

# CITY OF MASON

## INITIATION OF ORDINANCE

To the Council of the City of Mason: We, the undersigned qualified and registered electors, residents in the 7th congressional district, in the state of Michigan, City of Mason, County of Ingham, respectively petition pursuant to Chapter 7.11 - 7.15 of the Charter of the City of Mason, Michigan for an initiated ordinance to amend chapter 22, sections 22-31 and 22-32 of the Code of Ordinances of the City of Mason to establish objective, city-wide noise and vibration performance standards.

FULL TEXT OF THE PROPOSED ORDINANCE  
(Deleted language is struck through. Added language is underlined.)

THE CITY OF MASON ORDAINS:

**Section 1.** That Section 22-31 of the Code of Ordinances of the City of Mason is hereby amended to read as follows:  
Sec. 22-31.

(a) ~~The making and creation of excessive, unnecessary or unusually loud noises within the limits of the city is a condition which has existed for some time; and the extent and volume of such noises is increasing. Furthermore, traditional A-weighted decibel measurements fail to adequately capture the low-frequency bass and vibrational energy generated by heavy continuous mechanical equipment, such as industrial chillers, commercial generators, and continuous cooling systems.~~

(b) ~~The making, creation or maintenance of such excessive, unnecessary, unnatural or unusually loud noises including continuous low-frequency hums and groundborne vibrations, which are prolonged, unusual and unnatural in their time, place and use incessant, or continuous in nature, affect and are a detriment to public health, comfort, convenience, safety, welfare and prosperity of the residents of the city. Specifically, continuous low-frequency noise and vibration are known to easily penetrate residential structures, causing sleep deprivation, physiological stress, and structural resonance that uniquely degrade the quiet enjoyment of a home.~~

(c) ~~The necessity in the public interest for the provisions and prohibitions contained and enacted in this article is declared as a matter of legislative determination and public policy; and it is further declared that the provisions and prohibitions contained and enacted in this article are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, welfare and prosperity and the peace and quiet of the city and its inhabitants by establishing objective, city-wide limitations on continuous noise and groundborne vibrations to prevent unreasonable interference with the use and enjoyment of private property.~~

(d) It is further declared that while preventing the expansion of noise pollution is essential to the public welfare, the City recognizes a rational and compelling public interest in protecting the vested property rights, economic stability, and legal non-conforming status of existing, lawful commercial and industrial enterprises. Therefore, the establishment of reasonable exemptions for pre-existing equipment is a necessary and rational mechanism to balance the mitigation of future nuisances with the preservation of the local economy.

**Section 2.** That Section 22-32 of the Code of Ordinances of the City of Mason is hereby amended to read as follows:

Sec. 22-32.

~~(a) A person shall not operate, or permit the continual operation of, mechanical or electrical equipment or systems that exceed the maximum permissible sound levels established in this section when measured at the property line or road right-of-way of the source property at locations representative of and nearest to adjacent receiving properties. Sound from any source shall comply with the applicable A-weighted sound level limits (LAF) set forth in Chapter 94, Section 94-177(d)(4), and the concurrent C-weighted sound level (LCF) shall not exceed the applicable LAF limit by more than ten (10) dB. For continual sound sources, the A-weighted L90 shall not exceed the applicable daytime or nighttime Historic Pre-Development Baseline (LA90) established under subsection (f) by more than four (4) dB, and the C-weighted L90 shall not exceed the applicable LC90 by more than ten (10) dB; continuous sound limits must be evaluated using the L90 statistical metric (LA90 and LC90), measured over a representative period under typical operating and environmental conditions, and not less than fifteen (15) minutes. In addition, for any ten (10)-minute measurement period, the LAeq,10min and LCeq,10min shall not exceed the applicable baseline by more than six (6) dB and ten (10) dB respectively. The approved baseline shall serve as the fixed historical reference for future compliance determinations. Compliance shall be determined based on the most restrictive applicable limit. These standards apply in addition to, and do not replace, the requirements of Chapter 94, Section 94-177(d).~~

~~(b) The continual operation of any mechanical or electrical equipment or systems in excess of the maximum permissible continuous sound levels or vibration thresholds established in this section is hereby declared to be a public nuisance, and shall be subject to abatement by injunction. Continuous prohibited noise constitutes an ongoing hazard to public health; therefore, each day that a violation continues shall be deemed a separate and distinct offense subject to the maximum fines, injunctions, and any remedies allowed by law. The cost of enforcement (including measuring equipment rental or expert testimony) may be assessed as court costs to the defendant. Each violation of this section constitutes a public health and safety civil infraction.~~

~~(c) A person shall not operate any mechanical or electrical equipment or systems that create groundborne vibration exceeding the Vibration Perception Threshold (a motion velocity of 0.01 inches per second) at or beyond the property boundary of the source.~~

~~(d) Any sound containing a tonal component shall be subject to a five (5) dB penalty. Tonal components shall be determined using one-third octave band analysis in accordance with ISO 1996-2, and the penalty shall be applied prior to determining compliance with the maximum established sound levels.~~

~~(e) For any facility proposing continuous mechanical cooling systems or backup generator arrays, the City shall require, as a condition of building permit approval, that the applicant conduct and submit a Historic Pre-Development Baseline acoustic study utilizing the L90 metric. The approved baseline shall permanently supersede any future "source-off" ambient measurements. The City may further require installation, maintenance, and operation of a continuous 24/7 noise and vibration monitoring system at the property lines and annual compliance reporting.~~

~~(f) The Historic Pre-Development Baseline (LA90 and LC90) shall be established through sound measurements conducted at the property boundary or road right-of-way of the source property, at locations representative of and nearest to adjacent receiving properties. Measurements shall be conducted over a period of at least seventy-two (72) hours under representative daytime, nighttime, weekday, and weekend conditions, using instrumentation and procedures consistent with applicable ANSI standards, and shall be performed and analyzed to establish separate daytime and nighttime baseline values by qualified acoustical professionals selected on a random basis from a list approved by the City, with all costs borne by the applicant. All measurement data and methodologies shall be subject to public review and pre-approval by the City.~~

~~(g) Except as expressly mandated by applicable state or federal environmental or safety regulations, routine operation of generators for maintenance and testing is only allowed Monday through Friday from 10:00 a.m. to 4:00 p.m. and shall not exceed a total of six (6) hours in aggregate within any calendar month for the facility. All such testing shall comply with the applicable sound level limits of this section. The noise limits established in this section are waived for genuine, unpredictable, and temporary emergency power outages where backup generators are required to preserve life or critical infrastructure.~~

~~(h) In their interpretation and application, the provisions of this section shall be held to be minimum requirements for the protection of public health, safety, and welfare. In the event of any conflict between the noise and vibration standards established in this article and any other provision of the City of Mason Code of Ordinances, including but not limited to the City Zoning Ordinance, the more stringent standard or the provision imposing the lower maximum permissible sound or vibration level shall strictly control. For the purposes of enforcement, if another ordinance establishes a relative noise standard (such as a permissible increase over the ambient baseline) that results in a lower allowable acoustic output than the absolute limits established herein, that relative standard shall govern.~~

~~(i) Mechanical equipment installed and operating lawfully prior to the effective date of this ordinance shall be exempt from the maximum permissible continuous sound levels established in this section, provided that the equipment is not subsequently upgraded, expanded, or altered in a manner that increases its acoustic output.~~

~~(j) For purposes of this article, the following definitions apply:~~

~~(1) A-Weighted Sound Level (dBA): The sound pressure level in decibels as measured using the A-weighting network, which emphasizes higher frequencies and de-emphasizes low frequencies to simulate human hearing.~~

~~(2) C-Weighted Sound Level (dBC): The sound pressure level in decibels as measured using the C-weighting network, which captures a wider frequency spectrum and includes low-frequency bass energy that humans feel more than they consciously hear.~~

~~(3) Tonal Noise: A continuous sound characterized by a single frequency or narrow band of frequencies, commonly perceived as a hum, buzz, whine, or whistle.~~

~~(4) Vibration Perception Threshold: The minimum groundborne or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration. The perception threshold is legally presumed to be a motion velocity of 0.01 inches per second over the range of 1 to 100 Hertz.~~

~~(5) Equivalent Continuous Sound Level (Leq): The steady sound pressure level that, over a specified time period, contains the same total acoustic energy as the actual fluctuating sound. Measurements shall be evaluated using this energy-average metric, denoted as LAeq for A-weighted levels and LCeq for C-weighted levels.~~

~~(6) Fast Time-Weighted Sound Level (LF): The sound pressure level measured using fast time weighting (approximately 125 milliseconds). For purposes of this section, sound levels shall be expressed as LAF for A-weighted measurements and LCF for C-weighted measurements.~~

~~(7) L90 Statistical Metric (LA90 / LC90): The sound pressure level exceeded ninety (90) percent of the time during a specified measurement period, representing the ambient or background sound level. Measurements shall be expressed as LA90 for A-weighted levels and LC90 for C-weighted levels.~~

~~(8) Historic Pre-Development Baseline: The LA90 and LC90 ambient noise levels recorded at the property boundaries of a parcel prior to any site clearing, construction, or operational commencement of a new facility.~~

~~(9) "Daytime" means 7:00 a.m.-10:00 p.m., and "Nighttime" means 10:00 p.m.-7:00 a.m. local time.~~