



January 29, 2007

Richard Cattanach
AGC of Alaska
8005 Schoon Street
Anchorage, AK 99503

Subject: Noise Ordinance Revisions

#2620

Dear Mr. Cattanach:

This letter responds to items raised in the letter from Lura Morgan, dated 29 December 2006. I will use the same item numbers to respond to each point.

- 1) The basic residential noise limits from AMC 15.080 Table 1 (60 dBA daytime, and 50 dBA nighttime) trace their origins back to the EPA Model Community Noise Ordinance, and in parallel with the California Model Community Noise Control Ordinance. Those documents contained suggested numerical noise limits and draft ordinance language.

The suggested numbers for day/night and various land use categories were based on a large body of research correlating Leq or Ldn values against annoyance, sleep disturbance, and vigorousness of community complaints (traceable back to the EPA Condensed Levels Document EPA 550/9-79-100). Both Leq and Ldn are energy-averaged quantities. The intent is clear that both sound level and time elements are relevant.

The relationship between level and time is achieved in several ways. One method is an Leq or equivalent level, which sums the energy and averages it over the time period, most typically one hour. Leq is a simple and straightforward measurement, at least with modern equipment.

Specific noise codes that use comparable limits based on either Leq or L10 include: Saint Paul, MN; Kansas City, MO; San Diego, CA; Santa Cruz, CA; El Paso, TX; San Joaquin County, CA; Alameda County, CA; Stillwater, MN; Saint Mary's County, MD; New York City; Mesa, AZ and many others.

Another method uses the L10 (the level exceeded 10% of a given hour), L25, L50, or other centile levels. Still another method sets a basic level corresponding to the numbers in the EPA document, and then allows for higher levels for portions of the hour.

A recurring example sets the basic daytime level at 55 dBA, then allows +5 dB for up to 30 minutes per hour, +10 for up to 15 minutes, +15 for up to 5 minutes, and not more than +20 dB for any time period. While this scheme accounts for short duration sounds, verifying compliance is somewhat harder since it essentially requires several simultaneous measurements. Some examples include Sonoma County, CA; Seattle, WA; Salt Lake City, UT; Sacramento, CA; Omaha, NE; and Los Angeles, CA.

"...Noise limits that are expressed as Leq values would be ordinary and typical of noise ordinances from around the country...". Using the Lmax as the statutory limit is fairly unusual -- and certainly at the numerical thresholds that are set in AMC 15.080 Table 1.

Jurisdictions that rely solely upon momentary Lmax noise limits usually set the numerical limits noticeably higher, and in some cases dramatically higher. Examples include: Madison, WI; Houston, TX; San Luis Obispo County, CA; Tuscaloosa, AL; Montgomery County, MD; Ulster, NY and others.

- 2) The "averaging clause" between land uses is common in noise ordinances, although it is far from universal. Where such clauses do appear, the language is quite clear and plain, averaging the limits between a single noise emitter and a single receiving land use category.

I have never seen another noise code that makes the convoluted and inconsistent interpretation that is currently used by the Municipality of Anchorage.

- 3) Language rarely appears in ordinances clearly stipulating that, "... the numerical limits contained in the ordinance define what the community considers "reasonable...". While I have occasionally run across such language, it would be difficult to find specific examples without an inordinate amount of research. Wichita, KS is one jurisdiction that uses similar verbiage.

Courts generally interpret and apply the codified limits in exactly this manner, however. A noise complying with the numerical limits and other clauses is deemed "reasonable" or "acceptable". Noise that exceeds the numerical standard is deemed "unreasonable" or "excessive".

It should be noted that there are essentially three approaches to noise regulation:

- lists of specific sounds and activities that are allowable or prohibited
- certain noises that are defined as an enforceable nuisance, regardless of level
- numerical sound level limits that are applicable at certain times / locations

Each community chooses among these elements to develop an ordinance that works best for their individual situation. Each of these technical approaches will have advantages and drawbacks.

Nuisance-based ordinances are considered the weakest for enforcement, due to the subjective nature of "nuisance" or "annoyance". An activity-based ordinance rarely anticipates all of the inclusions and exclusions found in the community, and the list often requires updates to address new situations.

Numerically-based codes can create problems too. Set the limits too low, and virtually nothing is permissible, even common activities that are widely considered to be normal and reasonable. Set the numbers too high and the limits become essentially meaningless, protecting no one. That is one strong argument for working within the body of prior research and experience that specifically led to the EPA model ordinance. Otherwise, each jurisdiction essentially re-invents the wheel.

Many of the technical opinions that have been expressed both here and previously are based on my 23 years of experience as an acoustical consultant. Throughout my career I have reviewed, analyzed, interpreted and applied noise codes in many cities and counties across several states. I have also advised several jurisdictions that were revising their existing noise codes. That experience provides a fairly broad perspective on what ordinance language creates enforcement problems and what language actually solves problems.

Aside from the specific items listed above, it is important to reiterate and emphasize a few key points:

- Leq is the fundamental measure of environmental noise, for numerous technically valid reasons. Leq (or its derivatives such as Ldn) are the primary noise metric used for regulation, planning criteria, and assessing environmental noise impacts. Even when an ordinance does not mention Leq specifically, language referring to, "... a central reading or tendency..." appears routinely while describing how to measure sound levels.
- There are other methods to assess and regulate noise, but the most successful cases always address both the sound level component (loudness) and the temporal component (duration, time of day, variability, etc).
- We can look around the country and find numerous example of ordinances that contain certain elements, or lack others. It is fair to say that the majority of jurisdictions have no noise regulation whatsoever. Next, there are codes that deal with one or two specific issues by name, such as dog barks, leaf blowers, or boom cars. Finally, there are the relative minority of ordinances that have numerical limits on noise. Just because we can find examples of certain elements in other codes is not a compelling reason to duplicate those mistakes when updating the Anchorage noise code.
- We have tried to provide the municipal staff with the technical information that will help avoid most of the enforcement pitfalls, while developing a code that provides reasonable protections for everyone in the community, including both businesses and residents.

- The technical suggestions that have been made (Leq-based limits, averaging clauses between land uses, grandfather clauses, etc) are reasonable, legally defensible and thoroughly time-tested.

Let me know if there are any additional questions.

Sincerely,

A handwritten signature in black ink that reads "Earl Mullins". The signature is written in a cursive, slightly slanted style.

Earl Mullins, PE