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To: Derek Delacourt
Community Services Administrator

From: Richard K. Carlisle, AICP
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Re: City of Ann Arbor – Downtown Noise Memo

As more residential units are being built downtown, combined with an increase in entertainment and culture options, there's increased potential for noise conflicts. Regulation of noise in the downtown is a balancing act. On one hand the city encourages and promotes the growing the entertainment and cultural sector to create a vibrant downtown. On the other hand, the city must also protect downtown residents from unreasonable noise levels. We would presume many downtown residents moved downtown because of the art, entertainment, and culture scene but still want protection from excessive, unnecessary, and late noise. It is important that the City establish an ordinance to clarify expectations and alleviate tension between the city's numerous entertainment venues and nightclubs and nearby hotels and residences.

Many cities apply the same noise limits citywide, without regard to differences in land-use mix or intensity. Ann Arbor has taken this approach. However, successful downtowns have a complementary mix of uses that translate to more activity and more noise throughout a longer portion of the day than predominantly residential neighborhoods. Because perceptions of noise are relevant to ambient sound levels, it makes sense to adopt district-specific noise limits that permit louder sounds in high-intensity zoning districts such as the downtown than in low-intensity districts. Additionally, for downtowns with a high concentration of entertainment uses, there should be consideration of permitting louder sounds later into the evenings, especially weekends.

With that background, we have been asked to review the City's current noise regulations as they apply to the downtown, review best practices from around the country, and provide recommendations to ensure that balance as noted above.

Basic Noise Considerations:

Noise is measured in decibel level. But there are variations decibel levels:

- dBA – used for measure higher end frequencies, such as the treble. The A-weighting network is preferred for adjusting the actual sound spectrum to one more nearly like that heard by a person. The A-weighting network is commonly used by communities, and is the preferred measurement tool for an ordinance.
- dBC – used to measure low frequencies, commonly associated with bass. This weighting network is used in some ordinances to capture more low frequency sound. An ordinance can contain both A and C network maximum levels as both are available in ordinary sound level meters; however lower sounds do not negatively impact people as much as higher lever sounds.
- 90dBA - OSHA’s permissible exposure limit for noise exposure is 90dBA for an 8-hour time weighted average. When noise levels are increased by 5dBA above 90dBA the time is cut in half.
- 140dB-Instant hearing damage occurs
- Ambient noise- the baseline of noise in an area.
- Loudness- Most of us perceive one sound to be twice as loud as another one when they are about 10 dB apart; for instance, a 60-dB air conditioner will sound twice as loud as a 50-dB refrigerator, or 70-dB dishwasher will sound about four times as loud as the 50-dB refrigerator.

Points of reference measured in dBA

- 0 The softest sound a person can hear with normal hearing
- 10 normal breathing
- 20 whispering at 5 feet
- 30 soft whisper at 3 feet
- 50 rainfall
- 60 normal conversation at 3 feet
- 70 Busy traffic
- 80 Alarm Clock
- 90 Factory Machinery at 3 feet
- 100 Blow dryer
- 110 shouting in ear
- 120 thunder
- 130 Jet engine at 100 feet
- 180 space shuttle lift-off

City of Ann Arbor Current Noise Regulations:

Noise is regulated and controlled by Title IX-Police Regulations - Article 119-Noise Control. Article 119-Noise Control includes applicability, definitions, prohibitions, maximum permissible sound level, and exemptions.

The ordinance does not distinguish by geography, and only distinguishes by the limited land use categories of residential and commercial. Section 9:364 lists maximum decibel levels based upon the use of the receiving property and the time of day:

USE OF PROPERTY RECEIVING THE SOUND	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
Residential	61	55
Commercial	71	61

As it relates to the core downtown, there are no provisions for areas of significant ambient noise or high intensity areas such as the downtown.

In addition, with regards to music, there is a provision set forth in section 9:363 that greatly limits noise from music:

9:363. - Specific prohibitions.: No person shall engage in, assist in, permit, continue or permit the continuance of the following activities if the activity produces clearly audible sound beyond the property line of the property on which it is conducted even if the sound level is equal to or less than the dB(A) specified in [section 9:364](#):

8. The use of any drums, loud-speakers, musical devices or other instruments or devices for the purpose of attracting attention by the creation of noise to any performance, show or sale or display of merchandise.

As Section 9:363 is written, the use of any drums, loud-speakers, musical devices or other instruments are not permitted if they can audible be heard at the property line even if they are less than the maximum decibel level outlined in Section 9:364. This type of regulation is unnecessarily restrictive and difficult to enforce.

Best Practices

We've research other communities, including as many like communities as possible, to determine best practices to regulate in a downtown entertainment and mixed use area. Listed below are two general best practices that have been applied.

1. Create an Entertainment District with special noise regulations-Austin; Texas, St. Petersburg Florida, Orlando Florida, Wilmington NC, Cincinnati, OH, and Greenville, SC

Recognizing that downtowns/entertainment districts are unique, many communities have adopted specific noise regulations for these areas. All ordinances allow a slightly higher dBA or dBC during the day and longer into the weekend nights. This is a good approach for the City of Ann Arbor to consider.

	Decibel Levels			
	Weekdays		Weekends	
	Till 11 p.m.*	11 p.m to 7:00 a.m.*	Till 1 a.m.*	1 a.m to 7:00 a.m.*
St. Petersburg, FL	85 dBA / 87 dBC	65 dBA / 75 dBC	85 dBA / 87 dBC	65 dBA / 75 dBC
Orlando, FL	75 dBA / 80 dBC	70 dBA/ 75 dBC	75 dBA / 80 dBC	70 dBA / 75 dBC
Austin, TX	85 dBA	70 dBA	85 dBA	70 dBA
Wilmington, NC (UNC-Wilmington)	75 dBA	65 dBA	75 dBA	65 dBA
Cincinnati, OH	70 dBA	65 dBA	75 dBA	70 dBA
Greenville, SC	80 dBA	75 dBA	80 dBA	80 dBA

*Please note that these times slightly vary by community but for ease of summary we used the same times listed for consistency. All ordinances are generally within an hour of the summary times listed in the chart.

2. Regulate noise not by the receiving use but by the generating use-Greenville, SC, Durham, NC, Orlando, FL, San Diego, CA, Wilmington, NC, and St. Petersburg, FL.

As noted, the city currently regulates noise levels based upon the use of the receiving property. This method focuses on immission, i.e. regulate the sound entering an impacted property. In a diverse mixed-use area as the downtown this method of regulation is difficult to regulate and enforce. In addition, as receiving uses change overtime this form of regulations requires constant monitoring of surrounding changing uses by both the noise generating use and the city to ensure regulations are being followed, and would constantly create non-conforming noise generating uses.

Many communities have reversed the regulations towards emission controls, i.e. they regulate the sound emanating from the source property. This method of regulation has advantages particularly in a

mixed use downtown as it applies to all surrounding listeners and can be much easier to enforce and regulate.

3. Establish specific noise regulations for outdoor music venues/festivals-Austin, TX; Round Rock, TX;

Many communities, often accompanying special entertainment district noise regulations, have established specific noise regulations for outdoor music venues/festivals. These regulations are for one-off events and do not regulate outdoor music played at a bar or club. The City may wish to establish outdoor music venues/festivals noise regulations.

City of Ann Arbor Recommendation

To ensure a balance of promoting the growing the entertainment and cultural sector of the downtown vs the protection of downtown residents from excessive noise we recommend the City consider a Historic Entertainment Overlay Noise District. Such district shall permit slightly greater noise allowances than the current ordinance permits and allow slightly higher noise levels later on weekends. We find that a maximum of 85 dBa during the day/evening and 70 dBa at night appear to be an accepted standard. In addition, rather than regulating sound based on the receiving use, a more enforceable and equitable regulation tool would be to establish specific noise level for all uses within the set geography of the Historic Entertainment Overlay Noise District.

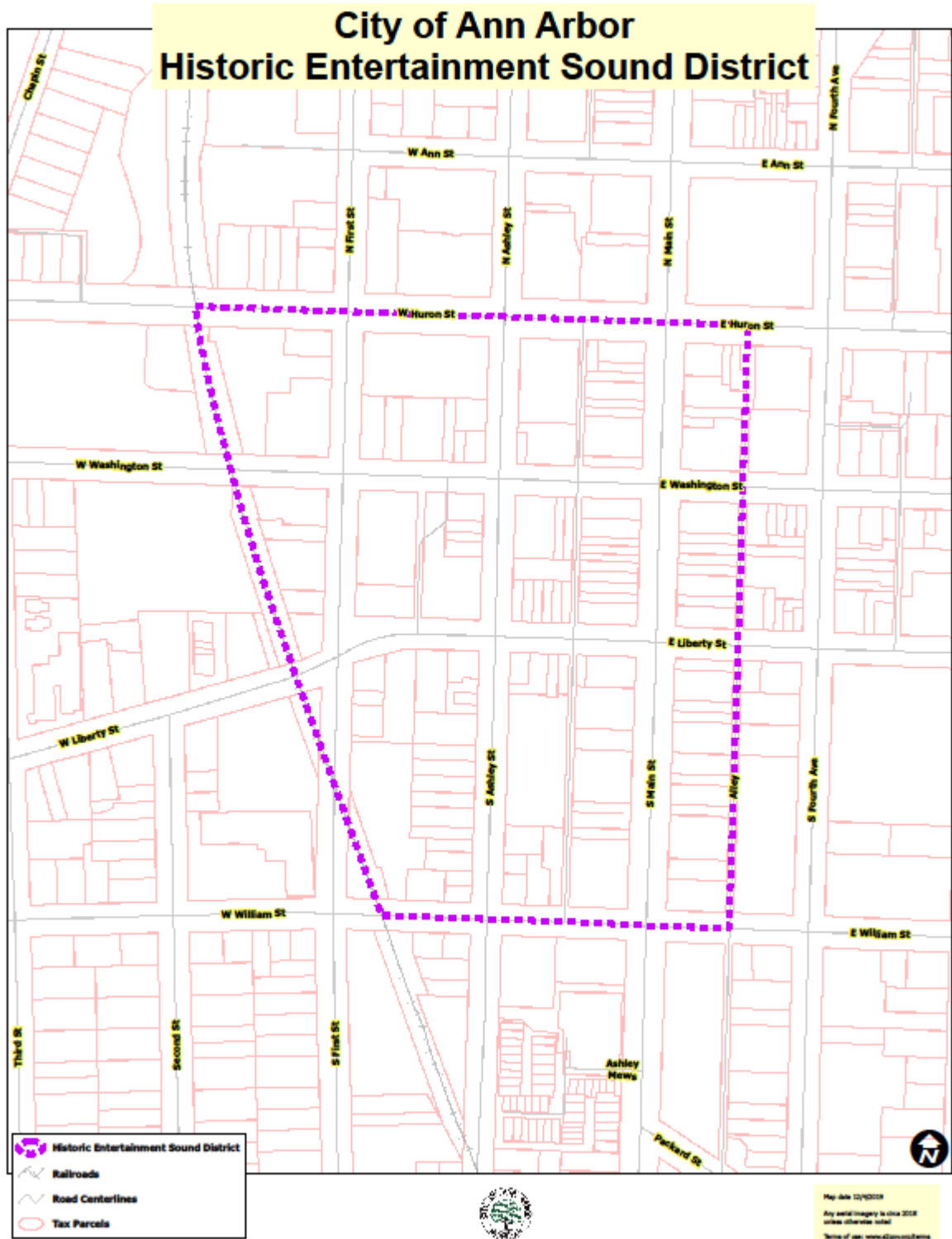
We offer the following draft ordinance language for consideration:

Historic Entertainment Overlay Noise District.

A. *Purpose:*

The Historic Entertainment District in Ann Arbor is a district of a mix of uses and close proximity. It is recognized that people occupying premises in the Historic Entertainment District must reasonably expect a greater likelihood of audible sounds from nearby locations than people residing in other districts. However, no person providing or permitting musical performances or other entertainment activities in the Historic Entertainment District should do so in a manner which causes undue hardship or disturbance of persons making lawful use of nearby premises, and the standards set forth in this section are a reasonable measure for determining undue hardship or disturbance in the Historic Entertainment District.

B. Historic Entertainment Overlay Noise District Boundary:



C. *Definitions:*

1. *dB(A). The intensity of a sound expressed in decibels read from a calibrated sound level meter utilizing the A-level weighting scale and the fast meter response, as specified in American National Standards Institute standard S 1.4-1971 or the most recent revision.*
2. *Ambient (Background) Sound Level. The sound level of the all encompassing sound associated with a given environment, being usually a composite of sound from many sources and excluding the specific sound under investigation.*
3. *Continuous. Any sound which does not vary in sound level more than five dB(A) during a measurement period which shall be at least 30 minutes.*
4. *dB(c). The C-weighted sound-pressure level in decibels, as measured by a general purpose sound level meter complying with the provisions of the American National Standards Institute in Specifications for Sound Level Meters (ANSI S1.4 1983 or the most recent revision), properly calibrated and operated in accordance with this and other applicable standards and in accordance with manufacturer's instructions.*
5. *Impulsive Sound. Sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts and the discharge of firearms.*
6. *Place of Public Entertainment. Any location, exterior, or interior, to a building that regularly permits public entrance for entertainment purposes. For this purpose, "public" means citizens of all types, including but not limited to, children, and private or public employees.*

D. *Noises to Which the Standards Apply.*

1. *The requirements of Chart 1 shall apply to all noises (except those specifically exempted in Section D), including but not limited to continuous and intermittent noise, tones, impact noise, and noise emitted by speaker boxes, sound amplification devices, pick-up and delivery trucks and any other commercial or industrial activities (not regulated by federal and state law).*
2. *The noise levels listed in Chart 1 for the Historic Entertainment Area as defined herein, shall be those levels which may not be taken over a minimum of a six-minute period producing an average reading of the limits.*
3. *In the case of noise that is impulsive or not continuous, any such sound or noise that exceeds the prescribed level more than two (2) times in a minute shall be deemed to exceed the prescribed sound levels.*
4. *Where the ambient noise level exceeds the allowable noise levels given in Chart 1, then the ambient level becomes the allowable exterior noise level.*

E. *Regulations*

In the Historic Entertainment Noise Overlay District:

1. *No person shall produce, cause to be produced, or allow to be produced, by any means, any noise within any private or public property which, when measured 50 feet from the real property line of the property generating said noise, exceeds the applicable sound level limits set forth in Chart 1 and as measured as set forth in section F.*
2. *It shall be unlawful to play any radio, phonograph, television, electronic device, or any musical instrument or operate a sound-amplification device in such a manner as to unreasonably disturb the peace, quiet, comfort, and repose of neighboring inhabitants of ordinary sensibilities, or at any time louder than is necessary for convenient hearing for the person or persons who are in the room, vehicle, or chamber in which such machine, instrument, or device is operated.*
3. *Any such machine, instrument, speaker, or device being used inside of a building, structure, room, chamber, or other similarly defined area shall not in any way face or direct the sound toward any open entrance or exit, or any window or other similar opening in the building, structure, room, chamber, or other similarly defined area.*
4. *The operation of any such machine, instrument, speaker, or device between the hours of 11:00 p.m. and 7:00 a.m. on weekdays and 1:00 a.m. and 7:00 a.m. on weekends in such a manner as to exceed the applicable sound level limit set forth in Chart 1 and as measured in section F shall be a violation of this ordinance.*

CHART 1. MAXIMUM NOISE LEVELS IN A AND C-WEIGHTED DECIBELS

	Decibel Levels					
	Sunday through Thursday			Friday and Saturday		
	7:00 a.m to 11:00 p.m.	11:00 p.m to 2:00 a.m	2:00 a.m to 7:00 a.m	7:00 a.m to 1:00 a.m	1:00 a.m to 2:00 a.m	2:00 a.m to 7:00 a.m
Historic Entertainment Noise Overlay District	85 dBA / 87 dBC	75 dBA / 81 dBC	65 dBA / 75 dBC	85 dBA / 87 dBC	75 dBA / 81 dBC	65 dBA / 75 dBC

F. Exemptions

The following types of noise are hereby made exempt from the provisions of this Chapter:

1. *Noises from temporary construction and maintenance activities between 7 AM and 9 PM except Sundays and federal holidays.*
2. *Noises from safety signals, emergency equipment and vehicles, warning devices and emergency pressure release valves and law enforcement activities, including training.*
3. *Noises from motor vehicles such as automobiles, trucks, airplanes, motorcycles, and railroads which are regulated by state and federal law.*
4. *Ordinary domestic noises provided such noises comply with the requirements of Chart*

G. Method of Noise Measurement

All measurements shall be made with a sound level meter at a measuring height of 4-feet. The sound level meter shall be calibrated in accordance with the meter manufacturer's recommendations. As necessary, a windscreen shall be utilized with the sound level meter. The measurements shall in general be made in accordance with the standards as promulgated by the American Society for Testing and Materials guidance. Measurements shall be made at 50 feet from the real property line of the property generating said noise.

H. Noise outside Historic Entertainment Overly Noise District is regulated by Title IX-Police Regulations - Article 119-Noise Control and any other applicable city ordinance.

Other Considerations

Other regulations that the City may want to consider but not included in this ordinance:

- Special outdoor events - determine hours, decibels, and other restrictions
- Special Noise Site Permits - determine hours, decibels, and other restrictions
- Temporary Use Permits - determine hours, decibels, and other restrictions
- Street Performers
- Sidewalk café speakers

We look forward to discussing this further.

Sincerely,



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