

Public Safety and Regulatory Services Committee
Environmental Management and Safety
Staff Report
Chapter 389, Noise
December 3, 2008

Background/Supporting Information

This action amends Chapter 389 as an initiative of Regulatory Services' 5-year business plan to review and update ordinances for errors and omissions and in order to better address noise-generated issues within the city.

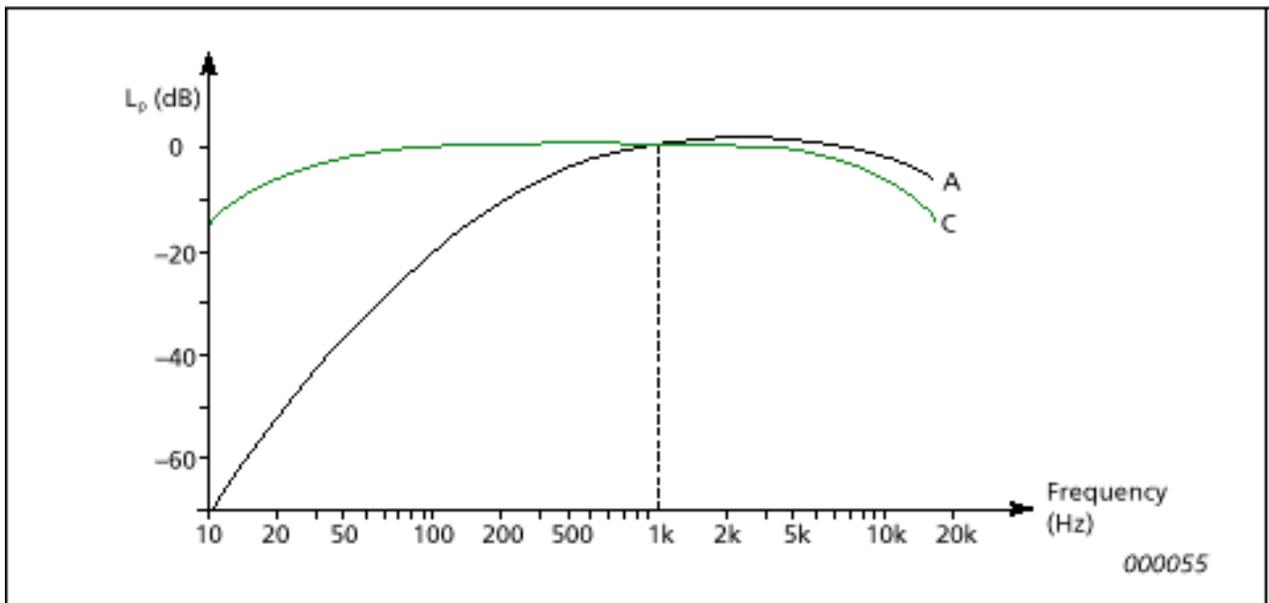
As part of this proposed ordinance revision, Regulatory Services staff has examined noise ordinances from a number of states and cities within the United States and additional ordinances in Europe; noise complaints received by Minneapolis residents and business owners over the past 12 months; and discussed noise issues with numerous groups of residents and business owners.

Sound and Sound Measurement

Sound travels in pressure waves which are perceived or heard by the ear, and can range over a variety of frequencies. Because sound is usually a combination of thousands of different frequencies, sound frequencies are commonly grouped into octave bands or third octave bands. For example, each key on a piano produces sound at a different frequency from all other keys. Keys on the lower register produce lower frequency sounds while keys on the upper register produce higher frequency sounds. A standard piano keyboard is divided into 8 octaves. Sound meters used by City inspectors can divide sound into octaves or into third octave bands. The use of third octave bands is particularly useful in separating low frequency bass tones from high frequency treble tones. The following table shows the range of common sound frequencies discernable by the human ear.

Frequency in Hertz (Hz)	Description
8.18	Lowest Organ note (inaudible)
27.5	Lowest note on standard piano
261.63	Middle C
4,186	Highest note on standard piano
17,000	New "Mosquito" ringtone reportedly used by teens that is inaudible to older adult ears.

Pressure waves measure the strength or level of sound using decibels to determine how loud a sound is. Pressure wave level is measured in decibels. This is similar to how the Richter Scale measures earthquakes where decibels are based upon a logarithmic scale. An increase of 10 decibels equals a doubling of sound pressure. Therefore a 70 decibel sound is twice as loud as a 60 decibel sound. Because the human ear only detects a certain number of different sound frequencies, various weighting networks have been developed to measure sound pressure. The most commonly used weighting scale is A weighting. A weighting downplays the significance of lower frequencies. The State of Minnesota noise rule uses A weighting for its standard. However, C weighting is a more accurate representation of actual sound pressure regardless of frequency and therefore provides a more accurate measure of low frequency base tones. The following chart shows the difference between the two weighting networks. The Y (vertical) axis shows the number of decibels (dB) subtracted from the actual sound pressure. For example a sound at 100 Hz that has a sound pressure of 60 decibels will register as only 40 decibels on the A-weighted scale but will register as 60 decibels on the C-weighted scale.

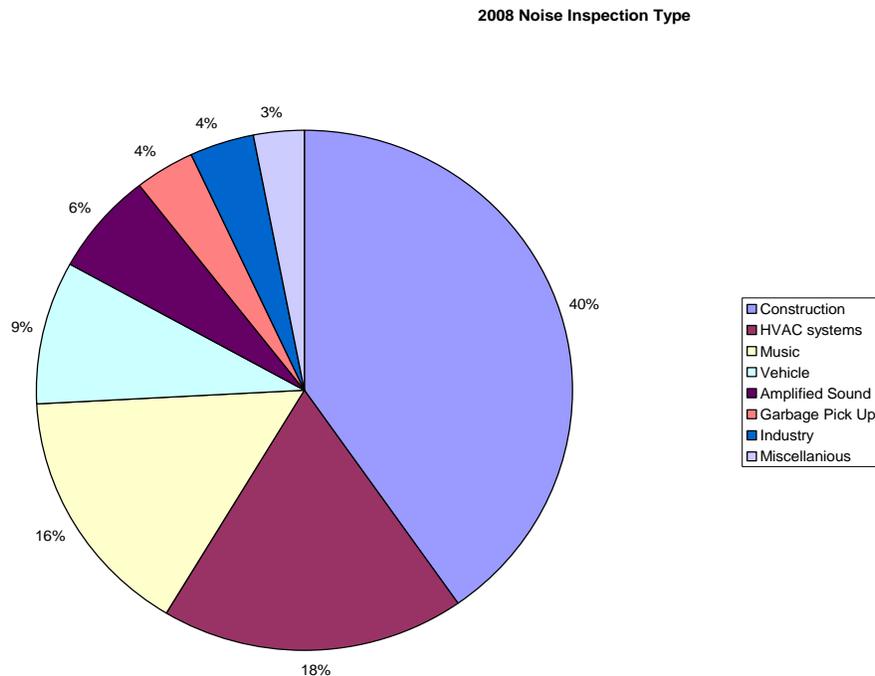


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Noise Enforcement

Noise issues fall under the purview of Regulatory Services and the Police Department. The Police regulate **389.65 (a) (1) Noisy or unruly assembly** and

provide after hours assistance to Regulatory Services for other noise-related issues. Primary enforcement of all other sections within 389 are carried out by the Environmental Services unit of Regulatory Services. In the past 12 months, Environmental Services received 418 noise-related complaints. Of these, enforcement action was taken on 159 complaints. The following table shows a breakdown of these 159 complaints by type.



Un-actionable items included complaints with limited information and those outside of the regulatory purview of the City including crowd noise, road traffic, air traffic, railroads, and MNDOT- sponsored projects.

Noise violations are currently enforced through two primary mechanisms:

1. Decibel-based standard. Using a sound meter, environmental inspectors determine the actual decibel levels of the nuisance noise. These levels are compared against state noise standards to determine if a violation exists. Industrial noise, heating and cooling equipment and music complaints are usually enforced in this manner.
2. Activity-based standard. Many activities are allowed during given periods of time or when permitted. Violations exist when certain noise-generating

activities exist outside of permissible guidelines. Examples include unpermitted after hours construction work, garbage pickup and unpermitted amplified sound. Other activities or conditions are disallowed such as uncontrolled alarms, vehicles without proper muffler control, and the improper sounding of car horns.

Ordinance Revisions

Proposed changes include clarification of vague language and providing, when possible, numerical, quantifiable standards.

Proposed Changes

Many of the proposed changes are general housekeeping and clean up. The more substantial proposed changes include:

389.60(a) New City standard for indoor noise levels. Lower frequency or bass noise travels a greater distance and is able to penetrate walls and structures more easily than other noise. For example, the bass tones from a boom car may be heard blocks away and from within a home. Current noise monitoring by the City uses the A-weighted scale which discounts these bass tones. This has resulted in situations where noise was clearly audible and even felt, but would not register as a violation. This proposed section rewrite remedies this situation by measuring sound using the C-weighting scale. C weighting gives near equal weight to all frequencies, allowing the low bass tones to be measured more accurately. For rare circumstances when nuisance noise is from a small portion of the sound octave register, this proposed section includes measurement of 1/3 octave bands.

389.60 (c) Proposed addition of several specific exemptions

- (5) Athletic events at the city's two new open air stadiums, the Twins and the Gophers. Concerts or other events held at these stadiums would still be subject to outdoor amplified sound permit requirements.
- (9) Sounds from bells, chimes, carillons or sound associated with religious worship with specific time limitations

389.65 (a) Proposed removal of subjective standards for nuisance enforcement. General nuisance language is removed while quantifiable, numerical standards are bolstered in other sections.

389.65 (c) (4) Proposed removal of language relating to nuisance animals or birds.

389.65 (a)

(6) Proposed revision to Amplified Sound restrictions. Quantification of amplified sound levels that require a permit. The intent of this proposed revision is to allow for outdoor music at low levels, such as ambiance music in an outdoor seating area, but limit music that is so loud as to impact neighboring residences or businesses or that limits the ability of public safety personnel to give direction on the public right of way.

(9) Proposed addition exempting snow removal activities after snowfalls of 1 inch or greater.

389.70 Proposed removal and creation in new Chapter 49.

389.80 Proposed change in hours of operation for outdoor implements to be consistent to similar times throughout the chapter. Proposed change to allow snow blowers used at anytime after a declared snow emergency or 1+ inch of snowfall.

389.71 Proposed removal and creation in new Chapter 49.

389.105 (1) Proposed addition of staff approval for extended hours amplified sound permits. Currently only events which have a large event block permit or occur on public property in downtown can go past 10:00 p.m. All other events, even if determined by staff not to create a nuisance, are disallowed past 10:00 p.m.

389.110 Proposed removal of advertising by public address systems. Nuisances from this issue are addressed under amplified sound restrictions.

389.210 Proposed sound attenuation requirement for development in an Industrial Living Overlay District.