Community and Environmental Noise Measurement

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Why We Measure Community Sound And Noise Levels

- Disruptive noise effects the health and well being of all citizens.
  - Fatigue
  - Stress
  - Irritability
  - Sleep disruption

The City of Fort Pierce
Noise Ordinance Section 11-52:Excessive, unnecessary, etc., noises prohibited; penalty for violation.

Table 1
APPLICABLE NOISE LIMITS
Measurement period one-quarter hour (continuous), as measured at the property boundary of the receiving parcel.

Sound Level in Decibels A-Scale (dBA)						
Use Clarification	Day (7:00 a.m. - 10:00 p.m.			Night (10:00 p.m. - 7:00 a.m.)		
	L_1	L_{10}	L_{50}	L_1	L_{10}	L_{50}
Residential	70	65	60	65	60	55
Commercial	75	70	65	70	65	60
Industrial	75	70	65	75	70	65

The City of Fort Pierce
Noise Ordinance Section 11-48: Music or loud noises

- “It shall be unlawful for any person to operate, play or cause to be operated or played within that portion of the city which has been zoned and designated as a business area or business section of the city, between the hours of 11:00 p.m. and 7:00 a.m. of each day, and on Sunday from 7:00 a.m. to 1:00 p.m., and within that section or those sections of the city which have been zoned and designated as residential districts, between the hours of 10:00 p.m. and 7:00 a.m., any radio, phonograph, talking machine, piano, electric piano, music box or other machine, instrument or appliance for making music or noise, in such manner that the music or noise produced by the same may be heard at a greater distance than fifty (50) feet therefrom”

In Addition

- Instrumentation may be used to clarify and support a claim of excessive and disruptive noise levels **of any kind**.

Recommended Revision

Sec. 11-52.18. - Sound level limitations.

No person shall cause, suffer, allow, or permit the operation of any sound source in such a manner as to create a sound level that exceeds the sound level limits set forth in Table 1 when measured from the real property line of the nearest receiving property, using the slow response setting unless otherwise noted. Such a sound source would constitute a noise disturbance.

A, C, Z, Weighting

- **A Weighting**:

  Mimics human hearing of typical non-amplified environmental sounds.
- **C Weighting:**

  Mimics human hearing of amplified sounds and low frequency sounds.
- **Z Weighting:**

  Typically used for ultra low frequency and vibration measurements.

TABLE I
SOUND LEVEL LIMITS BY RECEIVING PROPERTY

Receiving Property Category	Time	Sound Level Limit (dBA)	Sound Level Limit (dBC)	Sound Level Limit (dBZ)
Residential	Monday through Saturday 7:00 a.m.—11:00 p.m.	60	60	60
Residential	Sunday 7:00 a.m. – 1:00 p. m.	see sub (1) below	see sub (1) below	see sub (1) below
Residential	Sunday through Saturday 11:00 p. m. – 7:00 a.m.	see sub (1) below	see sub (1) below	see sub (1) below
Commercial	At all times	65	65	65
Industrial	At all times	70	70	70

Sub Section 1

(1) It shall be unlawful for any person to make, continue or cause to be–made or continued within that portion of the city which has been designated as a residential or mixed use area of the city, between the hours of 11:00 p.m. and 7:00 a.m. of each day, and on Sunday from 7:00 a.m. to 1:00 pm any unreasonably loud, excessive, unnecessary, or unusual noise in such manner that noise produced, or the vibration made, by the same would be obvious, or cause discomfort and annoyance to an ordinary, reasonable prudent person at a distance greater than fifty (50) feet from the real property line of the nearest receiving property. A sound level meter or sound level reading shall not be necessary for the enforcement of this paragraph.

Sub Sections 2 and 3

(2) If the noise is an impulsive sound, the fast response setting shall be used and the daytime (7:00 a.m.—11:00 p.m.) limits of Table 1 shall be increased by ten (10) dBA, dBC, or dBZ.

(3) In a multi-family dwelling, it shall be unlawful to create or permit to be created any noise that exceeds the daytime (7:00 a.m.—11:00 p.m.) limit of fifty (50) dBA, dBC, or dBZ and the nighttime (11:00 p.m.—7:00 a.m.) limit of forty (40) dBA, dBC, or dBZ. as measured from a neighbor's dwelling.

Sub Sections 4 and 5

(4) In a mixed use building, it shall be unlawful to create or permit to be created any noise that exceeds the daytime (7:00 a.m.—11:00 p.m.) limit of fifty-five (55) dBA, dBC, or dBZ and the nighttime (11:00 p.m.—7:00 a.m.) limit of forty-five (45) dBA, dBC, or dBZ as measured within the residential use portion of the building.

(5) In addition to the limits of Table 1, for any sound source which impacts residential property, the maximum allowable sound level limits for the individual octave bands whose centers are 31.5, 63 and 125 Hertz shall not exceed sixty-five (65) dB.

Environmental effects on Noise Propagation

- Air Absorption (Distance). Low frequency tones will travel much further then high frequency tones. Low frequency tones will travel through barriers, such as walls and windows.
- Temperature: Air temperature drops as altitude increases, causing sound waves to dissipate upwards. However, when skies are overcast sound waves will be directed back towards earth.
- Wind: On a windy night sound waves will tend to hug the earths surface causing the sound to travel much further distances.
- Trees & Shrubs: Plant growth does not inhibit the movement of sound waves as much as its commonly thought. It would take nearly 100 feet of tree growth to lower a noise source by 5 dB.

Continued..

- Large Objects: Sounds can be both reflected and redirected by hard surfaces. For example, noise will travel further down a street lined with buildings. Most surfaces will reflect sound causing increased dB levels near them. Some surfaces will absorb sound, such as acoustic tile and other materials.
- Water Surfaces: There are usually no large objects on water surfaces (which absorb, deflect or redirect sounds). Therefore sound will travel noticeably further across water.

When **A** weighting is used

- If noise source is of a typical non-amplified nature with no very low frequency domination, officer may choose to use **A** weighting network.

When **C** weighting is used

- If noise source includes amplified sounds, such as musical instruments and/or voice, or is dominated by low frequencies, the officer may choose to use the **C** Weighting network.

When **Z** weighting is used

- If noise source is causing very low frequency sounds and vibration, usually within buildings, the officer may use the **Z** weighting network.

When a complaint is made.

- Officers will respond to your residence (or in the area) and conduct a noise measurement reading.

Upon a Violation

- 1.) On the first offense a verbal warning will be issued to the offender. The incident will be documented in a police report.
- 2.) If the offender has been issued a written warning in the past, then a Notice To Appear will be issued for the violation and will be further documented in a Police Report.
- 3.) If the offender has been previously issued a Notice to Appear a physical arrest will be made.

Before 11pm

- “Maximum permissible sound levels by use occupancy. It shall be unlawful to project a sound or noise, from one property into another property within the boundary of the use occupancy, which exceeds the limiting noise spectra set at 65dB (+3dB)”.
- If the reading that was conducted yielded the results of 68dB or higher, the source of the noise will be found in violation.