound Advice*.

Special thanks to Glenn Northrup, National Director of the AARP Senior Community Service Employment Program; John Hart, National Coordinator of Special Programs; Linda Scott; and the AARP Noise Counselors for sharing their expertise in the field of noise control. We gratefully acknowledge the assistance of the American Speech-Language-Hearing Association, the National Urban League, the Florida Department of Environmental Regulation, and the National Association of Noise Control Officials in reviewing these materials.

The American Association of Retired Persons is a non-profit, nonpartisan organization dedicated to helping older Americans achieve lives of independence, dignity, and purpose. By providing a wide range of direct member benefits and services and a host of community service programs, the Association has become the nation's largest organization of older citizens. For additional information about programs and services, write: AARP, 1909 K Street, N.W., Washington, D.C. 20049.