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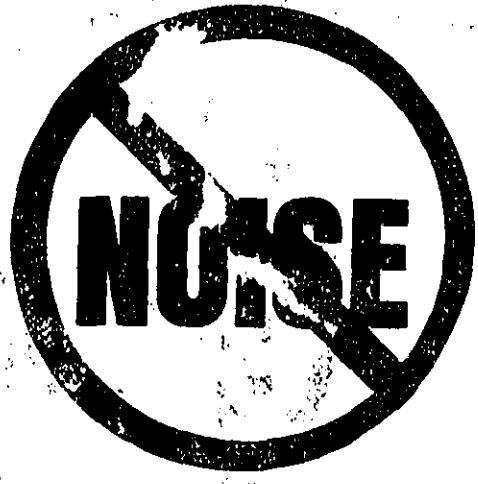
GUIDANCE MANUAL FOR STATE AND LOCAL PROSECUTORS

NOISE VIOLATIONS



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PREFACE

This Guidance Manual for state and local prosecutors was prepared for the Noise and Radiation Enforcement Division of the United States Environmental Protection Agency (EPA) as part of its mandate under the Noise Control Act of 1972[1] to assist state and local noise control programs. The purpose of this Manual is to provide guidance to prosecutors who choose to take legal action against violators of state or local noise control regulations; its intent is to assist prosecutors preparing for and conducting a trial--from drafting the complaint to submitting jury instructions.

The Manual has as its point of departure the language of the EPA Model Community Noise Control Ordinance (Model Ordinance); it does not attempt to address each of the numerous and diverse ordinances in effect in many jurisdictions. Drafted in 1975 by the National Institute of Municipal Law Officers in conjunction with EPA, the Model Ordinance was intended to provide localities with a current and comprehensive model law to control noise problems.

Chapter 1 briefly discusses the problems and effects of noise and the technology of noise measurement. Chapters 2 through 6 outline the major causes of action available under common law and the Model Ordinance, describing in turn, common law and statutory public nuisance, property line standards, motor vehicle controls, and tampering prohibitions. For each of the causes of action addressed, the Manual provides details on definitions, elements of the cause of action, types of evidence to satisfy those elements, sample direct examination of witnesses, burdens

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1 42 U.S.C. §4901 et seq. as amended by Quiet Communities Act of 1978, 42 U.S.C. §4905 (Supp. 1978)

and order of proof, remedies, defenses, and special problems that may be encountered in the course of prosecution.

Chapter 6, on forms and procedures, is a guide to drafting complaints, motions, interrogatories, requests for admissions, depositions, discovery, and jury instructions. Chapter 7 offers tips on pretrial and trial technique, primarily through the use of question and answer scenarios designed to establish essential points of proof, from the reliability of sound level meters to the adverse health effects of noise.

Chapter 8 deals with a subject which, while outside the direct purview of state and local prosecutors, may affect their decision to bring legal action. It discusses the interaction between Federal and local noise regulation and identifies areas where states and localities may be preempted by Federal noise enforcement.

Where applicable, each chapter begins with the Model Ordinance provision relevant to the discussion following. Each chapter also begins with a concise summary of the issues and solutions presented in that chapter.

Finally, the Manual provides a Glossary of Key Terms and several appendices of supplemental information, including the text of the Model Ordinance, the Noise Control Act of 1972, and the Quiet Communities Act of 1978.

CHAPTER 1: INTRODUCTION TO NOISE CONTROL

SUMMARY

People increasingly view exposure to excessive noise as a health hazard. Although a number of major noise sources have been identified, the true dimensions of the health effects of noise other than hearing loss are still uncertain. Hearing loss, particularly if permanent, is one of the most serious physical effects of noise on humans.

Noise may cause a range of physiological and psychological injuries. Noise may trigger undesirable social behavior, and this effect may be increased with physical fatigue. A number of close associations have been demonstrated between cardiovascular diseases and noise exposures. Noise may also be a causitive agent in other medical problems such as high blood pressure, colitis, ulcers, and migraine headaches. Furthermore, noise may have less obvious secondary effects in addition to its more direct effects, for example, impairment of learning or job performance and interference with other activities such as communication and sleep.

Scientific and medical evidence may need to be brought to bear to prosecute noise violators successfully. For that reason, the prosecuting attorney should be familiar with the technical nature of sound measurement and the equipment used to perform those measurements. Different types of noise measurements are often taken for different types of activities, e.g., roadway noise and aircraft noise. The time of day or night may also figure in the significance of these measurements.

A sound level meter is the basic noise measuring device. Different meters have different indicating characteristics and weighting network tolerances depending on the sophistication of their circuitry.

THE PROBLEM OF NOISE

In 1972, Congress declared a policy of promoting for all Americans an environment "free from noise that jeopardizes their health or welfare."[1] The House Committee Report[2] recommending enactment of the Noise Control Act of 1972[3] noted that noise--unwanted sound--had a significant impact on more than 80 million Americans; of that number, one-half risked serious health hazards from exposure to excessive noise levels, primarily traffic and aircraft noise. About 21 million more Americans faced a similar problem with construction-related noise. The Committee Report concluded that noise was increasing in urban areas at such a pace that the average person's exposure would double by 1982. As for what the public thinks about the problem, the Bureau of Census' 1977 Annual Survey found that Americans ranked noise as first of all the undesirable conditions of their neighborhoods.[4]

MAJOR SOURCES OF NOISE

In a 1977 survey, the Environmental Protection Agency (EPA) identified vehicles such as motorcycles, trucks, and cars and construction activity of various kinds as serious noise sources.[5] The survey ranked annoying noise sources as illustrated in Tables I-1 and 2.

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1 Noise Control Act of 1972, 42 U.S.C. §4901 et seq. (Supp. 1978).

2 H.R. REP. No. 842, 92d Cong., 2d Sess. 6 (1972).

3 42 U.S.C. §4901 et seq. (Supp. 1978).

4 Bureau of Census, Department of Commerce, Annual Housing Survey: 1977 (1979).

5 Office of Noise Abatement and Control, EPA, The Urban Noise Survey 39 (Table III-5); 41 (Table III-6).

TABLE I-1*

NOISE SOURCES RANKED BY PERCENT

OF URBAN POPULATION HIGHLY ANNOYED

RANK	SOURCE	% Highly Annoyed
1	Motorcycles	11.7
2	Large Trucks	6.9
3	Autos	6.5
4	Construction	5.8
5	Sports Cars	5.4
6	Helicopters	4.0
7	Constant Traffic	3.9
8	Airplanes	3.4
9	Small Trucks	3.1
10	Buses	2.8
11	Power Garden Equipment	1.9

*Tables I-1 and I-2 are taken from The Urban Noise Survey, supra, note 5, at 39, 41. This survey questioned 2,000 people at 24 sites in 7 cities. These urban sites were intentionally selected to avoid significant airport and highway noise exposure.

TABLE I-2*

OTHER SOURCES RATED HIGHLY ANNOYING

Rank	Source	Number of Sites	Number of Mentions
1	Sirens	8	14
2	Fire Trucks	7	12
3	Ice Cream Trucks	5	6
4	Trash Pickup	4	4
5	Gun Shots	4	4
6	Trains	4	4
7	Burglar Alarms	2	4
8	Auto Horns	3	3
9	Chain Saws	3	3
10	Hot Rods - Drag Racing	2	2
11	Defective Mufflers	1	1
	Defective Pump	1	1
	Refrigerator Truck	1	1
	Air Conditioner	1	1
	Model Airplanes	1	1
	Cement Mix Truck	1	1
	Welding Equipment	1	1

*See Note accompanying Table I-1.

EFFECTS OF NOISE

Although many of the health effects of noise are not yet clearly understood or quantified, there is little doubt that noise can contribute to a range of physical and psychological injuries. Even noise that may cause no direct permanent physical health repercussions may still cause annoyance, sleep loss, and other forms of mental distress.

Hearing Loss -- Hearing loss is the most quantifiable physical effect of noise on humans. Sound enters the outer ear and initially reaches the eardrum, a thin membrane protecting the middle and inner ear. The eardrum conducts sound vibrations across the middle ear by way of the ossicles--three small bones referred to as the hammer, the anvil, and the stirrup because of their shapes. Vibrations of the eardrum are passed mechanically to the inner ear by way of the oval window separating the middle and inner ear. The principal parts of the inner ear are the cochlea and the semicircular canals. The cochlea contains fluid which is set into vibration by the movement of the oval window. Inside the cochlea is a membrane to which are connected the roughly 30,000 hair cell nerve endings whose shearing action upon fluid movement electro-chemically send signals to the brain.

The ear's only protective device is the "acoustic reflex" which is a sudden muscle contraction allowing the ossicles to lessen the impact of loud sounds and thus protect the inner ear. This natural protective device is limited since it functions best for low frequency loud sounds and since the reflex sound continues and is effective only at lower frequencies.

Hearing ability may vary based on age and sex. Women generally have better hearing ability than men, possibly because men experience more occupational noise exposure in their early and middle years. Hearing ability may decline with age -- called presbycusis.

Loud noise can have an immediate effect on hearing and equilibrium. Noise in the 135-140 dB range and above may produce actual pain and can damage hair cells in the cochlea. Progressive loss of hair cells will result in a progressive loss of hearing, frequently evidenced by the inability to detect high frequency sounds. Noise is considered hazardous above 75 dB for 8-hour exposures.

Temporary hearing loss caused by hair cell fatigue may result from long term exposure to moderate or high levels. A temporary hearing loss stemming from lower levels of exposure generally can be reversed if the ear is given time to recuperate.

Non-Auditory Physiological Response to Noise

Noise may cause serious physiological effects on the human body which range beyond deafness to enhanced risk of heart disease to adverse effects on fetal nervous systems.

Noise acts on the body to produce stress. At approximately the 75-80, or lower, decibel (dB) range, a number of short-term physical reactions take place. Heart rhythm and blood pressure changes occur, blood cholesterol levels rise, pupils of the eye dilate, and stomach acid secretion may change leading to gastrointestinal malfunctions. Some automatic physical reactions such as blood vessel constriction may continue for some period even after the noise stops.[6] However, the extent of long term physiological effects is still not known.

The physiological effects on special populations such as the unborn, children, the physical or mentally handicapped, and the aged who possibly may be more susceptible to noise exposure is still under scientific scrutiny.

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[6] See generally, Environmental Protection Agency, Public Health and Welfare Criteria for Noise, 7550/9-73-002 (1973).

Social Impacts

Noise may trigger unpredictable psychological behavior. Because of their subjective character, adverse psychological effects of noise are more difficult to document than physical effects. Nevertheless, there is some scientific evidence indicating that noise may increase irritability, argumentativeness, anxiety, nervousness, and general aggressive tendencies, and decrease helping behavior.[7]

Noise sometimes appears to have a psychological impact on human conduct in disproportion to the actual physical characteristics of the sound. Sounds that convey distress or alarm, such as a patrol car siren or a fire engine bell, may have greater psychological effects than sound associated with some advantage or necessity, such as a lawn mower or a garbage disposal unit.[8]

Noise experts stop short of directly linking psychological effects of noise to clinical mental illness.[9] Rather than claiming a direct cause and effect relationship, some experts suggest that based on their studies of mental illness and of psychological effects, noise may merely aggravate a pre-existing mental condition. On the other hand, one study indicated higher rates of admission to psychiatric hospitals among people living close to airports.[10]

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7 See Environmental Protection Agency, Public Health and Welfare Criteria for Noise (1973); Donnerstein and Wilson, "Effects of Noise and Perceived Control on Ongoing and Subsequent Aggressive Behavior," 34 J. Personality and Soc. Psych. 774 (1976).

8 Cohen, "Effects of Noise on Psychological State," Proceedings of National Conference on Noise as a Public Health Hazard (Report No. 4) Washington, D.C. (1969).

9 See McLean and Tarnopolsky, "Noise, Discomfort and Mental Health," 7 Psych. Med. 19 (1977).

10 I. Abey-Wickrama, M. A'Brook, F. Gattoni, and C. Herridge, "Mental-Hospital Admissions and Aircraft Noise," Lancet 1275, December 13, 1968.

Actual hearing loss, especially in children, may also produce secondary psychological effects, particularly if parents or peers equate impaired hearing with low-level intelligence and attach a stigma to such impaired hearing. Hearing loss creates additional emotional and psychological problems for adults as well.

Other Impacts

Sound loud enough to interfere with conversation or mental concentration may have adverse secondary effects in the educational or work environment. For example, reading and language development in school children may be impaired by a noisy environment if a child is unable to distinguish certain sounds or if the noise distorts speech. Distractive noise may reduce worker productivity and even become a workplace safety hazard where noise prevents a worker from hearing warnings of potential danger. Disturbing noise levels may also reduce the enjoyment of recreational activities through communication interference.

Environmental Impacts

The physiological reaction of animals to noise is very similar to that of humans. Hearing loss or damage to the auditory system is the best documented physiological effect of noise on test animals. Experiments also show evidence of change in the urinary, adrenal, and reproductive functions of animals under certain noise conditions. Animals may even experience disruption of breeding, nesting, and migratory habits.

Noise and induced vibrations can adversely affect structural materials. Cracked plaster and broken windows and dishware left in the wake of a sonic boom are the best known examples of damage from excessive noise levels, but they are not the only examples. Heavy construction equipment operation may cause damage to neighboring structures. Noise induced vibrations can also damage delicate scientific and health care instruments.

Noise Measurement

There are three key variables in sound measurement: intensity; frequency; and duration. The decibel (dB or dBA) is a unit for measuring the intensity of sound. Its reference level is roughly that of the weakest sound audible to the human ear at 1000 feet. The decibel scale is logarithmic, not arithmetic, so that sound intensity multiplies by ten with every ten-decibel increase. In other words, a 60 dB sound level corresponds to an intensity 1 million times that of the sound pressure reference level. Similarly, a 60 dB sound intensity is ten times that associated with 50 dB.

Since a pure decibel measurement reflects the intensity and not the "loudness" human beings typically assign to various sounds, different scales or weightings must be applied to the decibel level. Several weighting scales exist, but most EPA noise criteria and standards are based on the A-weighting scale. The A-weighting scale is a frequency-weighted scale which adjusts for the fact that the ear does not respond equally to low, medium, and high range frequencies.

Different descriptors, conforming weighting with time and weighting frequency content, are used in particular noise contexts: the long term equivalent level (L_{eq}), an A-weighted measure often used to measure roadway noise, generally over a 24-hour period; the day-night sound level (L_{dn}), a variation of L_{eq} which penalizes night time noise by assigning it a heavier weight (often used in environmental impact statement evaluations); and two descriptors used primarily to measure aircraft noise--the perceived noise level (L_{PN}) and its refinement, the effective perceived noise level (L_{EPN}).

Description of Equipment

A sound level meter is the basic sound measuring device often used for municipal noise measurement. The meter consists of a microphone, amplifier, weighting scales (e.g., A-scale), and output meter. Meters may or may not have

a graphic level recorder or a magnetic tape recorder, either of which can provide permanent documentation of noise levels. Meters may be hand held or mounted on a tripod.

Different meters have different indicating characteristics and weighting network tolerances depending on the sophistication of their circuitry. The four different types of sound level meter instrumentation are: Type 1 (Precision); Type 2 (General Purpose); Type 3 (Survey); and Type 4 (Special Purpose).[11] Noise control ordinances typically specify only that the particular sound measuring equipment used must meet standards set by the American National Standards Institute (ANSI). However, calibration of the sound-level meter should also be performed with instruments which meet ANSI standards. Manufacturer's specifications accompanying a sound level meter will indicate whether or not the instrument meets these standards.

Measurements may vary depending on the source measured and on surrounding conditions. Wind, humidity, temperature, and precipitation are critical factors that also may affect the reliability of the readings. In measuring automobile noise levels, the microphone location and general topography, including the presence of possible sound reflecting surfaces, are important to accurate measurement.

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[11] D. Lipscomb & A. Taylor, Noise Control: Handbook of Principles and Practice 34 (1978).

CHAPTER 2: PUBLIC NUISANCE

MODEL COMMUNITY NOISE CONTROL ORDINANCE: Article IV, Prohibited Acts

6.1 Noise Disturbances Prohibited

No person shall unreasonably make, continue, or cause to be made or continued, any noise disturbance [defined as "any sound which
(a) endangers or injures the safety or health of humans or animals, or
(b) annoys or disturbs a reasonable person of normal sensibilities, or
(c) endangers or injures personal or real property." 3.2.20]. . .

SUMMARY

The current trend toward a regulatory approach to noise abatement (e.g., Model Ordinance), has not meant abandoment of traditional common law (nonstatutory) remedies for noise control. The public nuisance action continues to play a significant role in noise control.

The common law or statutory public nuisance action is an effective vehicle for controlling noise in several instances: 1) in jurisdictions where specific maximum decibel levels have not been adopted; and 2) in cases unsuited to control through enforcement of maximum decibel levels, e.g., barking dogs, loud parties, and other intermittent noises. To distinguish public from private nuisance, Table II-1 compares public and private nuisance actions at common law and as they are now developing in modern statutory law.

A cause of action for common law public nuisance must establish: (1) that an interference with a right common to the general public occurred; (2) that the interference was unreasonable; and (3) that the public right was a substan-

TABLE II-1

COMPARISON OF NUISANCE ACTIONS

Public Nuisance	Private Nuisance
Common Law	Common Law
1. Affects entire community.	1. Affects individual or small group of individuals.
2. Generally criminal.	2. Generally civil.
3. Generally brought by public official.	3. Brought by private individual.
4. Citizen can bring if special damages are shown.	4. No need to prove special damage.
5. Laches, prescriptive rights, statute of limitations, estoppel do not apply.	5. Must be an unreasonable and substantial interference with use and enjoyment of property.
Current Trend	Current Trend
1. Does not have to affect entire community.	1. May affect a large number of people.
2. May be civil.	
3. States are expanding citizen standing, eliminating special damage requirement.	
4. Not limited to property rights.	

tial one. Intent to harm is not an element, although it may be relevant to show show whether the interference was unreasonable.

Scientific and medical evidence may be the most useful to show the unreasonableness and substantiality of interference. Lay testimony about the annoying characteristics of noise may not of itself support a finding of public nuisance.

A cause of action for statutory public nuisance requires evidence of a statute prohibiting the noise nuisance and proof of the violation.

The prosecutor carries the burden of proof by a preponderance of the evidence except where a jurisdiction characterizes public nuisance as a criminal offense. In the latter case, each element must be proved beyond a reasonable doubt.

Injunctive relief is one of the most important remedies appropriate to a noise nuisance action because if granted the nuisance is stopped, either permanently or at least temporarily during litigation. The prosecution can anticipate a number of defenses, including business necessity, compliance with administrative regulations, cost of abatement and, in certain cases, Federal preemption. For the most part, however, these defenses are neither absolute nor sufficient to block a well-founded noise nuisance prosecution.

COMMON LAW AND STATUTORY DEFINITIONS OF PUBLIC NUISANCE.

At common law, a public nuisance was a "criminal interference with a right common to all members of the public."[1] It was considered a criminal offense and encompassed a diversified group of minor offenses against the public peace, morals, safety and health--from harboring a barking dog to operating a noisy dance hall.[2]

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[1] W. Rodgers, Environmental Law 103 (1977).

[2] Restatement (Second) of Torts §821B, Comment b, at 88 (Tent. Draft No. 17, 1971).

The inherent vagueness of the "crime" of public nuisance has led to several changes in the law defining that offense. The first change was to codify the common law crime in state statutes. That development brought on two more recent trends: First, the replacement of broad and ambiguous statutory public nuisance provisions by a series of more specific laws declaring certain specific actions to be public nuisances and, as such, crimes; second, a shift toward characterizing public nuisances as civil offenses.[3]

Modern trends in public nuisance law have not diminished the usefulness of this cause of action as a tool for state and local officials to combat noise

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[3] The concept of public nuisance as a tort action--rather than an action in criminal law--has been accepted by the American Law Institute. According to the Restatement (Second) of Torts §821B (Tentative Draft No. 17, 1971):

* A public nuisance is an unreasonable interference with a right common to the general public.

* Factors conducting toward a determination that an interference with a public right is unreasonable, include the following:

  a) The circumstance that the conduct involves the kind of interference with the public health, the public safety, the public peace, the public comfort or the public convenience which sufficed to constitute the common law crime of public nuisance;

  b) The circumstance that the conduct is proscribed by a statute, ordinance or administrative regulation; or,

  c) The circumstance that the conduct is of a continuing nature or has produced a permanent or long-lasting effect upon the public right, is substantial, and in connection with which the actor knows or has reason to know of the effect.

violations.[4] Even at common law, a public nuisance could often be remedied by civil injunctive relief as well as by criminal sanctions. In those cases where conduct clearly falls within the scope of a criminal provision, the prosecutor may well find the more effective strategy to be one of quick abatement of the noise violation through injunctive relief rather than resort to criminal sanctions against the violator under the more stringent criminal burden of proof. If the criminal provision does not expressly authorize injunctive relief as a remedy, the common law of public nuisance provides the needed authority.[5]

ELEMENTS OF THE CAUSE OF ACTION

Common Law Public Nuisance

To prove an action for public nuisance, the following elements must be established:

* That an interference with a right common to the general public occurred;

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[4] Public nuisance actions to control noise have been maintained against a variety of sources: Harrison v. Indiana Auto Shredders, Inc. 528 F.2d 1107 (7th Cir. 1975) (automobile shredding and recycling plants); Firth v. Sherzberg 336 Pa. 443,77 A.2d 443 (1951) (truck terminals); Vanderslice v. Shawn 26 Del. Ch. 225, 27 A.2d 87 (1942) (aircraft overflights).

Private nuisance actions have been maintained against a series of other noise sources which presumably could have been prosecuted as public nuisances had they affected a wider population. These include: Friedman v. Keil, 113 N.J.Eq. 37, 166 A. 194 (1933) (bakery noise); Proulx v. Busbanes, 354 Mass. 559, 238 N.E.2d 531 (1968) (laundry & drycleaning plants); Braddock v. Barbecue Cottage, Inc., 69 Dauph. Co. (Pa.) 221 (1956) (fast food restaurant); Guarina v. Bogart, 407 Pa. 307, 180 A.2d 557 (1962) (drive-in theater); State ex. rel. Towle v. Eyen, 130 Neb. 416, 264 N.W. 901 (1936) (tavern); Gustafson v. Cotco Enterprises, Inc., 42 Ohio App. 2d 45, 328 N.E.2d 409 (1974) (racetrack); State ex. rel. Fuller v. Stillwell, 114 Kan. 808, 220 P. 1058 (1923) (barking dog).

[5] Restatement (Second) of Torts §821B (Tent. Draft No. 17, 1971).

* That the interference was unreasonable; and

* That the public right was a substantial one.

A right common to the general public is one that affects an entire community rather than one or a few individuals. Both the unreasonableness of the interference and the substantiality of the right interfered with are defined by using the reasonable person standard.[6]

Intent to harm is not an element of the public nuisance cause of action because a violation exists if certain conduct is prohibited by statute. Nevertheless, intent is relevant to show whether the interference was unreasonable. Under general tort law principles, interference with a public right may be considered unreasonable if the conduct is intentional, negligent, reckless, or involves abnormally dangerous activites. On the other hand, in actions for injunctive relief, intent or knowledge is less persuasive because injunctions are granted when: (1) no adequate legal remedy exists; (2) irreparable harm otherwis will ensue; (3) the court finds that ordinary legal principles would not afford relief.

Statutory Public Nuisance

To satisfy the elements of a cause of action for statutory public nuisance, the prosecutor must establish the existence of a statute prohibiting the noise nuisance and prove that the defendant violated the statute. Under some noise

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[6] The Restatement (Second) of Torts lists a number of factors tending to substantiate a claim that an "unreasonable" interference has occurred. See footnote 3, supra. However, this list is not all inclusive. As the Reporter of the Tentative Draft noted in comment e, some courts have recognized interference with aesthetic values or with established principles of conservation of natural resources as amounting to a public nuisance.

nuisance statutes, neither the unreasonableness of the noise nor the intent to interfere with a public right are elements of the offense.

Under those state statutes modeled after the Model Ordinance or the common law, however, the unreasonableness of a noise nuisance may still be an element subject to proof requirements.

Under Model Ordinance-type language, the prosecutor need not prove criminal intent. Again, however, intent would be relevent to the unreasonableness of particular conduct. Where it is unclear whether a particular state statute requires a showing of criminal intent, case law supports the view that the necessity of proving intent depends on the nature of the case.[7]

TYPES OF EVIDENCE TO SATISFY BURDEN OF PROOF

To satisfy the burden of proof on the three elements of a public nuisance action, the prosecutor most likely will need to rely on some combination of lay, scientific, and medical testimony.

Lay evidence will be helpful in proving the unreasonableness and substantiality of intereference. The standard applied is that of the reasonable person. However, a noise prosecution may also rely heavily on certain types of scientific and medical evidence.

Scientific Evidence

Scientific evidence may consist of:

* Expert testimony by acoustical engineers;
* Sound measuring devices;
* Noise measurements;
* Tape recordings of the noise;
* Graphs comparing decibel levels;

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[7] 66 C.J.S. "Nuisances" §10 (1950).

* Maps indicating the location of the noise, including distinctions between residential and industrial zoned areas.

Recordings by sound level meters, and other sound measurements are important pieces of scientific evidence to use to demonstrate that a particular noise level constitutes a health threat. Seldom will statements from members of the public about the annoying characteristics of the noise be sufficient of themselves to support a finding of public nuisance.[8] Rather, the prosecutor must attempt to show that the noise at issue created a threat or hazard to the health or safety of the community.

Local procedural rules and practice may indicate whether local courts have taken judicial notice of the reliability of sound measuring devices or whether they require an offer of proof. However, proof must be offered that the sound meter actually used in a noise test functioned properly at the time the critical reading was taken. This can be established through the use of expert witnesses or the operator of the machine to establish that:

* The device was functioning properly at the time of the reading;
* The operator was competent to operate the machine;
* The recording was authentic and correct; and
* Calibration of the equipment itself was made proximate to the time and place of the noise.[9]

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[8] See Harrison v. Auto Shredders, Inc., 528 F.2d 1107 (7th Cir. 1975) (trial court reversal because there was no competent evidence offered to demonstrate that the operation of a noisy automobile shredding and recycling plant was a public nuisance).

[9] U.S. Noise Enforcement Division, Environmental Protection Agency, State and Local Hornbook (Draft, May 1, 1978).

It may also be necessary to introduce evidence of a continuous chain of custody record showing the equipment used for the sample, the time, the date, the name of the person taking the measurements, and the custodian of the record.[10] (All data should be recorded in ink at the site.)

Medical Evidence

Medical evidence may consist of:

* Expert testimony by a physician, audiologist, psychiatrist, or other appropriate health professional;
* Medical records;
* Medical charts.

Loss of hearing and damage to the auditory system are serious injuries caused by excessive noise. Although the medical and scientific communities are not in agreement about the exact physiological effects of noise on the body, there is strong evidence suggesting a link between continuous noise exposure and the development of heart disease.[11] Noise may also cause stress reactions such as nervous tension and irritability from lack of sleep.

The best method for proving psychological stress is to have both the complaining witness and a psychiatrist testify. Medical testimony is appropriate to prove injury. For example, in a case involving a hearing loss, a medical expert should be called to testify on the nature of the injury, the proximate cause of injury, and the likelihood of recovery.

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[10] V. Taylor, Environmental Law - Cases and Text 626 (1974).

[11] Office of Noise Abatement and Control, Environmental Protection Agency, Noise: A Health Problem (1978) ("Noise causes stress and the body reacts to that with increased adrenaline, changes in heart rate, and elevated body pressure.")

BURDEN AND ORDER OF PROOF

Burden of Proof

The burden is on the prosecutor in a public nuisance action to prove each element of the offense. Under the Model Ordinance and other noise control statutes that have removed the element of criminality from the concept of public nuisance, each element must be proved by a preponderence of the evidence. In jurisdictions that maintain the concept of public nuisance as a criminal offense, each element must be proved beyond a reasonable doubt.

Order of Proof

Although some types of evidence may not be necessary in a particular nuisance case, the following is the suggested order of proof for a nuisance case.

* PHYSICAL FACTS -- Proof of the location of the source of the noise; receptor; types of activities conducted in the area; structures; and the topographic and geographic characteristics.
* SCIENTIFIC FACTS -- Nature of noise and the effect on the public health, safety, or peace.
* MEDICAL FACTS -- Testimony and exhibits demonstrating a public health hazard.
* PROPER MEASUREMENT TECHNIQUES -- Testimony by expert witnesses on noise measurements taken.
* SOURCE -- Evidence to establish and prove the source of the noise and to identify the party in control of the source.
* UNREASONABLENESS AND SUBSTANTIALITY -- Evidence that the noise emanating from the source was unreasonable and that it substantially interfered with the community's health, safety, peace, comfort, or convenience. (Witness testifying to a nuisance.)

* REMEDIES -- Proof of facts necessary to substantiate the request for appropriate remedies. Proof of imminent and irreparable injury should accompany requests for injunctive relief. Justification for amount and duration should accompany requests for court imposed fines.

REMEDIES

Injunctive Relief

An injunction requiring a defendant to abate a noise nuisance remains one of the most important remedies available in a public nuisance action--regardless of whether the conduct is considered a crime or a tort.

Section 11.4(a) of the Model Ordinance suggests that where the enforcement officer has the power, the first line of offense in a noise pollution case should be an administratively issued compliance order and injunctive relief.

The traditional equitable requirements of proof of imminent and irreparable harm, and an inadequate remedy at law apply in noise nuisance cases where injunctive relief is requested just as they would in any other proceeding for injunctive relief.[12]

Traditional Criminal Remedies

Under circumstances where the defendant takes advantage of the possibility that the cost of abatement may be more than the cost of compliance with a restraining order, criminal sanctions may be necessary to achieve compliance. Fines are the most frequently imposed criminal sanctions under such circumstances.

Damages

Damages rarely are sought or recovered in a public nuisance noise action.

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[12] Harrison v. Indiana Auto Shredders, 528 F.2d 1107 (7th Cir. 1975).

DEFENSES

The following defenses are available in public nuisance actions, but offer limited opportunities for success:[13]

* Exhaustion of administrative remedies
* Compliance with statutory control; conformity to regulations issued by an administrative agency or conformity to a permit or license.

The following defenses generally are not available in public nuisance actions:[14]

* Statute of Limitations
* Laches
* Estoppel
* Prescriptive rights

The following defenses may be available in particular cases:

* Business Necessity - Business necessity traditionally has not been an effective defense.[15] In most cases, however, business necessity may carry some weight if the court is persuaded that the value of continued operation of the business outweighs the harm suffered by the plaintiff.
* Cost of Abatement - The cost of abatement generally will be one of the elements considered by a court if asked to grant injunctive relief. The defendant is more likely to be persuasive in arguing against such

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[13] See 58 Am Jur 2d, "Nuisances" §§157, 234 (1971); Schofield v. Material Transit, Inc., 206 A.2d 100 (1960) (existence of remedy before Air Pollution Board does not of itself oust court of chancery jurisdiction, but primary judicial relief may not be applied for when there are administrative remedies pending).

[14] See 58 Am Jur 2d, "Nuisances" §§167, 168, 225 (1971).

[15] See Catlin v. Patterson, 10 N.Y. 724 (1887).

relief if the cost of abatement is so severe that it would put the defendant out of business, or jeopardize the prosperity of the community.[16]

* Coming To The Nuisance - In a majority of jurisdictions, the fact alone of "coming to a nuisance" (i.e., locating in the vicinity of an already existing nuisance) is not an absolute defense or estoppel. However, this factor may be relevant in determining whether the defendant's use of property is unreasonable. While some courts will permit a person who purchases land or moves into the vicinity of a nuisance to seek damages or an injunction against the nuisance,[17] other courts will deny relief if the plaintiff knew that a nuisance existed at the time of purchase or if the plaintiffs obtained the benefit of the reduced value for their property.[18]

* Negligence - Contributory negligence is no defense when the defendant intentionally has created a nuisance with the knowledge that it will interfere with the plaintiff's use and enjoyment of the land. However, some states do allow this defense to be used in nuisance actions not involving intentional or malicious conduct. The courts reason that a nuisance can be negligently created; therefore, contributory negligence

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16 See Am Jur 2d, "Nuisances" §215 (1971).

17 Annot., 42 A.L.R. 3d 344, 346 (1972). As the court observed in Vowinckel v. N. Clark & Sons, 216 Cal. 156, 13 P. 2d 733 (1932): "The fact that a plant had municipal consent and that its operations were conducted in an industrially zoned area, or that it had operated for 17 years before the plaintiff purchased and established his home there, did not constitute a defense to the continued operating of the plant in such a manner as to constitute a nuisance to the plaintiff."

18 Id. In at least one case a court has held that purchasers of land who have knowledge of the existence of damaging structures will not thereafter be allowed to recover for any damages to the land, since they are presumed to have obtained the benefit of reduced value by the amount the prior owner could have recovered. See W. Prosser, Law of Torts 609 (4th ed. 1971).

may be valid defense. Assumption of the risk or consent to take the risk may also bar the plaintiff's recovery in a noise nuisance action.[19]

* Parties [Joint-Tortfeasors; Single Individual Injury Rule] -- A noise violation may have been created by more than one defendant. Since it may be almost impossible to determine which defendant caused the most damage, the majority of jurisdictions are likely to hold each defendant liable, under the "single, indivisible injury" rule.

  It is not a defense for individual defendants to claim that the noise they released would not by itself have caused the noise problem, nor is it a valid defense for them to claim that individually each released noise at different times or places.[20]

* Legislative Authorization -- In some jurisdictions, conduct which otherwise would be considered a public nuisance may be authorized by the legislature, subject only to due process limitations. Generally, courts will construe narrowly any statute that authorizes the creation or maintenance of a nuisance. This strict scrutiny may also be extended to a review of the specific grant of authority

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[19] W. Prosser, Law of Torts 609 (4th ed. 1971). In the majority of jurisdictions, the rule of avoidable consequences is available not as a defense, but in measuring damages. According to this doctrine, the plaintiff may be required to take reasonable steps to guard against further harm.

[20] B. Cohen, V. Yannacone and S. Davison, Environmental Rights and Remedies § 6.15 (1972). ("Where two or more independent tortfeasors have supplemented each other's actions and concurred in contributing to and producing a single indivisible injury to the plaintiff, the independent tortfeasors will be regarded by the law as joint tortfeasors, jointly and severely liable to the plaintiff, though there hasn't been concerted action among tortfeasors."

given to a particular administrative agency. Legislative authority may be a defense against injunctive relief barring operation, but the fact that a business is being conducted properly as defined by legislative or administrative action does not necessarily preclude recovery of damages.[21]

* Preemption -- The Model Ordinance, section 11.6, retains common law or statutory rights of action. Preemption may be a sufficient defense in limited circumstances where the Federal Noise Control Act of 1972 has partially preempted regulatory authority over an area as, for example, railroad noise.[22]

* Primary Jurisdiction -- There may be jurisdictions that have adopted an administrative approach to the enforcement of environmental laws, vesting exclusive jurisdiction over such matters in an administrative agency. Opinion is divided on whether this would preclude maintenance of a common law or statutory public nuisance action sounding in criminal law. Primary jurisdiction is not a defense in jurisdictions that have adopted the Model Ordinance.[23]

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[21] See W. Rodgers, Environmental Law 138-40 (1977).

[22] See Consolidated Rail Corp. v. City of Dover, 450 F. Supp. 966 (D. Del. 1978).

[23] See Model Community Noise Control Ordinance, §11.5 [Appendix C].

CHAPTER 3: PROPERTY LINE STANDARDS

MODEL COMMUNITY NOISE CONTROL ORDINANCE: ARTICLE VIII, Sound Levels By Receiving Land Use

8.1 Maximum Permissible Sound Levels by Receiving Land Use

> No person shall operate or cause to be operated on private property any source of sound in such a manner as to create a sound level which exceeds the limits set forth for the receiving land use category in Table I when measured at or within the property boundary of the receiving land use.

TABLE I. SOUND LEVELS BY RECEIVING LAND USE

Receiving Land Use Category	Time	Sound Level Limit, dBA
(Residential, Public Space, Open Space, Agricultural or Institutional)	(A) a.m. - (B) p.m.	L_1 *
	(B) p.m. (A) a.m.	L_2
C-1, C-2, etc. B-1, B-2, etc. (Commercial or Business)	At all times	L_3
M-1, M-2, etc. (Industrial)	At all times	L_4

* This section of the Model Ordinance does not provide recommended dB levels. However, the Model does include tables of fixed source noise levels allowable in residential, business/commercial, and manufacturing/industrial districts taken from a survey of over 100 cities. See Appendix C.

SUMMARY

The Model Ordinance's property line noise control scheme is based on references to both receiving land use categories and by time of day, a feature not always present in local noise ordinances. Receiving land use categories usually are based upon the following zoning classifications: open space, public space, agricultural, residential, institutional, commercial, or industrial. See Table I-1, supra.

Essentially, the prosecutor of a property line violation must show that: 1) the defendant was responsible for a noise source on private property; 2) the noise level was above permissible levels for the period of day or night; and 3) the noise level was above that permitted for particular receiving land uses.

It may be necessary to establish the validity of sound level meter evidence in a property line case. Some courts take judicial notice of such evidence; others require that experts testify with regard to the type and model of sound level measuring devices used in the jurisdiction.[1]

Because the expert testimony of the police or noise control officer monitoring the noise level on the property is so significant in property line cases, this chapter offers a checklist of what the officer's testimony should describe, as well as sample questions aimed at establishing the reliabilty of the sound level measuring tests.

Proof by a preponderance of the evidence is the typical standard of proof. Remedies available for a property line standards violation include fines, injunctive relief, abatement orders, and an order for corrective action.

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[1] See Florida v. Aquilera, Dade County (Fla.) Traffic Court, (May 7, 1979). Cf. "Police Traffic Radar: Is It Reliable?" U.S. Dept. of Transportation (1980).

Certain procedural, technological, and substantive arguments can be anticipated as defenses, including claims that the officer had no authority to enter private property, that the sound level measurement was incorrect, or that someone other than the party charged operated the noise source.

ELEMENTS OF CAUSE OF ACTION

To successfully prosecute an action for violation of property line noise standards the prosecutor must establish that statutory provision exists and that it was violated. The prosecutor must be able to prove that:

* The defendant operated or caused to be operated on private property a source of sound;
* The noise exceeded the sound level limits established for the particular time of day or evening; and
* The noise exceeded the sound level set for the receiving land use category when measured at or within the property line.

TYPES OF EVIDENCE TO SATISFY ELEMENTS

Scientific Evidence

A property line standards case may require the use of competent scientific evidence ranging from the expert testimony of noise instrument experts to data from sound measuring devices.

Establishing the Validity of Sound Level Meter Evidence -- In jurisdictions where courts have not taken judicial notice of the validity of sound level meter evidence, a court may require expert testimony regarding the scientific validity and accuracy of the measuring device itself.[2] Experts may be asked to testify specifically about the accuracy of the type and model of sound level measuring device used in the particular jurisdiction.

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[2] See Annot., 47 A.L.R. 3d 822, 827, at n.4 (1973).

In all cases, whether in courts taking judicial notice of sound measuring devices or in courts where no such notice is taken, the prosecutor should demonstrate that the particular equipment used in detecting the noise violation was of the required type, in proper working condition, and was operated by a qualified individual.[3]

One source for expert witnesses may be the manufacturer of the measuring device used. If the manufacturer also services the device, the testimony of the service expert should be sought on the question of the reliability and accuracy of the measuring equipment. In all cases, the qualifications of the expert witness first must be established. (See Chapter 7, Trial Techniques, (Qualifying Experts).

Testimony of the Officer Monitoring Sound Level Meter

The expert testimony of the police officer or noise control officer who took the on-site sound level measurements is perhaps the strongest evidence that can be presented in most property line standards cases. That testimony should describe:

* The equipment used to monitor the sound level, including information identifying the manufacturer, model and serial number, and dates of last laboratory or factory calibration according to manufacturer and A.N.S.I. standards;

* A field calibration of the equipment, for proper operation and accuracy, made on the day the particular property line noise violation data was recorded.

* The location of the measuring device at the time of the alleged violation;

* The officer's steps in setting up the equipment according to the noise control regulations in effect the day the noise violation measurement was made;

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[3] 2 Am. Jur. Proof of Facts 2d 545-608 (1974).

* The weather conditions (e.g., wind speed, precipitation), or other unusual condition, including ambient noise level that would affect the noise level reading;

* The details of the violation including a sketch or diagram of the general site, a description of the noise source, and a description of the receiving land use (i.e., residential, commercial, or industrial);

* The actual measurements taken of the noise source, recorded in ink if done by hand.

The results of sound level measurements should be introduced into evidence, along with charts, maps, and photographs of the noise source.

Sample Questions for the Officer Operating Sound Level Meter

After qualifying the officer, the prosecutor should ask questions designed to establish violation of a property line standard. Sample questions follow:

Q. Describe the property line standards that exist in this jurisdiction for [residential], [commercial], or [industrial] land use categories.

Q. Did you take a noise level reading at [site] on [date]?

Q. At what time did you take the reading(s)?

Q. What was the exact reading of the noise level?

Q. Is that a violation of [jurisdiction] noise ordinance levels for [category] of receiving land use?

Q. By how many dBA?

Q. What is the significance of this difference?

The following line of questioning aims to establish the technical reliability of the sound level meter.[4]

Q. Describe the sound equipment used to measure the sound level [manufacturer, model, date of last factory calibration].

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[4] Jack Faucett Associates, Inc., Workbook for Police Enforcement of Noise Regulations, Final Report, EPA Contract Number 68-01-4701 (Sept. 1978), at I-1--I-3.

Q. What type and frequency of calibration is performed on this equipment to ensure its accuracy [field calibration and system calibration by certifying laboratory]?

Q. Was this equipment set up and located according to procedures established in [cite relevant provisions from regulations or test procedures manual]?

Q. Was the equipment tested for accuracy on the date of the observed violation? If so, how? [Answer desired is that a daily fixed field calibration was done at setup, and a system calibration was certified no more than 6 months earlier].

Q. Was (were) the test(s) satisfactory?

Q. Were the results recorded?

Another series of questions should be aimed at establishing the reliability of the sound level measuring tests by eliminating possible extraneous influences. For example:

Q. Describe the set up procedure you used in setting up the sound level meter [mounting procedures, distance from noise source, use of windscreen, height and positioning of microphone, and other relevant factors].

Q. Did you hear any other noise sources that could have caused an erroneous reading?

Q. Were there any reflecting surfaces near your monitoring location that would induce an error in your reading?

Q. What were the weather conditions?

Q. At what distance from the property line was the sound meter reading taken?

BURDEN AND ORDER OF PROOF

The burden of proof in a civil case is proof by a preponderance of the evidence. If a criminal remedy is sought, the burden is proof beyond a reasonable doubt. The following is the suggested order of proof, beginning with the topographic and geographic features of this site:

* Physical Facts - The location of the noise source, and receptor; the type of activities conducted in the area; and the structures (buildings) present;

* Source - Evidence should be entered to establish and prove the source of the noise and its connection to the defendant;

* Proper Measurement Techniques - Expert witnesses should be called to testify about what noise is and how sound level measurements are taken;

* Violation - Evidence of statutory or common law provision and a violation of such provisions is essential;

* Remedies - Appropriate remedies should be requested and substantiated by necessary justifications. For example, a request for injunctive relief should be accompanied by proof of immediate and irreparable harm. Requests for fines should specify the amount and duration of the fine and should otherwise justify such relief. (Fines, if appropriate, usually are spelled-out in the relevant ordinance.)

REMEDIES

Remedies available for a property line standard violation include fines, injunctive relief, abatement orders, and an order for corrective action.

An injunction is a suitable remedy for a violation of property line standards. For guidelines to show an immediate threat to health and welfare of certain sound levels in extreme cases, the prosecutor may wish to refer to Tables IV and V of Article XI of the Model Ordinance.

DEFENSES

A number of procedural, technological, and substantive arguments may be asserted as defenses to prosecution for violation of a property line ordinance, typically to no avail, however.

Procedural Defenses

Procedural omissions such as failure to obtain valid authorization to enter private property where necessary, or failure to preserve the chain of custody for evidentiary materials, could prompt a successful defense challenge.

Technological Defenses

The defense may attack the validity of the prosecutor's sound level measurement evidence on cross-examination or present its own opposing expert tesi-

mony. The defense may challenge, for example, sound level readings taken under atypical physical and environmental conditions.

Substantive Defenses

A property line case which directly contests the existence of a violation is the easiest challenge. Defense counsel may suggest that the wrong party was charged with the violation, and question the correctness of the noise source identification. If the site is a multiple unit dwelling or a business complex, the proper party must always be identified. Defenses based on local zoning protection for pre-existing uses, variances, and non-conforming use exemptions also may be raised in a property line standards case.

MODEL COMMUNITY NOISE CONTROL ORDINANCE: ARTICLE IX, Motor Vehicle Maximum Sound Levels

9.1 Motor Vehicles and Motorcycles on Public Rights-of-Way

No person shall operate or cause to be operated a public or private motor vehicle or motorcycle on a public right-of-way at any time in such a manner that the sound level emitted by the motor vehicle or motorcycle exceeds the level set forth in Table II.

TABLE II
MOTOR VEHICLE AND MOTORCYCLE SOUND LIMITS
(MEASURED AT 50 FEET OR 15 METERS)*

Vehicle Class	Sound Level in dBA: Speed Limit 35 MPH or Less	Speed Limit Over 35 MPH	Stationary Run-up
**Motor Carrier Vehicle engaged in interstate commerce of GVWR or GCWR of 10,000 lbs. or more	86	90	88
All other motor vehicles of GVWR or GCWR of 10,000 lbs. or more	A	B	--
Any motorcycle	C	D	--
Any other motor vehicle or any combination of vehicles towed by any motor vehicle	E	F	--

* Federal and many state and local regulations permit use of a sliding decibel scale based upon alternative measurement distances.

** These are the Federal standards promulgated by EPA, effective on October 15, 1975, 40 C.F.R. §202.20 (1978).

SUMMARY

Section 9.1 of the Model Ordinance is aimed at controlling the noisy operation of motor vehicles and motorcycles on public streets. What the prosecutor must show in such cases is proof that the defendant was operating a vehicle that emitted noise in excess of proscribed limits. Testimony of the apprehending officer along with scientific evidence likely will play a major role in this offer of proof. Not all courts will take judicial notice of the reliability of sound measuring devices, in which case a foundation must be laid. In all cases, however, courts will want some proof that the particular monitoring equipment used was proper and in proper working condition and that the person using it was a qualified operator.

This chapter outlines a series of questions designed to establish proof of a motor vehicle violation and proof of the reliability of the sound level meter. It also details the types of information that could be asked of the apprehending officer, if that individual is someone other than the monitoring officer.

Either the civil (preponderance of the evidence) or criminal (beyond a reasonable doubt) standard of proof will apply, depending on how the particular jurisdiction defines a motor vehicle noise violation. Remedies range from notice of violation, to abatement orders, to penalties. Lack of notice, as in radar cases, may be a viable defense in some jurisdictions.

ELEMENTS OF THE CAUSE OF ACTION

In order to successfully prosecute a motor vehicle operator, the prosecutor must be able to show that:

* The defendent operated or caused to be operated a motor vehicle or motorcycle on a public right-of-way; and
* The motor vehicle or motorcycle was operated in such a manner that the sound level emitted exceeded the limits established in the ordinance.

TYPES OF EVIDENCE TO SATISFY ELEMENTS

Scientific Evidence

As with prosecutions for exceeding permissible receiving land use sound levels (see Ch. 3), scientific evidence may play a major role in motor vehicle noise violation cases.

The use of objective sound level standards and sound level meters to enforce motor vehicle noise standards has not been challenged extensively in court. However, sound level meters used in noise enforcement are similar to radar speedmeters used in speed limit enforcement. As an analogous technology and mode of enforcement, the legal development of radar speedmeter readings as admissible evidence should prove highly supportive in the development of case law involving the use of sound level meter readings as evidence.[1]

Establishing the Validity of Sound Level Meter Evidence

When data secured by the use of sound level measuring devices are placed in evidence to show violation of objective noise limits, as in the case of radar speedmeter data to show violations of speed limits, a court may require expert testimony on the nature and function of sound level measuring devices and the scientific principles upon which they are based.[2]

Before offering testimony regarding the scientific validity and accuracy of the sound level measuring device, a foundation is laid through establishing the qualifications of the witness. (See Chapter 7, Trial Techniques, infra.

This testimony constitutes the first part of the foundation necessary before evidence produced by sound measuring devices may be admitted in court.

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[1] See Annot., 47 A.L.R. 3d 822 (1973) (admissibility of radar speedmeter evidence); see also, Chapter 3, note 1, supra.

[2] See discussion Chapter 3, Property Line Standards, supra.

In courts where judicial notice of sound measuring device reliability has been taken, this step may not be necessary, but the prosecutor must be able to demonstrate in all cases that the particular equipment used was of an appropriate type and in proper working condition, and that the person using the device was qualified to do so.[3]

Testimony of the Officer Operating Sound Level Meter

The testimony (after qualification) of the officer who monitored the sound level measuring device should describe:

* The equipment used;
* The system calibration procedure performed by a certifying laboratory to assure accuracy and proper operation of the equipment;
* The field calibration of the equipment for proper operation and accuracy, made on the day the particular measurement for which defendant was charged with exceeding the noise limits;
* The location of the monitoring device;
* The officer's procedure in setting up the equipment according to the regulations in effect in the jurisdiction on the day the particular measurement for which defendant was charged with exceeding the noise limits was made;
* Any environmental conditions that would affect the noise level reading and any corrective measures taken, e.g., use of wind screen.
* A description of the vehicle involved in the alleged noise ordinance violation, including its color, make, and license number;
* The recorded sound level emitted by the defendant's vehicle at the time it was monitored, as shown by the sound level meter;
* The conveyance of pertinent information regarding identity of the offending vehicle and noise level reading to the apprehending officer, where the monitoring officer is not the same individual as the apprehending officer.

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[3] See 2 Am. Jur. Proof of Facts 2d, 545-608(1974).

Sample Questions for Officer Operating Sound Level Meter

After qualifying the officer, the following sample questions may help establish a violation.

Q. Describe the noise level standards that are enforced in this jurisdiction.

Q. At about [time] on [date] did you observe a [color and make of vehicle] with [state] license number _____ near [location]?

Q. In what direction was it traveling?

Q. In what lane?

Q. Did you obtain a noise reading of this vehicle?

Q. What was that reading?

Q. Is that in violation of [jurisdiction] noise ordinance levels for vehicles of that class?

Q. By how much?

Q. What is the significance of this difference?

Q. What did you do after you noted the apparent violation on the the sound level meter?

[Give testimony regarding observation of vehicle, recording of color, make, license number, other identifying particulars, and of notifying officer in apprehending vehicle by radio.]

Q. Did you observe officer [give name] give chase and apprehend this vehicle?

Q. When you noted the apparent violation, were there any other vehicles in the measurement zone?

Q. Did you note any other noise sources that could have caused an erroneous reading on the vehicle in violation?

Q. Were there any reflecting surfaces near your monitoring location that would induce an error in your reading?

Q. What was the ambient level observed at that time?

Q. Is this level more than (6dBA/10dBA)[4] below your enforcement level?

Q. Why is this difference significant?

[Give testimony to explain the relevance of ambient noise levels to enforcement monitoring readings. An ambient level of 10 dBA less than the maximum permitted ordinance level would add less than .5 dBA to the reading if the vehicle emitted noise at the maximum permissible level. An ambient of more than 10 dBA below the maximum would contribute even less and would be functionally negligible in the total reading.]

Q. Describe the sound measuring equipment used to record the noise level.

Q. Where was the equipment located when you measured the noise?

Q. Describe the procedure for sound level meter set up.

[Give testimony relating to mounting procedures, distance from traffic, use of windscreen, height of microphone, angle of microphone to traffic, and other relevant factors.]

Q. Was this equipment set up conducted in accordance with the criteria established in [cite relevant provisions from regulations or test procedures manual]?

Q. What do your regulations require as to factory and field calibration of the equipment?

Q. How did you meet these requirements?

It may be helpful to supply the document which certifies the most recent calibration by the manufacturer and the field report which documents the field calibration. It may also be good strategy to show the judge the equipment and its dynamic range to illustrate the ease of interpretation of the noise reading observed.

Testimony of the Apprehending Officer -- The apprehending officer should be called to testify to facts within his or her own knowledge relating to flagging

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[4] There is a variation among jurisdictions as to the maximum ambient level permissible at the time of vehicle monitoring--from 6 dBA to 10 dBA below the enforcement level.

down the vehicle and to issuing the "ticket" or summons. (If the monitoring officer and apprehending officer are the same person, the sample questions presented on the preceding pages of this Manual should suffice.)

The testimony (after qualification) of the apprehending officer at a minimum should show:

* Communications from the monitoring officer relating to the offending vehicle and its driver, including a description of the alleged violator and the color, make, and license number of the alleged violating vehicle;

* Conversations with the defendant pertinent to the excessive noise charge, especially those showing defendant's reaction to information obtained from the monitoring officer and repeated to the defendant.

Sample Questions for Apprehending Officer

Q. At about [time of offense] on [date of offense] did you issue a citation to [operator of offending vehicle], operator of a [color and make of vehicle] with [state] license number [number]?

Q. Can you now identify that person to whom you issued the citation? Please point out the individual in this courtroom.

Q. Can you describe the events leading to the issuance of the citation?

Q. What did you say to the defendant at the time you issued the citation?

Q. Did you conduct a visual inspection of the exhaust system of this vehicle?

Q. What did you observe?

Q. On visual inspection of the equipment of this vehicle's exhaust system, was there any doubt in your mind that this vehicle was the source of the noise observed in violation?

Q. Did you then issue a citation to the defendant driver?

On a finding of guilty, and if local procedures permit, it may be advisable to move that the defendant be granted a reasonable period of time in which to correct the malfunction and to have it tested.

BURDEN AND ORDER OF PROOF

Burden of Proof

In order to gain a conviction under this provision in jurisdictions that treat violations as criminal actions, each element of the offense must be proven beyond a reasonable doubt.[5] Otherwise, the civil standard of proof (preponderance of the evidence) applies.

Order of Proof

The suggested order of proof follows the order of testimony to the effect that:

* The sound level measuring device was properly set up;
* The sound level measuring device was working and the meter reading was accurate;
* The sound level measuring device and apprehending vehicle were in sight of each other but separated by a reasonable distance (in jurisdictions where this is required);
* Calibration tests for accuracy of the sound level measuring device were made;
* The sound level meter operator had seen and heard the suspect vehicle;
* The proper defendant was apprehended and given the "ticket", the notice to appear, and the summons.

REMEDIES

Potential remedies available for violations of motor vehicle noise provisions include notice of violation, abatement orders, and penalties. For specifics, see Model Ordinance, Article XI, Enforcement [Appendix C].

DEFENSES

Prosecutors can expect several defenses to be raised in a prosecution for violation of a noise control ordinance provision relating to motor vehicle

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[5] C. Torcia, Wharton's Criminal Evidence §11 (13th ed. 1972).

operation. Some of these defenses have been advanced in radar speedometer cases but have met with little success.

Reliability of Equipment, and Qualifications of Monitoring Officials

The defense may attack the direct testimony of the expert witness and monitoring officer, or the defense may bring in their own expert to testify that the sound measuring device might give erroneous readings under certain conditions. Well-documented evidence and expert testimony regarding the proper testing and operation of the monitoring equipment used to help apprehend the defendant should serve to minimize the impact of this defense, however.

Similarly, a defense question on the qualifications of police officers who operate the monitoring equipment may be rebutted by careful presentation of the officers' training and experience.

Lack of Required Notice

Some jurisdictions require the posting of readily visible signs to provide notice that radar, for example, is in use in the vicinity. Communities may be advised to do this in regard to motor vehicle noise enforcement. The City of Bloomington, Minnesota, for example, posts roadway signs that read: "Noise Ordinance Enforced - City of Bloomington - Ord. 10.29.015." In jurisdictions where such a requirement exists, it will be necessary to present evidence of compliance with the notice requirement to counter defense claims of lack of notice.

Unconstitutionality

Statutes allowing the use of radio microwaves and other electrical devices to determine motor vehicle speed have been attacked on constitutional grounds as violative of rights under the Due Process Clause of the Fourteenth Amendment. Courts have held, however, that radar results can be accepted as prima facie

evidence of the speed of a motor vehicle without contravening the Fourteenth Amendment.[6]

If the evidentiary relationship between a noise level meter reading and the actual noise emission level of the motor vehicle can be demonstrated and a reasonable (through rebuttable) presumption raised that a reading in excess of limits indicates a noise violation, due process problems should be minimal.[7]

Apprehension of Wrong Vehicle

The "mistake" argument might be raised in cases where traffic was heavy at the time of the violation and where more than one vehicle might have been in the "zone of influence" of the sound meter at the time the defendant's vehicle was being monitored. However, since it is good measurement practice that enforcement officers not cite a vehicle moving in heavy traffic, mistaken identity should not create such a problem.

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[6] See, e.g., Dooley v. Commonwealth, 198 Va. 32, 92 S.E. 2d 348 (1956) ("The test for constitutionality of statutes making proof of a certain fact prima facie or presumptive evidence of another fact is whether there is a natural and rational evidentiary relation between the fact proven and the fact presumed.")

[7] Noise Enforcement Division, U.S. Environmental Protection Agency, State and Local Hornbook (Draft, May 1, 1978).

CHAPTER 5: TAMPERING PROHIBITIONS

MODEL COMMUNITY NOISE CONTROL ORDINANCE: ARTICLE VI, Prohibited Acts

6.2.18 Tampering

The following acts or the causing thereof are prohibited:

(a) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any noise control device or element of design or noise label of any product identified under Section 4.3.6. The EPO/NCO may, by regulation, list those acts which constitute violation of this provision.
[b. The (intentional) moving or rendering inaccurate or inoperative of any sound monitoring instrument or device positioned by or for the EPO/NCO, provided such device or the immediate area is clearly labeled, in accordance with EPO/NCO regulation, to warn of the potential illegality.]
(c) Use of a product identified, under Section 4.3.6, which has had a noise control device or element of design or noise label removed or rendered inoperative, with knowledge that such action has occurred.

MODEL COMMUNITY NOISE CONTROL ORDINANCE: ARTICLE IX, Motor Vehicle Maximum Sound Levels

9.1.1 Adequate Mufflers or Sound Dissipative Devices

(a) No person shall operate or cause to be operated any motor vehicle or motorcycle not equipped with a muffler or other sound dissipative device in good working order and in consistent opera tion;
(b) No person shall remove or render inoperative, or cause to be removed or rendered inoperative, other than for purposes of maintenance, repair, or replacement, any muffler or sound dissipative device on a motor vehicle or or motorcycle;

(c) The EPO/NCO may, by (guidelines) (regulations subject to approval by .....), list those acts which constitute violation of this section.[1]

FEDERAL TAMPERING PROHIBITIONS

The Environmental Protection Agency has promulgated emission standards for portable air compressors[2] and medium and heavy duty trucks.[3] These regulations require that labels be attached to such products; labels that plainly reflect EPA prohibitions against tampering.[4]

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[1] The Uniform Vehicle Code has been used as a guide for motor vehicle laws by most states and almost all states have adopted this particular section which requires vehicles to be equipped with adequate mufflers. Some states go even further; California requires that the muffler be properly maintained and prohibits modification of a vehicle's exhaust system in a manner that increases noise emission. The muffler requirement is an effective tool for controlling motor vehicle noise. Most of the citations issued by the California Highway Patrol and by local police departments are issued under these sections requiring adequate mufflers. Even though a sound level meter is used, the section establishing maximum permissible noise levels is rarely cited. See, e.g., UNIFORM VEHICLE CODE §12-402:

> § 12-402--Noise prevention, mufflers
>
> (a) Every vehicle shall be equipped, maintained and operated so as to prevent excessive or unusual noise. Every motor vehicle shall at all times be equipped with a muffler or other effective noise suppressing system in good working order and in constant operation, and no person shall use a muffler cut-out, bypass or similar device. (REVISED, 1971.)

[2] EPA Noise Emission Standards for Construction Equipment; Portable Air Compressors, 40 C.F.R. Part 204 (1978).

[3] EPA Transportation Equipment Noise Emission Controls; Medium and Heavy Trucks, 40 C.F.R. Part 205 (1978).

[4] For example, air compressor labelling regulations require this statement: "This Compressor conforms to U.S. E.P.A. regulations for Noise Emissions Applicable to Portable Air Compressors." The following acts or causing thereof by any person are prohibited by the Noise Control Act of 1972:

(A) The removal or rendering inoperative, other than for the purpose of maintenance, repair, or replacement, of any noise control device, or element of design (listed in the owner's manual) incorporated into the compressor in compliance with the Noise Control Act.

(B) The use of this compressor after such device or element of design has been removed or rendered inoperative." (40 C.F.R. §204.55-8)

SUMMARY

Model Ordinance Section 6.2.18 is a general tampering prohibition provision, while section 9.9.1 specifically applies to motor vehicle tampering.

A tampering prosecution generally involves either one or both of two types of conduct: 1) removing (or making inoperative) a noise control device; and 2) using the device or vehicle whose noise control system no longer functions. Separate causes of action apply to each type of conduct.

An element common to both a product and a motor vehicle cause of action for removing or making inoperative a noise control device is the requirement that repair, maintenance or replacement was not the purpose of such conduct. However, when use of a tampered product or motor vehicle is the allegation, a difference in proof requirements appears under the Model Ordinance. A prosecution for use of a tampered-with product requires proof that the defendant knew that the device had been tampered with. A prosecution for use of a tampered-with motor vehicle, on the other hand, does not require similar proof of knowledge.

Proof of tampering should endeavor to show that the product or motor vehicle was in a condition proscribed by a tampering statute and its regulations. Pages 50-51 provide question and answer samples for direct examination of a manufacturer's representative, mechanic, or noise technician to show tampering.

The most difficult element to prove in a product use prosecution is the defendant's knowledge of the tampering. The prosecutor might link tampering and subsequent use allegations together in the same complaint since proof that the defendant tampered with a product will also fulfill the knowledge element of the "use" prosecution.

The remedies for tampering violations are standard remedies like those described in the Model Ordinance (Article XI)[Appendix C]. Certain statutory,

evidentiary, and substantive defenses are described on pages 54-56 of this chapter.

TAMPERING CAUSES OF ACTION

There are two types of conduct that may lead to prosecution for tampering: 1) the removal (or rendering inoperative) of noise control devices or labels; and 2) the use of a product or vehicle that has been tampered with.

To successfully prosecute a case of tampering with a product that is not a motor vehicle the prosecutor must show that:

* The product allegedly tampered with was required by law to have a noise control device, element of design or label, and was listed, as under Section 4.3.6 (Model Ordinance), as a product for which a tampering action may be brought;
* The defendant removed, rendered inoperative, or caused to be removed a noise control device, element of design, or label;
* This removal or rendering inoperative was not for the purposes of repair, replacement or maintenance of the product; and
* The tampered-with product exceeded noise emission limits (applicable only to actions based on Federal tampering regulations).

A separate action for the use of a tampered product also lies. It has three elements:

* The product alleged to have been used improperly was required by statute to have a noise control device, element of design, or noise label, and was listed as under Section 4.3.6 (Model Ordinance), as a product for which a tampering action may be brought;
* The defendant made use of a product whose noise control device, element of design, or noise label had been removed or rendered inoperative; and

* The defendant knew that the noise control device, element of design, or label had been removed or rendered inoperative.

Because a single defendant may be guilty of both tampering and of the subsequent use of the tampered product, a prosecutor's best course of action may be to charge the defendant with both violations in the same complaint. With these charges linked together, proof that the defendant tampered with a product would also fulfill the knowledge element of the "use" prosecution.

Prosecution of a motor vehicle tampering case follows a similar pattern. Two elements must be proven:

* The defendant removed, rendered inoperative, or caused to be removed or rendered inoperative a muffler or sound dissipative device; and
* This removal, rendering inoperative or causing thereof was not for purposes of repair, maintenance or replacement.

The operator using a motor vehicle that has been tampered with can also be prosecuted, based on proof that:

* The defendant operated or caused to be operated a motor vehicle; and
* The motor vehicle at issue lacked a muffler or other sound dissipative device in good working order or in constant operation.

Again, it may be sound trial strategy to join both motor vehicle violations in the same complaint. Note that the motor vehicle provisions of the Model Ordinance do not require a showing that the defendant knew that the vehicle had been tampered with or knew that the muffler was defective.

TYPES OF EVIDENCE TO SATISFY ELEMENTS

Evidence of Statutory Controls

The prosecutor's task of proving a tampering case is made easier in circumstances where product standards or state and local regulations specifically require that a noise control device, element of design, or label be attached to

the product. The owner's manual accompanying certain products, for example, may carry a list of activities that constitute "tampering" with the product. Such lists are compiled by EPA after submission by the manufacturer of a proposed tampering list and are updated from time to time.

Having established that product regulations are in effect, the prosecutor must further show that the defendant's product is of a model year that was regulated.

Proof of Tampering

It is unlikely that a noise control officer will directly observe a defendant tampering with a product or a motor vehicle. More likely, the officer will encounter potential noise violations indirectly during the course of daily enforcement duties. However discovered, to demonstrate that someone has removed or altered a noise control device, the prosecutor must be able to show that the product was in a condition prohibited by a tampering statute or its regulations. That should not be difficult in a case, for example, where a noise control officer has observed that a muffler no longer is attached to an air compressor and could so testify on direct examination. In other cases where an alteration affected an element of design or was otherwise less apparent, additional witnesses may be necessary. A noise technician from the Noise Control Office (or a police lab technician), for example, could testify regarding the deviation between manufacturer's specifications and the present state of the tampered product.

Other techniques to describe the tampering activity to the court might include the use of photographs. Photographs could be taken of properly installed product noise control equipment and contrasted with photographs of the tampered product. In most jurisdictions these photographs would need to be authenticated or verified by a witness who had observed what the photographs purported to

show and who could affirm that the photographs fairly depicted what the witness observed.

Sample Questions and Answers for Manufacturer's Representative, Mechanic or Noise Technician to Show Tampering

Qualify the witness as an expert on product design and construction. Stress experience, or exposure to noise control devices, mechanical or environmental engineering background, and other technical education. If the witness is a product salesman or mechanic, focus on the length of employment and training with the particular company, responsibilities, and depth of knowledge with product lines and design:

Q. Are you familiar with the product (or photograph of the product) I am showing you now?
A. Yes.

Q. Could you identify it for the court?
A. Yes, it is a portable air compressor, sold by the ABC Company under the model name Pressure Builder, Model No. Series 2001.

Q. Are you familiar with design and construction of this product?
A. Yes.

Q. Does it contain any device or element of design to control noise emissions?
A. Yes, starting with Models in 1977 all portable air compressors were required to have noise control devices.

Q. Could you describe them?
A. Yes. There are a number of features incorporated to reduce noise. I have the product blueprints with me to help explain these features. [Lay foundation for these and enter into evidence.]

Q. Could you describe the noise control devices found on the Pressure Builder air compressor?
A. There are two baffle type mufflers, insulated exhaust pipes, and a specially designed exhaust manifold as the primary noise control system. The compressor has rubber rather than chain belts in the drive train and uses a special transmission with nylon gears.

Q. Were these features manufactured into all Pressure Builder air compressors of the model, year and series we are discussing?
A. Yes, to comply with Federal performance standards.

Q. Were buyers of this product informed about these features?
A. Yes. The air compressor has a label which informs purchasers of the mandatory incorporation of noise control devices. In addition, the instruction manual, given to purchasers at time of sale, describes the noise control devices, gives maintenance schedules and techniques and includes a list of prohibited activities with regard to the noise control aspects of each product.

Q. Did you have cause to examine a Pressure Builder air compressor for the police/NCO?
A. Yes, at the request of Sgt. Boomer of the Police Evidence Laboratory, I accompanied him to examine an air compressor on January 1, 1979, at the Police Impoundment Lot.

Q. What was the serial number, make, model, and year of this compressor?
A. (Referring to notes) It was a 1978 "Pressure Builder" air compressor, Serial Number GOOOO7.

Q. Was there anything unusual about this particular compressor? What was its condition?
A. The compressor was in most respects normal, reflecting a little wear and tear. However, three modifications had been made to the noise control equipment.

Q. What were they?
A. The two mufflers had been removed and in their place a piece of straight, non-insulated tailpipe had been welded. Secondly, the rubber belt had been replaced with what appeared to be a bicycle chain and the pulley replaced with a toothed sprocket. Additionally, a standard transmission lubricant was in the gear box.

Q. What if any, effect would these modifications have on the performance of the air compressor?
A. They would make the product appreciably louder. I operated the air compressor at the Police Impoundment Lot and the noise it produced was deafening--far louder than a properly equipped air compressor.

Q. Were any of these alterations specified as improper alterations in the operations manual you mentioned earlier?
A. Yes, all three.

Q. Are the replacement parts required for this compressor stocked, and on hand at the ABC dealership?
A. Yes, these are standard parts, interchangeable among several ABC products. A sizeable inventory of each is maintained at the ABC warehouse.

Q. Thank you very much. No further questions.

The presentation in court of a tampered product and its unmodified counterpart is useful to show the tampered status of a product, but it will not show who the actors were in this tampering activity. Direct evidence that links the

tampered status of a product with actions of the defendant owners may be difficult to find. Circumstantial evidence, therefore, will be critical. This might include testimony: 1) from product distributors stating that at the time of sale the product contained a noise control device; 2) from the product owner, that the product had been continuously possessed since purchase; and 3) from any intervening borrower as to the condition of the borrowed product. The goal of such evidence is to show that the product has been within the defendant's control since purchase, allowing the reasonable inference that any changes to it were caused by (or were made with the consent of) the defendant owner.

Evidence of Use of Tampered Product

Proof of a defendant's violation of the prohibition against use of a tampered product is relatively straightforward, with one exception. Testimony by the noise control or police officer should be sufficient to show that the defendant operated a product that, by other testimony, has been shown to have been tampered with. The most difficult element to prove will be that the defendant had knowledge that the product had been tampered with.

Evidence of Motor Vehicle Tampering

Motor vehicle noise violations usually are not as difficult to prove.[4] Tampering prohibitions generally are directed against the removal of mufflers or other sound dissipative devices. The presence of (or absence of) a muffler can be spotted easily and the testimony of an apprehending officer should be conclusive. Photographic evidence can provide additional support. When the identity

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[4] The judicial rationale offered is that "motor vehicles are operated daily within the view and hearing of citizens even in sparsely populated areas, and that any ordinary and interested person would have no difficulty in determining whether or not exclusive and unusual noise or offensive or excessive exhaust fumes were being emitted from a particular motor vehicle." Department of Public Safety v. Buck, 256 S.W.2d 642 (1953).

of the tamperer cannot be proven directly, ownership and circumstantial evidence may be available to create a presumption as to who the tamperer is.

BURDEN AND ORDER OF PROOF

The burden of proof will vary for each of the above violations depending on whether individual jurisdictions decide to handle the violation as criminal or civil in nature.

The order of proof will depend on the facts involved in each case. Generally, the following guidelines are suggested:

* Establish the regulatory context--i.e., the specific activities that are proscribed by regulation;
* Establish that the defendant's product or motor vehicle is subject to these provisions;
* Establish defendant's control, use or operation of product or motor vehicle.
* Establish the physical condition of the defendant's product through technical testimony by the NCO, noise technician, manufacturer's representative, or shop mechanic.
* Establish the distinction between physical condition of defendant's product and unaltered new product by introducing manufacturer's specifications (and/or manufacturer's representative's testimony), testimony of NCO, noise or police lab technician.
* Establish, for use violation, defendant's operation of tampered product or vehicle by apprehending NCO or police testimony.
* Establish, for product use violation, defendant's knowledge of tampered condition of product (not applicable to motor vehicles) by proving possession of knowledge in fact.

* Establish (for removal allegation for products or motor vehicles) defendant's responsibility directly or through inference of possession.
* Specify remedies requested and the proof of facts necessary to support the request.

REMEDIES

The remedies available for violations of tampering provisions are the same as those for other provisions of the Model Ordinance. They range from penalties, to abatement orders, to injunctive relief where the circumstances warrant such relief. See Model Ordinance, Article XI, Enforcement [Appendix C].

DEFENSES

There are several defenses that the prosecutor should anticipate in a tampering or use case. These may be categorized in the following three groups:

* Statutory defenses -- preemption, unconstitutionality;
* Procedural and evidentiary defenses -- illegality of search; gap in chain of custody; failure to state a cause of action;
* Substantive defenses -- removal for repairs; compliance with statutory controls; lack of knowledge; inadequacy of products.

Statutory Defenses

An argument that Environmental Protection Agency has preempted all local tampering regulation of products and vehicles will be ill-founded where the described activities which constitute tampering at the local level are identical to those identified in the Federal regulations or concern products not covered at the time of sale by Federal regulation.

A second possible defense might be to challenge the constitutionality of tampering provisions. Section 9.1.1(a) of the Model Ordinance is particularly susceptible to such an attack because of its arguable vagueness. It prohibits persons from operating vehicles which do not have mufflers in "good working

condition and in constant operation."[5] However, if a jurisdiction has promulgated vehicle performance standards and the muffler provisions are tied to them, this vagueness argument should be much less persuasive.

Evidentiary Defenses

Standard evidentiary attacks, common to other trials, may arise in tampering cases as well. For example, the defense might move to suppress certain evidence obtained by a noise control or police officer without a search warrant.

Substantive Defense

Several arguments may be made to counter the proof of elements presented by the prosecutor. One is built into the Model Ordinance to the extent that it provides that tampering is not at issue if the noise device was removed for repair, maintenance, or replacement. However, intent to repair a product or vehicle operated in the interim between removal and replacement should not be sufficient to defend against a use violation charge. A defendant may also

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[5] Such language has been upheld in challenges to state muffler statutes, but while tied to other language directed to the prevention of "excessive and unusual noise." For example, an Alabama statute provides:

> Every motor vehicle shall at all times be equipped with a muffler in good working order and in constant operation to prevent excessive or unusual noise....Ala. Code §39(a)(1958).

In upholding a similar law, a Texas court stated the following rationale:

> ...[t]he term "excessive and unusual noise" as used refers to noise in excess of the usual noise which would necessarily result from the operation of a motor when reduced to a minimum by a muffler in good working order and in constant operation.... We overrule the contention that the statutes in question are invalid for indefiniteness.

The court found the phrase "good working order and constant operation" a sufficiently specific standard to define excessive noise. Ex parte Trafton, 271 S.W. 2d 814 (Tex. 1953) appeal dismissed, 348 U.S. 301 (1954).

attempt to explain how a product came to be tampered with by shifting the blame to a repair shop. The subsequent purchaser of a used product might also allege the prior tampered condition of a product. These assertions conceivably could undermine proof of causation and/or knowledge to defeat a product tampering or use prosecution. However, such assertions would not be effective as defenses to motor vehicle provisions, since knowledge and causation are immaterial to the use of a vehicle with an inadequate noise control system.

Other possible defenses a defendant might raise include a defense of compliance with statutory controls, and a defense that although tampering occurred, the end result was a noise level still within the noise standard. Statutory interpretation will most likely control the success of these defenses.[6]

PROBLEMS IN ENFORCEMENT

The following are unique problems for a prosecutor bringing a tampering action:

* A lack of Federal, State, or locally promulgated tampering prohibitions upon which localities can base tampering actions;
* Difficulty in proving the link between tampering and the perpetrator.

[6] See "Constitutionality of Auto Muffler Statutes: Comments on Noise Pollution Laws," 48 J. of Urban Law 755 (1971).

CHAPTER 6: SAMPLE FORMS AND PROCEDURES

SUMMARY

Chapter 6 contains a variety of sample forms and procedures as pretrial and trial drafting aids for the prosecutor. Sample civil forms include:

Civil Complaint: Public Nuisance (p. 58)
First (p. 60) and Second (p. 64) Requests for Admissions
Interogatories (p. 61)
Motion to Produce Documents (p. 65)
Motion for Physical Inspection of Premises (p. 66)
Notice of Violation (p. 69)
Abatement Orders (p. 70)

Sample criminal forms include:

Information (p. 71)
Indictment (p. 72)

This chapter also offers a discussion of the uses of civil and criminal discovery procedures.

CIVIL COMPLAINT: PUBLIC NUISANCE

STATE OF IDAHO

In the Supreme Court

STATE OF IDAHO
Plaintiff

No. 8976

vs.

New Motor Company
Defendant

COMPLAINT

The State of Idaho, plaintiff herein, by its Attorney General brings this civil action against New Motor Co., defendant herein, and for its cause of action complains and alleges as follows:

1. That this action is brought by the Attorney General, Idaho, in the name of the people of the State of Idaho.
2. That defendant is owner of the factory [building] located at Ninth Street in the city of Boise, State of Idaho, more particularly described as Lot No. 6 at the corner of Main and South Streets.
3. That defendant for a considerable period of time has kept and occupied, and now keeps and occupies, said factory.
4. That defendant has been operating said factory since July 4, 1963, in such a manner as to cause excessive noise to emanate from the plant.
5. That said noise has impaired the health of the plaintiffs making them nervous and irritable, and has unreasonably interfered with their sleep.
6. This loud and offensive noise continues during the day and into the late hours of the night.
7. Such noise is a public nuisance and interferes with the health, safety, welfare, and peace of the public.

Wherefore plaintiff demands that the defendant, its officers, servants and agents and all persons under its authority and control be temporarily enjoined from maintaining and continuing to maintain a public nuisance, and that on final hearing the temporary injunction be made permanent.

Date: July 10, 1963

(signature of attorney)
Joe Marks
Attorney General
State House
State of Idaho[1]

DISCOVERY

Civil Discovery

The principal tools of civil discovery are: 1) requests for admissions of fact and genuineness of documents; 2) interrogatories directed at a party; 3) production of documents and tangible things, including inspection of premises; and 4) depositions of witnesses, especially of the opposing party's agents or employees.

Recommended Order of Discovery in a Noise Abatement Case

*First Requests for Admissions of Fact and Genuineness of Documents

*Interrogatories to Defendants

*Motion to Produce

*Depositions

*Second Request for Admissions of Fact and Genuineness of Documents

*The Pre-Trial Conference

Penalties for Refusal to Submit to Discovery

The precise rule controlling penalties for refusal to submit to discovery will differ from court to court but will generally follow the Federal pattern. Penalties range from a default judgment to imposition of costs. To invoke a penalty, the usual procedure is to file a Motion To Compel the discovery sought and then to obtain on Order compelling the discovery. If that Order is disobeyed, another Motion for Contempt is needed to impose penalties.

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[1] 5 Carmody-Wait 2d §§29:671, -:684, -:686 (1966).

Discovery of EPO/NCO

Discovery is available to all parties in a civil action and can be a two-edged sword. The EPO/NCO should be prepared to submit to discovery. However, certain items such as reports from independent expert consultants not to be used at trial, where the expert was retained by the prosecutor (not the EPO/NCO), may be protected from discovery as part of an attorney's work product.

Defenses to Discovery

Except as to matters which come within the ever-narrowing ambit of privileged information, most facts are discoverable if they are relevant. Even irrelevant facts are discoverable if they lead to discovery of relevant facts. Some defendants may resist discovery for fear that things discovered in a civil proceeding could be incriminating and used against them in a subsequent criminal prosecution. Such fears, however, are easily allayed by the entry of a Protective Order, limiting the use of such information to the civil action.

Civil Discovery Forms

Plaintiff's First Request for Admission of Facts and Genuineness of Documents/Sample

Plaintiff, through counsel, under the provisions of Rule 5 requests that the defendant, Howard Horton, make the following admissions for purposes of this action only:

A. That the following documents, copies of which are attached as exhibits hereto, are genuine:

1.1 Scale map or drawing of the defendant's premises (plant, vehicle) and surrounding vicinity;

1.2 Photographs of defendant's premises (plant, vehicle, or device;

1.3 Table (Table IV or Table V from Model Ordinance) from official EPA publication no. _____ (or 42 C.F.R § _____);

B. That the following facts are true:

2.1 That from August 1 to August 3, 1979, the defendant operated at 330 Jackson Street, Northampton, Mass. a certain power saw which produced sound;

2.2 That such sound was broadcast from that point daily for 8 hours per day;

2.3 That the document listed in request No. 1.1 above is an official, true, and accurate map (or drawing) as prepared and published by the [City of Northampton] and is admissible in evidence under the provisions of [Fed. R. Evid. 902.(5) or local rule];

2.5 That the documents listed in request No. 1.3 above are official government publications published by the U.S. Environmental Protection Agency in the conduct of its official duties and are documents which that agency is required by law to publish (or, result from findings made by that agency pursuant to its official duties) and are admissible in evidence under the provisions of [Fed. R. Evid. 902(5) or local rule];

(signature of attorney)
John Jones
340 Main Street
Northampton, Mass.

Interrogatories to Defendant, Howard Horton

TO: [defendant] Howard Horton
c/o [Defendant's attorney]

TAKE NOTICE that the following interrogatories are submitted to you under the provisions of [Federal Rule 33 or local rule].

When used in these Interrogatories the term "defendant" or any synonym thereof is intended to and shall embrace and include in addition to said defendant all agents, employees, representatives, private investigators and others who are in possession of or who have in any way obtained information for or on behalf of the defendant.

These interrogatories are deemed continuing and supplemental answers shall be required immediately on receipt of further or different information if the defendant directly or indirectly obtains such information from the time answers are served to the time of trial.

1. State all sources of sound emanating from your (premises) between the dates [March 1-6, 1972] . State with respect to each:

(a) The nature of the source, specifically identifying the machine, device, or other source by name, description and use;

(b) The location of each such source;

(c) The frequency of times per day or per week when each is operative.

2. With respect to each source listed in Answer to No. 1 above, state whether any tests, recordings, observations, samples or estimates of the sounds generated by it have ever been made. If so, state:

(a) The type of tests done;

(b) The dates on which they were done;

(c) The names and addresses of all persons who did them;

(d) The names and addresses of all persons who now have custody of the originals or copies of the reports of same.

3. State whether defendant or anyone known to it has ever conducted any tests, samples, recordings, observations or estimates of ambient sounds outside its (plant, premises). If so, state:

(a) The type of tests done;

(b) The dates on which they were done;

(c) The names and addresses of all persons who did them;

(d) The names and addresses of all persons who now have custody of the original or copies of the reports of same.

6. State with respect to the defense alleged in paragraph [____] of defendant's Answer, each and every fact or opinion which is relevant to the allegation that the excessive sound levels complained of result from activities of persons other than this defendant. Identify by name, address, and nature of sound produced, each other alleged sound source.

7. With respect to any other sources listed in Answer to No. 6 above, state whether defendant or anyone to its knowledge, has ever conducted any tests, samples, recordings, observations or estimates of the sounds produced by such other sources or their contribution to ambient sounds. If so, state:

(a) The nature, type and location where each was made;

(b) The dates on which they were made;

(c) The names and addresses of the persons by whom they were made;

(d) The names and addresses of all persons who now have custody of the originals or copies of the reports of same.

8. With respect to the defense alleged in paragraph [ ] of your Answer, state with particularity all the methods, devices, and programs you have used to avoid and prevent excessive sound emanating from your (premises). Also state with respect to each:

(a) When each was installed and/or made operative;

(b) Who designed each;

(c) Who constructed each;

(d) The cost of each.

9. Has defendant ever had professional consultation with respect to sound control measures, devices, equipment or programs which have been made operative or which are now proposed to be made operative? If so, state:

(a) The name and address of each such person;

(b) The data or dates of such consultations;

(c) The purpose and subject matter of such consultations;

(d) The names and addresses of all persons who now have custody of the originals or copies of the reports of such consultations.

10. Has anyone ever recommended to defendant the installation or implementation of sound abatement equipment, devices or programs other than those already installed or implemented? If so, state:

(a) The names and addreses of all such persons;

(b) When such recommendations were made;

(c) What was recommended;

(d) The names and addresses of all persons who now have custody of the originals or copies of the reports of such recommendations.

11. Has anyone ever recommended any changes or alterations of the sound control, damping, or abatement equipment, devices or programs which defendant has been or now is using? If so, state:

(a) The names and addresses of the persons making such recommendations;

(b) When such recommendations were made;

(c) What changes or alterations were recommended;

(d) At whose request such recommendations were made;

(e) Whether such changes were made. If so, by whom, when, and at what cost. If not, state why the changes were not made.

(f) The names and addresses of all persons who now have custody of the originals or copies of the reports of such recommendations.

12. State the address(es), title(s), and capacity in which employed by defendant of the person signing the Answer to these Interrogatories. If such person is an expert who has made any opinions or conclusions expressed in the above answers, state what kind of expert and his or her qualifications.

13. State the names, addresses, and names of employers of all other persons who participated in the preparation of the Answers to these Interrogatories. With respect to each such person, state his or her expert qualifications if any and identify by interrogatory number the question or questions that each participated in answering.

14. State whether defendant will, without a Motion To Produce, furnish to plaintiff's attorney at plaintiff's expense, copies of all documents and tangible things referred to in answer to Nos. 2, 3, 4, 5, 7, 9, 10 and 11. If so, attach same to the Answers to these Interrogatories or state at what date and place they will be furnished. If not, state specifically all objections to such production.

(signature of attorney)
John Jones
340 Main Street
Northampton, Mass.

Plaintiff's Second Request for Admission of Facts and Genuineness of Documents

Plaintiff, by its attorney, under the provisions of [Federal Rule 60 or local rule] requests the defendant to make the following admissions for the purposes of this action only:

A. That the following documents, copies of which are attached or have been previously furnished to defendant are authentic and genuine:

1.1 Overlay to map, chart or diagram previously attached to request 1.1 of Plaintiff's First Requests for Admissions, said overlay showing the location of sound monitoring sites and sounds recorded, calculated or estimated;

1.2 Compilation of data showing recorded sounds stated places and times taken by Stan Cole on behalf of plaintiff;

1.3 Compilation of data showing recorded sounds at stated times and places taken for defendant by Bill Bell ;

1.4 Correspondence from defendant to Jeff Hall dated Feb. 26, 1972 containing admissions by defendant concerning sound emissions;

B. That each of the following statements are true:

2.1 The documents referred to in 1.1, 1.2 and 1.3 above are summaries or compilations of data, the basis for which are known to and have been made available for inspection by defendant and are admissible in evidence under the

provisions of Fed. R. Evid. 803 (6) ;
2.2 The correspondence items listed in 1.4 and following above contain admissions by defendant and are admissible in evidence under the provisions of Fed. R. Evid. 802(d)(2) .

(signature of attorney)
John Jones
340 Main Street
Northampton, Mass.

Affidavit of Service

Peter Smith on oath states: on December 21 1978, I served this notice by mailing a copy to each person to whom it is directed.[2]

Motion to Produce Documents and Tangible Things

State of New York, Plaintiff herein, by its [Attorney General/City Attorney] moves the court for an order directing defendant to produce the following documents and tangible things relating to the merits of the matter in question in this case for inspection and to be copied or photographed. The documents and articles are:

[Designate specifically the documents and/or things to be produced]

1. Lawn mower that is in possession of the defendant;
2. Sales receipt for lawn mower;
3. A list of the names of witnesses expected to be called by defendant's attorney at trial on this matter;

Said documents and/or things shall be produced on June 15, 1979, at 10:00 A.M. at Room 6, the Courthouse, Tenth Street, Butler City.

Dated this 5th day of June, 1979.

(signature of presiding judge)
Judge Ted Wright
Superior Court
of Bay County[3]

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[2] 1 Illinois and Federal Civil Practice Forms 746, (2d ed. 1965).

[3] Id., at 756.

Motion For Physical Inspection of Premises

State of Missouri, plaintiff herein, by its Attorney General, moves the Court for an order authorizing the plaintiff, plaintiff's attorney, or plaintiff's duly authorized representative to enter upon Lot No. 3 located at the corner of Magnolia and Meeting Streets [specifically designate the land or property] and to inspect the factory [designate the property, object, or operation thereon] on the 10th day of February 1968 at 2:00 o'clock in the afternoon (morning/noon)
of that day.

Dated: February 2, 1968.

Enter: Judge Art Gibbes[4]

Criminal Discovery - Discussion

Although criminal discovery is now more limited than civil discovery, there is a definite trend toward expanding its scope.[5] Depending on local rules, discovery procedures for the prosecution in a criminal case may be both limited and reciprocal, i.e., if the defense requests discovery of certain items, then the prosecution may move for similar items that are in the control of the defendant.[6] Some jurisdictions may grant discovery to the prosecution independent of any prior request for discovery by the defendant.[7] Other jurisdictions allow only the defendant to discover.

A trend appears to be toward encouraging discovery by the parties themselves, without the necessity of a court order. However, since this trend is

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[4] Id., at 757.

[5] Practicing Law Institute, The Prosecutor's Sourcebook 302 (1969).

[6] 13A Bender's Forms of Discovery §8.01 (1968).

[7] Fed. R. Cr. P. 16, 18 U.S.C.A., Notes of Committee on the Judiciary, House Report No. 94-247.

not necessarily uniform, a form for a motion to compel discovery and inspection is included in this chapter.

Motion For Discovery and Inspection

Pursuant to the authority of Article _____, Texas Code of Criminal Procedure, the District Attorney moves the Court to order the defendant to permit the District Attorney to inspect and copy or photograph the following documents and tangible objects which are in the possession of the defendant:

1. The certificate of title and registration of defendant's motor vehicle;

2. The muffler that was removed from defendant's motor vehicle;

3. The names of any witnesses who heard the noise caused by the tampered muffler;

NOTE: [Some jurisdictions may require that the party moving for discovery show that the documents and tangible objects that are sought to be discovered are material and relevant to the cause of action. Reasons for discovery must be included in the motion in order to limit the scope of discovery and prevent "fishing expeditions."]

As the basis for this Motion, the District Attorney states that the objects requested are material for the following reasons:

1. The certificate of title and registration is necessary to determine ownership of the motor vehicle.

2. The muffler is needed so that the prosecution can inspect it and determine whether it has been tampered with.

3. The names of witnesses are needed so that it can be determined whether the operation of the motor vehicle exceeded the sound level.

The District Attorney would further show that the items sought are in the possession of the defendant and cannot be examined prior to trial except by court order. The materiality of the items requested will be further shown at the hearing on this motion. This motion is made in good faith and not for the purpose of delay.[8]

Respectfully submitted,

(signature of attorney)
John Jones
District Attorney
of Dallas County, Texas
Records Building

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[8] 2 Tex. Crim. Forms §44.02 (1976).

Certificate of Service

I hereby certify that a copy of the foregoing Motion has been personally served upon James Smith, attorney for defendant, 100 Fifth Avenue, Dallas, Texas, on this, the 10th day of May 1979.

(signature of attorney)
John Jones
District Attorney
of Dallas County, Texas
Records Building

NOTICE OF VIOLATION

Section 11.3 of the Model Ordinance provides:

> [Except where a person is acting in good faith to comply with an abatement order issued pursuant to Section 11.2 (a)], violation of any provision of this ordinance shall be cause for a (notice of violation) ... to be issued by the EPO/NCO or other responsible enforcement (agency official) according to procedures (which the EPO/NCO may prescribe)/ set forth in.....).

Note that a notice of violation is not applicable to a public nuisance action.[9]

Notice Checklist

The following checklist will assist enforcement officials in drafting a notice of violation. Include:

*Name and address of person to be notified.

*Name and address of person giving notice.

*Reason for giving notice.
--required by statute
--required by rules of court

*Statement of facts subject to receiving notice.

*Statement of authority requiring notice (if necessary).

*Date by which action required by notice, if any, is to be completed.

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9 58 Am Jur 2d, "Nuisances" §57 (1971).

*Date of notice.

*Signature of person giving notice or his agent.

*Acknowledgment or other authentication.[10]

Notice of Violation - Form

To: Larry Morgan [name]
110 Madison Street [address]
City of Cactus, Arizona

1. You are hereby given notice by the City Attorney [public authority] of the City of Cactus, County of Tree, State of Arizona, that you have violated and are continuing to violate a provision of the Cactus Noise Control Ordinance.

2. Pursuant to Section 6.1 of the Ordinance, it is necessary that such noise be discontinued or the following remedial method or procedure will be employed: A Civil Action will be commenced against you.

3. In the event of your failure to comply with the requirements of this notice, you will be liable for a fine not exceeding 50 dollars ($50.00) for each day [week, month] that the noise continues.

Dated: September 11, 1979.

Signature Janet Cleveland
Official Title City Attorney[11]

ABATEMENT ORDERS

Section 11.2 of the Model Ordinance provides:

(a) Except as provided in subsection (b), in lieu of issuing a notice of violation as provided for in Section II.3, the EPO/NCO or other (agency/official) responsible for enforcement of any provision of this ordinance may issue an order requiring abatement of any source of sound or vibration alleged to be in violation of this ordinance within a reasonable time period and according to guidelines [to be approved by appropriate authority] which the EPO/NCO may prescribe.

(b) An abatement order shall not be issued: (1) for any violation covered by Section II.1 (b); (2) for any violation of.....; or, (3) when the EPO/NCO or other

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10 13 Am Jur Legal Forms 2d §186.13 (1973).

11 13 Am Jur Legal Forms (2d) §188:17 (1973).

enforcement (agency) / (official) has reason to believe that there will not be compliance with the abatement order.]

Abatement Order - Form

TO: Hugh Black [name]
206 Airport Drive [address]
Sioux City, Iowa

1. You are hereby required to abate the excessive noise that you have created and maintained or are continuing coming from a lawnmower [source of sound or vibration].

2. The creation of this noise is in violation of §6.2.1. of the Sioux City Noise Control Ordinance.

3. The noise must be abated within 2 [number] days [weeks, months] from the date of this order either by discontinuance or by the following described remedial method: [_____].

4. In the event of your failure to comply with this abatement order, you will be liable for a fine not exceeding fifty dollars ($50) for each day [week or month] the noise continues.

Dated: August 10, 1979

(signature of attorney)
Kenneth Moore
City Attorney
City Hall
Sioux City, Iowa[12]

CRIMINAL FORMS

Information

Richard Alexander, prosecuting attorney, in and for the county of Harris, for and in behalf of the people of the Commonwealth of Virginia, comes into said court, in the second term thereof, in the year 1976, and gives the court to understand and be informed, that David Gary [defendant] of 80 State Street [address] in said county of Harris and Commonwealth of Virginia, heretofore, to: wit: On the 20th day of March, 1976,[13] David Gary [defendant] in said county of Harris intentionally removed and rendered inoperative a noise control device on a lawn mower [set forth essential allegations of offense] contrary to the form of

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[12] 13 Am Jur Legal Forms 2d §188:17 (1973).

[13] Where offense is of a continuing nature (such as nuisance), add: "and on diverse other days and times between the day and the _____day of _____,19__" [alleging the first date when the offense is claimed to have been committed]. Mich. Crim. Proc. Forms, Form No. 108.

the statute in such case made and provided and against the peace and dignity of the Commonwealth of Virginia.

(signature of attorney)
Richard Alexander
Prosecuting Attorney in and
for the County of Harris,
Commonwealth of Virginia

State of Virginia

County of Harris

Richard Alexander prosecuting attorney in and for said county, being duly sworn, deposes and says, that he knows the contents of the foregoing information by him subscribed, and verily believes the same to be true as therein set forth.

Robert Scott

Subscribed and sworn, to before me this 25th day of March 1976.

Clerk of Supreme Court for

Harris County, Virginia

Names of witnesses for People, indorsed on this information by_____, at the time of filing the same:_____

Indictment

The Grand Jurors of the State of Maine, County of Young, upon their oaths present that Michael Taylor on the 13th day of October 1979, in the city of Royal in the county of Young and within the jurisdiction of the court, unlawfully, willfully and maliciously did tamper with and damage the noise control device of a certain automobile belonging to Brian Smith with the intent to remove said device contrary to the provisions of the Maine Noise Control Statute and against the peace of this State, the government and dignity of the same.

(signature of attorney)
Edward Hall
Attorney General
State House
Augusta, Maine

Date: November 5 1979

CHAPTER 7: TRIAL TECHNIQUES

SUMMARY

At the pretrial stage, the prosecutor is advised to tap the skills of a variety of expert consultants to develop a clear understanding of the technicalities that certain types of noise prosecutions present. Considerable attention is paid to the details of selecting experts and on how to prepare them for trail. The text also points out the information available on noise, its causes and effects, and how existing research can be brought to bear on a noise prosecution.

At trial, an initial task for the prosecutor is to qualify the expert(s) chosen; page 78 provides a checklist of characteristics and qualifications for experts. Once qualified, these experts (e.g., acoustical engineers, medical doctors, noise control officers) can contribute to the development of the testimonial evidence needed to support the requisite level of proof required on each of the various elements of the cause of action pursued in the noise prosecution.

Chapter 7 contains a series of question and answer scenarios designed to establish the parameters of proof needed to: 1) demonstrate the characteristics of sound and hearing (p. 79); 2) show the adverse effects of noise (p. 81); 3) illustrate noise control techniques (p. 84); and 4) demonstrate the reliability of testing procedures (p. 85). This chapter also provides concrete guidance on still another phase of trial, that of instructing the jury. It offers sample jury instructions appropriate for the following causes of action: 1) public nuisance (p. 89); 2) property line standards (p. 90); 3) motor vehicles (p. 92); and 4) tampering (p. 93).

Preparing the Noise Violation Case

An interview with the noise control officer/police officer who investigated the alleged violation should help the prosecutor develop a clear understanding of the available scientific evidence--evidence likely to play a key role in successfully prosecuting a noise violator. In such an interview the prosecutor should:

* Review the facts of the case;

* Ask the officer to draw a diagram indicating the location of the noise source, the neighboring streets, and other site features;

* Ask the officer to explain the mechanics and operation of the noise measurement device used. (This line of inquiry will solidify the prosecutor's understanding of the available scientific evidence and also allow the prosecutor to assess the potential of the officer as a trial witness);

* Study and understand the noise measurement readings;

* Determine what written reports or other documentation the officer has prepared;

* Determine whether the officer has ever testified in court;

It is often helpful during trial preparation to designate as chief consultant one expert witness who has had trial experience and who is familiar with the broad spectrum of issues in the case. The primary functions of the expert consultant at this stage will be to help the attorney understand and coordinate all the data gathered; and to determine what other data will be needed by way of tests, samples, and research to fill in the gaps between the facts on hand and those to be required at trial.

Presenting the Noise Violation Case

Because a noise case involves a substantial amount of technical and scientific evidence, the risk of jury confusion must be anticipated. Demonstrative and testimonial evidence will assume a critical role.

Typical demonstrative evidence for a noise prosecution might include:

* A map of the area involved;

* Tape recordings of the noise;

* Records of recordings from the sound level meters;

* A diagram of the human ear in cases where hearing loss is an issue; and

* The muffler or noise control device tampered with.

Lay testimony generally will also be important in the typical noise prosecution. Lay witnesses are permitted to describe what they have heard and whether the noise seemed to be excessive. They may describe the effect on their hearing and the annoyance, inconvenience, and discomfort caused by the noise.

Noise control officers and police officers may be considered expert witnesses, depending on local law. Appropriate expert witnesses usually include acoustical, structural or mechanical engineers, instrument experts, and medical doctors (audiologists and psychiatrists), and psychologists. The medical witness typically completes the presentation of the case since much of the technical evidence together with lay testimony will form the foundation for the hypothetical questions posed to the medical witness.[1]

Use of Expert Witnesses

Experts may be used effectively at both the pretrial and trial stage. Initially, the expert may help to educate the prosecuting attorney on the technical issues. The expert may also assist in securing and developing demonstrative evidence for use at trial. In noise prosecutions, as in others, expert testimony may be based either on actual observation or hypothetical constructs. An expert might also be used effectively to demonstrate the operation of the sound meter

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[1] Practicing Law Institute, Civil Litigation and Trial Techniques 95 (1977).

or other sound measuring equipment to the judge and/or jury. Another important use of experts is in dissecting evidence presented by the defense.[2]

Selection of the Expert

In noise prosecutions, as in other cases involving a great deal of scientific and technical evidence, the testimony of the expert witness can be a crucial, perhaps deciding, factor in the outcome of the case.[3] The selection of an expert should involve an assessment of the expert's professional experience in a particular noise-related discipline, previous publications, previous courtroom experience, and whether a court is likely to regard the expert as impartial.[4] The ability to communicate complex ideas using simple, easily understood language is essential. Although it may be necessary to use more than one expert to present the prosecutor's case, generally it is advisable to use a single expert as the principal pre-trial consultant and witness.[5]

Preparing the Expert for Trial

Just as the expert witness prepares the attorney for trial by explaining the scientific problems, the attorney must prepare the expert for trial. Even though the expert may have previously testified in a noise prosecution, he or she should be counseled as to the exact nature of the specific case, the facts

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[2] In addition to some of the more standard texts and reference materials on the use of experts, two valuable sources include M. Kraft, Using Experts in Civil Cases (1977), and Fleming, "Environmental Litigation: An Analysis of Basic Strategies, Procedures, Substantive Rights and Their Effects," 9 St. Mary's L.J. 749, 774-779 (1978).

[3] See Harrison v. Indiana Auto Shredder Co., 528 F.2d 1107 (7th Cir. 1975).

[4] Fleming, "Environmental Litigation: An Analysis of Basic Strategies, Procedures, Substantive Rights and Their Effects," 9 St. Mary's L.J. 749,775 (1978).

[5] R. Keeton, Trial Tactics and Methods 310 (1954).

which must be brought out to prove the prosecution's case, and the types of questions to anticipate on cross-examination.

Sources of Information

Information on noise, its causes and effects, is available to interested persons through Federal, state, local and private sources. Appendix E identifies Federal agency sources. Potential sources of state and local information are identified in the following paragraphs. These sources may contain information directly related to the particular matter under investigation or may simply provide background material on analogous fact situations.

Communities that have adopted the Model Community Noise Control Ordinance may assign regulatory responsibility to a number of local entities. For example, the Model Ordinance suggests that a hearing board or administrative court be established to hear ordinance violation cases, with local courts being utilized only for administrative appeals. These administrative hearings are potential sources of information as are worker compensation, occupational safety, or zoning hearings.

The Model Ordinance also recommends various application, review, and planning procedures, all of which may generate documentary evidence, for example:

* Records and measurements reported by the owner or operator of a commercial or industrial activity;
* Sound level maps and long term noise control plans;
* Noise impact analysis of capital improvement programs;
* Application for a special variance and application for extension of time;
* Application for a variance in time to comply; and application for extension of time;
* Applications to begin construction;
* Reports of an independent testing agency certifying that sound attenuation measures have been incorporated into the design and construction of a structure;

* Full land site reports;

* Sound analysis reports included within zoning ordinance or comprehensive plan approval; and

* Written disclosure of excessive noise levels upon the sale or rental of a structure or property to be used for human habitation.

In addition, the Environmental Protection Officer may be charged with various review, recommendation and inspection responsibilities, all of which should produce some form of written documentation.

By Federal law, a comprehensive environmental impact statement (EIS) is required for all major Federal actions significantly affecting the environment. Many states and some communities have adopted similar requirements. The comprehensive information contained in an EIS may help a judge or jury appreciate the overall significance of noise problems and may help them relate noise to other, more widely understood types of environmental pollution. The EIS document may contain charts or diagrams useful in the courtroom, as well as information on noise experts familiar with the local area.

Direct Examination of Experts

Qualifying Experts: In General

The following facts and circumstances brought out in the testimony of the witness tend to establish the qualifications of any expert:

* Educational qualifications;
  --colleges attended and degrees obtained
  --fields in which degrees are obtained
  --academic honors awarded
  --postgraduate studies and degrees obtained
  --subjects of theses or dissertations
  --memberships in honor societies[6]

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[6] 18 Am Jur 2d Proof of Facts §21, at 152 (1974).

Sample Questions and Answers Showing Characteristics of Sound and Hearing

An acoustical engineer, audiologist, or otolaryngologist may be an appropriate expert witness to testify about the characteristics of sound and hearing.

Q. We have here a case in which excessive sound emissions are alleged. What exactly is "sound"?

A. Sound is a vibration in matter, in a substance of some kind. We usually speak of sound as traveling in "waves," similar to the waves on the ocean. (The water itself does not travel, but the wave motion does.) Similarly, sound waves travel as successive vibrations through a substance. There must always be a substance of some kind.

Q. What kinds of substances transmit sound?
A. Anything in which the molecules can "bump" against each other. Sound will travel in air, of course, but also in water, in iron (as in a railroad track) and in most matter. In fact, it can travel better in a solid, like the railroad track, than it can in air.

Q. Is there a science which is concerned with sound waves?
A. Yes, the area of science which is concerned with the production, propagation, reception and control of sound waves is called "acoustics."

Q. What types of sounds are there?
A. The word "sound" is usually thought to mean only things that people hear, but actually there is a wide range of sounds, most of which we cannot hear. There are sounds of low frequency that are inaudible, but they may be felt. At the other extreme, there are notes so high that humans cannot hear them, although dogs and other animals may hear them quite well.

Q. How is sound described?
A. Sound has speed, frequency, intensity, and duration. The speed of sound in air depends on the density of the air. As a convenient base, we usually say that sound travels 1,130 feet per second in dry air at 70 degrees F. and a barometric pressure of 29.92 inches of mercury. That is, about 770 m.p.h., although that speed is rarely achieved since we rarely find perfectly dry air in nature.

Q. How do you define frequency and intensity of sound?
A. The frequency of sound is sometimes called its "pitch," and is what we often refer to as "high" notes and "low" notes. Frequency is actually the rate at which the sound waves arrive at a place, such as the ear. Again, picture waves in the ocean, but now they are washing against a shore. If the waves are far apart and only one hits the shore each minute, then we can say the wave rate is one per minute. If the waves start coming ashore more frequently, say three per minute, then we can say that the "frequency" of the ocean wave pattern is three per minute. Note that I didn't say how big the waves were. They could be huge tidal waves, or tiny ripples. The size or power or the wave is its "intensity."

Q. What are the frequencies of sound waves?
A. Sound waves are measured according to the number of waves that strike the ear (or recording instrument) in a second. Between the peak of two waves there is a valley, and these waves and valleys repeat in cycles, so we can refer to frequency measurement as cycles per second, or c.p.s. The scientific term for this is "Hertz" (Hz).

Q. What range of frequencies can be heard by the normal human ear?
A. A good human ear can hear sounds with frequencies from 20 Hz to 20,000 Hz, but the extreme ends are hard to hear. The most sensitive range is from about 500 Hz to 5,000 Hz.

Q. What is a decibel?
It is not a fixed absolute value, like an inch or a frequency. Rather, it is simply a ratio, telling by what proportion one value is greater or less than another. To give a decibel system a base, it is presumed that an acoustic pressure of 0.0002 dyne per square meter is zero decibels. This is about the intensity of the faintest sound at $1000H_z$ that a normal young person can hear under the best listening conditions. This would have to be an extremely faint high note, almost as high as the highest note on a piano. What is further complicated about decibels is that the decibel scale is not a straight-line measurement, but is logarithmic. Thus, a 10-fold increase in acoustic power above the faintest sound that a young person could hear is measured as 20dB. A 100 times increase in pressure is 40dB, and so forth.

Q. What range of decibels can humans hear?
A. That depends on the frequency. We hear, for example, sounds that have a pitch in the top one-third of the piano keyboard better than other tones. We hear treble better than bass. You might hear a soprano voice at 10dB but a bass would have to hit you with 35dB to be audible. For this reason some decibel scales are "weighted," that is, the measurement system is altered somewhat to fit a particular purpose. The difficulty in measuring decibels is that an instrument must be made to measure what we hear. An instrument would usually sense all sounds equally, no matter what the pitch, while the human ear does not. To us, a treble note at 40 dB might sound "louder" than a low tone at 40 dB, but to an instrument recording only pure acoustic pressure, it would show the same.

Q. What can be done about that?
A. What we do is alter the decibel scale to fit the job. For example, we usually use a measurement system called the "A-weighted" decibel scale, abbreviated dB(A), so as to show sound intensity levels as sensed by the human ear. Another factor considered in the "weighting" of a decibel scale is the complexity of sound and the fact that it is almost never pure.

Q. So a sound-measuring device can be made to compensate for this problem?
A. Yes, this and others. When more than one frequency is present, the meter reads the over-all sound level. It gives a result according to its calibration, and if using the dB(A) scale, it adjusts its A-weighting pressure-frequency receptions to give a decibel readout approximating what the human ear would hear in total loudness.

Q. What is noise?
A. Noise is highly subjective. But in general when we say noise we mean a composite sound, consisting of many combined frequencies and qualities, and that the composite sound is undesirable.

Q. Is loud noise more harmful than loud music?
A. If a sound is loud enough to be harmful, it makes no difference whether it is a noisy jumble of frequencies without form or pattern, or a loud pure tone. However, there may be a secondary psychological difference. Music at 100 dB(A) may be exciting and stimulating, but so-called "noise" at that level may be extremely annoying.

Q. At what point does a sound become harmful?
A. That depends on many things, including the kind of person involved. No tests are available that enable us to say with scientific certainty what sound levels will always be harmful or what levels are always safe for everyone. We do know what sound levels will cause discomfort and pain.

Q. How is sound propagated?
A. Sound waves usually spread out evenly in all directions from the source. If you toss a pebble in a quiet pool, the ripples spread out evenly in all directions, in concentric circles from the source. Sound waves do the same, although in concentric spheres, or cone-shaped broadcasts.

Q. Do sounds change in frequency and intensity as they travel?
A. Frequencies which come from a stationary source usually remain the same, barring acoustical reflections, etc., and assuming the hearer is not moving either. However, the power or intensity of the sound is dissipated as it travels. There is a mathematical formula by which one can calculate the spreading of the intensity of a sound wave. The intensity of a sound wave diminishes in proportion to the inverse square of the distance from the source. In layman's terms, it is less loud the farther away you are.

Q. Does distance from the sound make it more tolerable?
A. No, not always. It is very rare to find a sound emitted in the middle of a spherical space. A noise made just above the ground really only has one half of a sphere of air to travel in. And the science of acoustics has demonstrated that many changes can occur to a sound as it dissipates.

Sample Question and Answers Showing Adverse Health Effects of Noise

The following questions would be appropriate to elicit information on the adverse effects of noise. A qualified otolaryngologist could bring out these facts, although other experts with similar background might be equally appropriate.

Q. Doctor, can exposure to loud sounds be harmful to humans?
A. Yes, if the sounds are loud enough, and/or the exposure long enough.

Q. How loud must sounds be to be harmful?
A. It is a function of intensity and frequency and time of exposure. A very loud forceful sound, like the firing of a cannon while standing next to it can destroy a man's hearing in a single burst. But hearing can become impaired also by sounds of less intensity, volume, and loudness, if the person is subjected to them long enough.

Q. Does a sound have to be loud enough to be painful in order to cause damage?
A. No. Sound usually becomes painful at about 140 dB. Levels of 150 dB or more may be found near the exhaust of jet engines and rockets, and exposures to such sounds will cause rapid injury. That is why most line crewmen at jet airports wear ear protection. For less severe exposures the damage takes longer. Nonetheless, such exposures, day after day and week after week, year after year perhaps, can cause temporary hearing loss, and if further continued, that hearing loss can become permanent.

Q. How do you determine whether a person is likely to sustain a hearing handicap from sound exposure?
A. We know the percentage risk of developing a hearing handicap based on age and the noise-exposure index in decibels. Research has been done on this and data are available.

Q. What is a decibel exposure index?
A. Simply put, it is a measure of the total amount of sound to which the person has been subjected. We know that one measure of noise-induced hearing loss is the total amount of sound received. The index is a function or calculation of the exposure time to the sounds and the energy of dB of the sound. We call it the 3 dB(A) rule, because every increase of 3 dB(A) indicates a doubling of the energy of the sound. What this rule says is that listening to a sound level of 90 dB(A) for 4 hours, for example, has the same effect as listening to a level of 93 dB(A) for 2 hours. The noise-exposure index would be the same for both. So, a lifetime noise exposure index would reflect the total amount of energy the ear has been subjected to, expressed as the equivalent continuous sound level in dB(A).

Q. Then you are using an average of all the various sound levels and hearing times?
A. Not an average. It is hard to explain, but let me use an example. Suppose a person is exposed 20 hours per week to a sound level of 100 dB(A). A calculation by the 3 dB(A) rule gives that a total sound level of 500. The equivalent continuous sound level would be 97 dB(A). The effect of the ear would be the same as if he was exposed to 97 dB(A) for the whole time.

Q. What is the effect?
A. Exposure to loud noises, even though not for very many hours a week, if continued long enough, can have effects as damaging to hearing as extremely loud or painfully loud sounds have in a shorter time.

Q. What kind of hearing loss can occur because of noise exposure?
A. The first losses are temporary. Usually what happens first is loss of the ability to hear the high tones, the trebles, say between 4,000 and 6,000 Hz. If the loss is caused by sounds in a particular frequency range, as in a rock musician for example, the first loss is usually in the ability

to hear sounds about 1/2 octave above the exposure notes. With repeated exposures, these temporary losses become more permanent, the disability spreads to lower tones, until eventually it gets down to 3,000 Hz and lower, which is within the frequency range of human speech. Then we begin to have a real critical impairment, a difficulty in understanding speech, a partial deafness.

Q. Can noise-induced exposures produce a permanent hearing loss that can affect communication by speech?
A. Yes. Such loss may be temporary, permanent, or both. It is caused by destruction of certain inner ear structures which are impossible to replace or repair, the so-called organs of Corti. The amount of loss varies from person to person.

Q. Are the sound energies and frequencies recorded at point A here harmful?
A. Do you mean physically harmful, likely to cause hearing loss?

Q. Yes, at least let me begin with that question.
A. I can only say that the sound level at A creates a risk of inner ear damage and resultant hearing loss, if imposed upon certain kinds of people long enough.

Q. Of the type of people who are exposed to this noise, can you calculate what the hearing handicap risk is at A?
A. Yes. Using the recorded noise levels and knowing that the largest group of adults exposed to those sounds about ____ hours per week, and that it has been there for over 10 years, we can calculate the equivalent continuous sound level in dB(A) at 100. Of those who have been hearing that sound that often for 10 years, we can determine that slightly over 20% now have the risk of suffering noise-induced hearing loss.

Q. If we have proof here that there are 326 people who have such exposure, how many are likely to suffer harm?
A. I would say the risk is that about 65 people will suffer some degree of hearing loss because of the defendant's noise broadcast. I am talking about actual physical organic inner ear hearing loss. Many more would suffer adverse effects which are not objective medically but nonetheless real. They may suffer from the psychological effects.

Q. What are those?
A. These are things like annoyance and discomfort, nervous tension, sleeplessness, and the like. Noises can cause these symptoms even though not intense enough to cause actual physical damage.

Q. Are these kinds of effects nonetheless real?
A. They may be more real to the victim of the sound than are the subtle, slowly building effects of organic hearing loss. When a person cannot sleep properly because of noise, that person often becomes irritable and cranky. Sometimes resistance to disease is lowered. Continuing high noise levels can be quite bothersome and actually interfere with the quality of life. It is not a coincidence that we associate relaxation, happiness, and serenity with "peace and quiet". Noise and confusion, especially noise in large, long doses, definitely leads to irritability, temper flare-ups, nervousness and antisocial behavior.

Q. Are these kinds of things permanent?
A. There are many possibilities; I'll describe two. Suppose, due to excessive sound levels, a person cannot get the proper amount of sleep for many days. Suppose also that this person is made nervous and irritable because of the noise, and complains about it often. Now suppose that as a result, resistance to disease sets in and the person gets some infection, such as a virulent flu, pneumonia or the like. Such a disease might leave permanent residual difficulties. Or, a person with high blood pressure might find it aggravated by exposure to continuous or repeating loud noises.

Q. What are the percentage risks of such subjective effects to a population subjected to high noise levels?
A. We cannot say. We know that more people complain about this kind of thing than actually have objective hearing loss. Again, it depends on the individual -- age, time of exposure, living habits, and condition of health. Also, if the noise is a constant one, some people become acclimated to it.

Q. So if a person can become used to the noise, and adjust to it, it is no longer a problem?
A. It may be worse, in the long run. A person who is annoyed by the sounds may take self-protective measures if available, and try to reduce the sounds being heard, thus protecting and preserving the inner ear. But the acclimated individual may just subconsciously ignore the noise in his head, not knowing that the ear is hearing the noise anyway, and slowly but surely causing a hearing impairment.

Sample Questions and Answers to Show Noise Control Techniques

An acoustical engineer would be qualified to discuss the techniques available for controlling noise.

Q. What can be done to prevent or reduce excessive sound levels?
A. Well, there are a number of approaches. First is personal protection, which means some way of covering the ears to keep the sound out. The second way is by environmental control.

Q. What do you mean, environmental control?
A. Keeping the sound levels down in the affected environment. What we are talking about is reducing the amount of noise produced by the source, reducing the amount of noise transmitted through air or buildings, and revising operational procedures.

Q. How can revising operation produce reduced noise effects?
A. Simple, according to the 3-dB rule, for every halving of the exposure time, doubling the energy (i.e., an increase of 3 dB) is permissible without increasing the risk. Suppose you have a machine which cannot be operated without producing 98 dB, no matter what one does, but it can be made more efficient and can be run only 8 hours per day instead of 16 through efficient management and time utilization. Cutting the time in half has the same effect on those exposed as if the sound produced was reduced to 95 dB.

Q. How can one achieve the other two types of environmental control?
A. The control techniques are similar in each type. On one hand we try to reduce the sound coming from the source, and on the other we try to reduce the sound traveling to the injury risk area.

Q. What are some ways to control sound in the environment?
A. We use the same laws of acoustics that can cause excessive noise, only we turn them to our advantage. What we do is get the sound to dissipate its energy harmlessly.

Q. Tell us some ways this can be done.
A. Well, distance is one way. Keep noisy things far away, because sound decreases its energy with distance. Damping devices and barriers are another approach. Things like thick fabrics, fiberglass, cork, acoustic tiles, all serve to "soak up" sound. What they actually do is break up the sound waves and get them reflecting and refracting in tiny microscopic spaces between the fibres, until they dissipate their energy.

Q. How would you recommend the reduction of sound levels to tolerable levels?
A. Well, there is nothing we can do about pure distance, without moving either the source or the affected place, but we can make the sound move farther in getting there by installing baffles that the soundwave must pass around. The offending sources can be surrounded with absorbing panels and baffles. The walls in defendant's premises can be coated with a damping substance. The large walls can have separations in them, or portions made of a different material, to impede sound waves from making a "sounding board" amplification in them. Wherever there are vents or stacks which cause a rushing, roaring and similar sound, these should be equipped with muffling devices, like a car muffler. These devices serve to break up the soundwaves and lengthen their travel distance to the outside.

Q. Are these remedies feasible with today's technology?
A. Yes. All are within the current state-of-the-art knowledge and capabilities. They are on the market, or easily fabricated.

Q. Is there any reason why defendant could not have installed noise control measures such as these 7 years ago?
A. The technology was available at that time.

Q. Thank you. Defense counsel may cross-examine.

Questions and Answers to Establish Reliability of Testing Procedures

Either the acoustical engineer, the noise control officer or police officer (assuming the latter two have appropriate background and training) may testify as to appropriate and/or actual testing procedures. The following facts and circumstances, among others, tend to establish that a scientific device, process,

or technique is sufficiently reliable that evidence resulting from its use may be admitted in court:

* Manner in which the device works;

* Range of uses of the device;

* Theoretical possibility of errors in design, manufacture, maintenance, or operation of the device;

* Nature and relevance of errors that may occur;

* Routine maintenance, quality control procedures, and other precautions against errors;

* Results of tests of reliability and accuracy of device;

* Validity of statistical evidence of reliability;

* Opinion of expert as to reliability.[7]

Testimony eliciting this type of information constitutes the first part of the foundation necessary before evidence produced by sound measuring devices may be admitted in court. In courts where judicial notice of sound measuring device reliability is taken, this step may not be necessary, but it must be demonstrated in all cases that the particular equipment used by the officers was of an appropriate type and in proper working condition, and that the person using the device was qualified to do so. Testimony to bring out these factors in an officer's testimony is discussed on page 30, supra.

Q. Have you seen the noise sources complained of here?
A. Yes.

Q. Do you know what the characteristics of sounds from that place are?
A. In a general way, yes. I cannot trace for you the path and changes in each and every sound wave, but that is not necessary for an evaluation of the site as a sound source.

Q. What is your evaluation of the place as a sound source?
A. It is definitely a source of sound. As has been admitted, the facilities there are of a large number and emit sounds of various kinds. These sounds come from different points, but to a distant listener, they seem blended

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[7] 2 Am Jur 2d, Proof of Facts, §3, at 545 (1974).

together, and in a large part they are. The structure of the place and its surroundings are not acoustically designed, and do little to reduce the dB levels.

Q. How do you find out to what extent this is true?
A. The best way is not by trying to trace and calculate each sound, but simply to measure it at different places.

Q. Have you done this?
A. Yes.

Q. When?
A. On _____ 19___ and _____ we conducted tests as selected places in the vicinity.

Q. Where were these done?
A. We put instruments at the locations indicated on the map there.

Q. What kind of instruments did you use?
A. We used _____ which are the commonly accepted standard instruments used to measure sounds in this kind of sampling network.

Q. Do these have to be calibrated prior to being used?
A. Yes, they are checked out prior to use by taking readings on them from a known sound source, a series of pitches and intensity that we create electronically, to make sure that the instrument is reading correctly.

Q. Who did this?
A. I did it, together with a technician who worked under my supervision.

Q. Why did you select those particular locations for the samplers?
A. We selected location A because it is in the center of the area where we were informed the most complaints came from. We put other instruments at B, and at C, in line with A and the suspected source to check the intensity levels and dispersion of the sound. We put one at D, in another direction, 85 compass degrees from the suspected source, as a control.

Q. Were you able to find any sound levels?
A. Yes, there were sound levels of some type all the time. We were interested in the type of sound and its source.

Q. Were you able to find the source of any sounds?
A. Yes, there were some general background noises, such as birds, leaves rustling in the winds, local auto traffic and such, and there were sounds which came from defendant's facility.

Q. How were you able to find the source of the latter sounds?
A. In three ways. First, we ran the instruments at night, on weekends, and other times when the defendant was not operating. We found increased sound levels on all instruments when it was operating as compared to when it was not. Second, two of the instruments, at A and D are capable of sensing the direction from which the sounds come. When the levels consisted only of background noise, i.e., when defendant was not operating, the sounds did not come from any one direction more than others, particu-

larly. But when defendant's operation started up, the increase in sound levels showed as coming from a definite direction. At A they came from the direction shown by the green arrow here on the map. Point D is 85%, almost at right angles on the compass, from A. The instrument at D showed the source of the excess sound to be from the direction shown by the blue arrow. By extending these two vector arrows until they cross, as here, [demonstrating] we see that they pinpoint the source of the sound, here, right on the defendant's premises.

Q. What is the third way to find this?
A. By experience and in the scientific literature, and from what has been discovered about defendant's operations, we know certain kinds of sounds to be typical of its kind of activities. We found that the sounds we recorded fit these characteristics.

Q. Did you record the sounds so they can be played back?
A. I made graphic recordings, showing the sounds as patterns on a graph paper roll.

Q. You have referred to the sound from defendant's premises as "excessive" noise. What do you mean by that?
A. I mean that it is not only more sound than the usual background noise, but it is sound which may have had adverse impacts on human health and welfare.

Q. In what areas?
A. At point A, over ___% of the time, we recorded sound at levels for which adverse health impacts have been noted.

Q. What about other places? What levels did you record?
A. Well you see here on this table the various sound levels taken from each location on the dates stated. On this other exhibit we have made a graph showing the average recorded levels in dB(A) at each place. Note how it is highest at A, and shows the average sound levels at A to be ___dB(A) when defendant was operating.

Q. Why are the levels higher at A than at C when C is actually closer to the plant?
A. There are several explanations for this. First, much of the sound from the plant comes from its upper level and roof portions. The bulk of the building itself tends to shield recordings at C from the direct energy of these sounds. They get to C by diffraction and reflection. Further, we see on this photograph that there are trees and shrubs close to C which tend to absorb sound waves. Now take A in contrast. It is stands in a direct line from the upper sound sources. The building further out has a wall, here, which is hard and smooth and makes a very good reflector, bouncing sound back towards the source. Also, we noted that instrument C is in the "green belt." During the nighttime operation especially, the temperature of the air, and its density, is often quite a bit different there than right at the source. I have the opinion that this causes a refraction of sound waves from sources near the surface, before they get here to C. Some of these are reflected downward to be absorbed by the lawn and shrubs, but others are refracted upward, where they join with those from the upper sources. The net result of all these is that the vicinity of A is a "hot spot" of noise, so to speak, where sounds coming

from defendant's sources are modified and amplified by the environment to produce a very unpleasant and annoying, if not dangerous, sound level.

SAMPLE JURY INSTRUCTIONS

Public Nuisance

Plaintiff's Requested Instructions

I. Plaintiff's Theory and Claim

The State (plaintiff) theorizes and claims that the defendant created excessive noise which emanated from its plant and which caused a public nuisance within the meaning of the laws of this State. According to the plaintiff's claim, the public nuisance existed from August 1962 to August 1963. The State further claims that this pollution created a hazard to the health and safety of the public.

II. Public Nuisance - Definition

A public nuisance is defined as an activity, or conduct, or a set of circumstances that causes significant interference with or damage to the health, safety, peace, convenience, or comfort of the public. A public nuisance constitutes interference with a right common to the general public.

Under the law of this state, when a manufacturing establishment unreasonably creates any sound which endangers the health or safety of any person or property or a sound which injures any person or property, that manufacturer is creating a public nuisance.

III. Public Nuisance - Elements of Proof

The State has the burden of proving by a preponderance of evidence that the defendant caused a public nuisance.

The elements of public nuisance which the State must prove by a preponderance of the evidence are:

1. That interference with a right common to the general public took place;

2. That the interference was unreasonable; and

3. That the public right is a substantial right.

If you find that these three factors existed at the time in question and that the public health, safety, peace, convenience or comfort was endangered, then you must find that a public nuisance exists.

IV. Nuisance - Evidence of Nuisance

Violation of Ordinance

You are instructed that:

> No person shall unreasonably make, continue, or cause to be made or continued, any noise disturbance. Noise disturbance means: any sound which (a) endangers or injures the safety or health of humans or animals, or (b) annoys or disturbs a reasonable person of normal sensitivities, or (c) endangers or injures personal or real property.

If you find from the facts that the defendant was engaged in any of these prohibited activities, then you may find that the defendant has committed a public nuisance.

* * *

Property Line Standards

Plaintiff's Requested Instructions

I. Property Line Standards - Violation of Ordinance

You are instructed that:

> No person shall operate or cause to be operated on private property any source of sound in such a manner as to create a sound level which exceeds the limits set forth for the receiving land use category in Table I below when measured at or within the property boundary of the receiving land use.

TABLE I. SOUND LEVELS BY RECEIVING LAND USE

Receiving Land Use Category R-1,R-2,etc.	Time (A)a.m.- (B)p.m.	Sound Level Limit, dBA L_1

(Residential,Public Space, Open Space, Agricultural or Institutional)	(B)p.m.- (A)a.m.	L_2
C-1,C-2,etc. B-1,B-2,etc. (Commercial or Business)	At All Times	L_3
M-1,M-2,etc. (Industrial)	At All Times	L_4

If you find from the facts that the defendant was, during any of the time in question, in violation of the terms of that statute, then you may consider the evidence of property line standards.

II. Property Line Standards - Elements of Proof

The State has the burden of proof [by a preponderance of the evidence/beyond a reasonable doubt] that the defendant caused a source of noise to exceed the limits set forth for certain receiving land use categories.

The elements of a property line standards violation which the plaintiff must prove [by a preponderance of the evidence/beyond a reasonable doubt] are the following:

1. That a person operated or caused to be operated on private property a source of noise;

2. That if the noise occurred in a residential zone or in a public space, agricultural or industrial zone, the noise exceeded the sound level limits for the day or evening; and

3. That the noise exceeded the standard set for the receiving land use category when measured at or within the property line.

If you find that these three facts occurred at the time in question, then you must find that the defendant violated the property line standards provision of the statute.

* * *

Motor Vehicles

Plaintiff's Requested Instructions

I. Motor Vehicles - Violation of Ordinance

You are instructed that:

> No person shall operate or cause to be operated a public or private motor vehicle or motorcycle on a public right-of-way at any time in such a manner that the sound level emitted by the motor vehicle or motorcycle exceeds the level set forth in Table II.

If you find from the facts that the defendant was, during any of the time in question, in violation of the terms of that statute, then you may consider the evidence of motor vehicle violation.

TABLE II

MOTOR VEHICLE AND
MOTORCYCLE SOUND LIMITS
(MEASURED AT 50 FEET
OR 15 METERS)

Vehicle Class	Sound Level in dBA		
	Speed Limit 35 MPH or Less	Speed Limit Over 35 MPH	Stationary Run-up
Motor Carrier Vehicle engaged in interstate commerce of GVWR or GCWR of 10,000 lbs. or more	86	90	88
All other motor vehicles of GVWR or GCWR of 10,000 lbs. or more	A	B	--
Any motorcycle	C	D	--
Any other motor vehicle or any combination of vehicles towed by any motor vehicle	E	F	--

II. Motor Vehicles - Elements of Proof

The State has the burden of proving [by a preponderance of the evidence/beyond a reasonable doubt] that the defendant violated the law of this State by operating a motor vehicle in excess of the sound level set by the statute.

The elements of proof which the State must prove [by a preponderance of the evidence/beyond a reasonable doubt] are:

1. That the defendant operated or caused to be operated a motor vehicle or motorcycle on a public right-of-way; and,
2. That the motor vehicle or motorcycle was operated in such a manner that the sound level emitted exceeded the limits set forth in the ordinance.

If you find from the facts that these two conditions existed at the time in question, then you must find that the defendent violated the motor vehicle provision.

* * *

Tampering Sanctions

Plaintiff's Requested Instructions

I. Tampering Sanctions - Violations of Ordinance

You are instructed that:

The following acts or the causing thereof are prohibited:

(a) The removal rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any noise control device or element of design or noise label of any product identified under Section 4.3.6. The EPO/NCO may, by regulation, list those acts which constitute violation of this provision.

(b) The (intentional) moving or rendering naccurate or inoperative of any sound monitoring instrument or device positioned by or for the EPO/NCO, provided such device or the immediate area is clearly labeled, in accordance with EPO/NCO regulations, to warn of the potential illegality.

(c) The use of a product, identified under Section 4.3.6, which has had a noise control device or element of design or noise label removed or rendered inoperative, with knowledge that such action has occurred.

If you find from the facts that the defendant was, during any of the time in question, in violation of the terms of that statute, then you may consider the evidence of tampering.

II. Tampering Sanctions - Elements of Proof

The State has the burden of proof [by a preponderance of the evidence/beyond a reasonable doubt] that the defendant removed or rendered inoperative a noise control device.

The elements which the State must prove are the following:

1. The product alleged to have been tampered with, was required by law to have a noise control device, element of design or label;
2. The defendant removed, rendered inoperative, or caused to be removed a noise control device, element of design or label; and
3. This removal or rendering inoperative was not for the purpose or repair, replacement or maintenance of the product.

A separate action for the use of a tampered product also lies. The following elements are needed:

1. The product alleged to have been used improperly was required by statute to have a noise control device, element of design or noise label; and
2. The defendant made use of a product, whose noise control device, element of design or noise label had been removed or rendered inoperative.

If you find that these factors existed at the time in question, then you must find the defendant in violation of the tampering prohibition.

CHAPTER 8: FEDERAL PREEMPTION

NOISE CONTROL ACT OF 1972, 42 U.S.C. 4901 et seq.:

> ...[w]hile primary responsibility for control rests with the state and local governments, federal action is essential to deal with major noise sources in commerce, control of which require national uniformity of treatment.

SUMMARY

Often, a state or local prosecutor of noise violations will confront the issue of the interaction between Federal and local authority for noise control. The Noise Control Act of 1972 stated the intent of Congress that noise control be a cooperative effort between the Federal and local governments. That Act placed primary authority for control of noise with State and local governments subject, however, to preemptive Federal authority in particular contexts where a pervasive scheme of Federal noise regulation was in existence.

In general, the test of whether both Federal and local noise regulations may operate, or whether local regulations must give way, is whether both regulations can be enforced without interfering with the Federal regulations in the field, and not whether Federal or local regulations are aimed at similar or different objectives.

Federal preemption of noise control is most pervasive in the area of aircraft noise, although even here some noise controls may be applied by states and localities, provided that these controls are not discriminatory and do not substantially interfere with interstate commerce.

Interstate rail and motor carriers also fall within the potentially preemptive umbrella of Federal noise controls. However, local enforcement authority may be exercised in those circumstances where local noise standards are identical to those prescribed by Federal regulation.

Federal preemption also touches products regulated by the Environmental Protection Agency as major noise sources, although this preemption is not as pervasive as it is in the case of aircraft or interstate rail and motor carrier noise.

THE PREEMPTION DOCTRINE AND THE CONSTITUTIONAL BASES FOR FEDERAL, STATE AND LOCAL NOISE REGULATION

The preemption doctrine has its roots in the Supremacy Clause of the Constitution:[1]

> This Constitution and the Laws of the United States which shall be made in Pursuance thereof;... shall be the supreme Law of the Land; and the Judges in every state shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

In short, where state regulation interferes with or is contrary to the laws of Congress, it must yield.[2] Yet, the field of noise regulation is one in which both the Federal and state governments have solid constitutional bases for involvement. The police powers reserved by the Constitution to the states (and delegated to local jurisdictions by state enabling legislation) afford strong support for state and local efforts to protect the public health and welfare through regulation of noise.

As state police powers infringe upon Federal regulation of commerce, however, the likelihood of preemption increases. The Supreme Court enunciated the classic preemption test in Cooley v. Board of Wardens.[3] The essential determinant is whether commercial regulation by a state "admits of only one uniform system or plan of regulations." If this is the case, regulatory power is exclusively

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[1] U.S. Const. Art. VI, cl. 2.

[2] Gibbons v. Ogden, 22 U.S. 1, 9 Wheat. 186 (1824).

[3] 53 U.S. 298, 12 How. 298 (1851).

Federal. But, where subjects of commerce require "that diversity [of regulation] which alone can meet local necessities," concurrent efforts at all levels are appropriate, under the Cooley test.[4]

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978,[5] envisions joint enforcement responsibilities for the Federal and state governments. With some exceptions, Federal noise control efforts center on identifying noise sources in commerce and on establishing product performance standards for manufacturers. In contrast, state and local efforts under nuisance theory (see Chapter 2, supra) and local noise ordinances usually have focused on the control of environmental noise through zoning, operational restrictions, and other prohibitions (both subjective and objective) against excessive noise rather than on setting specific requirements for new articles in commerce. Where a state or local Noise Control Ordinance employs performance standards for new products at the time of sale, the standards are not preempted if they are identical with Federal limits, and thus assure uniformity.

AREAS OF FEDERAL PREEMPTION AND RESIDUAL STATE AND LOCAL AUTHORITY

Transportation Noise

Aircraft and Airport Noise Regulation -- The area where Federal preemption of noise control has generated the most controversy and uncertainty is airport and aircraft noise. Much of the controversy stems from the fact that while extensive

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[4] This balancing of national uniformity versus local sensitivity has been expanded in subsequent cases. For example, in Hines v. Davidovitz, 312 U.S. 52, 67 (1941), preemption of local regulation was dependent upon a showing that the law in question was "an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." Similarly, in Florida Lime and Avocado Growers, Inc. v. Paul, 373 U.S. 132 (1963), congressional intent was deemed to be dominant in deciding on the coexistence of Federal and state regulations.

[5] 42 U.S.C. §4901 et seq., as amended (Supp. 1978).

Federal aviation regulations apply to airports and aircraft,[6] few airports are Federally owned and operated. In fact, states, or elements of local governments, own and operate most of the airports around the country.

In 1962 the Supreme Court held that municipal airport operators could be held liable for noise-related disturbance and damage under the theory of inverse condemnation.[7] In part to reduce their liability exposure, some localities responded with curfews, weight limitations, minimum altitude standards, and even absolute landing prohibitions. Most of these efforts failed under judicial scrutiny, however, as courts held that the municipal police power must yield to the pervasive scheme of Federal aviation regulations.[8]

Subsequent court decisions have created a "proprietary" exception to Federal preemption of aircraft noise control, allowing certain limited restrictions which are non-discriminatory, reasonable, and focus on reduction of land impacts

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[6] The Federal aviation regulations that generally supplant state airport noise initiatives are based on the Federal Aviation Act of 1958, 49 U.S.C §1301 et seq., as amended by the Noise Control Act of 1972, 42 U.S.C §4901 et seq. Under this scheme, the Federal Aviation Administration (FAA) is required to set rules and standards "to provide for the control and abatement of aircraft noise and sonic boom," and to incorporate these standards into aircraft certificate requirements.

The FAA has set operational requirements for jet aircraft, prohibiting airspeeds which would cause sonic booms (Air Traffic and General Operating Rules, 14 C.F.R. §91.55), and has issued advisory guidelines on takeoff and approach procedures. The FAA has issued numerous aircraft noise performance standards, the most significant being Federal Aviation Regulations (FAR) Pt. 36 (14 C.F.R. Pt. 36), commonly referred to as FAR 36. The Environmental Protection Agency through a six-step procedure, may consult, recommend, submit standards, and request that they be reviewed (49 U.S.C. §1431(b)(2), as amended (Supp. 1978).

[7] Griggs v. Allegheny Co., 369 U.S. 84 (1962).

[8] See, e.g., City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624 (1973).

rather than on aircraft flight.[9] The essential argument is that as a concomitant of being liable for aircraft noise, the airport proprietor should have some authority to control it.

In sum, Federal control of airplane noise performance continues to be pervasive, although allowing some room for state or local enforcement of noise limits. Imposition of aircraft weight limits and interference with flight paths generally are outside the scope of state and local noise regulation. As proprietors of airports, however, localities may exert some control over hours of operation and initiate other procedures to minimize noise in residential areas that are non-discriminatory and not overly disruptive of interstate commerce. That these latter activities have been allowed suggests that a more permissive view of state and local airport noise regulation may be evolving.

Land use controls establishing permissible activities in zones of land are well within state and local perogative. Thus, receiving land use actions envisioned under Article VIII and X of the Model Ordinance [Appendix C] are immune from any assertion of preemption.

Interstate Rail Carriers and Motor Carriers -- Interstate carriers such as railroads, trucks, and buses, are covered by the Noise Control Act of 1972[10] and by

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[9] See National Aviation v. City of Hayward, Cal., 418 F. Supp. 417 (N.D. Cal. 1976) (city ordinance prohibiting aircraft exceeding a certain noise level from landing upheld); British Airways Bd. v. Port Authority of New York, 558 F.2d 75 (2d Cir. 1977) (Port Authority has authority to abate, through temporary ban, Concorde-generated noise); San Diego Unified Port Dist. v. Gianturco, 457 F. Supp. 283 (S.D. Cal. 1978) (preliminary injunction granted to local airport proprietor against State of California which had sought to impose an aircraft curfew as a condition to issuing a variance from noise standards applicable to airports).

[10] 42 U.S.C. §4917 (1977) (regulation of motor carrier noise emissions); 42 U.S.C. §4916 (1977) (regulation of surface rail carriers).

Environmental Protection Agency and Department of Transportation regulations.[11]

The preemptive character of Federal involvement in interstate carrier noise regulation is as follows: state and local authorities are not permitted to adopt or to enforce standards covering the same operations the Federal standards control unless those standards are identical to Federal standards, without the EPA Administrator's approval. The Noise Control Act is explicit:[12]

> No State or political subdivision thereof may adopt or enforce any standard applicable to the same operation of such motor carrier, unless such standard is identical to a standard applicable to noise emissions resulting from such operation prescribed by any regulation under this section.
>
> (2) Nothing in this section shall diminish or enhance the rights of any State or political subdivision thereof to establish and enforce standards or controls on levels of environmental noise, or to control, license, regulate, or restrict the use, operation, or movement of any product if the Administrator, after consultation with the Secretary of Transportation, determines that such standard, control, license, regulation, or restriction is necessitated by special local conditions and is not in conflict with regulations promulgated under this section.

The above language applies to motor carriers but is nearly identical to the rail carrier preemption section.[13]

EPA's approach to interstate carrier noise regulation leaves some flexibility to state and local authorities to address site specific problems on a

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[11] EPA, after consulting with the Department of Transportation, is responsible for establishing noise emission standards for motor carriers. See 40 C.F.R. 202.10 et seq. These standards have been incorporated in Table II of section 9.1 of the Model Ordinance (Appendix C). The Noise Control Act places primary enforcement responsibilities on the Department of Transportation. See 49 C.F.R. 325.1 et seq.

For noise standards for railroad equipment and facilities, see 40 C.F.R. 201.10 et seq.

[12] 42 U.S.C. §4917(C)(1) & (2) (1977).

[13] 42 U.S.C. §4916(C)(1) & (2) (1977).

case-by-case basis, without Federal interference. On the one hand, where the Federal government has established standards for interstate rail and motor carriers, state and local authorities cannot adopt or enforce any standard, for operations of the same equipment and facilities covered by the Federal standard, unless it is identical with the Federal standard. On the other hand, where a local situation demands a stricter noise regulation, EPA may permit state and local authorities to establish and enforce such standards or controls and take other necessary action provided there is no conflict with Federal regulation. In this latter case, however, EPA must approve the contemplated action prior to its taking effect.

Consolidated Rail Corp. v. City of Dover,[14] illustrates one judicial response to the preemption sections of the Noise Control Act. Here, the City of Dover enacted an ordinance that prohibited "unnecessary and unusually loud noise" in the context of railroad operation between the hours of eleven p.m. and seven a.m. which either "annoys, disturbs, injures or endangers...." Noting that the comparable Federal standard was expressed in terms of decibels, the court struck down the local ordinance as not "identical" and, therefore, preempted by Federal law. Moreover, under the same rationale, the city was not permitted to bring a common-law nuisance action for noise against the interstate carrier.

Product Noise Control

Federal preemption also touches products identified and regulated by EPA as major sources of noise. The EPA administrator is authorized to proscribe noise standards for products which fall into the categories of construction

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[14] 450 F. Supp. 966 (D. Del. 1978).

equipment, transportation equipment (including recreational vehicles), electrical or electronic equipment, and motors or engines, and which have been identified by EPA as major sources of noise susceptible to feasible noise emission standards.

The preemption flows from the following provision of the Noise Control Act:[15]

> "No State or political subdivision thereof may adopt or enforce --
>
> (A) with respect to any new product for which a regulation has been prescribed by the Administrator under this section, any law or regulation which sets a limit on noise emissions from such new product and which is not identical to such regulation of the Administrator; or
>
> (B) with respect to any component incorporated into such new product by the manufacturer of such product, any law or regulation setting a limit on noise emissions from such components when so incorporated.
>
> (2) Subject to sections 4916 and 4917 of this title, nothing in this section precludes or denies the right of any State or political subdivision thereof to establish or enforce controls on environmental noise (or one or more sources therof) through the licensing, regulation, or restriction of the use, operation, or movement of any product or combination of products.

To date, final standards for new product emission standards have been issued for air compressors,[16] medium and heavy duty trucks,[17] and truck mounted solid waste compactors.[18] EPA has also issued final labeling regulations for new hearing protectors.[19]

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[15] 42 U.S.C. §4905(e)(1) (1977).

[16] Noise Emission Standards for Construction Equipment, Portable Air Compressors, 40 C.F.R. §204.50 et. seq. (1979).

[17] Noise Emission Standards for Construction Equipment, Transportation Equipment, Noise Emission Controls, 40 C.F.R. §205.50 et. seq. (1979).

[18] Noise Emission Standards for New Truck-Mounted Solid Waste Compactors, 40 C.F.R. §205.200 (1979).

[19] Noise Labeling Requirements for Hearing Protectors, 40 C.F.R. 211 (1979).

EDP has issued proposed new product emission regulations for buses,[20] motorcycles,[21] and wheel and crawler tractors.[22]

Conflicts may arise between Federal noise performance standards for products and local environmental controls where the latter are so stringent as to exclude the use of products which already have met Federal standards. However, such exclusion would be appropriate and reasonable in areas such as hospital zones or libraries, where operation of noise sources such as snowmobiles or motorcycles is incompatible, regardless of the sound reduction achieved under Federal regulations.

In addition, the Quiet Communities Act amended the Noise Control Act to permit state and local jurisdictions to petition EPA to promulgate more stringent new product emission standards.[23]

Additional Federal sanctions against tampering with noise control devices on regulated products are enforceable by states and localities.

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20 42 Fed. Reg. 45776 (September 12, 1977).

21 43 Fed. Reg. 10822 (March 15, 1978).

22 42 Fed. Reg. 3580 (May 27, 1977).

23 42 U.S.C. §4905 (Supp. 1978).

APPENDIX A

GLOSSARY OF KEY TERMS

This glossary is designed to help the prosecutor understand key terms that are likely to appear in noise violation prosecutions at some point or other. The glossary selects and defines important terms from the acoustical, medical, and engineering fields, drawing on the definitions used in a number of EPA publications.[1] It also incorporates some of the more generally applicable definitions used in the Model Community Noise Control Ordinance. Terms unique to the Model Ordinance are not repeated in the glossary but may be found in Appendix C (Article III).

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[1]EPA, Public Health and Welfare Criteria for Noise, (1973); EPA, About Sound, (1976); EPA, Workbook for Police Enforcement of Noise Regulations, (1978).

A-WEIGHTED SOUND LEVEL -- An adjusted measure of sound pressure level. The ear does not respond equally to all frequencies, but is less efficient at low and high frequencies than at medium or speech range frequencies. Thus, to obtain a single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dB. A popular method of indicating the A-weighted units is dBA or dB(A). The A-weighted sound level is also called the noise level. Sound level meters have an A-weighting network for measuring A-weighted sound level.

ABSORPTION -- A property of materials that allows those materials to reduce the amount of sound energy reflected. The introduction of an "absorbent" into the surfaces of a room will reduce the sound pressure level in that room by virtue of the fact that sound energy striking the room surfaces will not be totally reflected. The effect of absorption merely reduces the resultant sound level in the room produced by energy that has already entered the room.

ABSORPTION COEFFICIENT -- A measure of the sound-absorbing ability of a surface. This coefficient is defined as the fraction of incident sound energy absorbed or otherwise not reflected by the surface. Unless otherwise specified, a diffuse sound field is assumed. The values of the sound-absorption coefficient usually range from about 0.01 for marble slate to almost 1.0 for long absorbing wedges such as are used in anechoic rooms.

ACOUSTICS -- (1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The physical qualities of a room or other enclosure (such as size, shape, amount of noise) that determine the audibility and perception of speech and music.

ACOUSTIC TRAUMA -- Damage to the hearing mechanism caused by a sudden burst of intense noise, or by a blast. Note: The term usually implies a single traumatic event.

AMBIENT SOUND LEVEL -- The noise associated with a given environment, exclusive of the particular noise being tested, being usually a composite of sounds from many sources near and far, exclusive of intruding noises from isolated identified sources.

ANEMOMETER -- An instrument used to measure the wind speed at the test site. The anemometer should have an accuracy of $\pm$ 1.2 miles per hour at true wind speeds of up to 12 miles per hour to be considered reliable.

AUDIO FREQUENCIES -- The frequency of a sound wave within the normal range of hearing, usually from 20 to 20,000 Hz.

AUDIOGRAM -- A graph showing hearing acuity as function of frequency.

AUDIOMETER -- An instrument for measuring hearing loss.

AURICLE (pinna) -- The outer ear, including the opening to the ear canal.

BACKGROUND NOISE -- The total of all noise in a system or situation, independent of the presence of the desired signal. In acoustical measurements, strictly speaking, the term "background noise" means electrical noise in the measurement system. However, in popular usage the term "background noise" is often used with the same meaning as "residual noise" or "ambient sound level."

BAFFLE -- A baffle is a shielding structure or series of partitions used to increase the effective length of the external transmission path between two points in an acoustic system.

BROADBAND NOISE -- Noise with components over a wide range of frequencies.

C-WEIGHTED SOUND LEVEL (dBC) -- A quantity, in decibels, read from a standard sound-level meter that is switched to the weighting network labeled "C". Occasionally used when there is reason to think that the low frequency energy content of a source is being overly discriminated against by low frequency roll-off of the A-weighted filter.

COMMUNITY NOISE EQUIVALENT LEVEL -- A scale (CNEL) that takes account of all the A-weighted acoustic energy received at a point, from all noise events causing noise levels above some prescribed value. Weighting factors are included that place greater importance upon noise events occurring during the evening hours (7:00 p.m. to 10:00 p.m.) and even greater importance upon noise events at night (10:00 p.m. to 6:00 a.m.).

COMPOSITE NOISE RATING -- A scale (CNR) that takes account of the totality of all aircraft operations at an airport in quantifying the total airport noise environment. A CNR value is calculated by beginning with a measure of the maximum noise magnitude from each aircraft flyby and adding weighting factors that sum the cumulative effects of all flights. The scale used to describe individual noise events is perceived noise level (in PNdB); the term accounting for number of flights is 10 log $_{10}$N (where N is the number of flight operations), and each night operation counts as much as 10 daytime operations. Very approximately, the noise exposure level at a point expressed in the CNR scale will be numerically 35-37 dB higher than if expressed in the CNEL scale.

CONTINUOUS SOUND SPECTRUM -- A sound spectrum composed of components that are continuously distributed over a frequency region.

CYCLES PER SECOND -- A measure of frequency numerically equivalent to Hertz.

DAMPING -- The dissipation of energy with time or distance. The term is generally applied to the attenuation of sound in a structure owing to the internal sound-dissipative properties of the structure or owing to the addition of sound-dissipative materials.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn) -- The 24-hour energy average of the A-weighted sound pressure level, with the levels during the period 10:00 p.m. to 7:00 a.m. increased by 10 dBA before averaging.

DECIBEL -- A measure (abbreviated "dB") on a logarithmic scale, of the magnitude of a particular quantity (such as sound pressure, sound power, intensity) with respect to a standard reference value (0.0002 microbars for sound pressure and 10-12 watt for sound power).

DOPPLER EFFECT (DOPPLER SHIFT) -- The apparent upward shift in frequency of a sound as a noise source approaches the listener (or vice versa), and the apparent downward shift when the noise source recedes. The classic example is the change in pitch of a railroad whistle as the locomotive approaches and passes by.

DOSIMETER -- An instrument which registers the occurrence and duration of noise exceeding a predetermined level at a chosen point in the environment.

EFFECTIVE PERCEIVED NOISE LEVEL (EPNL) -- A physical measure designed to estimate the effective "noisiness" of a single noise event, usually an aircraft fly-over; it is derived from instantaneous Perceived Noise Level (PNL) values by applying corrections for pure tones and for the duration of the noise.

EQUIVALENT A-WEIGHTED SOUND LEVEL (Leq) -- The constant sound level that, in a given situation and time period, conveys the same sound energy as the actual time-varying A-weighted sound.

FAR FIELD -- Describes a sound source region in free space. At a sufficient distance from the source, the sound pressure level obeys the inverse-square law (the sound pressure decreases 6 dB with each doubling of distance from the source). Also, the sound particle velocity is in phase with the sound pressure. This region is called the far field of the sound source. Regions closer to the source, where these two conditions do not hold, constitute the near field. In an enclosure, as opposed to free space, there can also sometimes be a far field region if there is not so much reflected sound that the near field and the reverberant field merge. See also, "reverberant field."

FREE SOUND FIELD (FREE FIELD) -- A sound field in which the effects of obstacles or boundaries on sound propagated in that field are negligible.

FREQUENCY -- The number of times per second that the sine-wave of sound repeats itself, or that the sine-wave of a vibrating object repeats itself. Now expressed in Hertz (Hz), formerly in cycles per second (cps).

HAIR CELL -- Sensory cells in the cochlea which transform the mechanical disturbance of sound into a nerve impulse.

HEARING IMPAIRMENT -- Hearing loss exceeding a designated criterion. The Occupational Safety and Health Act defines as compensable hearing loss 25-dB average hearing loss at 500, 1000, and 2000 Hz.

HEARING LOSS -- At a specified frequency, an amount, in decibels, by which the threshold of audibility for that ear exceeds a certain specified audiometric threshold, that is to say, the amount by which a person's hearing is worse than some selected norm. The norm may be the threshold established at some earlier time for that ear, or the average threshold for some large population, or the threshold selected by some standards setting body for audiometric measurements.

HERTZ -- Unit of measurement (H_z) of frequency, numerically equal to cycles per second.

IMPULSIVE SOUND -- Sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and the discharge of firearms.

INFRASONIC -- Sounds of a frequency below the audiofrequency range.

INVERSE-SQUARE LAW -- A description of acoustic wave behavior in which the meansquare pressure varies inversely with the square of the distance from the source; this behavior usually occurs in free-field situations, so that the sound level decreases 6 dB wih each doubling of distance from the source.

LEVEL -- The logarithm of the ratio of a sound pressure being measured to a reference sound pressure when expressed in decibels.

LINE SPECTRUM -- The spectrum of a sound whose components occur at a number of discrete frequencies.

LOUDNESS -- The judgment of intensity of a sound by a human being. Loudness depends upon the sound pressure and freqency of the stimulus. Over much of the frequency range it takes about a threefold increase in sound pressure (approximately 10 dB) to produce a doubling of loudness.

NEAR FIELD -- The sound field very near to a source, where the sound pressure does not obey the inverse-square law; see "far field."

NOISE -- Any sound which annoys or disturbs humans or which causes or tends to cause an adverse psychological or physiological effect on humans.

NOISE DISTURBANCE -- Any sound which (a) endangers or injures the safety or health of humans or animals, or (b) annoys or disturbs a reasonable person of normal sensitivities, or (c) endangers or injures personal or real property.

NOISE EXPOSURE FORECAST -- A scale (analogous to CNEL and CNR) that has been used by the Federal government in land use planning guides for use in connection with airports. In the NEF scale, the basic measure of magnitude for individual noise events is the effective perceived noise level (EPNL), in units of EPNdB. This magnitude measure includes the effect of duration per event. The terms accounting for number of flights and for weighting by time period are the same as in the CNR scale.

OCTAVE -- The interval between two sounds having a basic frequency ration of two. For example, there are 8 octaves on the keyboard of a standard piano.

OCTAVE BAND -- All of the components, in a sound spectrum, whose frequencies are between two sine-wave components separated by an octave.

PERCEIVED NOISE LEVEL (PNL) -- A quantity expressed in decibels that provides a subjective assessment of the perceived "noisiness" of aircraft noise. The units of Perceived Noise Level are Perceived Noise Decibels, PNdB.

PNdB -- See perceived noise level.

PRESBYCUSIS -- Impaired hearing due to old age.

PURE TONE -- Any sound which can be distinctly heard as a single pitch.

REFRACTION -- A bending of the direction of travel and sound wave from its established path, caused, for example, by a wind, a barrier, or a temperature gradient.

RESIDUAL NOISE LEVEL -- The noise that exists at a point as a result of the combination of many distinct sources, individually indistinguishable. In statistical terms, it is the level that exists 90 percent of the time. In popular usage the term "residual noise" is often used interchangeably with "ambient noise." See also, "background noise."

REVERBERANT FIELD -- A sound field in which sound is significantly affected by obstacles, reflecting surfaces, and boundaries, characterized by multiple echoes; the opposite of "free field."

ROOT-MEAN-SQUARE (RMS) -- A term describing the mathematical process to determine an "average" value of a complex signal.

SHIELDING -- The attenuation of a sound by placing walls, buildings, or other barriers between a sound source and the receiver.

SONE -- The unit of measurement for loudness. One sone is the loudness of a sound whose level is 40 phons.

SONIC BOOM -- The pressure transient produced at an observing point by a vehicle that is moving past (or over) it faster than the speed of sound.

SOUND -- An oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

SOUND INSULATION -- (1) The use of structures and materials designed to reduce the transmission of sound from one room or area to another or from the exterior to the interior of a building. (2) The degree by which sound transmission is reduced by means of sound insulating structures and materials.

SOUND LEVEL -- The weighted sound pressure level obtained by the use of a sound level meter and frequency weighting network, such as A, B, or C as specified in American National Standards Institute specifications for sound level meters (ANSI SI.4-1971, or the latest approved revision). If the frequency weighting employed is not indicated, the A-weighting is implied.

SOUND LEVEL METER -- An instrument which includes a microphone, amplifier, RMS detector, integrator or time averager, output meter, and weighting networks used to measure sound pressure levels.

SOUND PRESSURE -- The instantaneous difference between the actual pressure and the average or barometric pressure at a given point in space, as produced by sound energy.

SOUND PRESSURE LEVEL -- The root-mean-square value of sound pressure, expressed as the logarithm of the ratio of that sound pressure to a reference sound pressure (20 microPascals) in decibels (dB).

SPEED (VELOCITY) OF SOUND IN AIR -- The speed of sound in air is 344 m/sec or 1128 ft/sec at 78 degrees F.

STEADY-STATE SOUNDS -- Sounds whose average characteristics remain reasonably constant in time. An example of a steady-state sound is an air conditioning unit.

TEMPORARY THRESHOLD SHIFT (TTS) -- A temporary impairment of hearing capability as indicated by an increase in the threshold of audibility. By definition, the ear recovers after a given period of time. Sufficient exposures to noise of sufficient intensity, from which the ear never completely recovers, will lead to a permanent threshold shift (PTS), which constitutes hearing loss.

TINNITUS -- Ringing in the ear or noise sensed in the head. Onset may be due to noise exposure and persist after a causative noise has ceased or occur in the absence of acoustical stimulation (in which case it may indicate a lesion of the auditory system).

TONE -- A sound of definite pitch. A pure tone has a sinusoidal wave form.

WAVELENGTH -- For a periodic wave (such as sound in air), the perpendicular distance between analogous points on any two successive waves. The wavelength of sound in air or in water is inversely proportional to the frequency of the sound. Thus, the lower the frequency, the longer the wavelength.

WINDSCREEN -- A porous device to cover the microphone of a sound level measurement system and intended to minimize the affects of winds and wind gusts on the sound levels being measured; typically made of reticulated (open cell) polyurethane foam and spherical in shape.

APPENDIX B

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APPENDIX C

Preamble to Model Community Noise Control Ordinance

This model noise control ordinance was drafted by the U.S. Environmental Protection Agency and the National Institute of Municipal Law Officers.

Contents

Figures

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INTRODUCTION

Purpose

The Model Community Noise Control Ordinance (model ordinance) is intended to be a basic tool which communities, both large and small, can use to construct noise control ordinances suited to local needs and conditions. The complete model ordinance, including optional provisions, is perhaps most suitable for larger communities, with populations of about 100,000 or more. Smaller communities and large communities with limited resources may wish to adopt only those provisions which address their most pressing noise problems. It is important that the community ensure that all provisions adopted are realistic in relation to local needs and conditions; that all provisions are consistent with one another, with other local law, and with State and Federal law; and, finally, that all provisions are clear and otherwise well drafted so that enforcement problems will be minimized.

Background

This model ordinance is an outgrowth of the Federal Noise Control Act of 1972 (49 U.S.C. §§ 4901 *et seq.*) and the tremendous increase in interest regarding noise abatement and control which the Act has precipitated. Many existing community noise ordinances are based on outmoded model ordinances and/or the common law approach to noise control which relies exclusively on difficult to enforce nuisance provisions. While the model ordinance preserves common law with Article VI provisions prohibiting noise disturbances, it also contains definitive performance standards for motor vehicles and other sources of community noise. The increase in reliable monitoring equipment available to local governments, coupled with definitive standards incorporated into local noise control ordinances, should result in ordinances which are more easily enforceable than many have been in the past.

It is anticipated that an analagous model ordinance will form part of a workbook on community noise abatement and control to be published by the U.S. Environmental Protection Agency during late 1977. In addition to containing the model ordinance (perhaps with discussions of a number of alternative provisions), the workbook may contain chapters on the legal basis of noise control, the health effects of noise and various enforcement approaches.

Although the model ordinance will stand alone as a legal document, for proper enforcement the City/County must additionally have a code of recommended practices or rules and regulations which give general specifications for sound measuring equipment and measurement methodology. This document should also provide detailed procedures for measurements to be taken for certain provisions of the ordinance, such as motor vehicles and stationary sources. To assist communities in the development of a code of recommended practices, EPA is preparing a model code which, when completed, will be sent to recipients of the model ordinance.

Interrelationship of Various Provisions

An overview of the model ordinance can most readily be obtained by reading the List of Provisions. When a community determines which activities it wishes to regulate, the appropriate model provision or provisions can be located by referring to this list.

A glance through the List of Provisions suggests that certain acts may be prohibited by more than one provision. For example, use of a noisy go-cart could violate Section 9.2 ("Recreational Vehicles Operating Off Public Rights-Of-Way"), as well as Section 6.1 (Noise Disturbances). It may be that a community desires such multiple coverage. In this case, enforcement against the owner or operator of a noisy go-cart would probably come under the provision more easily enforced, but could come under both provisions violated, at the discretion of the enforcement agency. If a community does not desire such multiple coverage, it can either omit certain provisions or it can exempt acts covered by other provisions from multiple coverage. Such modifications deserve careful consideration, however, so that they do not modify the ordinance more than desired or otherwise jeopardize enforcement.

GENERAL PROVISIONS

Policy Regarding Levels

In this model ordinance, recommended values for sound levels in the performance standards have been omitted in most cases. Suggested times for the curfews on the hours of the conduct of activities or the operation of equipment have also generally been omitted. The reason for these omissions is that the drafters of the ordinance feel that there is no single number that can be chosen for each provision that would be appropriate for all types of communities. Each community has its own set of environmental, health, economic and other goals it wishes to attain. Each community also has its own configuration of noise sources and their impact which it wishes to control. The level and extent of such control is fully within the purview of local decision. Of course, localities will wish to consider the

technical practicality and economic reasonableness of sound levels chosen. However, in the regulation of noise pollution, the protection of public health and welfare is the major legal basis for control and must be carefully considered in the determination of performance standard noise levels and hours of curfew. For a specification of national maximum noise exposure guidelines, consult *Information on the Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (U.S. Environmental Protection Agency, March 1974).

Pre-Emption

Under the Noise Control Act of 1972 (49 U.S.C. §§ 4901 *et seq.*), certain areas of local authority will become pre-empted on the effective date of regulations developed by the U.S. Environmental Protection Agency pursuant to Sections 6, 17 and 18 of this Act. In this discussion, we will present the scope of Federal pre-emption and indicate the provisions of the model ordinance which were drafted wholly or partially to respond to the issue of pre-emption.

An over-all requirement to monitor Federal pre-emptive regulations and to respond to them in the local noise ordinance is contained in Section 4.3.6(b). This subsection provides that, at such time as Federal regulations become effective which are by law pre-emptive of the laws of State and local governments, the Environmental Protection Officer(r)/Noise Control Office(r) (EPO/NCO) shall review the provisions of the local ordinance which may be affected and make appropriate recommendations for changes to the city council/legislative body.

The purposes of including such a provision in this ordinance are to facilitate the coordination of the local noise control efforts with the Federal noise program and to reduce the possibility of defendants raising Federal pre-emption as a defense to charges of local law violations.

With regard to the scope of pre-emption, the pre-emptive provision of Section 6 of the Noise Control Act differs considerably from those of Sections 17 and 18. The Section 6 provision is relatively narrow, pre-empting local laws covering new product noise emission levels which are directed at the manufacture or sale of such products. The preemptive provisions of Sections 17 and 18 are very broad, pre-empting local noise laws which affect the operation of interstate motor and rail carrier vehicles.

In Section 6, subsection 6(e)(1) provides that, after the effective date of an EPA regulation prescribing noise emission levels for a specific new product or component, no State or political subdivision thereof may adopt or enforce with respect to that particular new product or component any law or regulation which sets a noise emission limit on such product (or component) enforceable against the manufacturer of the product, applicable at the time of sale, unless such law or regulation is identical to the Federal regulation. Thus, the preemption is against State and local laws which regulate the noise levels of a new product (i.e., a product which has not yet been sold to the first retail purchaser) and which, at any time, impact the manufacturer of the product.

State and local governments, under subsection 6(e)(2), retain authority to control products by all other available means. This subsection states that nothing in this section precludes or denies the right of State or local governments to establish and enforce controls on environmental noise and sources thereof through the licensing, regulation, or restriction of the use, operation or movement of any product or combination of products.

Thus, although a local government may not enforce a non-identical local law regarding the noise level of an EPA-regulated new product which affects the manufacture or sale of such product, the local government may regulate the product noise impact through regulations enforceable against the owner or operator of the product by providing, for example, maximum noise levels for operation, curfews on operation, prohibition of use in a residential neighborhood or hospital zone, or requirements for periodic inspection and licensing of the product.

Broader pre-emptive coverage is found in Sections 17(c)(1) and 18(c)(1). These sections provide that, after the effective date of an EPA regulation applicable to noise emissions from interstate rail or motor carriers, no State or political subdivision thereof may adopt or enforce any standard applicable to the same noise source unless such standard is identical to the Federal standard. However, Sections 17(c)(2) and 18(c)(2) provide that nothing in these sections shall diminish or enhance the right of State and local governments to establish and enforce standards or controls on levels of environmental noise or to control, license, regulate or restrict the use, operation or movement of any regulated product if two conditions occur:

1) the EPA Administrator, after consultation with the Secretary of the Department of Transportation, determines that such local law is necessitated by special local conditions, and

2) if he determines that such local law is not in conflict with the EPA regulations.

Thus, on the effective date of the EPA regulations under Section 18 (October 15,

1975) and Section 17 (undetermined as yet), local governments should review any ordinance provisions applicable to noise emissions resulting from the use or operation of motor vehicles with a gross vehicle or combination weight rating of greater than 10,000 lbs. operated by an interstate motor carrier and of interstate surface railroad locomotives and cars. Local regulations providing standards on noise emissions resulting from operations subject to Federal regulations must be identical to the Federal regulation. Such identity applies not only to the standard but also to the core measurement methodology which defines the standard. Non-identical standards may not be enforced, and should be declared ineffective, as of the effective date of the Federal regulation. For this reason, Section 18 standards have been incorporated into Table II of Section 9.1 in the model ordinance. The appropriate measurement methodology should be incorporated into the community code of recommended practices.

In general, we can classify the pre-emptive effect of these sections on local law into three categories. First, any local law which sets noise emission levels for interstate motor vehicles and rail locomotives and cars must be identical to the Federal standard. No special local condition or other factor can exempt this requirement. Second, local laws which regulate or restrict the use, operation, or movement of interstate motor rail carriers by such means as curfews and truck routes (see Section 4.3.4, Truck Routes and Transportation Planning) will not be subject to pre-emption if (1) the principal purpose of such regulation is not to control noise, or (2) the principal purpose is to control noise but the regulation has been approved by the EPA as necessitated by special local conditions and not in conflict with Federal regulations. For example, truck routes designated solely on the basis of noise must be submitted to EPA for determination of a special local condition. Truck routes based on additional factors, such as the safety of children, maximum load on street surfaces, etc., will not need EPA approval. Third, general noise regulations, such as the property line noise emission standards of Article VIII, will not be affected by these pre-emption provisions except in rare cases. Thus, the property line levels may be applied to noise emissions caused by interstate motor carrier vehicles at a loading terminal so long as means of abatement are possible which do not require controlling the noise emission level of the motor vehicle itself. Such other means of abatement can include, for example, installation of noise barriers at the perimeter of the terminal and creation of buffer zones of land between the terminal and the noise-impacted areas.

Hearing Board and Advisory Council

A City/County with a large EPO/NCO may prefer to utilize a Hearing Board (or an administrative court) to hear cases regarding ordinance violations. Under this approach, the Hearing Board would decide the case and determine the penalty. Local courts would be utilized in appeals of the decisions of the board. This approach avoids overburdening existing courts.

The City/County may also wish to use a Hearing Board to make determinations on Special Variances (Section 7.2) and Variances for Time to Comply (Section 7.3). This would free EPO/NCO personnel to perform other tasks under the ordinance. However, the EPO/NCO could still be consulted on technical matters.

If the City/County decides to have a Hearing Board, the terms of existence and operation of the Board should be specified in the ordinance.

A Noise Control Advisory Council should also be considered by the City/County. The functions of this council could include providing (1) advice on development of the noise control program; (2) recommendations on which provisions of the model ordinance should be included in the City/County ordinance; (3) recommendations on sound level values and curfew periods for the various provisions; and (4) stimulation of public interest on noise abatement. This Council could also be responsible for writing the periodic reports, specified in Section 4.3.9, concerning the progress of the local noise control program.

SPECIFIC PROVISIONS

Article III—Definitions

1. Section 3.2.16, Definition of "Motorboat"

A community which serves as an international port may wish to explicitly exclude vessels in international commerce from the definition of motorboat, since many such vessels would be effectively prohibited from using the port (under Section 6.2.15, Motorboats).

2. Section 3.2.29, Definition of "Sound"

The term "sound" is generally used as the operative word in this ordinance rather than the term "noise." This is to avoid the problem of associating "noise" with a sound that is "disturbing" or "unwanted", with the attendant possibility that in order to prove a violation of the ordinance, proof must be given that the sound had indeed been "disturbing" or "unwanted." Because the substantive provisions of the ordinance have been narrowly drawn and often contain objective criteria, proof of an additional subjective element is unnecessary.

3. Section 3.1.22, Definition of "Person"

The definition of person does not include Federal agencies and departments. This is because legal decisions have not yet determined the extent of a locality's authority to bring action against the Federal government for noise control violations.

Section 4 of the Noise Control Act of 1972 requires that all departments, agencies, and instrumentalities of the executive legislative, and judical branches of the Federal Government comply with Federal, State, interstate, and local requirements respecting control and abatement of environmental noise to the same extent that any person is subject to such requirements The Federal Courts of Appeals, deciding cases under identical language in the Clean Air Act, have disagreed as to whether this language extends to administrative as well as substantive requirements. See *State of Alabama v. Seeber*, 502 F. 2d. 1238 (5 Cir. 1974); *Commonwealth of Kentucky v. Ruckelshaus*, 497 F. 2d. 1172, (6 Cir. 1974). *Kentucky v. Ruckelshaus* is pending before the Supreme Court, and a resolution of the issue is likely. Further questions exist as to whether a State or local government can bring an action against the Federal Government for violations of their noise control laws, regulations and ordinances. Accordingly, the key definition of "person" in the model ordinance, which serves as an applicability section, does not include the Federal Government.

In the absence of such specificity, Section 4 of the Noise Control Act continues to require that the Federal Government comply with the local ordinance. However, it is left to each community to determine the position it will take with respect to the relevant issues, such as whether the Federal Government must comply with administrative provisions, and whether penalties, orders, and enforcement actions will be directed at the Federal Government under Article XI (Enforcement).

Article IV—Powers and Duties of The (Environmental Protection)/(Noise Control) Office(r)

Resolving Inter-Departmental Conflicts

Section 4.2.4 (Review of Actions of Other Departments); Section 4.2.5 (Review of Public and Private Projects), Section 4.3.4 (Truck Routes and Transportation Planning) and Article V (Duties and Responsibilities of other Departments) have the potential of causing inter-departmental conflicts since there is shared responsibility. The community may wish to specify in the ordinance a method for resolving such conflicts, perhaps by authorizing the city council, county board of supervisors, mayor, etc., to negotiate differences and make a final decision.

Education

Section 4.2.2 authorizes the Environmental Protection (Noise Control) Office(r) to educate the public on methods of controlling noise and on the provisions of the ordinance. The EPO may wish to exercise caution, however, in providing specific advice on solving a particular noise problem. For instance, if the EPO were to advise a commercial establishment on a method of reducing noise from its air conditioning unit and this method failed to be effective, the commercial establishment may try to use this fact as a defense in any action brought against it by the EPO. The EPO officer should use his discretion in handling matters of this type.

Review of Public and Private Projects

Section 4.2.5 grants the EPO the power to review public and private projects over which another department has authority in order to determine whether they will comply with the ordinance. This applies to such matters as licensing a race track, approving a housing project, or granting a permit for a construction site, if required to be approved by a department other than that of the EPO/NCO and if likely to create sound levels or sound exposures in violation of the ordinance.

Some communities may wish to expand this section to authorize the EPO to recommend to other departments appropriate modifications to projects if the EPO believes such projects will violate the ordinance or to allow him veto power over projects significantly impacting the noise environment.

This provision does not set criteria for determining whether a proposed project must be reviewed by the EPO/NCO. If the City/County wishes the EPO/NCO to review every proposed project, such criteria are not necessary, but this policy may create an unnecessarily large burden on the EPO/NCO. If the City/County wishes to limit situations where the proposed project is subject to noise impact review, criteria can be either included in the language of this provision, or the EPO/NCO can develop criteria in consultation with affected departments. Such criteria may include, for example, minimum monetary or time limits for the review of activities or specification of the types of activities which are likely to produce sound in violation of the ordinance.

Inspections

Section 4.2.6 concerns inspections. To be constitutionally permissible, administrative searches or inspections conducted by municipal inspectors on private property must be made using a warrant procedure (*Camara v. Municipal Court*, 387 U.S. 523 (1967);

See v. Seattle, 387 U.S. 511 (1967)). Thus, if a private property holder refuses to allow his premises to be inspected by a City/County official, the official must obtain a search warrant for the premises before he may inspect them. The Court in *See* also held that there is no distinction between the rights of a residential property holder and those of a commercial property holder concerning searches or inspections. Both types of property are thus treated the same in Section 4.2.6(a).

Violations of Article VIII (Noise Levels by Receiving Land Use) and most Article VI (Prohibited Acts) violations can be determined without an inspection on the premises on which the sound source is situated, so a search warrant is not needed in these situations.

Article VIII—Sound Levels by Receiving Land Use (Defining Land Use Districts)

Article VIII sets property line sound limits for the broad receiving land use categories of residential, commercial and industrial. Many communities are employing this type of quantitative limit to provide stronger legal control over undesirable sound levels than is attainable with an ordinance containing only nuisance provisions.

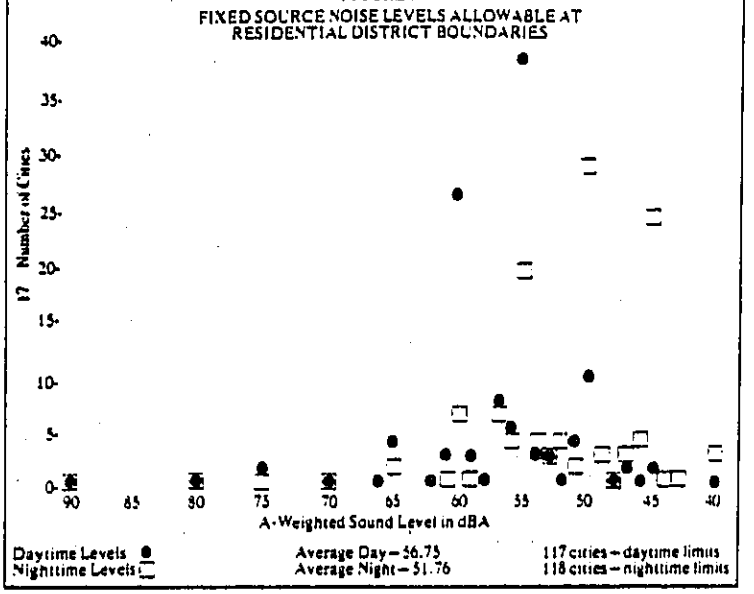
If the community land use/zoning code accurately reflects the actual use of the land, then the designations used by the city for zoning categories may effectively be plugged into the three Article VIII categories (with the corresponding definitions placed in Article III). On the other hand, if there are numerous discrepancies between the way the land is zoned and the way it is actually used (e.g., commercial establishments in a residential zone), or if there are large tracts of unzoned land, the community may prefer to base property line limits on the actual *use* of the land. This would provide greater protection for impacted properties.

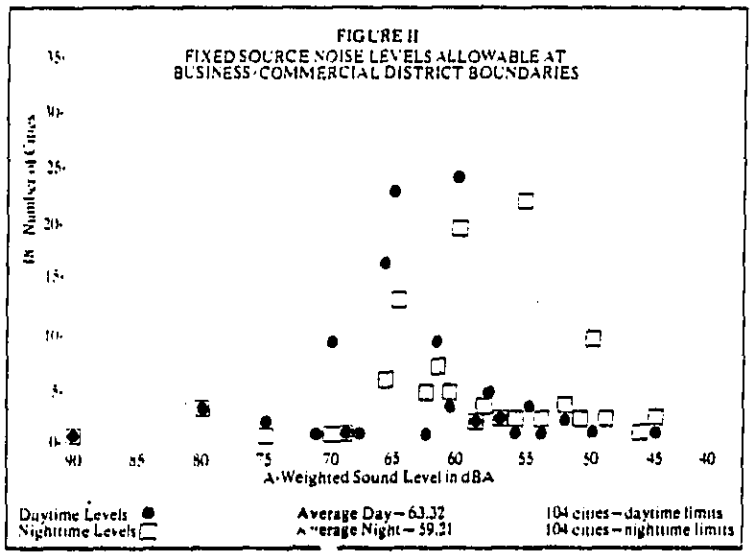
A related matter to be considered in controlling property line noise is that of the occasional non-conforming land use. An example is the case of a single residence located in an industrial area. It may not be possible for several manufacturers impacting the residence to lower their noise levels to meet the limit specified for residential areas. Situations of this type will require some discretion in enforcement.

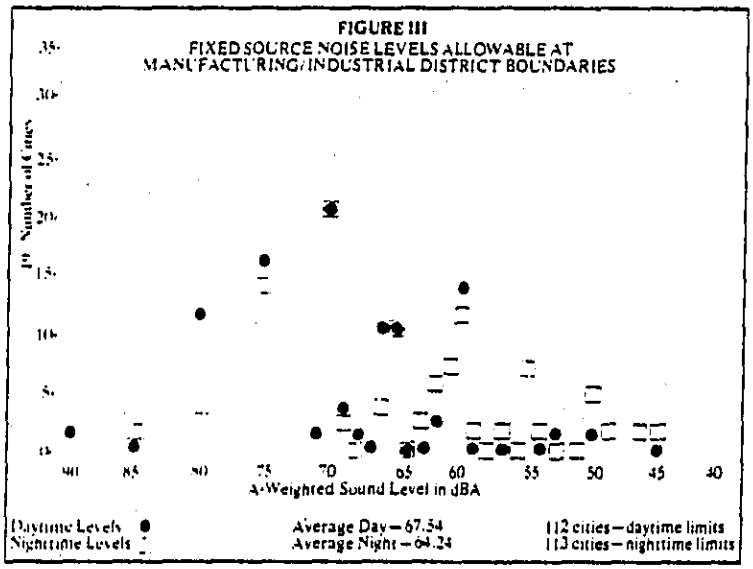
Figures I, II, and III summarize graphically the property line levels set by current municipal noise ordinances.

FIGURE I

FIXED SOURCE NOISE LEVELS ALLOWABLE AT RESIDENTIAL DISTRICT BOUNDARIES







Article X—Land Use

The basic purpose of the Article X land use planning provisions is to ensure that no new residences, institutions or recreational areas are constructed in high noise areas, as determined by the appropriate sections. Although the Article was drafted to stand independently from the existing community land use planning or zoning systems, it is

important for a community considering enactment of this Article to study the interaction of Article X with the land use planning and/or zoning laws and to reconcile them where necessary. It may be better, for example, to enact Article X as an amendment to an existing land use law rather than as a part of the noise control ordinance. Furthermore, because this Article effectively rezones land subject to its provisions, the community may want or need to take special measures before enactment of this Article. These may include a general identification of the areas that will be affected by these provisions.

Article XI—Enforcement

Provisions in this Article are more likely to need revision to conform with local law than other provisions of the model ordinance. For example, the City/County may wish to make violations of the ordinance "infractions," similar to minor traffic violations, rather than misdemeanors, due to the stigma attached to such violations.

The City/County may wish to ensure that the public is reasonably well-informed of activities prohibited by the ordinance before fully effectuating its enforcement program. For example, the City/County may utilize a discretionary policy of issuing an abatement order for a first violation, followed by a citation for the original violation, if the abatement order is not complied with. This approach is provided for in Section 11.2 (Abatement Order), and would be used for violations that are presumed to be unintentional. The EPO/NCO may wish to establish guidelines for use of the abatement order, indicating, for example, appropriate types of violations for which an order may be issued and maximum time period of an order.

The enforcement scheme contained in this ordinance also includes a provision for citizen suits (Section 11.5). The advantage of the citizen suit approach is that many violations of the ordinance which the EPO/NCO has insufficient resources to prosecute can be legally dealt with by persons affected by the violation. Provisions under which one citizen can sue another are limited to those listed in Table VI, to minimize the possibility of "harassment" suits.

Section 11.3 (Notice of Violation) is incomplete in several respects for easy adaptation to the local law of the particular City/County.

Section 11.4 (Immediate Threats to Health and Welfare) provides the EPO/NCO with the authority to force immediate abatement of sources producing sound intensities that not only violate the ordinance but are also unquestionably harmful to the health of the public exposed to them. The sound levels regulated (see Tables IV and V) are deliberately set high, because there is no procedure in this provision for balancing public health with economic or other considerations; public health is the sole determinant. The health and welfare criterion for the levels set is a temporary threshold shift of 30 dB at 4 kHz.

Subsection (b) limits the applicability of this provision to impacts on members of the general public who are involuntarily exposed to the sound. Employee exposures at their workplace are exempted because employee sound exposure levels are regulated under the Occupational Safety and Health Act (29 U.S.C. §§ 669 *et seq.* (1970)).

Severe sanctions for noncompliance with the order are provided for in subsection (d), so that the sound will not continue to be a detriment to public health. If the order is unjustified, a court can invalidate or suspend it soon after the order is issued, in a mandamus type proceeding. This remedy is contained in subsection (c), which may need to be modified to conform with local procedure.

Under Section 11.6 (Other Remedies), common law and statutory remedies previously used to regulate excessive sound will still remain available. It is desirable to retain such remedies to allow private persons the possibility of recovering damages or other remedies for the effects of excessive sound since private recovery is not provided for under the ordinance. The ordinance is intended to expand existing sound control law, not to limit it.

FORMAT

In reading the model ordinance, it is essential that certain typographical symbols and format be understood. Several brief rules have been followed in drafting. These are:

- The material contained in square brackets [ ] is optional, depending on the needs and conditions of a given community. (Of course, communities developing ordinances may decide that any given provision should be deleted.)
- Parenthesis ( ) are generally used to designate alternative choices, but in some cases contain explanatory information, depending on the context.
- Blanks —— must be filled in by the community with appropriate information.
- Wherever the term EPO/NCO appears, the title of the community's lead noise enforcement agency or official should be inserted.

Model Community Noise Control Ordinance

List of Provisions

Tables

ARTICLE I Short Title

This ordinance may be cited as the "Noise Control Ordinance of the (City/County) of....."

ARTICLE II Declaration of Findings and Policy; Scope

2.1 Declaration of Findings and Policy

WHEREAS excessive sound and vibration are a serious hazard to the public health and welfare, safety, and the quality of life; and

WHEREAS a substantial body of science and technology exists by which excessive sound and vibration may be substantially abated; and,

WHEREAS the people have a right to and should be ensured an environment free from excessive sound and vibration that may jeopardize their health or welfare or safety or degrade the quality of life; and,

NOW, THEREFORE, it is the policy of the (City/County) of ..... to prevent excessive sound and vibration which may jeopardize the health and welfare or safety of its citizens or degrade the quality of life.

2.2 Scope

This ordinance shall apply to the control of all sound and vibration originating within the limits of the (City/County) of .....

ARTICLE III Definitions

3.1 Terminology

All terminology used in this ordinance, not defined below, shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body.

3.2.1 "A-Weighted Sound Level" Means

The sound pressure level in decibels as measured on a sound level meter using the A-weighting network. The level so read is designated dB(A) or dBA.

3.2.2 "Commercial Area" Means

((As defined in the community (comprehensive plan)/(zoning ordinance)).

3.2.3 "Construction" Means

Any site preparation, assembly, erection, substantial repair, alteration, or similar action, but excluding demolition, for or of public or private rights-of-way, structures, utilities or similar property.

3.2.4 "Day-Night Average Sound Level (L_{dn})" Means

The 24-hour energy average of the A-weighted sound pressure level, with the levels during the period 10:00 p.m. to 7:00 a.m. the following day increased by 10 dBA before averaging.

3.2.5 "Decibel (dB)" Means

A unit for measuring the volume of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

3.2.6 "Demolition" Means

Any dismantling, intentional destruction or removal of structures, utilities, public or private right-of-way surfaces, or similar property.

3.2.7 "Emergency" Means

Any occurrence or set of circumstances involving actual or imminent physical trauma or property damage which demands immediate action.

3.2.8 "Emergency Work" Means

Any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

3.2.9 "Environmental Protection Office(r)/ Noise Control Office(r) (EPO/NCO)" Means

The municipal agency or department having lead responsibility for this ordinance. (If no such agency is designated, the term shall mean the municipal official having lead responsibility for this ordinance.)

3.2.10 "Equivalent A-Weighted Sound Level (L_{eq})" Means

The constant sound level that, in a given situation and time period, conveys the same sound energy as the actual time-varying A-weighted sound. [For the purposes of this ordinance, a time period of 24 hours shall be used, unless otherwise specified.]

3.2.11 "Gross Vehicle Weight Rating (GVWR)" Means

The value specified by the manufacturer as the recommended maximum loaded weight of a single motor vehicle. In cases where trailers and tractors are separable, the gross combination weight rating (GCWR), which is the value specified by the manufacturer as the recommended maximum loaded weight of the combination vehicle, shall be used.

3.2.12 "Impulsive Sound" Means

Sound of short duration, usually less

than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and the discharge of firearms.

3.2.13 "Industrial Area" Means

((As defined in the community (comprehensive plan)/(zoning ordinance)).

3.2.14 "Motor Carrier Vehicle Engaged in Interstate Commerce" Means

Any vehicle for which regulations apply pursuant to Section 18 of the Federal Noise Control Act of 1972 (P.L. 92-574), as amended, pertaining to motor carriers engaged in interstate commerce.

3.2.15 "Motor Vehicle" Means

(As defined in the motor vehicle code of the State)/(Any vehicle which is propelled or drawn on land by a motor, such as, but not limited to, passenger cars, trucks, truck-trailers, semi-trailers, campers, go-carts, snowmobiles, amphibious craft on land, dune buggies, or racing vehicles, but not including motorcycles.)

3.2.16 "Motorboat" Means

Any vessel which operates on water and which is propelled by a motor, including, but not limited to, boats, barges, amphibious craft, water ski towing devices and hover craft.

3.2.17 "Motorcycle" Means

(As defined in the motor vehicle code of the State)/(An unenclosed motor vehicle having a saddle for the use of the operator and two or three wheels in contact with the ground, including, but not limited to, motor scooters and minibikes.)

3.2.18 "Muffler or Sound Dissipative Device" Means

A device for abating the sound of escaping gases of an internal combustion engine.

3.2.19 "Noise" Means

Any sound which annoys or disturbs humans or which causes or tends to cause an adverse psychological or physiological effect on humans.

3.2.20 "Noise Disturbance" Means

Any sound which (a) endangers or injures the safety or health of humans or animals, or (b) annoys or disturbs a reasonable person of normal sensitivities, or (c) endangers or injures personal or real property.

3.2.21 "Noise Sensitive Zone" Means

Any area designated pursuant to Section 4.2.10 of this ordinance for the purpose of ensuring exceptional quiet.

3.2.22 "Person" Means

Any individual, association, partnership, or corporation, and includes any officer, employee, department, agency or instrumentality of a State or any political subdivision of a State.

3.2.23 "Powered Model Vehicle" Means

Any self-propelled airborne, waterborne, or landborne plane, vessel, or vehicle, which is not designed to carry persons, including, but not limited to, any model airplane, boat, car, or rocket.

3.2.24 "Public Right-of-Way" Means

Any street, avenue, boulevard, highway, sidewalk or alley or similar place which is owned or controlled by a governmental entity.

3.2.25 "Public Space" Means

Any real property or structures thereon which are owned or controlled by a governmental entity.

3.2.26 "Pure Tone" Means

Any sound which can be distinctly heard as a single pitch or a set of single pitches. For the purposes of this ordinance, a pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetric average of the sound pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies of 500 Hz and above and by 8 dB for center frequencies between 160 and 400 Hz and by 15 dB for center frequencies less than or equal to 125 Hz.

3.2.27 "Real Property Boundary" Means

An imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one person from that owned by another person, but not including intra-building real property divisions.

3.2.28 "Residential Area" Means

((As defined in the community (comprehensive plan)/(zoning ordinance)).

3.2.29 "RMS Sound Pressure" Means

The square root of the time averaged square of the sound pressure, denoted P_{rms}.

3.2.30 "Sound" Means

An oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

3.2.31 "Sound Level" Means

The weighted sound pressure level obtained by the use of a sound level meter and frequency weighting network, such as A, B, or C as specified in American National Standards Institute specifications for sound level meters (ANSI S1.4–1971, or the latest approved revision thereof). If the frequency weighting employed is not indicated, the A-weighting shall apply.

3.2.32 "Sound Level Meter" Means

An instrument which includes a microphone, amplifier, RMS detector, integrator or time averager, output meter, and weighting networks used to measure sound pressure levels.

3.2.33 "Sound Pressure" Means

The instantaneous difference between the actual pressure and the average or barometric pressure at a given point in space, as produced by sound energy.

3.2.34 "Sound Pressure Level" Means

20 times the logarithm to the base 10 of the ratio of the RMS sound pressure to the reference pressure of 20 micropascals (20×10^{-6} N/m^2). The sound pressure level is denoted L_p or SPL and is expressed in decibels.

3.2.35 "Vibration" Means

An oscillatory motion of solid bodies of deterministic or random nature described by displacement, velocity, or acceleration with respect to a given reference point.

3.2.36 "Weekday" Means

Any day Monday through Friday which is not a legal holiday.

ARTICLE IV Powers and Duties of the (Environmental Protection)/(Noise Control) Office(r)

4.1 Lead (Agency/Official)

The noise control program established by this ordinance shall be administered by (title of municipal agency or lead official).

4.2 Powers of The (Environmental Protection)/(Noise Control Office(r)

In order to implement and enforce this ordinance and for the general purpose of sound and vibration abatement and control, the EPO/NCO shall have, in addition to any other authority vested in it, the power to:

4.2.1 Studies

Conduct, or cause to be conducted, research, monitoring, and other studies related to sound and vibration.

4.2.2 Education

(a) Conduct programs of public education regarding:

(1) the causes, effects and general methods of abatement and control of noise and vibration; and,

(2) the actions prohibited by this ordinance and the procedures for reporting violations; and

(b) Encourage the participation of public interest groups in related public information efforts.

4.2.3 Coordination and Cooperation

(a) Coordinate the noise and vibration control activities of all municipal departments;

(b) Cooperate to the extent practicable with all appropriate State and Federal agencies;

(c) Cooperate or combine to the extent practicable with appropriate county and municipal agencies; and,

(d) Enter into contracts [with the approval of the (appropriate authority)] for the provision of technical and enforcement services.

4.2.4 Review of Actions of Other Departments

Request any other department or agency responsible for any proposed or final standard, regulation or similar action to consult on the advisability of revising the action, if there is reason to believe that the action is not consistent with this ordinance.

4.2.5 Review of Public and Private Projects

Review public and private projects, subject to mandatory review or approval by other departments, for compliance with this ordinance, if such projects are likely to cause sound or vibration in violation of this ordinance.

4.2.6 Inspections

(a) Upon presentation of proper credentials, enter and inspect any private property or place, and inspect any report or records at any reasonable time when granted permission by the owner, or by some other person with apparent authority to act for the owner. When permission is refused or cannot be obtained, a search warrant may be obtained from a court of competent jurisdiction upon showing of probable cause to believe that a violation of this ordinance may exist. Such inspection may include administration of any necessary tests.

[(b) Stop any motor vehicle, motorcycle, or motorboat operated on a

public right-of-way, public space, or public waterway reasonably suspected of violating any provision of this ordinance, and issue a notice of violation or abatement order which may require the motor vehicle, motorcycle or motorboat to be inspected or tested as the EPO/NCO may reasonably require.]

4.2.7 Records

Require the owner or operator of any commercial or industrial activity to establish and maintain records and make such reports as the EPO/NCO may reasonably prescribe.

4.2.8 Measurements by The Owner or Operator

Require the owner or operator of any commercial or industrial activity to measure the sound level of or the vibration from any source in accordance with the methods and procedures and at such locations and times as the EPO/NCO may reasonably prescribe and to furnish reports of the results of such measurements to the EPO/NCO. The EPO/NCO may require the measurements to be conducted in the presence of its enforcement officials.

4.2.9 Product Performance Standard Recommendations

(a) Develop and recommend for promulgation (to the appropriate authority) provisions regulating the use and operation of any product, including the specification of maximum allowable sound emission levels of such product.

[(b) Develop and recommend for promulgation (to the appropriate authority) provisions prohibiting the sale of products which do not meet specified sound emission levels, where the sound level of the product is not regulated by the United States Environmental Protection Agency under Section 6 of the Noise Control Act of 1972.]

4.2.10 Noise Sensitive Zone Recommendations

Prepare recommendations, to be approved by (the appropriate authority), for the designation of noise sensitive zones which contain noise sensitive activities. Existing quiet zones shall be considered noise sensitive zones until otherwise designated. Noise sensitive activities include, but are not limited to, operations of schools, libraries open to the public, churches, hospitals, and nursing homes.

4.3 Duties of (Environmental Protection)/(Noise Control) Office(r)

In order to implement and enforce this ordinance effectively, the EPO/NCO shall within a reasonable time after the effective date of the ordinance:

4.3.1 Standards, Testing Methods, and Procedures

Develop, [recommend to the appropriate authority,] and promulgate standards, testing methods and procedures.

4.3.2 Investigate and Pursue Violations

In consonance with Section 4.2.6, Article XI, and other provisions of this ordinance, investigate and pursue possible violations of this ordinance.

4.3.3 Delegation of Authority

Delegate functions, where appropriate under this ordinance, to personnel within the EPO NCO and to other agencies or departments, [subject to approval of .....].

4.3.4 Truck Routes and Transportation Planning

(a) Study the existing transportation systems, such as truck routes within the community; determine areas with sensitivity to sound and vibration caused by transportation; recommend changes or modifications to transportation systems to minimize the sound and vibration impact on residential areas and noise sensitive zones.
(b) Assist in or review the total transportation planning of the community, including planning for new roads and highways, bus routes, airports, and other systems for public transportation, to ensure that the impact of sound and vibration receives adequate consideration.

4.3.5 Capital Improvement Guidelines

Establish noise assessment guidelines for the evaluation of proposed improvements for the capital improvements budget and program pursuant to Section 5.5. These guidelines shall assist in the determination of the relative priority of each improvement in terms of noise impact.

4.3.6 State and Federal Laws and Regulations

(a) Prepare and publish [with the approval of .....] a list of those products manufactured to meet specified noise emission limits under Federal, State, or community law for which "tampering" enforcement will be conducted; and,

(b) Make recommendations for modi-

fications or amendments to this ordinance to ensure consistency with all State and Federal laws and regulations.

[4.3.7] **Planning to Achieve Long Term Noise Goals**

[Develop a generalized sound level map of the (city/county), a long term plan for achieving quiet in the (city/county), and [with the approval of .....] integrate this plan into the planning process of the (city/county).]

4.3.8 **Administer Grants, Funds and Gifts**

Administer noise program grants and other funds and gifts from public and private sources, including the State and Federal governments.

[4.3.9] **Periodic Report**

[Evaluate and report, every ..... year(s) following the effective date of this ordinance, on the effectiveness of the (city/county) noise control program and make recommendations for any legislative or budgetary changes necessary to improve the program. This report shall be made to the (Noise Control Advisory Board)/(appropriate authority) which may amend it after consultation with the EPO/NCO, and then submit it to the (appropriate authority), for approval.]

ARTICLE V Duties and Responsibilities of Other Departments

5.1 **Departmental Actions**

All departments and agencies shall, to the fullest extent consistent with other law, carry out their programs in such a manner as to further the policy of this ordinance.

5.2 **Departmental Cooperation**

All departments and agencies shall cooperate with the EPO/NCO to the fullest extent in enforcing this ordinance.

5.3 **Departmental Compliance with Other Laws**

All departments and agencies shall comply with Federal and State laws and regulations and the provisions and intent of this ordinance respecting the control and abatement of noise to the same extent that any person is subject to such laws and regulations.

5.4 **Project Approval**

All departments whose duty it is to review and approve new projects or changes to existing projects, that result, or may result, in the production of sound or vibration shall consult with the EPO/NCO prior to any such approval.

5.5 **Contracts**

Any written contract, agreement, purchase order, or other instrument whereby the (city/county) is committed to the expenditure of ..... dollars or more in return for goods or services shall contain provisions requiring compliance with this ordinance.

5.6 **Low Noise Emission Products**

Any product which has been certified by the Administrator of the United States Environmental Protection Agency pursuant to Section 15 of the Noise Control Act as a low noise emission product and which he determines is suitable for use as a substitute, shall be procured by the city/county and used in preference to any other product, provided that such certified product is reasonably available and has a procurement cost which is not more than (125) percentum of the least expensive type of product for which it is certified as a substitute.

5.7 **Capital Improvement Program**

All departments responsible for a capital improvements budget and program shall prepare an analysis of the noise impact of any proposed improvements in accordance with noise assessment guidelines established by the EPO/NCO pursuant to Section 4.3.5. Proposed capital improvements include land acquisition, building construction, highway improvements, and utilities and fixed equipment installation.

ARTICLE VI Prohibited Acts

6.1 **Noise Disturbances Prohibited**

No person shall unreasonably make, continue, or cause to be made or continued, any noise disturbance. Non-commercial public speaking and public assembly activities conducted on any public space or public right-of-way shall be exempt from the operation of this Section.

6.2 **Specific Prohibitions**

The following acts, and the causing thereof, are declared to be in violation of this ordinance:

6.2.1 **Radios, Television Sets, Musical Instruments and Similar Devices**

Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier, or

similar device which produces reproduces, or amplifies sound:

(a) Between the hours of . . . . p.m. and . . . . a.m. the following day in such a manner as to create a noise disturbance across a real property boundary or within a noise sensitive zone, [except for activities open to the public and for which a permit has been issued by (appropriate authority) according to criteria set forth in . . . . .];

(b) In such a manner as to create a noise disturbance at 50 feet (15 meters) from such device, when operated in or on a motor vehicle on a public right-of-way or public space, or in a boat on public waters; or,

(c) In such a manner as to create a noise disturbance to any person other than the operator of the device, when operated by any passenger on a common carrier;

(d) This section shall not apply to non-commercial spoken language covered under Section 6.2.2.

6.2.2 Loudspeakers/Public Address Systems

(a) Using or operating for any non-commercial purpose any loudspeaker, public address system, or similar device between the hours of 10:00 p.m. and 8:00 a.m. the following day, such that the sound therefrom creates a noise disturbance across a residential real property boundary or within a noise sensitive zone.

(b) Using or operating for any commercial purpose any loudspeaker, public address system, or similar device (1) such that the sound therefrom creates a noise disturbance across a real property boundary or within a noise sensitive zone; or (2) between the hours of . . . . .p.m. and . . . . .a.m. the following day on a public right-of-way or public space.

6.2.3 Street Sales

Offering for sale or selling anything by shouting or outcry within any residential or commercial area of the (city, county [except by permit issued by (appropriate authority) according to criteria set forth in . . . . . and/or except between the hours of . . . .a.m. and . . . .p.m.].

6.2.4 Animals and Birds

Owning, possessing or harboring any animal or bird which frequently or for continued duration, howls, barks, meows, squawks, or makes other sounds which create a noise disturbance across a residential real property boundary or within a noise sensitive zone. [This provision shall not apply to public zoos.]

6.2.5 Loading and Unloading

Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of . . . p.m. and . . . a.m. the following day in such a manner as to cause a noise disturbance across a residential real property boundary or within a noise sensitive zone.

6.2.6 Construction

Operating or permitting the operation of any tools or equipment used in construction, drilling, or demolition work:

(a) Between the hours of . . . . p.m. and . . . . a.m. the following day on weekdays or at any time on (Sundays, weekends) or holidays, such that the sound therefrom creates a noise disturbance across a residential real property boundary or within a noise sensitive zone, except for emergency work of public service utilities or by special variance issued pursuant to Section 7.2;

(b) At any other time such that the sound level at or across a real property boundary exceeds an L_{eq} of . . . . dBA for the daily period of operation.

(c) This section shall not apply to the use of domestic power tools subject to Section 6.2.17.

6.2.7 Vehicle or Motorboat Repairs and Testing

Repairing, rebuilding, modifying, or testing any motor vehicle, motorcycle, or motorboat in such a manner as to cause a noise disturbance across a residential real property boundary or within a noise sensitive zone.

6.2.8 Airport and Aircraft Operations

(a) The EPO/NCO shall consult with the airport proprietor to recommend changes in airport operations to minimize any noise disturbance which the airport owner may have authority to control in its capacity as proprietor.

(b) Nothing in this section shall be construed to prohibit, restrict, penalize, enjoin, or in any manner regulate the movement of aircraft which are in all respects conducted in accordance with, or pursuant to, applicable Federal laws or regulations.

6.2.9 Places of Public Entertainment

Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier, or

similar device which produces, reproduces, or amplifies sound in any place of public entertainment at a sound level greater than .....dBA as read by the slow response on a sound level meter at any point that is normally occupied by a customer, unless a conspicuous and legible sign is located outside such place, near each public entrance, stating "WARNING: SOUND LEVELS WITHIN MAY CAUSE PERMANENT HEARING IMPAIRMENT."

6.2.10 Explosives, Firearms, and Similar Devices

The use or firing of explosives, firearms, or similar devices which create impulsive sound so as to cause a noise disturbance across a real property boundary or on a public space or right-of-way, without first obtaining a special variance issued pursuant to Section 7.2. [Such permit need not be obtained for licensed game-hunting activities on property where such activities are authorized.]

6.2.11 Powered Model Vehicles

Operating or permitting the operation of powered model vehicles so as to create a noise disturbance across a residential real property boundary, in a public space or within a noise sensitive zone between the hours of..... p.m. and .....a.m. the following day. Maximum sound levels in a public space during the permitted period of operation shall conform to those set forth for residential land use in Table 1 of Section 8.1 and shall be measured at a distance of ..... feet (meters) from any point on the path of the vehicle. Maximum sound levels for residential property and noise sensitive zones, during the permitted period of operation, shall be governed by Section 8.1 and Section 6.2.16, respectively.

6.2.12 Vibration

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of an individual at or beyond the property of the source if on private property or at ..... feet (meters) from the source if on a public space or public right-of-way. For the purposes of this section, "vibration perception threshold" means the minimum ground- or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects.

6.2.13 Stationary Non-Emergency Signaling Devices

(a) Sounding or permitting the sounding of any [electronically-amplified] signal from any stationary bell, chime, siren, whistle, or similar device, intended primarily for nonemergency purposes, from any place, [for more than ..... minutes in any hourly period.]

[(b) Devices used in conjunction with places of religious worship shall be exempt from the operation of this provision.]

[(c) Sound sources covered by this provision and not exempted under subsection (b) shall be exempted by (appropriate authority) using criteria set forth in Section 7.2.]

6.2.14 Emergency Signaling Devices

(a) The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in Subsection (b).

(b) (i) Testing of a stationary emergency signaling device shall occur at the same time of day each time such a test is performed, but not before .....a.m. or after .....p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed ..... seconds. (ii) Testing of the complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall not occur before .....a.m. or after .....p.m. The time limit specified in subsection (i) shall not apply to such complete system testing.

[[(c) Sounding or permitting the sounding of any exterior burglar [or fire] alarm or any motor vehicle burglar alarm unless such alarm is automatically terminated within .... minutes of activation. [This section shall not be interpreted to apply to .....alarms.]]

6.2.15 Motorboats

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

6.2.16 Noise Sensitive Zones

(a) Creating or causing the creation

of any sound within any noise sensitive zone designated pursuant to Section 4.2.10, so as to disrupt the activities normally conducted within the zone, provided that conspicuous signs are displayed indicating the presence of the zone; or

(b) Creating or causing the creation of any sound within any noise sensitive zone, designated pursuant to Section 4.2.10, containing a hospital, nursing home, or similar activity, so as to interfere with the functions of such activity or disturb or annoy the patients in the activity, provided that conspicuous signs are displayed indicating the presence of the zone.

6.2.17 Domestic Power Tools

Operating or permitting the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool, snowblower, or similar device used outdoors in residential areas between the hours of .....p.m. and .....a.m. the following day so as to cause a noise disturbance across a residential real property boundary.

6.2.18 Tampering

The following acts or the causing thereof are prohibited:

(a) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any noise control device or element of design or noise label of any product identified under Section 4.3.6. The EPO/NCO may, by regulation, list those acts which constitute violation of this provision.

[b. The (intentional) moving or rendering inaccurate or inoperative of any sound monitoring instrument or device positioned by or for the EPO/NCO, provided such device or the immediate area is clearly labeled, in accordance with EPO/NCO regulations, to warn of the potential illegality.]

(c) The use of a product, identified under Section 4.3.6, which has had a noise control device or element of design or noise label removed or rendered inoperative, with knowledge that such action has occurred.

ARTICLE VII Exceptions and Variances

7.1 Emergency Exception

The provisions of this ordinance shall not apply to (a) the emission of sound for the purpose of alerting persons to the existence of an emergency, or (b) the emission of sound in the performance of emergency work.

7.2 Special Variances

(a) The (EPO/NCO)/(Hearing Board) shall have the authority, consistent with this section, to grant special variances which may be requested pursuant to Sections 6.2.6 (Construction) and 6.2.10 (Explosives, Firearms, and Similar Devices).

(b) Any person seeking a special variance pursuant to this section shall file an application with the (EPO/NCO)/(Hearing Board). The application shall contain information which demonstrates that bringing the source of sound or activity for which the special variance is sought into compliance with this ordinance would constitute an unreasonable hardship on the applicant, on the community, or on other persons. [Notice of an application for a special variance shall be published according to (jurisdictional procedure).] Any individual who claims to be adversely affected by allowance of the special variance may file a statement with the (EPO/NCO)/(Hearing Board) containing any information to support his claim. If the (EPO/NCO)/(Hearing Board) finds that a sufficient controversy exists regarding an application, a public hearing may be held.

(c) In determining whether to grant or deny the application, the (EPO/NCO)/(Hearing Board) shall balance the hardship to the applicant, the community, and other persons of not granting the special variance against the adverse impact on the health, safety, and welfare of persons affected, the adverse impact on property affected, and any other adverse impacts of granting the special variance. Applicants for special variances and persons contesting special variances may be required to submit any information the (EPO/NCO)/(Hearing Board) may reasonably require. In granting or denying an application, the (EPO/NCO)/(Hearing Board) shall place on public file a copy of the decision and the reasons for denying or granting the special variance.

(d) Special variances shall be granted by notice to the applicant containing all necessary conditions, including a time limit on the permitted activity. The special variance shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any condition of the special variance shall terminate it and subject the person holding it to those provisions of this ordinance regulating the source of sound or activity for

which the special variance was granted.

(e) Application for extension of time limits specified in special variances or for modification of other substantial conditions shall be treated like applications for initial special variances under subsection (b).

(f) The (EPO/NCO)/(Hearing Board) may issue guidelines [approved by .....] defining the procedures to be followed in applying for a special variance and the criteria to be considered in deciding whether to grant a special variance.

7.3 Variances for Time to Comply

(a) Within ..... days following the effective date of this ordinance, the owner of any commercial or industrial source of sound may apply to the (EPO/NCO)/(Hearing Board) for a variance in time to comply with Section 6.2.12 (Vibration) or Article VIII. The (EPO/NCO)/(Hearing Board) shall have the authority, consistent with this section, to grant a variance, not to exceed ..... days from the effective date of this ordinance.

(b) Any person seeking a variance in time to comply shall file an application with the (EPO/NCO)/(Hearing Board). The application shall contain information which demonstrates that bringing the source of sound or activity for which the variance is sought into compliance with this ordinance prior to the date requested in the application would constitute an unreasonable hardship on the applicant, on the community, or on other persons. [Notice of an application for a variance in time to comply shall be published according to (jurisdictional procedure).] Any individual who claims to be adversely affected by allowance of the variance in time to comply may file a statement with the (EPO/NCO)/(Hearing Board) containing any information to support his claim. If the (EPO/NCO)/(Hearing Board) finds that a sufficient controversy exists regarding an application, a public hearing may be held.

(c) In determining whether to grant or deny the application, the (EPO/NCO)/(Hearing Board) shall balance the hardship to the applicant, the community, and other persons of not granting the variance in time to comply against the adverse impact on health, safety, and welfare of persons affected, the adverse impact on property affected, and any other adverse impacts of granting the variance. Applicants for variances in time to comply and persons contesting variances may be required to submit any information the (EPO/NCO)/(Hearing Board) may reasonably require. In granting or denying an application, the (EPO/NCO)/(Hearing Board) shall place on public file a copy of the decision and the reasons for denying or granting the variance in time to comply.

(d) Variances in time to comply shall be granted to the applicant containing all necessary conditions, including a schedule for achieving compliance. The variance in time to comply shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any condition of the variance shall terminate the variance and subject the person holding it to those provisions of this ordinance for which the variance was granted.

(e) Application for extension of time limits specified in variances in time to comply or for modification of other substantial conditions shall be treated like applications for initial variances under subsection (b), except that the (EPO/NCO)/(Hearing Board) must find that the need for the extension or modification clearly outweighs any adverse impacts of granting the extension or modification.

(f) The (EPO/NCO)/(Hearing Board) may issue guidelines [approved by .....] defining the procedures to be followed in applying for a variance in time to comply and the criteria to be considered in deciding whether to grant a variance.

7.4 Appeals

Appeals of an adverse decision of the (EPO/NCO)/(Hearing Board) shall be made to the (appropriate court of law). Review of the court shall be *(de novo)*/(limited to whether the decision is supported by substantial evidence)/(as specified by the .....).

ARTICLE VIII Sound Levels by Receiving Land Use

8.1 Maximum Permissible Sound Levels by Receiving Land Use

No person shall operate or cause to be operated on private property any source of sound in such a manner as to create a sound level which exceeds the limits set forth for the receiving land use category in Table I when measured at or within the property boundary of the receiving land use.

TABLE I. SOUND LEVELS BY RECEIVING LAND USE

Receiving Land Use Category	Time	Sound Level Limit, dBA
R-1, R-2, etc.	(A) a.m.— (B) p.m.	L_1
(Residential, Public Space, Open Space, Agricultural or Institutional)	(B) p.m.— (A) a.m.	L_2
C-1, C-2, etc. B-1, B-2, etc. (Commercial or Business)	At All Times	L_3
M-1, M-2, etc. (Industrial)	At All Times	L_4

8.2 Correction for Character of Sound

For any source of sound which emits a pure tone or impulsive sound, the maximum sound level limits set forth in Section 8.1 shall be reduced by .....dBA.

8.3 Exemptions

The provisions of this article shall not apply to:

(a) Activities covered by the following Sections: 6.2.6 (Construction), 6.2.8 (Aircraft and Airport Operations), 6.2.10 (Explosives, Firearms, and Similar Devices), 6.2.13 (Stationary Nonemergency Signaling Devices), 6.2.14 (Emergency Signaling Devices), 6.2.15 (Motorboats), 6.2.17 (Domestic Power Tools), 9.1.3 (Refuse Collection Vehicles), 9.2 (Recreational Motorized Vehicles Operating Off Public Rights-Of-Way);

(b) the unamplified human voice;

(c) interstate railway locomotives and cars; and

[(d) (non-stationary farming equipment)/(all agricultural activities)]

ARTICLE IX Motor Vehicle Maximum Sound Levels

9.1 Motor Vehicles and Motorcycles on Public Rights-of-way

No person shall operate or cause to be operated a public or private motor vehicle or motorcycle on a public right-of-way at any time in such a manner that the sound level emitted by the motor vehicle or motorcycle exceeds the level set forth in Table II.

TABLE II
MOTOR VEHICLE AND MOTORCYCLE SOUND LIMITS (MEASURED AT 50 FEET OR 15 METERS)

Vehicle Class	Sound Level in dBA: Speed Limit 35 MPH or Less	Speed Limit Over 35 MPH	Stationary Run-up
Motor Carrier Vehicle engaged in interstate commerce of GVWR or GCWR of 10,000 lbs. or more	86	90	88
All other motor vehicles of GVWR or GCWR of 10,000 lbs. or more	A	B	—
Any motorcycle	C	D	—
Any other motor vehicle or any combination of vehicles towed by any motor vehicle	E	F	—

9.1.1 Adequate Mufflers or Sound Dissipative Devices

(a) No person shall operate or cause to be operated any motor vehicle or motorcycle not equipped with a muffler or other sound dissipative device in good working order and in constant operation;

(b) No person shall remove or render inoperative, or cause to be removed or rendered inoperative, other than for purposes of maintenance, repair, or replacement, any muffler or sound dissipative device on a motor vehicle or motorcycle;

(c) The EPO/NCO may, by (guidelines) (regulations subject to approval by .....), list those acts which constitute violation of this section.

9.1.2 Motor Vehicle Horns and Signaling Devices

The following acts and the causing thereof are declared to be in violation of this ordinance:

(a) The sounding of any horn or other auditory signaling device on or

in any motor vehicle on any public right-of-way or public space, except (as a warning of danger)/(as provided in the vehicle code).

[(b) The sounding of any horn or other auditory signaling device which produces a sound level in excess of ..... dBA at ..... feet (meters).]

9.1.3 Refuse Collection Vehicles

No person shall:

(a) On or after (2 years) following the effective date of this ordinance, operate or permit the operation of the compacting mechanism of any motor vehicle which compacts refuse and which creates, during the compacting cycle, a sound level in excess of .... dBA when measured at ..... feet (meters) from any point on the vehicle; or

(b) Operate or permit the operation of the compacting mechanism of any motor vehicle which compacts refuse, between the hours of ..... p.m. and ..... a.m. the following day in a residential area or noise sensitive zone; or

(c) Collect refuse with a refuse collection vehicle between the hours of ..... p.m. and ..... a.m. the following day in a residential area or noise sensitive zone.

9.1.4 Standing Motor Vehicles

No person shall operate or permit the operation of any motor vehicle with a gross vehicle weight rating (GVWR) in excess of ten thousand (10,000) pounds, or any auxiliary equipment attached to such a vehicle, for a period longer than ..... minutes in any hour while the vehicle is stationary, for reasons other than traffic congestion, on a public right-of-way or public space within 150 feet (46 meters) of a residential area or designated noise sensitive zone, between the hours of ..... p.m. and ..... a.m. the following day.

9.2 Recreation Motorized Vehicles Operating Off Public Rights-of-way

(a) [Except as permitted in subsection (b) or (c),] no person shall operate or cause to be operated any recreational motorized vehicle off a public right-of-way in such a manner that the sound level emitted therefrom exceeds the limits set forth in Table III at a distance of 50 feet (15 meters) or more from the path of the vehicle when operated on a public space or at or across the boundary of private property when operated on private property. This section shall apply to all recreational motorized vehicles, whether or not duly licensed and registered, including, but not limited to, commercial or non-commercial racing vehicles, motorcycles, go-carts, snowmobiles, amphibious craft, campers and dune buggies, but not including motorboats.

[(b) Permits for motor vehicle racing events may be obtained from (appropriate authority) according to procedures and criteria set forth in .....]

[(c) Special variances for.....may be obtained from (appropriate authority) according to procedure and criteria set forth in .....]

TABLE III.
RECREATIONAL MOTORIZED VEHICLE SOUND LIMITS (MEASURED AT 50 FEET OR 15 METERS)

Vehicle Type	Sound Level, dBA
Snowmobile	A
Motorcycle	B
Any Other Vehicle	C

ARTICLE X Land Use

10.1 General Provisions

(a) No owner of any land shall commence or cause to be commenced construction of any structure covered by Sections 10.2, 10.3, 10.5 or 10.6 unless approved by the EPO/NCO as provided in this Article.

(b) Any application for approval required by this Article shall be submitted in writing to the EPO/NCO, with a copy to the (Buildings Department)/(Appropriate Department), by the owner of the land on which the structure is proposed to be constructed and shall contain the following information:

(1) identification of the land on which the construction is proposed;

(2) the section of this Article under which approval is requested;

(3) information and data supporting the claim that the appropriate requirements will be met; and,

(4) any other information which the EPO/NCO may reasonably require.

10.2 Construction Restrictions for Habitable and Institutional Structures

(a) Except as provided in subsection (c), no new single family residential structure shall be approved for construction (excluding substantial re-

pair or alteration) if the exterior day-night average sound level (L_{dn}) anywhere on the site of the proposed structure is projected to be in excess of ..... dBA within ..... years following the estimated completion date of the structure.

(b) Except as provided in subsection (c), no new multiple-family residence, dormitory, mobile home park, transient lodging, school, hospital, nursing home or similar structure, or substantial modification of such existing structure, shall be approved for construction if the exterior day-night average sound level (L_{dn}) anywhere on the site of the proposed structure is projected to be in excess of..... dBA within.....years following the estimated completion date of the structure or modification.

(c) Construction otherwise prohibited pursuant to subsections (a) or (b) shall be allowed if the exterior day-night average sound level (L_{dn}) on the site of the proposed structure is projected not to be in excess of ..... dBA for ..... years following construction, provided that there is incorporated into the design and construction of the structure such sound attenuation measures as are necessary to reduce the maximum interior day-night average sound level (L_{dn}) to ..... dBA. Subsections (a) and (b) shall not apply to any site development plan or its equivalent on which four or fewer dwelling units are to be constructed.

(d) Prior to issuance of any occupancy permit for any structure regulated pursuant to subsection (c), the owner of the structure shall submit for EPO/NCO review the report of an independent testing agency [approved by the EPO/NCO] certifying that sound attenuation measures have been properly incorporated into the design and construction of the structure and that the interior L_{dn} meets the criterion specified in subsection (c). Such report shall contain the results of simultaneous measurements of the exterior and interior day-night average sound levels for a representative sample of locations.

(e) The EPO/NCO may conduct such inspections and measurements as are necessary to ensure the accuracy of any report submitted pursuant to subsection (d) and to ascertain compliance with this section. These may include on-site inspections by a certified independent testing agency during specified periods of construction.

10.3 Recreational Area Restrictions

(a) Except as provided in subsections (b), (c), and (d) no land shall be designated or approved for construction or use as a public or private exterior recreational area, including, but not limited to, childrens' playgrounds, outdoor theaters and amphitheaters, picnic grounds, tennis courts and swimming pools, if the exterior day-night average sound level (L_{dn}) anywhere on the site of the proposed recreational area is projected to be in the excess of ..... dBA within ..... years following the construction or designation of the site.

(b) This section shall not apply to the designation or approval of any green belt or open space in any area in which the L_{dn} exceeds the level specified in subsection (a) regardless of whether such green belt or open space is open to public use, provided that no recreational improvement or facility is constructed thereon.

(c) Designation or approval of exterior recreational areas otherwise prohibited under subsection (a) shall be allowed if the L_{dn} specified in that subsection can be achieved by appropriate means of sound attenuation, such as berms, barriers, or buildings, at the perimeter of or elsewhere on the site.

(d) No new interior recreational facility, including, but not limited to, gymnasiums, ice or roller skating rinks, indoor swimming pools, and tennis courts, shall be approved for construciton if the exterior day-night average sound level anywhere on the site is projected to be in excess of ..... dBA within ..... years following the estimated date of completion of the structure unless there is incorporated into the design and construction of the structure such sound attenuation measures as are necessary to reduce the maximum interior day-night average sound level (L_{dn}) to ..... dBA.

10.4 Site Study Requirement

(a) If the EPO/NCO has reason to believe that a full report is necessary to determine whether a proposed project is prohibited under Section 10.1, such report shall be made by the applicant prior to approval of any subdivision, zoning, or building permit application. (If a full report has not been made and the applicant believes the project was wrongfully prohibited under Section 10.1, he may file a full report within ..... days of the EPO/NCO decision and re-

quest reconsideration by the EPO/NCO). A full report shall contain the following information and any other information which the EPO/NCO may reasonably require:

(1) the existing day-night average sound levels (L_{dn}), including identification of the major sources of sound, for a representative sample of locations, measured in accordance with guidelines published by the EPO/NCO;

(2) any projected or proposed new or expanded sources of sound which may affect exposure of the site during ..... years following completion of the project and the projected future L_{dn} at the site resulting from these new or expanded sources; and,

(3) where applicable, plans for sound attenuation measures on the site and/or of the structure proposed to be built and the amount of sound attenuation anticipated as a result of these measures.

(b) In determining whether an applicant should be required to submit a full report pursuant to subsection (a), the EPO/NCO shall consider Circular 1390.2 (Noise Abatement and Control) and other publications of the U.S. Department of Housing and Urban Development.

10.5 Commercial and Industrial Construction

No new or substantially modified structure on land used or zoned as commercial or industrial shall be approved for construction unless the owner or developer of such land has demonstrated, in accordance with guidelines published by the EPO/NCO that the completed structure and the activities associated with and on the same property as the structure, will comply with the provisions of Article VIII at the time for initial full-scale operation of such activities.

10.6 Sound From New Transportation Systems in Residential Areas or Noise Sensitive Zones

No plans for construction of new transportation systems or expansion of the capacity of existing transportation systems will be approved for location in or near residential areas or noise sensitive zones, regardless of the source of project funds, unless such plan includes all control measures necessary to ensure that the projected day-night average sound level (L_{dn}) due to the operation of the transportation system does not exceed ..... dBA at any point on residential property within ..... years after the expected completion of the project.

10.7 Equivalent Measurement Systems

For the purposes of this Article, all measurements and designations of sound levels shall be expressed in day-night average sound levels (L_{dn}) or in any other equivalent measurement system the EPO/NCO may reasonably approve.

10.8 Zoning Ordinance or Comprehensive Plan

(a) No proposed zoning ordinance or comprehensive plan shall be approved unless such plan includes a sound analysis which (1) identifies existing and projected noise sources and associated sound levels for ..... years in and around the area under consideration, and (2) ensures usage of adequate measures to avoid violation of any provision of this ordinance.

(b) No zoning change application shall be approved unless the site feasibility study submitted, as required by the (Zoning Board of Appeals)/(Planning Commission), contains an analysis which shows (1) the impact of existing and projected noise sources for ..... years on the intended use, and (2) the projected noise impact of the intended use, when completed, on surrounding areas. Such sites study shall ensure the use of adequate measures to avoid violation of any provision of this ordinance.

10.9 Truth in Selling or Renting

No person shall sell or rent, or cause to be sold or rented, any structure or property to be used for human habitation, where the structure or property is exposed to sound levels regularly in excess of (an L_{eq} in any hour of ..... dBA)/(an L_{dn} of ..... dBA), without making full written disclosure to all potential buyers or renters of the existence of such sound levels and of the nature of the sources. The EPO/NCO shall develop a standard format for written disclosures, which shall include information on the effects of noise on human health and welfare.

10.10 Appeals

Any applicant may appeal an adverse decision by the EPO/NCO under this Article, in the (appropriate court of law), on the grounds that the EPO/NCO disapproval was arbitrary, capricious, or unreasonable.

ARTICLE XI Enforcement

11.1 Penalties

(a) Any person who violates any provision of this ordinance shall be fined for each offense not more than ..... dollars.

(b) Any person who willfully or knowingly violates any provision of this ordinance shall be fined for each offense a sum of not less than .... dollars and not more than .... dollars.

(c) Each day of violation of any provision of this ordinance shall constitute a separate offense.

[11.2 Abatement Orders

(a) Except as provided in subsection (b), in lieu of issuing a notice of violation as provided for in Section 11.3, the EPO/NCO or other (agency/official) responsible for enforcement of any provision of this ordinance may issue an order requiring abatement of any source of sound or vibration alleged to be in violation of this ordinance within a reasonable time period and according to guidelines [to be approved by appropriate authority] which the EPO/NCO may prescribe.

(b) An abatement order shall not be issued: (1) for any violation covered by Section 11.1 (b); (2) for any violation of .....; or, (3) when the EPO/NCO or other enforcement (agency) / (official) has reason to believe that there will not be compliance with the abatement order.]

11.3 Notice of Violation

[Except where a person is acting in good faith to comply with an abatement order issued pursuant to Section 11.2 (a)], violation of any provision of this ordinance shall be cause for a (notice of violation)/(summons)/(complaint)/(information or indictment) to be issued by the EPO/NCO or other responsible enforcement (agency official) according to procedures (which the EPO/NCO may prescribe)/(set forth in .....).

11.4 Immediate Threats to Health and Welfare

(a) The EPO/NCO shall order an immediate halt to any sound which exposes any person, except those excluded pursuant to subsection (b), to continuous sound levels in excess of those shown in Table IV or to impulsive sound levels in excess of those shown in Table V. Within ..... days following issuance of such an order, the EPO/NCO shall apply to the appropriate court for an injunction to replace the order.

(b) No order pursuant to subsection (a) shall be issued if the only persons exposed to sound levels in excess of those listed in Tables IV and V are exposed as a result of (1) trespass; (2) invitation upon private property by the person causing or permitting the sound; (3) employment by the person or a contractor of the person causing or permitting the sound.

(c) Any person subject to an order issued pursuant to subsection (a) shall comply with such order until (1) the sound is brought into compliance with the order, as determined by the EPO/NCO; or (2) a judicial order has superseded the EPO/NCO order.

(d) Any person who violates an order issued pursuant to this section shall, for each day of violation, be fined not less than ..... dollars nor more than ..... dollars.

TABLE IV
CONTINUOUS SOUND LEVELS WHICH POSE AN IMMEDIATE THREAT TO HEALTH AND WELFARE
(Measured at 50 Feet or 15 Meters)*

Sound Level Limit—(dBA)	Duration
90	24 hours
93	12 hours
96	6 hours
99	3 hours
102	1.5 hours
105	45 minutes
108	22 minutes

* Use equal energy time-intensity trade-off if level varies; find energy equivalent over 24 hours.

TABLE V
IMPULSIVE SOUND LEVELS WHICH POSE AN IMMEDIATE THREAT TO HEALTH AND WELFARE
(Measured at 50 Feet or 15 Meters)

Sound Level Limit (dB)	Number of Repetitions per 24 Hour Period
145	1
135	10
125	100

11.5 Citizen Suits

(a) Any person, other than persons responsible for enforcement of this ordinance, may commence a civil action on his own behalf (1) against any person who is alleged to be in violation of any provision of this ordinance set forth in Table VI below or (2) against the EPO/NCO where there is alleged a failure of the EPO/NCO to perform any act under this ordinance which is not discretionary. The ..... court shall have jurisdiction, without regard to the amount in controversy, to grant such relief as it deems necessary.

(b) No action may be commenced

(1) under subsection (a)(1)

(A) prior to ..... days after the plaintiff has given notice of the alleged violation to the EPO/NCO [and to the alleged violator] of such violation, or

(B) if the EPO/NCO has commenced and is diligently prosecuting an action against the alleged violator with respect to such violation, [but in such action any affected person may intervene as a matter of right], or

(2) under subsection (a)(2), prior to ..... days after the plaintiff has given notice to the EPO/NCO that he will commence such action. Notice under this subsection shall be given in a manner prescribed by the EPO/NCO.

(c) In any action under this section, the EPO/NCO, if not a party, may intervene as a matter of right.

(d) The court, in issuing any final order in any action brought pursuant to subsection (a), may at its discretion award the costs of litigation to any party.

TABLE VI
Provisions Under Which Civil Actions May Be Commenced

6.2.1(a)	(Radios, Television Sets, Musical Instruments and Similar Devices)
6.2.2	(Loudspeakers/Public Address Systems)
6.2.3	(Street Sales)
6.2.5	(Loading and Unloading)
6.2.6	(Construction)
6.2.7	(Vehicle or Motorboat Repairs and Testing)
6.2.9	(Places of Public Entertainment)
6.2.10	(Explosives, Firearms, and Similar Devices)
6.2.11	(Powered Model Vehicles)
6.2.12	(Vibration)
[6.2.13]	(Stationary, Non-Emergency Signaling Devices)
6.2.14	(Emergency Signaling Devices)
6.2.15	(Motorboats)
6.2.17	(Domestic Power Tools)
6.2.18	(Tampering)
8.1	(Maximum Permissible Sound Levels by Receiving Land Use)
9.1.3	(Refuse Collection Vehicles)
9.1.4	(Standing Motor Vehicles)
9.2(b)	(Motor Vehicle Racing Events)
9.2.1(b)	(Motor Vehicle Horns and Signaling Devices)
10.9	(Truth in Selling or Renting)

11.6 Other Remedies

No provision of this ordinance shall be construed to impair any common law or statutory cause of action, or legal remedy therefrom, of any person for injury or damage arising from any violation of this ordinance or from other law.

11.7 Severability

If any provision of this ordinance is held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, the remaining provisions of the ordinance shall not be invalidated.

11.8 Effective Date

This law/ordinance shall take the effect on .....

APPENDIX D

Public Law 92-574
92nd Congress, H. R. 11021
October 27, 1972

An Act

86 STAT. 1234

To control the emission of noise detrimental to the human environment, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Noise Control Act of 1972.

SHORT TITLE

SECTION 1. This Act may be cited as the "Noise Control Act of 1972".

FINDINGS AND POLICY

SEC. 2. (a) The Congress finds—

(1) that inadequately controlled noise presents a growing danger to the health and welfare of the Nation's population, particularly in urban areas;

(2) that the major sources of noise include transportation vehicles and equipment, machinery, appliances, and other products in commerce; and

(3) that, while primary responsibility for control of noise rests with State and local governments, Federal action is essential to deal with major noise sources in commerce control of which require national uniformity of treatment.

(b) The Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare. To that end, it is the purpose of this Act to establish a means for effective coordination of Federal research and activities in noise control, to authorize the establishment of Federal noise emission standards for products distributed in commerce, and to provide information to the public respecting the noise emission and noise reduction characteristics of such products.

DEFINITIONS

SEC. 3. For purposes of this Act:

(1) The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) The term "person" means an individual, corporation, partnership, or association, and (except as provided in sections 11(e) and 12(a)) includes any officer, employee, department, agency, or instrumentality of the United States, a State, or any political subdivision of a State.

(3) The term "product" means any manufactured article or goods or component thereof; except that such term does not include—

(A) any aircraft, aircraft engine, propeller, or appliance, as such terms are defined in section 101 of the Federal Aviation Act of 1958; or 72 Stat. 737, 49 USC 1301.

(B) (i) any military weapons or equipment which are designed for combat use; (ii) any rockets or equipment which are designed for research, experimental, or developmental work to be performed by the National Aeronautics and Space Administration; or (iii) to the extent provided by regulations of the Administrator, any other machinery or equipment designed for use in experimental work done by or for the Federal Government.

(4) The term "ultimate purchaser" means the first person who in good faith purchases a product for purposes other than resale.

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(5) The term "new product" means (A) a product the equitable or legal title of which has never been transferred to an ultimate purchaser, or (B) a product which is imported or offered for importation into the United States and which is manufactured after the effective date of a regulation under section 6 or section 8 which would have been applicable to such product had it been manufactured in the United States.

(6) The term "manufacturer" means any person engaged in the manufacturing or assembling of new products, or the importing of new products for resale, or who acts for, and is controlled by, any such person in connection with the distribution of such products.

(7) The term "commerce" means trade, traffic, commerce, or transportation—

(A) between a place in a State and any place outside thereof, or

(B) which affects trade, traffic, commerce, or transportation described in subparagraph (A).

(8) The term "distribute in commerce" means sell in, offer for sale in, or introduce or deliver for introduction into, commerce.

(9) The term "State" includes the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Trust Territory of the Pacific Islands.

(10) The term "Federal agency" means an executive agency (as defined in section 105 of title 5, United States Code) and includes the United States Postal Service.

80 Stat. 379.

(11) The term "environmental noise" means the intensity, duration, and the character of sounds from all sources.

FEDERAL PROGRAMS

SEC. 4. (a) The Congress authorizes and directs that Federal agencies shall, to the fullest extent consistent with their authority under Federal laws administered by them, carry out the programs within their control in such a manner as to further the policy declared in section 2(b).

(b) Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government—

(1) having jurisdiction over any property or facility, or

(2) engaged in any activity resulting, or which may result, in the emission of noise,

shall comply with Federal, State, interstate, and local requirements respecting control and abatement of environmental noise to the same extent that any person is subject to such requirements. The President may exempt any single activity or facility, including noise emission sources or classes thereof, of any department, agency, or instrumentality in the executive branch from compliance with any such requirement if he determines it to be in the paramount interest of the United States to do so; except that no exemption, other than for those products referred to in section 3(3)(B) of this Act, may be granted from the requirements of sections 6, 17, and 18 of this Act. No such exemption shall be granted due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation. Any exemption shall be for a period not in excess of one year, but additional exemptions may be granted for periods of not to exceed one year upon the President's making a new determination. The President shall report each January to the Congress all exemptions from the requirements

Compliance exemption, Presidential authority.

Report to Congress.

of this section granted during the preceding calendar year, together with his reason for granting such exemption.

(c)(1) The Administrator shall coordinate the programs of all Federal agencies relating to noise research and noise control. Each Federal agency shall, upon request, furnish to the Administrator such information as he may reasonably require to determine the nature, scope, and results of the noise-research and noise-control programs of the agency.

Standards or regulations.

(2) Each Federal agency shall consult with the Administrator in prescribing standards or regulations respecting noise. If at any time the Administrator has reason to believe that a standard or regulation, or any proposed standard or regulation, of any Federal agency respecting noise does not protect the public health and welfare to the extent he believes to be required and feasible, he may request such agency to review and report to him on the advisability of revising such standard or regulation to provide such protection. Any such request may be published in the Federal Register and shall be accompanied by a detailed statement of the information on which it is based. Such agency shall complete the requested review and report to the Administrator within such time as the Administrator specifies in the request, but such time specified may not be less than ninety days from the date the request was made. The report shall be published in the Federal Register and shall be accompanied by a detailed statement of the findings and conclusions of the agency respecting the revision of its standard or regulation. With respect to the Federal Aviation Administration, section 611 of the Federal Aviation Act of 1958 (as amended by section 7 of this Act) shall apply in lieu of this paragraph.

Revision report request, publication in Federal Register.

Report, publication in Federal Register.

Status report.

(3) On the basis of regular consultation with appropriate Federal agencies, the Administrator shall compile and publish, from time to time, a report on the status and progress of Federal activities relating to noise research and noise control. This report shall describe the noise-control programs of each Federal agency and assess the contributions of those programs to the Federal Government's overall efforts to control noise.

IDENTIFICATION OF MAJOR NOISE SOURCES; NOISE CRITERIA AND CONTROL TECHNOLOGY

SEC. 3. (a)(1) The Administrator shall, after consultation with appropriate Federal agencies and within nine months of the date of the enactment of this Act, develop and publish criteria with respect to noise. Such criteria shall reflect the scientific knowledge most useful in indicating the kind and extent of all identifiable effects on the public health or welfare which may be expected from differing quantities and qualities of noise.

(2) The Administrator shall, after consultation with appropriate Federal agencies and within twelve months of the date of the enactment of this Act, publish information on the levels of environmental noise the attainment and maintenance of which in defined areas under various conditions are requisite to protect the public health and welfare with an adequate margin of safety.

Reports.

(b) The Administrator shall, after consultation with appropriate Federal agencies, compile and publish a report or series of reports (1) identifying products (or classes of products) which in his judgment are major sources of noise, and (2) giving information on techniques for control of noise from such products, including available data on the technology, costs, and alternative methods of noise control. The first such report shall be published not later than eighteen months after the date of enactment of this Act.

Review.

(c) The Administrator shall from time to time review and, as appropriate, revise or supplement any criteria or reports published under this section.

Reports, publication in Federal Register.

(d) Any report (or revision thereof) under subsection (b)(1) identifying major noise sources shall be published in the Federal Register. The publication or revision under this section of any criteria or information on control techniques shall be announced in the Federal Register, and copies shall be made available to the general public.

NOISE EMISSION STANDARDS FOR PRODUCTS DISTRIBUTED IN COMMERCE

SEC. 6. (a)(1) The Administrator shall publish proposed regulations, meeting the requirements of subsection (c), for each product—

(A) which is identified (or is part of a class identified) in any report published under section 5(b)(1) as a major source of noise,

(B) for which, in his judgment, noise emission standards are feasible, and

(C) which falls in one of the following categories:

(i) Construction equipment.

(ii) Transportation equipment (including recreational vehicles and related equipment).

(iii) Any motor or engine (including any equipment of which an engine or motor is an integral part).

(iv) Electrical or electronic equipment.

Proposed regulations, effective date.

(2)(A) Initial proposed regulations under paragraph (1) shall be published not later than eighteen months after the date of enactment of this Act, and shall apply to any product described in paragraph (1) which is identified (or is a part of a class identified) as a major source of noise in any report published under section 5(b)(1) on or before the date of publication of such initial proposed regulations.

(B) In the case of any product described in paragraph (1) which is identified (or is part of a class identified) as a major source of noise in a report published under section 5(b)(1) after publication of the initial proposed regulations under subparagraph (A) of this paragraph, regulations under paragraph (1) for such product shall be proposed and published by the Administrator not later than eighteen months after such report is published.

(3) After proposed regulations respecting a product have been published under paragraph (2), the Administrator shall, unless in his judgment noise emission standards are not feasible for such product, prescribe regulations, meeting the requirements of subsection (c), for such product—

(A) not earlier than six months after publication of such proposed regulations, and

(B) not later than—

(i) twenty-four months after the date of enactment of this Act, in the case of a product subject to proposed regulations published under paragraph (2)(A), or

(ii) in the case of any other product, twenty-four months after the publication of the report under section 5(b)(1) identifying it (or a class of products of which it is a part) as a major source of noise.

(b) The Administrator may publish proposed regulations, meeting the requirements of subsection (c), for any product for which he is not required by subsection (a) to prescribe regulations but for which, in his judgment, noise emission standards are feasible and are requisite to protect the public health and welfare. Not earlier than six months after the date of publication of such proposed regulations respecting such product, he may prescribe regulations, meeting the requirements of subsection (c), for such product.

(c)(1) Any regulation prescribed under subsection (a) or (b) of this section (and any revision thereof) respecting a product shall include a noise emission standard which shall set limits on noise emissions from such product and shall be a standard which in the Administrator's judgment, based on criteria published under section 5, is requisite to protect the public health and welfare, taking into account the magnitude and conditions of use of such product (alone or in combination with other noise sources), the degree of noise reduction achievable through the application of the best available technology, and the cost of compliance. In establishing such a standard for any product, the Administrator shall give appropriate consideration to standards under other laws designed to safeguard the health and welfare of persons, including any standards under the National Traffic and Motor Vehicle Safety Act of 1966, the Clean Air Act, and the Federal Water Pollution Control Act. Any such noise emission standards shall be a performance standard. In addition, any regulation under subsection (a) or (b) (and any revision thereof) may contain testing procedures necessary to assure compliance with the emission standard in such regulation, and may contain provisions respecting instructions of the manufacturer for the maintenance, use, or repair of the product.

80 Stat. 718. 15 USC 1381 note. 81 Stat. 485. 42 USC 1857 note. ante, p. 816.

(2) After publication of any proposed regulations under this section, the Administrator shall allow interested persons an opportunity to participate in rulemaking in accordance with the first sentence of section 553(c) of title 5, United States Code.

80 Stat. 383.

(3) The Administrator may revise any regulation prescribed by him under this section by (A) publication of proposed revised regulations, and (B) the promulgation, not earlier than six months after the date of such publication, of regulations making the revision; except that a revision which makes only technical or clerical corrections in a regulation under this section may be promulgated earlier than six months after such date if the Administrator finds that such earlier promulgation is in the public interest.

(d)(1) On and after the effective date of any regulation prescribed under subsection (a) or (b) of this section, the manufacturer of each new product to which such regulation applies shall warrant to the ultimate purchaser and each subsequent purchaser that such product is designed, built, and equipped so as to conform at the time of sale with such regulation.

(2) Any cost obligation of any dealer incurred as a result of any requirement imposed by paragraph (1) of this subsection shall be borne by the manufacturer. The transfer of any such cost obligation from a manufacturer to any dealer through franchise or other agreement is prohibited.

Cost obligations, transfer prohibition.

(3) If a manufacturer includes in any advertisement a statement respecting the cost or value of noise emission control devices or systems, such manufacturer shall set forth in such statement the cost or value attributed to such devices or systems by the Secretary of Labor (through the Bureau of Labor Statistics). The Secretary of Labor, and his representatives, shall have the same access for this purpose to the books, documents, papers, and records of a manufacturer as the Comptroller General has to those of a recipient of assistance for purposes of section 311 of the Clean Air Act.

81 Stat. 505; 84 Stat. 1705. 42 USC 1857j.

(e)(1) No State or political subdivision thereof may adopt or enforce—

Prohibitions.

(A) with respect to any new product for which a regulation has been prescribed by the Administrator under this section, any law or regulation which sets a limit on noise emissions from such

new product and which is not identical to such regulation of the Administrator; or

(B) with respect to any component incorporated into such new product by the manufacturer of such product, any law or regulation setting a limit on noise emissions from such component when so incorporated.

(2) Subject to sections 17 and 18, nothing in this section precludes or denies the right of any State or political subdivision thereof to establish and enforce controls on environmental noise (or one or more sources thereof) through the licensing, regulation, or restriction of the use, operation, or movement of any product or combination of products.

AIRCRAFT NOISE STANDARDS

SEC. 7. (a) The Administrator, after consultation with appropriate Federal, State, and local agencies and interested persons, shall conduct a study of the (1) adequacy of Federal Aviation Administration flight and operational noise controls; (2) adequacy of noise emission standards on new and existing aircraft, together with recommendations on the retrofitting and phaseout of existing aircraft; (3) implications of identifying and achieving levels of cumulative noise exposure around airports; and (4) additional measures available to airport operators and local governments to control aircraft noise. He shall report on such study to the Committee on Interstate and Foreign Commerce of the House of Representatives and the Committees on Commerce and Public Works of the Senate within nine months after the date of the enactment of this Act.

(b) Section 611 of the Federal Aviation Act of 1958 (49 U.S.C. 1431) is amended to read as follows:

82 Stat. 395.

"CONTROL AND ABATEMENT OF AIRCRAFT NOISE AND SONIC BOOM

"SEC. 611. (a) For purposes of this section:

"FAA." "(1) The term 'FAA' means Administrator of the Federal Aviation Administration.

"EPA." "(2) The term 'EPA' means the Administrator of the Environmental Protection Agency.

Standards and regulations. "(b)(1) In order to afford present and future relief and protection to the public health and welfare from aircraft noise and sonic boom, the FAA, after consultation with the Secretary of Transportation and with EPA, shall prescribe and amend standards for the measurement of aircraft noise and sonic boom and shall prescribe and amend such regulations as the FAA may find necessary to provide for the control and abatement of aircraft noise and sonic boom, including the application of such standards and regulations in the issuance, amendment, modification, suspension, or revocation of any certificate authorized by this title. No exemption with respect to any standard or regulation under this section may be granted under any provision of this Act unless the FAA shall have consulted with EPA before such exemption is granted, except that if the FAA determines that safety in air commerce or air transportation requires that such an exemption be granted before EPA can be consulted, the FAA shall consult with EPA as soon as practicable after the exemption is granted.

"(2) The FAA shall not issue an original type certificate under section 603(a) of this Act for any aircraft for which substantial noise abatement can be achieved by prescribing standards and regulations in accordance with this section, unless he shall have prescribed standards and regulations in accordance with this section which apply to such aircraft and which protect the public from aircraft noise and sonic boom, consistent with the considerations listed in subsection (d).

72 Stat. 776. 49 USC. 1423.

"(c)(1) Not earlier than the date of submission of the report required by section 7(a) of the Noise Control Act of 1972, EPA shall submit to the FAA proposed regulations to provide such control and abatement of aircraft noise and sonic boom (including control and abatement through the exercise of any of the FAA's regulatory authority over air commerce or transportation or over aircraft or airport operations) as EPA determines is necessary to protect the public health and welfare. The FAA shall consider such proposed regulations submitted by EPA under this paragraph and shall, within thirty days of the date of its submission to the FAA, publish the proposed regulations in a notice of proposed rulemaking. Within sixty days after such publication, the FAA shall commence a hearing at which interested persons shall be afforded an opportunity for oral (as well as written) presentations of data, views, and arguments. Within a reasonable time after the conclusion of such hearing and after consultation with EPA, the FAA shall—

Proposed regulations, submittal to FAA.

Publication.

Hearing.

"(A) in accordance with subsection (b), prescribe regulations (i) substantially as they were submitted by EPA, or (ii) which are a modification of the proposed regulations submitted by EPA, or

"(B) publish in the Federal Register a notice that it is not prescribing any regulation in response to EPA's submission of proposed regulations, together with a detailed explanation providing reasons for the decision not to prescribe such regulations.

Publication in Federal Register.

"(2) If EPA has reason to believe that the FAA's action with respect to a regulation proposed by EPA under paragraph (1)(A)(ii) or (1)(B) of this subsection does not protect the public health and welfare from aircraft noise or sonic boom, consistent with the considerations listed in subsection (d) of this section, EPA shall consult with the FAA and may request the FAA to review, and report to EPA on, the advisability of prescribing the regulation originally proposed by EPA. Any such request shall be published in the Federal Register and shall include a detailed statement of the information on which it is based. The FAA shall complete the review requested and shall report to EPA within such time as EPA specifies in the request, but such time specified may not be less than ninety days from the date the request was made. The FAA's report shall be accompanied by a detailed statement of the FAA's findings and the reasons for the FAA's conclusions; shall identify any statement filed pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969 with respect to such action of the FAA under paragraph (1) of this subsection; and shall specify whether (and where) such statements are available for public inspection. The FAA's report shall be published in the Federal Register, except in a case in which EPA's request proposed specific action to be taken by the FAA, and the FAA's report indicates such action will be taken.

Report request, publication in Federal Register.

83 Stat. 853. 42 USC 4332.

Report, publication in Federal Register.

"(3) If, in the case of a matter described in paragraph (2) of this subsection with respect to which no statement is required to be filed under such section 102(2)(C), the report of the FAA indicates that the proposed regulation originally submitted by EPA should not be made, then EPA may request the FAA to file a supplemental report, which shall be published in the Federal Register within such a period as EPA may specify (but such time specified shall not be less than ninety days from the date the request was made), and which shall contain a comparison of (A) the environmental effects (including those which cannot be avoided) of the action actually taken by the FAA in response to EPA's proposed regulations, and (B) EPA's proposed regulations.

Supplemental report, publication in Federal Register.

"(d) In prescribing and amending standards and regulations under this section, the FAA shall—

"(1) consider relevant available data relating to aircraft noise and sonic boom, including the results of research, development, testing, and evaluation activities conducted pursuant to this Act and the Department of Transportation Act;

80 Stat. 931. 49 USC 1651 note.

"(2) consult with such Federal, State, and interstate agencies as he deems appropriate;

"(3) consider whether any proposed standard or regulation is consistent with the highest degree of safety in air commerce or air transportation in the public interest;

"(4) consider whether any proposed standard or regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply; and

"(5) consider the extent to which such standard or regulation will contribute to carrying out the purposes of this section.

Notice and appeal.

"(e) In any action to amend, modify, suspend, or revoke a certificate in which violation of aircraft noise or sonic boom standards or regulations is at issue, the certificate holder shall have the same notice and appeal rights as are contained in section 609, and in any appeal to the National Transportation Safety Board, the Board may amend, modify, or reverse the order of the FAA if it finds that control or abatement of aircraft noise or sonic boom and the public health and welfare do not require the affirmation of such order, or that such order is not consistent with safety in air commerce or air transportation."

72 Stat. 779; 85 Stat. 481. 49 USC 1429.

(c) All—

(1) standards, rules, and regulations prescribed under section 611 of the Federal Aviation Act of 1958, and

(2) exemptions, granted under any provision of the Federal Aviation Act of 1958, with respect to such standards, rules, and regulations,

72 Stat. 731. 49 USC 1301 note.

which are in effect on the date of the enactment of this Act, shall continue in effect according to their terms until modified, terminated, superseded, set aside, or repealed by the Administrator of the Federal Aviation Administration in the exercise of any authority vested in him, by a court of competent jurisdiction, or by operation of law.

LABELING

Regulations.

SEC. 8. (a) The Administrator shall by regulation designate any product (or class thereof)—

(1) which emits noise capable of adversely affecting the public health or welfare; or

(2) which is sold wholly or in part on the basis of its effectiveness in reducing noise.

(b) For each product (or class thereof) designated under subsection (a) the Administrator shall by regulation require that notice be given to the prospective user of the level of the noise the product emits, or of its effectiveness in reducing noise, as the case may be. Such regulations shall specify (1) whether such notice shall be affixed to the product or to the outside of its container, or to both, at the time of its sale to the ultimate purchaser or whether such notice shall be given to the prospective user in some other manner, (2) the form of the notice, and (3) the methods and units of measurement to be used. Sections 6(c)(2) shall apply to the prescribing of any regulation under this section.

(c) This section does not prevent any State or political subdivision thereof from regulating product labeling or information respecting products in any way not in conflict with regulations prescribed by the Administrator under this section.

IMPORTS

Regulations.

SEC. 9. The Secretary of the Treasury shall, in consultation with the Administrator, issue regulations to carry out the provisions of this Act with respect to new products imported or offered for importation.

PROHIBITED ACTS

SEC. 10. (a) Except as otherwise provided in subsection (b), the following acts or the causing thereof are prohibited:

(1) In the case of a manufacturer, to distribute in commerce any new product manufactured after the effective date of a regulation prescribed under section 6 which is applicable to such product, except in conformity with such regulation.

(2)(A) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any product in compliance with regulations under section 6, prior to its sale or delivery to the ultimate purchaser or while it is in use, or (B) the use of a product after such device or element of design has been removed or rendered inoperative by any person.

(3) In the case of a manufacturer, to distribute in commerce any new product manufactured after the effective date of a regulation prescribed under section 8(b) (requiring information respecting noise) which is applicable to such product, except in conformity with such regulation.

(4) The removal by any person of any notice affixed to a product or container pursuant to regulations prescribed under section 8(b), prior to sale of the product to the ultimate purchaser.

(5) The importation into the United States by any person of any new product in violation of a regulation prescribed under section 9 which is applicable to such product.

(6) The failure or refusal by any person to comply with any requirement of section 11(d) or 13(a) or regulations prescribed under section 13(a), 17, or 18.

Exemptions.

(b)(1) For the purpose of research, investigations, studies, demonstrations, or training, or for reasons of national security, the Administrator may exempt for a specified period of time any product, or class thereof, from paragraphs (1), (2), (3), and (5) of subsection (a), upon such terms and conditions as he may find necessary to protect the public health or welfare.

(2) Paragraphs (1), (2), (3), and (4) of subsection (a) shall not apply with respect to any product which is manufactured solely for use outside any State and which (and the container of which) is labeled or otherwise marked to show that it is manufactured solely for use outside any State; except that such paragraphs shall apply to such product if it is in fact distributed in commerce for use in any State.

ENFORCEMENT

Penalty.

SEC. 11. (a) Any person who willfully or knowingly violates paragraph (1), (3), (5), or (6) of subsection (a) of section 10 of this Act shall be punished by a fine of not more than $25,000 per day of violation, or by imprisonment for not more than one year, or by both. If the conviction is for a violation committed after a first conviction of such person under this subsection, punishment shall be by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two years, or by both.

(b) For the purpose of this section, each day of violation of any paragraph of section 10(a) shall constitute a separate violation of that section.

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Jurisdiction.

(c) The district courts of the United States shall have jurisdiction of actions brought by and in the name of the United States to restrain any violations of section 10(a) of this Act.

(d)(1) Whenever any person is in violation of section 10(a) of this Act, the Administrator may issue an order specifying such relief as he determines is necessary to protect the public health and welfare.

(2) Any order under this subsection shall be issued only after notice and opportunity for a hearing in accordance with section 554 of title 5 of the United States Code.

80 Stat. 384.

"Person."

(e) The term "person," as used in this section, does not include a department, agency, or instrumentality of the United States.

CITIZEN SUITS

SEC. 12. (a) Except as provided in subsection (b), any person (other than the United States) may commence a civil action on his own behalf—

(1) against any person (including (A) the United States, and (B) any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of any noise control requirement (as defined in subsection (e)), or

USC prec. title 1.

(2) against—

(A) the Administrator of the Environmental Protection Agency where there is alleged a failure of such Administrator to perform any act or duty under this Act which is not discretionary with such Administrator, or

(B) the Administrator of the Federal Aviation Administration where there is alleged a failure of such Administrator to perform any act or duty under section 611 of the Federal Aviation Act of 1958 which is not discretionary with such Administrator.

Ante, p.

Jurisdiction.

The district courts of the United States shall have jurisdiction, without regard to the amount in controversy, to restrain such person from violating such noise control requirement or to order such Administrator to perform such act or duty, as the case may be.

(b) No action may be commenced—

(1) under subsection (a)(1)—

Notice.

(A) prior to sixty days after the plaintiff has given notice of the violation (i) to the Administrator of the Environmental Protection Agency (and to the Federal Aviation Administrator in the case of a violation of a noise control requirement under such section 611) and (ii) to any alleged violator of such requirement, or

(B) if an Administrator has commenced and is diligently prosecuting a civil action to require compliance with the noise control requirement, but in any such action in a court of the United States any person may intervene as a matter of right, or

(2) under subsection (a)(2) prior to sixty days after the plaintiff has given notice to the defendant that he will commence such action.

Notice under this subsection shall be given in such manner as the Administrator of the Environmental Protection Agency shall prescribe by regulation.

Intervention.

(c) In an action under this section, the Administrator of the Environmental Protection Agency, if not a party, may intervene as a matter of right. In an action under this section respecting a noise control requirement under section 611 of the Federal Aviation Act of 1958,

the Administrator of the Federal Aviation Administration, if not a party, may also intervene as a matter of right.

Litigation costs.

(d) The court, in issuing any final order in any action brought pursuant to subsection (a) of this section, may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such an award is appropriate.

(e) Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any noise control requirement or to seek any other relief (including relief against an Administrator).

"Noise control requirement."

(f) For purposes of this section, the term "noise control requirement" means paragraph (1), (2), (3), (4), or (5) of section 10(a), or a standard, rule, or regulation issued under section 17 or 18 of this Act or under section 611 of the Federal Aviation Act of 1958.

Ante, p.

RECORDS, REPORTS, AND INFORMATION

SEC. 13. (a) Each manufacturer of a product to which regulations under section 6 or section 8 apply shall—

(1) establish and maintain such records, make such reports, provide such information, and make such tests, as the Administrator may reasonably require to enable him to determine whether such manufacturer has acted or is acting in compliance with this Act,

(2) upon request of an officer or employee duly designated by the Administrator, permit such officer or employee at reasonable times to have access to such information and the results of such tests and to copy such records, and

(3) to the extent required by regulations of the Administrator, make products coming off the assembly line or otherwise in the hands of the manufacturer available for testing by the Administrator.

Confidential information.

(b)(1) All information obtained by the Administrator or his representatives pursuant to subsection (a) of this section, which information contains or relates to a trade secret or other matter referred to in section 1905 of title 18 of the United States Code, shall be considered confidential for the purpose of that section, except that such information may be disclosed to other Federal officers or employees, in whose possession it shall remain confidential, or when relevant to the matter in controversy in any proceeding under this Act.

62 Stat. 791. Disclosure.

(2) Nothing in this subsection shall authorize the withholding of information by the Administrator, or by any officers or employees under his control, from the duly authorized committees of the Congress.

Violations and penalties.

(c) Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this Act or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Act, shall upon conviction be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

RESEARCH, TECHNICAL ASSISTANCE, AND PUBLIC INFORMATION

SEC. 14. In furtherance of his responsibilities under this Act and to complement, as necessary, the noise-research programs of other Federal agencies, the Administrator is authorized to:

(1) Conduct research, and finance research by contract with any person, on the effects, measurement, and control of noise, including but not limited to—

(A) investigation of the psychological and physiological effects of noise on humans and the effects of noise on domestic animals, wildlife, and property, and determination of acceptable levels of noise on the basis of such effects;

(B) development of improved methods and standards for measurement and monitoring of noise, in cooperation with the National Bureau of Standards, Department of Commerce; and

(C) determination of the most effective and practicable means of controlling noise emission.

(2) Provide technical assistance to State and local governments to facilitate their development and enforcement of ambient noise standards, including but not limited to—

(A) advice on training of noise-control personnel and on selection and operation of noise-abatement equipment; and

(B) preparation of model State or local legislation for noise control.

(3) Disseminate to the public information on the effects of noise, acceptable noise levels, and techniques for noise measurement and control.

DEVELOPMENT OF LOW-NOISE-EMISSION PRODUCTS

Definitions.

SEC. 13. (a) For the purpose of this section:

(1) The term "Committee" means the Low-Noise-Emission Product Advisory Committee.

(2) The term "Federal Government" includes the legislative, executive, and judicial branches of the Government of the United States, and the government of the District of Columbia.

(3) The term "low-noise-emission product" means any product which emits noise in amounts significantly below the levels specified in noise emission standards under regulations applicable under section 6 at the time of procurement to that type of product.

(4) The term "retail price" means (A) the maximum statutory price applicable to any type of product; or (B) in any case where there is no applicable maximum statutory price, the most recent procurement price paid for any type of product.

(b)(1) The Administrator shall determine which products qualify as low-noise-emission products in accordance with the provisions of this section.

Certification.

(2) The Administrator shall certify any product—

(A) for which a certification application has been filed in accordance with paragraph (5)(A) of this subsection;

(B) which is a low-noise-emission product as determined by the Administrator; and

(C) which he determines is suitable for use as a substitute for a type of product at that time in use by agencies of the Federal Government.

Low-Noise-Emission Product Advisory Committee, establishment. Membership.

(3) The Administrator may establish a Low-Noise-Emission Product Advisory Committee to assist him in determining which products qualify as low-noise-emission products for purposes of this section. The Committee shall include the Administrator or his designee, a representative of the National Bureau of Standards, and representatives of such other Federal agencies and private individuals as the Administrator may deem necessary from time to time. Any member of the Committee not employed on a full-time basis by the United States may receive the daily equivalent of the annual rate of basic pay in effect for grade GS-18 of the General Schedule for each day such

5 USC 5332 note.

member is engaged upon work of the Committee. Each member of the Committee shall be reimbursed for travel expenses, including per diem in lieu of subsistence as authorized by section 5703 of title 5, United States Code, for persons in the Government service employed intermittently. Travel expenses, 80 Stat. 499; 83 Stat. 190.

(4) Certification under this section shall be effective for a period of one year from the date of issuance.

(5)(A) Any person seeking to have a class or model of product certified under this section shall file a certification application in accordance with regulations prescribed by the Administrator.

(B) The Administrator shall publish in the Federal Register a notice of each application received. Publication in Federal Register.

(C) The Administrator shall make determinations for the purpose of this section in accordance with procedures prescribed by him by regulation.

(D) The Administrator shall conduct whatever investigation is necessary, including actual inspection of the product at a place designated in regulations prescribed under subparagraph (A).

(E) The Administrator shall receive and evaluate written comments and documents from interested persons in support of, or in opposition to, certification of the class or model of product under consideration.

(F) Within ninety days after the receipt of a properly filed certification application the Administrator shall determine whether such product is a low-noise-emission product for purposes of this section. If the Administrator determines that such product is a low-noise-emission product, then within one hundred and eighty days of such determination the Administrator shall reach a decision as to whether such product is a suitable substitute for any class or classes of products presently being purchased by the Federal Government for use by its agencies.

(G) Immediately upon making any determination or decision under subparagraph (F), the Administrator shall publish in the Federal Register notice of such determination or decision, including reasons therefor. Publication in Federal Register.

(c)(1) Certified low-noise-emission products shall be acquired by purchase or lease by the Federal Government for use by the Federal Government in lieu of other products if the Administrator of General Services determines that such certified products have procurement costs which are no more than 125 per centum of the retail price of the least expensive type of product for which they are certified substitutes.

(2) Data relied upon by the Administrator in determining that a product is a certified low-noise-emission product shall be incorporated in any contract for the procurement of such product.

(d) The procuring agency shall be required to purchase available certified low-noise-emission products which are eligible for purchase to the extent they are available before purchasing any other products for which any low-noise-emission product is a certified substitute. In making purchasing selections between competing eligible certified low-noise-emission products, the procuring agency shall give priority to any class or model which does not require extensive periodic maintenance to retain its low-noise-emission qualities or which does not involve operating costs significantly in excess of those products for which it is a certified substitute.

(e) For the purpose of procuring certified low-noise-emission products any statutory price limitations shall be waived. Statutory price limitations, waiver.

(f) The Administrator shall, from time to time as he deems appropriate, test the emissions of noise from certified low-noise-emission products purchased by the Federal Government. If at any time he finds that the noise-emission levels exceed the levels on which certifi-

cution under this section was based, the Administrator shall give the supplier of such product written notice of this finding, issue public notice of it, and give the supplier an opportunity to make necessary repairs, adjustments, or replacements. If no such repairs, adjustments, or replacements are made within a period to be set by the Administrator, he may order the supplier to show cause why the product involved should be eligible for recertification.

Appropriation.

(g) There are authorized to be appropriated for paying additional amounts for products pursuant to, and for carrying out the provisions of, this section, $1,000,000 for the fiscal year ending June 30, 1973, and $2,000,000 for each of the two succeeding fiscal years.

(h) The Administrator shall promulgate the procedures required to implement this section within one hundred and eighty days after the date of enactment of this Act.

JUDICIAL REVIEW; WITNESSES

SEC. 16. (a) A petition for review of action of the Administrator of the Environmental Protection Agency in promulgating any standard or regulation under section 6, 17, or 18 of this Act or any labeling regulation under section 3 of this Act may be filed only in the United States Court of Appeals for the District of Columbia Circuit, and a petition for review of action of the Administrator of the Federal Aviation Administration in promulgating any standard or regulation under section 611 of the Federal Aviation Act of 1958 may be filed only in such court. Any such petition shall be filed within ninety days from the date of such promulgation, or after such date if such petition is based solely on grounds arising after such ninetieth day. Action of either Administrator with respect to which review could have been obtained under this subsection shall not be subject to judicial review in civil or criminal proceedings for enforcement.

Ante, p. 1239.

(b) If a party seeking review under this Act applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that the information is material and was not available at the time of the proceeding before the Administrator of such Agency or Administration (as the case may be), the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before such Administrator, and to be adduced upon the hearing, in such manner and upon such terms and conditions as the court may deem proper. Such Administrator may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken, and he shall file with the court such modified or new findings, and his recommendation, if any, for the modification or setting aside of his original order, with the return of such additional evidence.

(c) With respect to relief pending review of an action by either Administrator, no stay of an agency action may be granted unless the reviewing court determines that the party seeking such stay is (1) likely to prevail on the merits in the review proceeding and (2) will suffer irreparable harm pending such proceeding.

Subpenas.

(d) For the purpose of obtaining information to carry out this Act, the Administrator of the Environmental Protection Agency may issue subpenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and he may administer oaths. Witnesses summoned shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In cases of contumacy or refusal to obey a subpena served upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person,

shall have jurisdiction to issue an order requiring such person to appear and give testimony before the Administrator, to appear and produce papers, books, and documents before the Administrator, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

RAILROAD NOISE EMISSION STANDARDS

Regulations.

SEC. 17. (a)(1) Within nine months after the date of enactment of this Act, the Administrator shall publish proposed noise emission regulations for surface carriers engaged in interstate commerce by railroad. Such proposed regulations shall include noise emission standards setting such limits on noise emissions resulting from operation of the equipment and facilities of surface carriers engaged in interstate commerce by railroad which reflect the degree of noise reduction achievable through the application of the best available technology, taking into account the cost of compliance. These regulations shall be in addition to any regulations that may be proposed under section 8 of this Act.

(2) Within ninety days after the publication of such regulations as may be proposed under paragraph (1) of this subsection, and subject to the provisions of section 18 of this Act, the Administrator shall promulgate final regulations. Such regulations may be revised, from time to time, in accordance with this subsection.

(3) Any standard or regulation, or revision thereof, proposed under this subsection shall be promulgated only after consultation with the Secretary of Transportation in order to assure appropriate consideration for safety and technological availability.

(4) Any regulation or revision thereof promulgated under this subsection shall take effect after such period as the Administrator finds necessary, after consultation with the Secretary of Transportation, to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.

(b) The Secretary of Transportation, after consultation with the Administrator, shall promulgate regulations to insure compliance with all standards promulgated by the Administrator under this section. The Secretary of Transportation shall carry out such regulations through the use of his powers and duties of enforcement and inspection authorized by the Safety Appliance Acts, the Interstate Commerce Act, and the Department of Transportation Act. Regulations promulgated under this section shall be subject to the provisions of sections 10, 11, 12, and 16 of this Act.

27 Stat. 531, 45 USC 1.
24 Stat. 379, 49 USC prec. 1 note.

(c)(1) Subject to paragraph (2) but notwithstanding any other provision of this Act, after the effective date of a regulation under this section applicable to noise emissions resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad, no State or political subdivision thereof may adopt or enforce any standard applicable to noise emissions resulting from the operation of the same equipment or facility of such carrier unless such standard is identical to a standard applicable to noise emissions resulting from such operation prescribed by any regulation under this section.

80 Stat. 931, 49 USC 1651 note.

(2) Nothing in this section shall diminish or enhance the rights of any State or political subdivision thereof to establish and enforce standards or controls on levels of environmental noise, or to control, license, regulate, or restrict the use, operation, or movement of any product if the Administrator, after consultation with the Secretary of Transportation, determines that such standard, control, license, regulation, or restriction is necessitated by special local conditions and is not in conflict with regulations promulgated under this section.

(d) The terms "carrier" and "railroad" as used in this section shall have the same meaning as such terms have under the first section of the Act of February 17, 1911 (45 U.S.C. 22).

36 Stat. 913; 43 Stat. 659.

MOTOR CARRIER NOISE EMISSION STANDARDS

Regulations.

SEC. 18. (a)(1) Within nine months after the date of enactment of this Act, the Administrator shall publish proposed noise emission regulations for motor carriers engaged in interstate commerce. Such proposed regulations shall include noise emission standards setting such limits on noise emissions resulting from operation of motor carriers engaged in interstate commerce which reflect the degree of noise reduction achievable through the application of the best available technology, taking into account the cost of compliance. These regulations shall be in addition to any regulations that may be proposed under section 8 of this Act.

(2) Within ninety days after the publication of such regulations as may be proposed under paragraph (1) of this subsection, and subject to the provisions of section 16 of this Act, the Administrator shall promulgate final regulations. Such regulations may be revised from time to time, in accordance with this subsection.

(3) Any standard or regulation, or revision thereof, proposed under this subsection shall be promulgated only after consultation with the Secretary of Transportation in order to assure appropriate consideration for safety and technological availability.

(4) Any regulation or revision thereof promulgated under this subsection shall take effect after such period as the Administrator finds necessary, after consultation with the Secretary of Transportation, to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.

(b) The Secretary of Transportation, after consultation with the Administrator shall promulgate regulations to insure compliance with all standards promulgated by the Administrator under this section. The Secretary of Transportation shall carry out such regulations through the use of his powers and duties of enforcement and inspection authorized by the Interstate Commerce Act and the Department of Transportation Act. Regulations promulgated under this section shall be subject to the provisions of sections 10, 11, 12, and 16 of this Act.

24 Stat. 379. 49 USC prec. 1 note. 80 Stat. 931. 49 USC 1651 note.

(c)(1) Subject to paragraph (2) of this subsection but notwithstanding any other provision of this Act, after the effective date of a regulation under this section applicable to noise emissions resulting from the operation of any motor carrier engaged in interstate commerce, no State or political subdivision thereof may adopt or enforce any standard applicable to the same operation of such motor carrier, unless such standard is identical to a standard applicable to noise emissions resulting from such operation prescribed by any regulation under this section.

(2) Nothing in this section shall diminish or enhance the rights of any State or political subdivision thereof to establish and enforce standards or controls on levels of environmental noise, or to control, license, regulate, or restrict the use, operation, or movement of any product if the Administrator, after consultation with the Secretary of Transportation, determines that such standard, control, license, regulation, or restriction is necessitated by special local conditions and is not in conflict with regulations promulgated under this section.

(d) For purposes of this section, the term "motor carrier" includes a common carrier by motor vehicle, a contract carrier by motor vehicle,

and a private carrier of property by motor vehicle as those terms are defined by paragraphs (14), (15), and (17) of section 203(a) of the Interstate Commerce Act (49 U.S.C. 303(a)).

49 Stat. 545; 54 Stat. 920; 71 Stat. 411.

AUTHORIZATION OF APPROPRIATIONS

SEC. 19. There is authorized to be appropriated to carry out this Act (other than section 15) $3,000,000 for the fiscal year ending June 30, 1973; $6,000,000 for the fiscal year ending June 30, 1974; and $12,000,000 for the fiscal year ending June 30, 1975.

Approved October 27, 1972.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-442 (Comm. on Interstate and Foreign Commerce).
SENATE REPORT No. 92-1160 accompanying S. 3342 (Comm. on Public Works).
CONGRESSIONAL RECORD, Vol. 118 (1972):
Feb. 29, considered and passed House.
Oct. 12, 13, considered and passed Senate, amended, in lieu of S. 3342.
Oct. 18, House concurred in Senate amendment, with an amendment; Senate concurred in House amendment.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 8, No. 44:
Oct. 28, Presidential statement.

Public Law 95-609
95th Congress

An Act

To extend provisions of the Noise Control Act of 1972 for one year, and for other purposes.

Nov. 8, 1978
[S. 3083]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Quiet Communities Act of 1978".

Quiet Communities Act of 1978.
42 USC 4901 note.

SEC. 2. Section 14 of the Noise Control Act of 1972 is amended to read as follows:

42 USC 4913.

"QUIET COMMUNITIES, RESEARCH, PUBLIC INFORMATION

"SEC. 14. To promote the development of effective State and local noise control programs, to provide an adequate Federal noise control research program designed to meet the objectives of this Act, and to otherwise carry out the policy of this Act, the Administrator shall, in cooperation with other Federal agencies and through the use of grants, contracts, and direct Federal actions—

"(a) develop and disseminate information and educational materials to all segments of the public on the public health and other effects of noise and the most effective means for noise control, through the use of materials for school curricula, volunteer organizations, radio and television programs, publication, and other means;

"(b) conduct or finance research directly or with any public or private organization or any person on the effects, measurement, and control of noise, including but not limited to—

"(1) investigation of the psychological and physiological effects of noise on humans and the effects of noise on domestic animals, wildlife, and property, and the determination of dose/response relationships suitable for use in decision-making, with special emphasis on the nonauditory effects of noise;

"(2) investigation, development, and demonstration of noise control technology for products subject to possible regulation under sections 6, 7, and 8 of this Act;

"(3) investigation, development, and demonstration of monitoring equipment and other technology especially suited for use by State and local noise control programs;

"(4) investigation of the economic impact of noise on property and human activities; and

"(5) investigation and demonstration of the use of economic incentives (including emission charges) in the control of noise;

"(c) administer a nationwide Quiet Communities Program which shall include, but not be limited to—

"(1) grants to States, local governments, and authorized regional planning agencies for the purpose of—

"(A) identifying and determining the nature and extent of the noise problem within the subject jurisdiction;

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"(B) planning, developing, and establishing a noise control capacity in such jurisdiction, including purchasing initial equipment;

"(C) developing abatement plans for areas around major transportation facilities (including airports, highways, and rail yards) and other major stationary sources of noise, and, where appropriate, for the facility or source itself; and,

"(D) evaluating techniques for controlling noise (including institutional arrangements) and demonstrating the best available techniques in such jurisdiction;

"(2) purchase of monitoring and other equipment for loan to State and local noise control programs to meet special needs or assist in the beginning implementation of a noise control program or project;

"(3) development and implementation of a quality assurance program for equipment and monitoring procedures of State and local noise control programs to help communities assure that their data collection activities are accurate;

"(4) conduct of studies and demonstrations to determine the resource and personnel needs of States and local governments required for the establishment and implementation of effective noise abatement and control programs; and

"(5) development of educational and training materials and programs, including national and regional workshops, to support State and local noise abatement and control programs;

except that no actions, plans or programs hereunder shall be inconsistent with existing Federal authority under this Act to regulate sources of noise in interstate commerce;

"(d) develop and implement a national noise environmental assessment program to identify trends in noise exposure and response, ambient levels, and compliance data and to determine otherwise the effectiveness of noise abatement actions through the collection of physical, social, and human response data;

"(e) establish regional technical assistance centers which use the capabilities of university and private organizations to assist State and local noise control programs;

"(f) provide technical assistance to State and local governments to facilitate their development and enforcement of noise control, including direct onsite assistance of agency or other personnel with technical expertise, and preparation of model State or local legislation for noise control; and

"(g) provide for the maximum use in programs assisted under this section of senior citizens and persons eligible for participation in programs under the Older Americans Act.".

42 USC 3001 note.

SEC. 3. The fourth sentence of section 611(c)(1) of the Federal Aviation Act, as amended by section 7 of the Noise Control Act of 1972, is amended by striking "a reasonable time" and inserting in lieu thereof "ninety days", and by adding before the period "and a detailed analysis of and response to all documentation or other information submitted by the Environmental Protection Agency with such proposed regulations".

49 USC 1431.

SEC. 4. Section 11(a) of the Noise Control Act of 1972 is amended by inserting "(1)" after "(a)" and by adding the following new paragraph: 42 USC 4910.

"(2) Any person who violates paragraph (1), (3), (5), or (6) of subsection (a) of section 10 of this Act shall be subject to a civil penalty not to exceed $10,000 per day of such violation". Penalty.

SEC. 5. Section 6 of the Noise Control Act of 1972 is amended by adding the following subsection: 42 USC 4905.

"(f) At any time after the promulgation of regulations respecting a product under this section, a State or political subdivision thereof may petition the Administrator to revise such standard on the grounds that a more stringent standard under subsection (e) of this section is necessary to protect the public health and welfare. The Administration shall publish notice of receipt of such petition in the Federal Register and shall within ninety days of receipt of such petition respond by (1) publication of proposed revised regulations in accordance with subsection (e)(3) of this section, or (2) publication in the Federal Register of a decision not to publish such proposed revised regulations at that time, together with a detailed explanation for such decision.". Notice, publication in Federal Register.

SEC. 6. Section 19 of the Noise Control Act of 1972 is amended to read as follows: 42 USC 4918.

"AUTHORIZATION OF APPROPRIATIONS

"SEC. 19. There are authorized to be appropriated to carry out this Act (other than for research and development) $15,000,000 for the fiscal year ending September 30, 1979.".

SEC. 7. (a) Section 1002(a)(4) of the Solid Waste Disposal Act is amended by deleting the hyphen between the words "solid" and "waste" in the last line. 42 USC 6901.

(b) Section 1004 of the Solid Waste Disposal Act is amended by— 42 USC 6903.

(1) revising paragraph (8) by striking out everything after "improvement of land";

(2) revising paragraph (10) by striking out "disposal" and inserting in lieu thereof "management";

(3) by revising paragraph (29) to read as follows:

"(29) The term 'solid waste management facility' includes— "Solid waste management facility."

"(A) any resource recovery system or component thereof,

"(B) any system, program, or facility for resource conservation, and

"(C) any facility for the collection, source separation, storage, transportation, transfer, processing, treatment or disposal of solid wastes, including hazardous wastes, whether such facility is associated with facilities generating such wastes or otherwise.".

(c) Section 1008(a)(3) of the Solid Waste Disposal Act is amended by striking out "title IV" and inserting in lieu thereof "subtitle D". 42 USC 6907.

(d) Section 1008(b) of the Solid Waste Disposal Act is amended by striking ", pursuant to this section" and by inserting after "suggested guidelines" each time it appears the phrase "or proposed regulations under this Act".

(e) Section 2003 of the Solid Waste Disposal Act is amended by inserting "Federal agencies," after "to provide". 42 USC 6913.

42 USC 6922. (f) Section 3002 of the Solid Waste Disposal Act is amended by—

(1) revising paragraph (5) by striking out the semicolon after "subtitle" and substituting a comma, and by striking out "and" and inserting in lieu thereof "or pursuant to title I of the Marine Protection, Research, and Sanctuaries Act (86 Stat. 1052); and"; and

33 USC 1411.

(2) revising paragraph (6) by adding a close parenthesis after "subtitle" the first time it appears.

42 USC 6923. (g) Section 3004 of the Solid Waste Disposal Act is amended by—

(1) revising subsection (a)(4) by striking out the period after "subtitle" and substituting a comma, and by adding at the end thereof "or pursuant to title I of the Marine Protection, Research, and Sanctuaries Act (86 Stat. 1052)."; and

(2) revising subsection (b) by striking out "subtitle" after "the regulations promulgated by the Administrator under this" and inserting in lieu thereof "section".

42 USC 6925. (h) Section 3005(a) of the Solid Waste Disposal Act is amended by inserting "treatment, storage, or" after "and upon and after such date the".

42 USC 6926. (i) Section 3006(c) of the Solid Waste Disposal Act is amended by—

(1) striking out "required for" wherever it appears in the subsection and inserting in lieu thereof "of"; and

(2) inserting the word "may" immediately after "3005." and before "submit".

42 USC 6927. (j) Section 3007(a)(1) of the Solid Waste Disposal Act is amended by striking out "or disposed of" and inserting in lieu thereof "disposed of, or transported from".

42 USC 6928. (k) Section 3008 of the Solid Waste Disposal Act is amended by—

(1) revising subsection (d)(1) to read as follows:

"(1) transports any hazardous waste identified or listed under this subtitle to a facility which does not have a permit under section 3005 (or 3006 in the case of a State program), or pursuant to title I of the Marine Protection, Research, and Sanctuaries Act (86 Stat. 1052),"; and

(2) revising subsection (d)(2) to read as follows:

"(2) treats, stores, or disposes of any hazardous waste identified or listed under this subtitle without having obtained a permit under section 3005 (or 3006 in the case of a State program) or pursuant to title I of the Marine Protection, Research, and Sanctuaries Act (86 Stat. 1052)."

42 USC 6947. (l) Section 4007(C) of the Solid Waste Disposal Act is amended by redesignating subsection "(C)" as "(c)".

42 USC 6961. (m) Section 6001 of the Solid Waste Disposal Act is amended by inserting "or management" between "disposal" and "of solid waste".

42 USC 6962. (n) Section 6002 of the Solid Waste Disposal Act is amended by—

(1) deleting "(A)" after "(1)" in subsection (c) and changing "(B)" and "(C)" to "(2)" and "(3)", respectively; and changing "(i)", "(ii)", and "(iii)" to "(A)", "(B)", and "(C)", respectively;

(2) in subsection (c)(3) as redesignated, striking "Contracting" and inserting in lieu thereof "After the date specified in any applicable guidelines prepared pursuant to subsection (e) of this section, contracting"; and

(3) inserting in the second sentence of subsection (e) after "containing such materials" the phrase "and with respect to certification by vendors of the percentage of recovered materials used,".

(o) Section 6004 of the Solid Waste Disposal Act is amended by— 42 USC 6964.

(1) revising subsection (a)(1)(A) by striking out "disposal" and inserting in lieu thereof "management";

(2) revising subsection (a)(1)(B) by striking out "disposal" and inserting in lieu thereof "management"; and

(3) revising subsection (b) by striking out "Secretary" and inserting in lieu thereof "Administrator".

(p) Section 7002 of the Solid Waste Disposal Act is amended by— 42 USC 6972.

(1) revising subsection (c) by striking out "section 212" and inserting in lieu thereof "subtitle C"; and

(2) revising subsection (e) by striking out "requiring" and inserting in lieu thereof "require".

(q) Section 7003 of the Solid Waste Disposal Act is amended by striking out "for" before "contributing to the alleged disposal". 42 USC 6973.

(r) Section 7007 of the Solid Waste Disposal Act is amended by— 42 USC 6977.

(1) revising subsection (b)(1)(A) by striking out "disposal" and inserting "management"; and by striking out "resources" and inserting "resource";

(2) revising subsection (b)(1)(B) by striking out "disposal" and inserting "management"; and

(3) revising subsection (e)(3) by striking out "disposal" and inserting "management" in lieu thereof.

(s) Section 8001(a) of the Solid Waste Disposal Act is amended by— 42 USC 6981.

(1) revising paragraph (2) by striking out "disposal" and inserting "management" in lieu thereof; and

(2) revising paragraph (13) by inserting "treatment," after "for purpose of".

(t) Section 8002 of the Solid Waste Disposal Act is amended by— 42 USC 6982.

(1) revising paragraph (1) of subsection (g) by inserting a comma between "shale" and "liquefaction";

(2) revising paragraph (1) of subsection (j) by inserting "the Secretary of Energy, the Chairman of the Council of Economic Advisors," before "and a representative of the Office of Management and Budget,";

(3) revising paragraph (2) of subsection (j) by striking "(2)(D)" and inserting "(1)(D)" in lieu thereof;

(4) revising paragraph (3) of subsection (j) by striking "(2)(D)" and inserting "(1)" in lieu thereof; and

(5) revising subsection (l) by striking out "required under subsection (a), (h), (i) and (j)" and inserting in lieu thereof "required under subsections (a), (h), and (i)".

(u) Section 8003(a)(3) of the Solid Waste Disposal Act is amended by striking out "discarded materials" and inserting "solid waste" in lieu thereof. 42 USC 6983.

42 USC 6984.

(c) Section 3004(a)(1) of the Solid Waste Disposal Act is amended by striking out "discarded material" and inserting "solid waste" in lieu thereof.

Aircraft noise effects, joint study.
49 USC 1431 note.

SEC. 8. (a) The Secretary of Transportation and the Administrator of the Environmental Protection Agency shall jointly study the aircraft noise effects from an airport on communities located in a State other than the State in which the airport is located. The criteria to be used in selecting the airport to be studied shall include:

(1) the airport shall be operated by a State, a unit of general purpose local government of a State, or a special purpose entity constituted for the purpose of operating an airport, and

(2) the airport shall have a point on the airport boundary within one nautical mile from a State boundary, and

(3) the airport shall have had in excess of sixty thousand scheduled air carrier departures during the preceding calendar year.

(b) The study shall be conducted in cooperation with the airport operator, appropriate Federal, State, and local officials, and the appropriate Metropolitan Planning Organization.

Report to Congress.

(c) The Secretary and the Administrator shall prepare and submit to Congress a report within nine months of the conclusion of the study, but no later than twenty-four months after enactment of this section.

Approved November 8, 1978.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-1171, accompanying H.R. 12647 (Comm. on Interstate and Foreign Commerce).
SENATE REPORT No. 95-875 (Comm. on Environment and Public Works).
CONGRESSIONAL RECORD, Vol. 124 (1978):
July 19, considered and passed Senate.
Oct. 10, H.R. 12647 considered and passed House, passage vacated, and S. 3083, amended, passed in lieu.
Oct. 13, Senate concurred in House amendments.

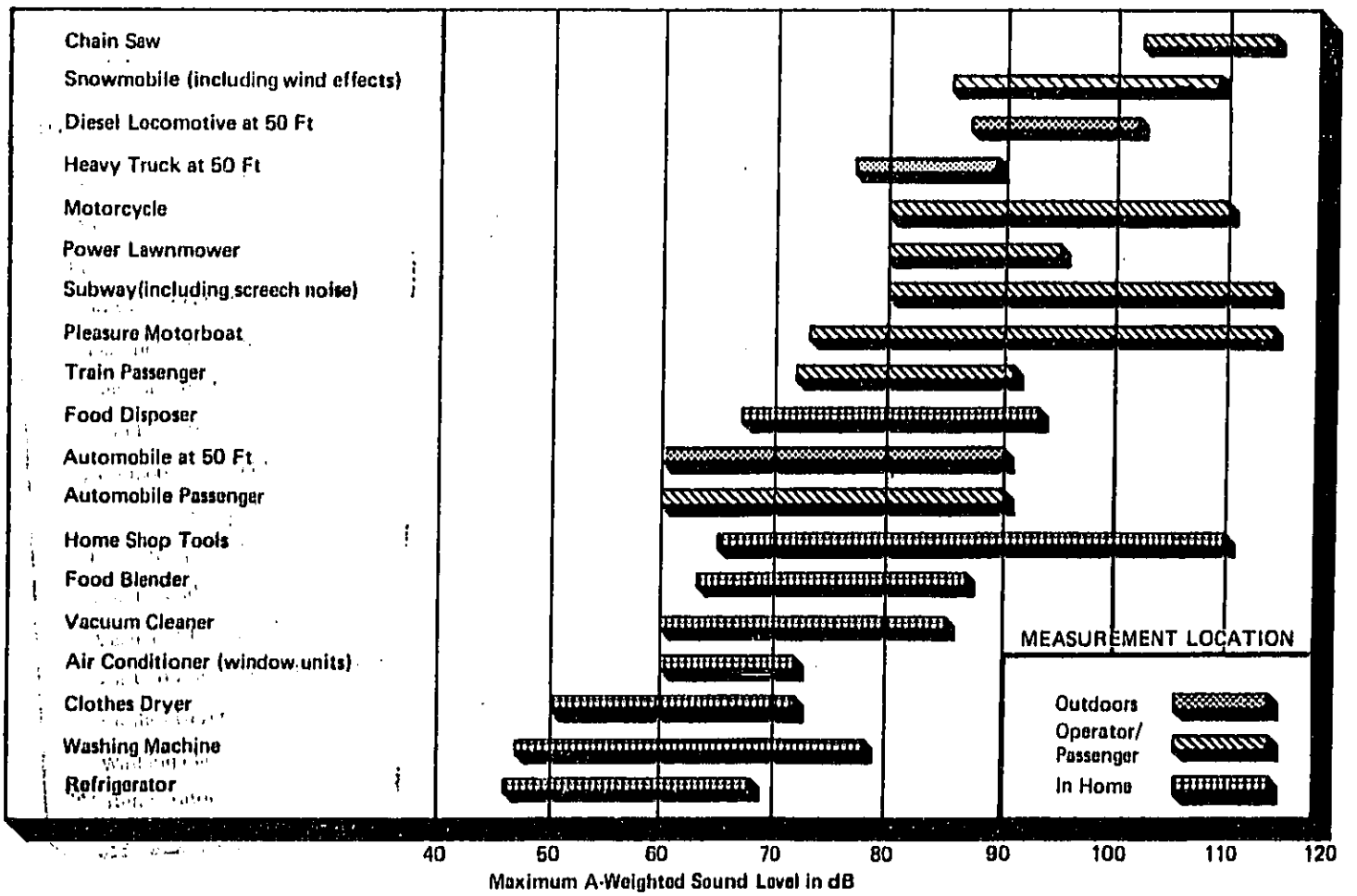

FIGURE 1. TYPICAL RANGE OF COMMON SOUNDS

SOURCE: Office of Noise Abatement and Control, U.S. Environmental Protection Agency, Protective Noise Levels: Condensed Version of EPA Levels Document, at 5 (November 1978).

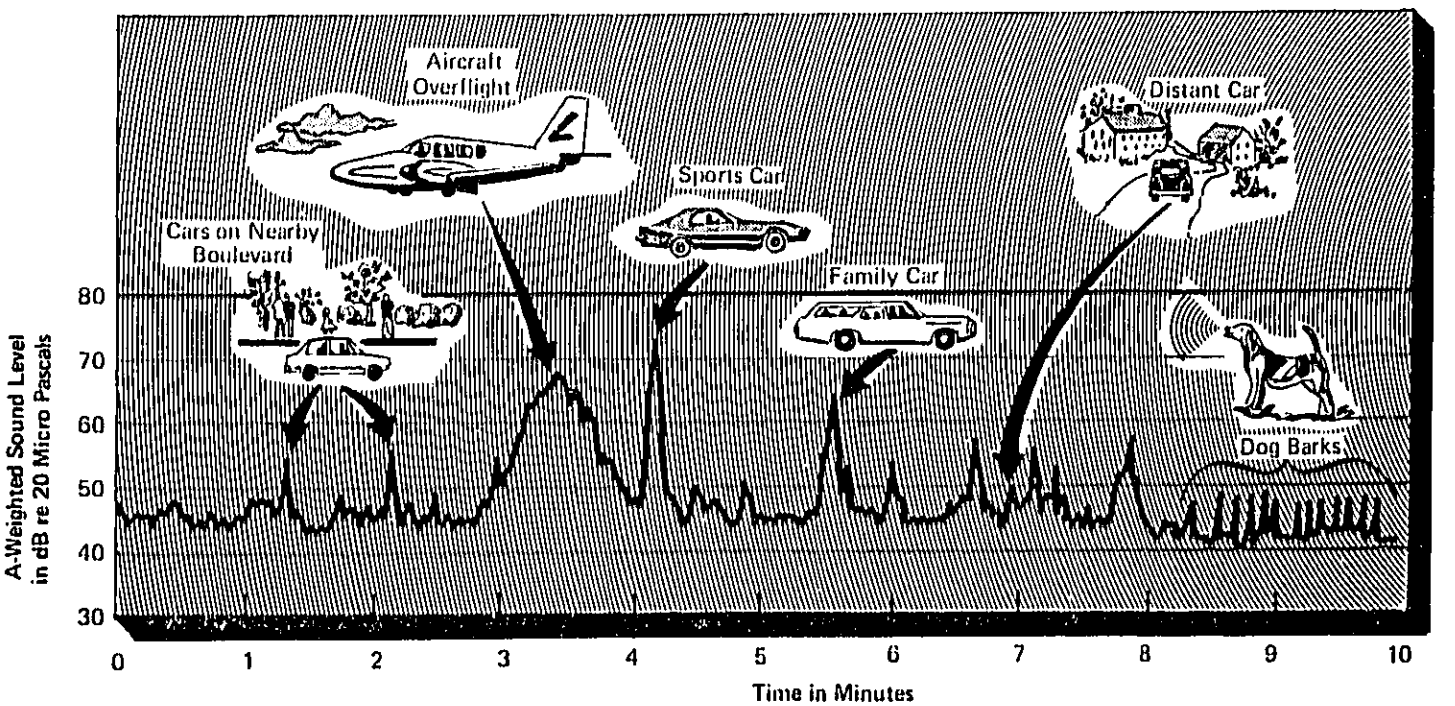

FIGURE 2. TYPICAL OUTDOOR SOUND MEASURED ON A QUIET SUBURBAN STREET

SOURCE: Office of Noise Abatement and Control, U.S. Environmental Protection Agency, Protective Noise Levels: Condensed Version of EPA Levels Document, at 9 (November, 1978).

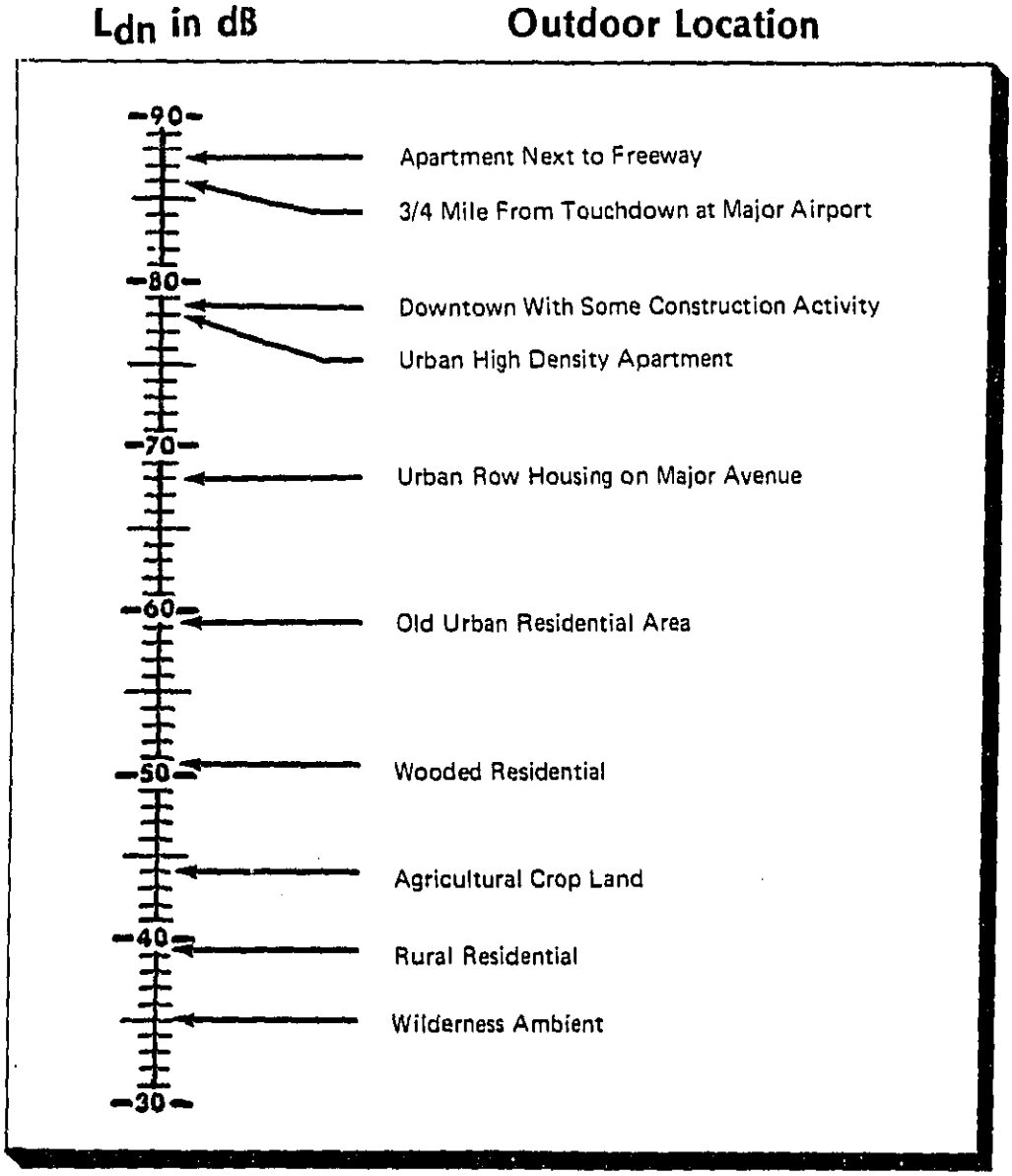

FIGURE 4. EXAMPLES OF OUTDOOR DAY-NIGHT AVERAGE SOUND LEVELS IN dB MEASURED AT VARIOUS LOCATIONS

SOURCE: Office of Noise Abatement and Control, U.S. Environmental Protection Agency, Protective Noise Levels: Condensed Version of EPA Levels Document, at 8 (November, 1978).

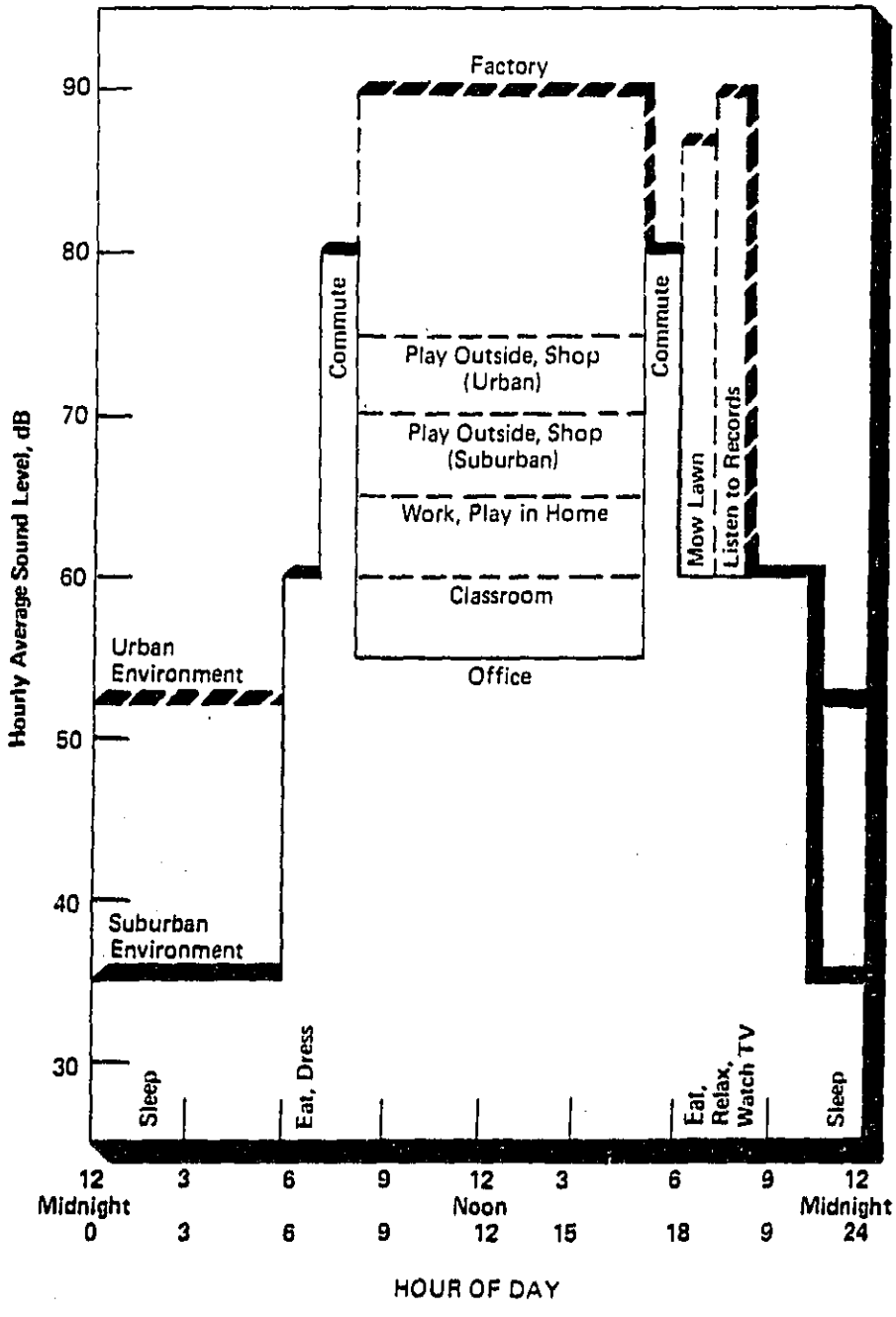

FIGURE 9. GENERALIZED INDIVIDUAL NOISE EXPOSURE PATTERNS

SOURCE: Office of Noise Abatement and Control, U.S. Environmental Protection Agency, Protective Noise Levels: Condensed Version of EPA Levels Document, at 16 (November, 1978).

Loudness and Decibels

Because hearing also varies widely between individuals, what may seem loud to one person may not to another. Although loudness is a personal judgment, precise measurement of sound is made possible by use of the decibel scale. This scale, shown below, measures sound pressure or energy according to international standards.

Sound Levels and Human Response

Common Sounds	Noise Level (dB)	Effect
Carrier deck jet operation Air raid siren	140	Painfully loud
	130	
Jet takeoff (200 feet) Thunderclap Discotheque Auto horn (3 feet)	120	Maximum vocal effort
Pile drivers	110	
Garbage truck	100	
Heavy truck (50 feet) City traffic	90	Very annoying Hearing damage (8 hours)
Alarm clock (2 feet) Hair dryer	80	Annoying
Noisy restaurant Freeway traffic Man's voice (3 feet)	70	Telephone use difficult
Air conditioning unit (20 feet)	60	Intrusive
Light auto traffic (100 feet)	50	Quiet
Living room Bedroom Quiet office	40	
Library Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Hearing begins

This decibel (dB) table compares some common sounds and shows how they rank in potential harm to hearing. Note that 70 dB is the point at which noise begins to harm hearing. To the ear, each 10 dB increase seems twice as loud.

SOURCE: U.S. Environmental Protection Agency, Noise And Its Measurement, (February, 1977).