



June 14, 2011

Subject: MCCF Testimony to Council on Bill 16-11, Noise Control - Urban Areas

I am Jim Humphrey, testifying on behalf of the Montgomery County Civic Federation as Chair of their Planning and Land Use Committee.

This testimony was unanimously approved for transmittal at our meeting last night. In it we pose a few questions about proposed Bill 16-11 that explain some of the concerns that Civic Federation members have with this legislation.

- 1) How will the general public be informed if and when the County Executive designates an "urban noise area" by Executive Order published in the County Register? (since most Civic Federation members were not aware there was such a document as the "County Register," and have no idea how or where to access it)
- 2) If Bill 16-11 allows as acceptable a noise level of 75 dBA (the equivalent of an "un-silenced wood shredder at 10 meters distance"--see Attachment 1) at the outer boundary of an Urban District or designated Urban Noise Area, then how loud must the sound be for audience members in the immediate area of the outdoor arts or entertainment activity? Is this an acceptable noise level to allow from 11 a.m. to 11 p.m. in mixed use areas that contain housing?
- 3) Who would someone call in county government to lodge a complaint outside of normal business hours (after 5 p.m. on weekdays or all day Saturday or Sunday) alleging the sound generated by an outdoor arts or entertainment activity exceeds the allowable noise level, or that a 75 dBA level was reached before 11 a.m. or after 11 p.m.? We understand that one must make an appointment to have a staffer from the Department of Environmental Protection investigate an alleged violation of the noise control ordinance; and by the time a DEP staffer arrived at an outdoor arts or entertainment venue the event would, in all likelihood, be over. If this is the case, and it is unenforceable, of what use is this amendment to the county noise control ordinance?

We have attached some basic information, captured from an internet search, on the measurement of sound by dBA level and some concerns with it, and on the dBA equivalent of everyday sounds.

captured 6/2/11 from <http://hyperphysics.phy-astr.gsu.edu/hbase/sound/acont.html>

Sound Measurement in dBA

When making practical assessments of the sound level of a concert or as a part of a general survey of ambient sound levels, the type of measurement which is usually made is that of the level in dBA. This measurement is made with a sound level meter with an A contour filter which provides the best instrument match of the ear's equal loudness curves for soft sounds in the neighborhood of 40 dB.

A Contour Filter

The A-contour filters out significantly more bass than the others, and is designed to approximate the ear at around the 40 phon level. It is very useful for eliminating inaudible low frequencies.

captured 6/1/11 from www.sengpielaudio.com/TableOfSoundPressureLevels.htm

How loud is dangerous? Typical dbA levels

| | |
|------------|--|
| 190 dBA | Heavy weapons, 10 m behind the weapon (maximum level) |
| 180 dBA | Toy pistol fired close to ear (maximum level) |
| 170 dBA | Slap on the ear, fire cracker explodes on shoulder, small arms at a distance of 50 cm (maximum level) |
| 160 dBA | Hammer stroke on brass tubing or steel plate at 1 m distance, airbag deployment very close at a distance of 30 cm (maximum level) |
| 150 dBA | Hammer stroke in a smithy at 5 m distance (maximum level) |
| 130 dBA | Loud hand clapping at 1 m distance (maximum level) |
| 120 dBA | Whistle at 1 m distance, test run of a jet at 15 m distance |
| | Threshold of pain, above this fast-acting hearing damage in short action is possible |
| 115 dBA | Take-off sound of planes at 10 m distance |
| 110 dBA | Siren at 10 m distance, frequent sound level in discotheques and close to loudspeakers at rock concerts, violin close to the ear of an orchestra musicians (maximum level) |
| 105 dBA | Chain saw at 1 m distance, banging car door at 1 m distance (maximum level), racing car at 40 m distance, possible level with music head phones |

| | |
|---------|--|
| 100 dBA | Frequent level with music via head phones, jack hammer at 10 m distance |
| 95 dBA | Loud crying, hand circular saw at 1 m distance |
| 90 dBA | Angle grinder outside at 1 m distance |
| | Over a duration of 40 hours a week hearing damage is possible |
| 85 dBA | 2-stroke chain-saw at 10 m distance, loud WC flush at 1 m distance |
| 80 dBA | Very loud traffic noise of passing lorries at 7.5 m distance, high traffic on an expressway at 25 m distance |
| 75 dBA | Passing car at 7.5 m distance, un-silenced wood shredder at 10 m distance |
| 70 dBA | Level close to a main road by day, quiet hair dryer at 1 m distance to ear |
| 65 dBA | Bad risk of heart circulation disease at constant impact is possible |
| 60 dBA | Noisy lawn mower at 10 m distance |
| 55 dBA | Low volume of radio or TV at 1 m distance, noisy vacuum cleaner at 10 m distance |
| 50 dBA | Refrigerator at 1 m distance, bird twitter outside at 15 m distance |
| 45 dBA | Noise of normal living; talking, or radio in the background |
| 40 dBA | Distraction when learning or concentration is possible |
| 35 dBA | Very quiet room fan at low speed at 1 m distance |
| 25 dBA | Sound of breathing at 1 m distance |
| 0 dBA | Auditory threshold |

From a dB-A measurement no accurate description of the expected noise volume is possible.

Pro audio equipment often lists an A-weighted noise spec – not because it correlates well with our hearing – but because it can "hide" nasty hum components that make for bad noise specs.

Words to bright minds: Always wonder what a manufacturer is hiding when they use A-weighting.

captured from <http://www.rane.com/note145.html>

Audio Specifications

Dennis Bohn, Rane Corporation

RaneNote 145, written 2000; last revised 1/03

Pro audio equipment often lists an A-weighted noise spec -- not because it correlates well with our hearing -- but because it can "hide" nasty hum components that make for bad noise specs. *Always wonder if a manufacturer is hiding something when you see A-weighting specs.* A-weighting rolls off the low-end, thus reducing the most annoying 2nd and 3rd line harmonics by about 20 dB and 12 dB respectively. Sometimes A-weighting can "improve" a noise spec by 10 dB.

The argument used to justify this is that the ear is not sensitive to low frequencies at low levels (à la [Fletcher-Munson](#) equal loudness curves), but that argument is false. Fletcher-Munson curves document equal loudness of single tones. Their curve tells us nothing of the ear's astonishing ability to sync in and lock onto repetitive tones -- like hum components -- even when these tones lie beneath the noise floor. This is what A-weighting can hide. For this reason most manufacturers shy from using it; instead they spec S/N figures "flat" or use the ITU-R 468 curve (*which actually makes their numbers look worse, but correlate better with the real world*).