

Town of Pendleton

247-32 Glare, noise, odor and other nuisances

B. Noise

1. Intent

The Pendleton Town Board determines that the creation of unreasonable noise within the Town limits of Pendleton is detrimental to the comfort, convenience, safety, health and welfare, and to the quality of life of the citizens of the Town. Therefore, it intends hereby to prohibit all unreasonable noise from all sources in order to preserve, protect and promote the health, safety and welfare, and the peace, quiet, comfort and repose of all persons within the Town.

2. Definitions

As used in this chapter, the following terms shall have the meanings indicated:

BACKGROUND SOUND LEVEL (L90)

The sound pressure level (SPL) that is exceeded for 90% of the time varying sound level during a one-hour period, often designated L90. The background level shall be based on measured hourly L90 levels gathered continuously for at least 1 week. The day shall be divided into three time periods: (1) daytime, the hours from 7 AM to 7 PM, (2) evening, the hours from 7 PM to 10 PM, and (3) nighttime, the hours from 10 PM to 7 AM. The background shall be reported by time period, and computed as follows. The minimum hourly L90 shall be tabulated by time period and by day, and the arithmetic average by time period over all the days of measurement shall be computed. These three averages of daily minima shall be reported as that site's daytime, evening, nighttime A-weighted background, respectively. For measurements performed during the summer months during periods of insect activity, an estimate of the contribution of insect noise to the background noise values shall be made by the engineer.

A-WEIGHTED SOUND-PRESSURE LEVEL

A measure of sound pressure level designed to reflect the response of the human ear, which does not respond equally to all frequencies. It is used to describe sound in a manner representative of the human ear's response. It reduces the effects of the low with respect to the frequencies centered around 1000 Hz. The resultant sound level is said to be "A-weighted" and the values shall be reported as "dB(A)".

C-WEIGHTED SOUND PRESSURE LEVEL

Similar in concept to the A-Weighted sound Level (dB(A)) but C-weighting does not de-emphasize the frequencies below 1k Hz as does A-weighting. C-weighting is used for measurements that must include the contribution of low frequencies in a single number representing the entire frequency spectrum. The

value of the sound pressure levels shall be reported in “dB(C)”.

SOUND PRESSURE LEVEL

The practical unit of measurement for sound-pressure level; the number of decibels of measured sound is equal to 20 times the logarithm to the base of 10 of the ratio of the sound pressure of the measured sound to the sound pressure of standard sound (20 micropascals); abbreviated dB.

EQUIVALENT CONTINUOUS SOUND PRESSURE LEVEL (Leq)

The equivalent steady-state SPL which contains the same acoustic energy as the time varying sound level during a one-hour period, often designated Leq. It is not necessary that the measurements be taken over a full one-hour time interval, but sufficient measurements must be available to allow a valid extrapolation to a one-hour time interval.

NOISE

Any increase in the background sound level heard and measured or otherwise determined and confirmed.

REAL PROPERTY BOUNDARY LINE

The imaginary line, including its vertical extension, that separates one parcel of real property from another.

SOUND-LEVEL METER

A meter that meets at least the Type 2 requirements of ANSI S1.4 and S1.4A-1985 (R2006), and has a C-weighting network for measuring C-weighted sound levels (dBC) meeting the characteristics and weighting specified in ANSI S1.43-1997 (“Specifications for Integrating Averaging Sound Level Meters for Type 1 instruments”).

UNREASONABLE NOISE

Any sound which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of a reasonable person of normal sensitivities or which causes injury to animal life or damage to property or business. Standards to be considered in determining whether “unreasonable noise” exists in a given situation include, but are not limited to, the following:

- A. Amplitude (see also Table 1, below).
- B. Leq above the background sound pressure level.
- C. Tonality and spectral characteristics.
- D. Transient, steady-state or impulsive character of the noise.

In any case, exceedence of the Leq sound level limits in Table 1 will be deemed

unreasonable.

3. Prohibited Acts

The following acts and the causes thereof are declared to be in violation of this chapter:

A. The use of any sound-reproduction device outside of a structure whereby the sound emitted from such device is audible on property being used for residential purposes at a point more than 100 feet from the real property boundary line of the property from which said noise emanates.

B. The use or operation of any sound-reproduction device inside a structure so as to result in the sound, or any part thereof, emitted from such device to be projected therefrom outside the structure whereby the sound emitted from such device is audible on property being used for residential purposes at a point more than 100 feet from the real property boundary line of the property from which the noise emanates.

C. The use and operation of any sound-reproduction device in a vehicle which would constitute a threat to the safety of pedestrians or vehicle operators or where conditions of overcrowding or any street repair or any other physical conditions are such that the use of a sound-reproduction device would deprive the public of the right to the safe, comfortable, convenient, and peaceful enjoyment of a public street, park or place for public purpose and would constitute a threat to the safety and welfare of the public. Said noise disturbance is deemed to be in violation of this section if it can be heard from a distance of greater than 50 feet.

D. The use or operation of any sound-reproduction device in a vehicle which would constitute a threat to the safety of pedestrians or vehicle operators.

E. The use or operation of any sound-reproduction device within 500 feet of any school, church or courthouse while the same is in session so as to interfere with the function of such facility, provided that conspicuous signs are displayed indicating the location of such facility.

F. The use or operation of any sound-reproduction device within 500 feet of any hospital, nursing home or medical facility so as to interfere with the function of such facility or so as to disturb the quiet, comfort or repose of a reasonable person of normal sensitivities while confined to or being treated at such facility, provided that conspicuous signs are displayed indicating the location of such facility.

G. Snow removal equipment: The use of snow removal equipment between the hours of 11 p.m. and 7:00 a.m. of the following day so as to disturb the quiet, comfort or repose of a reasonable person of normal sensitivities.

H. The use or operation of any audible burglar alarm or motor vehicle burglar alarm, unless the operation of such alarm shall be terminated within 10 minutes after such alarm is first activated.

I. The operation of any motorcycle, motor vehicle with a gross vehicle weight rating in excess of 10,000 pounds or any auxiliary equipment attached to such motor vehicle for a period longer than 15 minutes in any hour while the vehicle is stationary for reasons other than traffic congestion, so that the sound emanated therefrom is audible on property being used for residential purposes between the hours of 9:00 p.m. and 7:00 a.m. of the following day. This provision shall not apply to authorized emergency vehicles or to public utility vehicles actually engaged in emergency operations.

J. No person shall operate or cause to be operated any recreational motorized vehicle, whether or not duly licensed and registered, either on or off a public right of way or on private lands at any time in such a manner as to create an unreasonable noise.

K. The use or operation of a refuse-collecting vehicle anywhere which, when collecting or compacting, projects sound which is audible on property being used for residential purposes between the hours of 9:00 p.m. and 7:00 a.m. of the following day.

L. The owning, possessing or harboring of any animal or bird which shall make sounds which are audible on property being used for residential purposes for a continued duration in excess of 15 minutes or which shall disturb the quiet, comfort or repose of a reasonable person of normal sensitivities.

M. The conduct of any construction activities, including but not limited to the erection, demolition, assembling, altering, installing or equipping of buildings, public or private roadways, roads, premises, parks, utility lines or other property, including related activities such as land clearing, grading, earthmoving, excavating, blasting, filling or landscaping, so as to project a noise therefrom which is audible on a property being used for residential purposes except that such activities may be conducted 1) between 7:00 a.m. and 9:00 p.m., on Monday through Friday; 2) between 8:00 a.m. and 5:00 p.m. on Saturday; and 3) between 9:00 a.m. and 5:00 p.m. on Sunday.

N. The making of any noise for advertising purposes in any street or public place or by means of aircraft; the advertisement, article, business, calling or profession upon any street, sidewalk or entrance to a place of business by means of any horn, megaphone, siren, bell, radio or any other sound-producing or sound-amplifying mechanism, instrument or device.

O. The use of any sound-reproduction device associated with a drive-through facility between the hours of 10:00 p.m. and 6:00 a.m. of the following day.

P. Noise levels by land use:

- (1) For noise that is not defined as a violation in items A through O, it shall be unlawful for any person to operate or permit to be operated any noise source in a fixed location in such a manner as to create an impact sound level in dB(A)s or dB(C)s which exceeds the limits set forth for the receiving land use category in Table I when measured at the receiving property boundary.

- (2) The residential land use category means locations zoned or otherwise authorized for residential purposes.
- (3) If the A-weighted background sound level is within 5 dB of some or all of the limits in Table 1 or exceeds some or all of the limits in Table 1, then the A-weighted impact sound level shall be the A-weighted background level +6 dB. *Example: If the background sound level is 34 dB(A) then in a residential area is the allowable limit is 40 dB(A) during nighttime (i.e. 34 + 6).*

Q. Noise assessment report:

The project sponsor shall prepare and submit to the Town Board a noise assessment conforming to the following methods and published standards. The noise assessment report shall include certification by an independent acoustical engineer as to the predicted A- and C-weighted impact sound levels at potentially impacted locations offsite, and the measured background sound levels at a sampling of potentially impacted offsite parcels. The engineer should hold a P.E. in acoustic engineering, be an INCE member or INCE Board Certified member, or have at least 10 years experience in noise control.

The A-weighted background sound level measurements shall be made along the line from the nearest proposed noise source to within 25 feet of the center of the nearest offsite parcel. The actual position of the microphone shall be within 25 feet to either side of the line, and no closer than 50 feet from the property boundary of the offsite parcel. If positioning within this "measurement box" is not possible because of unique site conditions such as the position being underwater or the property being too small, then the unique conditions shall be fully documented and an alternate position selected and justified. The microphone shall be situated between 4 and 4.5 feet above the ground. Measurements shall be conducted using a sound-level meter in accordance with the general provisions of ANSI S1.13-2005. The report shall include each hourly measured A-weighted L90 level, the tabulated daily minima by time period, and the three time period averages. The report also shall include a sketch of the site showing distances to the structure(s), to the property line, etc., and several photographs showing the structure(s), the property, and the acoustical instrumentation.

The noise assessment report must, in a separate section, provide an analysis of all background sound level data.

Predictions of Leq sound pressure levels at points of reception are to be provided. For each such prediction, the A- and C-weighted level shall be calculated by applying the A- and C-weighting values from ANSI S1.4, then by adding the weighted mean square pressures, and finally by converting back to decibels. The overall predicted A- and C- weighted levels shall be the sum of the individual levels added on the basis of the mean square pressures.

The starting point for predicting A- and C-weighted sound pressure levels

at potential sensitive receptors shall be the manufacturer-supplied octave band sound power levels or octave band sound pressure levels at a specified distance determined by the manufacturer of any noise-generating equipment or devices. At a minimum, the octave band data shall include the 10 octave bands with nominal center frequencies ranging from 31.5 Hz to 8000 Hz (see ANSI S1.6- 1984), and the sound pressure levels for these bands shall be tabulated in a noise assessment report. Any data not available from the manufacturer shall be estimated from field measurements on like equipment or devices already in use or from other referenced reports or documents. Any such field measurements shall be described fully and documented in the report. Predictions for certain times of the day such as nighttime may use manufacturer certified lower sound power levels that correspond to a reduced usage or duty cycle, if the project sponsor warrants and affirms that this reduced power setting always will be used during the time of the day in question (e.g., nighttime).

For sites at which A-weighted background measurements were performed, the A- and C-weighted impact sound level predictions shall be made at the same point. For all other sites, a prediction point shall be selected that lies within the "measurement box" delineated above. The octave band sound pressure levels shall be predicted at the prediction point for the nearest project sound source using the sound propagation algorithms given by ISO 9613.

Table I: Maximum Permissible Sound Levels by Receiving Land Use Category (Leq)

	Daytime (7 AM – 7 PM)	Evening (7 PM – 10 PM)	Nighttime (10 PM – 7 AM)
Residential (dBA)	45	40	35
Residential (dBC)	63	58	53
Non-residential (dBA)	57	50	50
Non-residential (dBC)	75	68	68

Commentary:

The alternative sound level limit of background level +6 dB is based on the NYSDEC guidance document, Assessing and Mitigating Noise Impacts, DEP-00-1, rev. February 2, 2001, at 13-14. Otherwise, the sound level limits in Table 1 are based on numerous national and international criteria and standards.*

** "Increases [in sound pressure level, SPL] ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on existing SPLs and the character of surrounding land use and receptors."*

The listed criteria for “unreasonable noise” are also identified in the NYSDEC guidance document, where they are associated with dB “penalty” amounts, or dB values added to predicted equivalent sound pressure levels.

With the exception of airports and highways, all cognizant authorities in the United States recommended a basic day night-sound level (DNL) of 55 dB, which implies a daytime equivalent level (Leq) of 55 dB and nighttime Leq of 45 dB. Similar recommendations are made by such international authorities as the World Health Organization and the World Bank. However, both the relevant national standard, ANSI S.12.9 Part 4 and the relevant international standard, ISO 1996 Part 1, contain recommended adjustments to these criteria based on the nature of the community and the newness of the noise source. Each of these standards contains a 10 dB adjustment for very quiet, typically rural communities for which peace and quiet is an expected value and amenity, and each contains a 5 dB adjustment for a new noise source for which the community has no experience. The DNL, with the values cited, assumes continuous or near-continuous sound. The resulting criterion is a reasonable variant of DNL equal to 45 dB, which is the general limit of 55 dB minus 10 dB for the quiet rural nature of the area.

The minor variant is that this recommendation is for the use of DENL, the day-evening-night sound level. DENL is used in California and all of Europe, and it divides the day into three time periods: (1) day, 7 AM to 7 PM, (2) evening, 7 PM to 10 PM, and (3) night, 10 PM to 7 AM. In contrast, DNL divides the day into two time periods: (1) day, 7 AM to 10 PM, and (2) night, 10 PM to 7 AM; there is no separate evening limit. DENL is chosen because of the large use of outdoors during the warmer-weather months in the Pendleton area. This 45 dB DENL criterion is broken out as 45 dBA during daytime, 40 dBA during evening, and 35 dBA during nighttime. In all cases, the corresponding C-weighted limit shall be the operable A-weighted limit plus 18 dB.

Also, it is noted that except for residential land uses, noise sensitive land uses do not appear to require the nighttime or evening adjustments that are made for residential uses. For example, hospitals typically have forced air ventilation with windows that do not usually open, and schools are not used during the night. Thus, for noise sensitive areas other than residential, a constant A-weighted criterion of 45 dB could be acceptable.