

CODE OF ORDINANCES

CHAPTER 30

CONTROL OF NOISE FROM NEW DEVELOPMENT

Sec. 30-1. Purpose

This chapter is enacted to protect, preserve and promote the health, safety, welfare, peace and quiet for the citizens of the City through the establishment of quantitative sound level limits for new development and expansions or modifications of existing development. It is intended that the establishment of these standards will alleviate unnecessary and excessive noise, which is physically harmful and otherwise detrimental to individuals and the community in the enjoyment of life, property and conduct of business.

Sec. 30-2. Applicability

(a) In terms of the generation of noise, this noise control ordinance (NCO) applies to all new developments, as defined in Section 30-14, proposed within the City. The NCO is intended to regulate all the types of environmental noises generated by new developments.

(b) This ordinance also applies to expansions and modifications of existing development when such expansions and modifications are proposed after the effective date of this ordinance and are subject to Planning Board approval or require a permit from the Code Enforcement Office, but only to the noise produced by the proposed expansion or modification of the development. Any use or facility in operation prior to the effective date of this ordinance shall not be deemed to be non-conforming.

(c) It is the City's intent that this ordinance, rather than the Maine Department of Environmental Protection's (DEP) noise control regulations, shall be applied by the DEP within the City for developments that are required to obtain approval for noise generation from the DEP.

(d) The provisions of this ordinance shall apply to the control of noise, as set forth above, originating within the geographical limits of the City and to all territory to which the jurisdiction of the City extends.

Sec. 30-3. Exemptions

Sound associated with the following shall be exempt from regulation under this Chapter:

(a) Any bell or chime from any school or church;

(b) Any siren, whistle, horn, or bell lawfully used by emergency vehicles or any other alarm systems used in case of fire, collision, civil defense, police activity or imminent danger, provided however, that burglar and car alarms not terminating within ten (10) minutes after being activated shall be deemed a nuisance and unlawful;

(c) Any aircraft taxiing, conducting a pre-flight run-up check, taking off, landing, or in flight subject to federal law or regulation regarding noise control and any helicopter in the act of taxiing, hovering, landing or taking off so long as the helicopter is operating in compliance with federal, state, and municipal

laws. However, aircraft or helicopter engine run-up or other noise associated with non-emergency maintenance or repair is not exempt (see Sec. 30-5(e));

(d) Any activities of a temporary duration which are permitted by law, including but not limited to religious events, parades, sporting events, recreational or athletic activities on public grounds, concerts and fireworks displays;

(e) Any motor vehicle designed for operation on public streets, except the following which are not exempt and shall be governed by Sec. 30-5(a), Table 1, and Sec. 30-5(b) and Sec 30-5(c):

1) All on-board power equipment, auxiliary equipment and sound amplifying devices on or within motor vehicles, that are not operated by or driven by the motor vehicle engine propelling system;

2) Motor vehicles operated on private property for recreational or amusement purposes.

(f) Any railroad equipment which is subject to federal safety regulations.

(g) Watercraft under the Inland Rules of the Road as defined by the U.S. Coast Guard.

(h) The unamplified human voice and other sounds of natural origin.

(i) Farming, fishing and aquacultural activity.

(j) Forest management, harvesting and transportation activities.

(k) Snow removal and street sweeping activities.

(l) Emergency maintenance, repairs, and response.

(m) Warning signals and alarms, except as limited in exemption (b) above.

(n) Safety and protective devices installed in accordance with code requirements.

(o) Test operations of emergency equipment occurring in the daytime (7:00 A.M. to 9:00 P.M.) and no more frequently than once per week.

(p) Boiler shut-down, start-up, testing and maintenance operations occurring no more frequently than once per month.

(q) Concrete pours.

(r) Sounds from a regulated development received at a noise sensitive receiver when the generator of the sound has been conveyed a noise easement for that location. This exemption shall only be for the specific noise, land and term covered by the easement.

(s) A force majeure event and other causes not reasonably within the control of the owners or operators of the development.

(t) Any development deemed necessary in the interest of national defense.

(u) Construction activities and major overhauls of machinery or equipment during 7:00 AM to 9:00 PM subject to the requirements of Sec. 30-5(d) (Sound from Construction) and Sec. 30-5(e) (Sound from Maintenance Activities).

Sec. 30-4. Waiver From Sound Level Limits

The City recognizes that there are certain developments or activities associated with development for which noise control measures are not reasonably available. Therefore, the City Planning Board, as part of a public hearing, may grant a waiver from any of the sound level limits contained in this rule to some other limit upon:

(a) A showing by the applicant that he or she has made a comprehensive assessment of the available technologies for the development, expansion or modification and that the sound level limits cannot practicably be met with any of these available technologies; and,

(b) A showing by the applicant that noise easements for the affected premises are either not practical or not available; and

(c) A finding by the Planning Board that the proposed development will meet the applicable sound level limits of the abutting zoning districts.

In addition, a waiver may be granted by the Planning Board if:

(d) A development is deemed necessary in the interest of public safety and the applicant has shown that the sound level limits cannot practicably be met without unduly limiting the development's intended function; and,

(e) A finding is made by the Planning Board that the proposed development will meet the applicable sound level limits of the abutting zoning districts.

The Planning Board shall consider the request for a waiver after the review of a completed development application by the Planning Board. In granting a waiver, the Planning Board may, as a condition of approval, impose terms and conditions to ensure that no unreasonable sound impacts will occur.

Sec. 30-5. Sound Level Limits**(a) Sound level limits established by zoning district as set forth in Table 1:**

(1) The sound level limits specified in this ordinance do not apply to noise within the parcel of any noise producing use or activity. The limits also do not apply to noise within any contiguous property in the same ownership (unless such property contains a noise sensitive receiver as defined herein, in which case the Table 1 limits or those in Sec. 30-5(b) apply at the property line of the noise sensitive receiver).

(2) Except for properties located in the Non-Residential INR, Light Industrial IL, and Conditional Non-Residential Industrial Municipal Solid Waste Transfer INR-MSW zoning districts and as noted above, it shall be unlawful for any use or activity applicable under Section 30-2 to emit or cause to be emitted any noise which crosses the property line of the premise on which it originates in excess of the applicable sound levels indicated in Table 1, or the alternative limits available under Sec. 30-5 (b), for the zoning district in which the use or activity is located. Similarly, noise from a non-exempt source in a public street that crosses the right-of-way lines of the street shall not exceed the applicable sound levels in Table 1, or the alternative limits available under Sec. 30-5(b), for the zoning district in which the noise source is located.

(3) It further shall be unlawful for any use or activity applicable under Sec. 30-2 to emit or cause to be emitted any noise which crosses a zoning district line, as measured at any crossing point along the zone line, in excess of the applicable sound levels indicated in Table 1, or as determined from Sec. 30-5(b), for the zoning district into which the noise enters. If the noise crosses into more than one zoning district, the sound levels must not exceed the Table 1 limits, or the

limits in Sec. 30-5(b), for each respective zoning district entered as measured at any crossing point along the zone line for each district.

(4) Where a zone line splits a noise impacted parcel such that more than one set of limits applies to the parcel, the lower limit found in Table 1 or as determined from Sec. 30-5(b) shall apply to the entire parcel.

(5) Other than having the option of using the alternative sound level limits available under Sec. 30-5(b), if more than one sound level limit applies at a measuring point along a property line or zone line, the lower limit shall apply.

TABLE 1
MAXIMUM ALLOWABLE SOUND LEVELS
 (See Sec. 30-5 –Sound Level Limits–for measurement locations)

Zoning District	Zoning District Description	Maximum Allowable Sound Level measured in dBA: L _{Aeq} 1-Minute Day: 7AM - 9PM Night: 9PM - 7AM
Rural Residential RF	Rural open space conservation: farming, residential; 2 acre min. lot size.	
Residential AA	Low/Medium density single-family residential: half-acre min. lot size.	
Residential A	Medium density single-family residential: quarter-acre min. lot size.	
Conditional Residential A-1	Same as A Zone but allows driveway access to the INR Zone.	Day: 60 dBA Night: 50 dBA
Residential G	High density single- & multi-family residential: tenth-acre min. lot size (sliding scale).	
Conditional Residential G-1	Conditional zone for elderly housing and other housing with provisions for a store.	
Conditional Residential G-2	Ridgeland Estates elderly housing conditional zone.	
Limited Business LB	Neighborhood-serving mixed use: single- and multi-family residential; retail; services; office; restaurants; motels; etc.	
Professional Office PO	Large, campus-style facilities: professional office; research labs; hospitals; hotels with golf courses; etc.	
Conditional Shipyard S-1	Elderly housing conditional zone: congregate care facility.	
Spring Point SP	Mixed use in Breakwater Condominiums area: 17 units/acre residential; retail; office; hotels; LB uses; etc.	
Transitional Residential RT	Low impact offices in homes along arterials: "A" zone uses; professional and consumer offices.	
Zoning District	Zoning District Description	
Village Residential VR	Village-oriented multi-family residential zone.	
Village Commercial VC	Village-oriented mixed-use business and multi-family residential zone.	
Village Commercial Willard VCW	Village-oriented mixed-use business and multi-family residential zone at Willard Square.	
<i>Table continues on following page...</i>		

Commercial C Central and Regional Commercial CCR	General mixed use: LB uses; retail; office; restaurant; transportation termini; petroleum storage tank farms; etc. Mall/Shopping center zoning: retail; all services; office; restaurants; hotels; motor vehicle sales; auto rental agencies; etc.	Maximum Allowable Sound Level measured in dBA: L_{Aeq} 1-Minute Day: 7AM - 9PM Night: 9 PM - 7AM
General Commercial CG	Wholesale & services uses: wholesale trade; warehousing & distribution centers; transportation termini; vehicle sales; etc.	
Suburban Commercial CS	Office and urban residential development: offices; services; medical; research; 17-25units/acre residential; congregate housing; hotels; local-serving retail; etc.	Day: 65 dBA Night: 55 dBA
Conditional Clark's Pond CPCCR	HQ (now Home Depot) conditional zone: CCR uses with conditions.	
Conditional Armory CAZ	Primarily utilities, single family dwellings, and sound stage uses.	
Transitional Central and Regional Commercial CCRT	CCR zone made more compatible to office and residential uses: same as CCR but without outdoor sales and display, restaurant drive-throughs, etc.	
Conditional Residential & Limited commercial Use District G-3	Mixed use zone with affordable housing at the former Maine Youth Center.	Day: 65 dBA Night: 55 dBA
Zoning District	Zoning District Description	
Industrial I	Mixed use allowing industrial: C uses; manufacturing/storage/ distribution; etc.	
Light Industrial IL	Mixed office and industrial: light industrial; professional office; business and financial services; aviation facilities; etc.	
Non-Residential Industrial INR	Industrial without residential: manufacturing; etc.	Maximum Allowable Sound Level measured in dBA: L_{Aeq} 1-Minute Day: 7AM - 9PM Night: 9 PM - 7AM
	<i>Table continues on following page...</i>	

Shipyard S	Non-Residential light industrial in the Spring Point area: light industrial; office; services; hotel; petroleum storage tank farms; marine uses; etc.	
Conditional Non-Residential Industrial Municipal Solid Waste Transfer INR-MSW-1	Troiano MSW facility: municipal solid waste transfer facility, with conditions.	Day: 70 dBA Night: 70 dBA

(b) Alternative sound level limits established in reference to pre-development ambient sound levels:

(1) The developer may choose to demonstrate limits different than those contained in Table 1. Changing the limits in Table 1 must be by measurements taken in accordance with Sec. 30-8 of this ordinance and shall be the developer's responsibility. If the developer demonstrates that the daytime and/or nighttime pre-development ambient sound environment at any premise potentially impacted by noise from the development site exceeds the daytime and/or nighttime limits in Table 1 by at least 5 dBA, then the daytime and/or nighttime limits shall be 5 dBA less than the measured daytime and/or nighttime pre-development ambient equivalent sound level, $L_{Aeq\ 1-minute}$, at the location of the measurement for the corresponding time period.

(2) For any premise potentially impacted by noise from the expansion or modification of an existing development, the sound level limit for routine operation of the expansion or modification of that development shall be the applicable sound level limit in Table 1 or; at the developer's election, the combined sound levels from the existing plus new expansion or modification shall be the sound level, $L_{Aeq\ 1-minute}$, from routine operation of the existing development plus 3 dBA at the location of the measurement for the corresponding time period. Changing the limits in Table 1 must be by measurements taken in accordance with Sec. 30-8 of this ordinance and shall be the developer's responsibility.

(3) For any noise-impacted premise, more than one limit from Table 1 can apply to that premise as a function of existing ambient sound level differences on that premise. Where this pre-development condition is suspected, the developer shall determine the limits by measuring existing ambient sound levels at enough positions on the potentially affected premise to determine the location of the multiple limits. Measurements shall be in accordance with Sec. 30-8.

Tonal sound level limits:

When the routine operation of a development produces a tonal sound at the property line of the development, 5 dBA shall be added to the measured sound levels ($L_{Aeq\ 1-minute}$) for purposes of comparing measured sound levels to the limits in Table 1. [For example: measured $L_{Aeq\ 1-minute} + 5$ dBA compared to the applicable $L_{Aeq\ 1-minute}$ limit]. In no case, however, shall a development produce a tonal sound beyond the zone lines of the zoning district in which the development is located.

(d) Sound from construction:

Sec. 30-2. Applicability notwithstanding, the sound from all construction activities conducted in South Portland between 9:00 P.M. and 7:00 A.M. is subject to the following limits:

(1) The routine operation sound level limits contained in Table 1 as may be modified by Sec. 30-5(b) and Sec. 30-(c).

(2) If construction activities from 9:00 PM to 7:00 AM are conducted concurrently with routine operation associated with development to which this NCO applies, then the combined total of construction and routine operation sound shall be subject to the routine operation sound level limits for this time period contained in Table 1 as may be modified by Sec. 30-5(b) and Sec. 30-(c).

(3) If construction activities from 9:00 PM to 7:00 AM are conducted concurrently with routine operation that is not associated with development to which this NCO applies, then only the construction sound level shall be subject to the routine operation sound level limits contained in Table 1 as may be modified by Sec. 30-5(b) and Sec. 30-(c).

(4) Higher limits of construction sound levels for the period 9:00 P.M. to 7:00 A.M. may be granted by the Planning Board as a waiver, according to the provisions of Sec. 30-4. Waivers, after submittal by the applicant of a site plan application detailing the proposed construction activity and containing the applicable submissions for noise control as required under Sec. 30-6. Submissions. In the case of construction that is not an emergency (emergency maintenance and repairs are exempt) but which it would be in the best interest of the public to complete without waiting for Planning Board action, the City Engineer may grant a waiver to allow higher nighttime sound levels.

(e) Sound from maintenance activities:

Sound from maintenance activities not listed as exempt under Sec.30-3 shall meet the limits of this NCO for all premises to which this NCO applies and shall be as follows:

(1) Sound from routine, ongoing maintenance activities shall be considered part of the routine operation of the new development or regulated premise and the combined total of the routine maintenance and operation sound shall be subject to the routine operation sound level limits contained in Table 1 and as may be modified by Sec. 30-5(b) and Sec. 30-(c).

(2) Sound from occasional, major, scheduled overhaul activities shall be subject to the construction sound level limits contained in Sec. 30-5(d). If such overhaul activities are conducted concurrently with routine operation and/or construction activities, the combined total of the overhaul, routine operation and construction sound shall be subject to the construction sound level limits contained in Sec. 30-5(d).

(Ord. No. 26-05/06, 7/24/06 [Fiscal Note: Less than \$1000; Ord. No. 6-10/11, 9/10/20 [Fiscal Note: Less than \$1000])

Sec. 30-6. Submissions

The Code Enforcement Officer or Planning Board, as applicable, shall review a proposed development for compliance with this NCO and shall either expressly approve the proposed new development, as defined in this NCO, as being in conformance with this NCO or state in writing the reasons why the proposed development does not comply with this NCO. In this regard, the applicant shall submit the following information:

(a) Developments with Minor Sound Impact.

An applicant proposing a new development, or an expansion or modification of an existing development, with minor sound impact shall provide a statement attesting to the minor nature of the anticipated sound impact of the development. For the purpose of this ordinance, a development or an expansion or modification of an existing development with minor sound impact means a development where the developer demonstrates, by estimate or example, that the regulated sound from

routine operation of the development will not exceed 8 dBA less than the applicable limits established under Sec. 30-5. It is the intent of this subsection that an applicant need not conduct sound level measurements to demonstrate that the development or an expansion or modification of an existing development will have a minor sound impact. Furthermore, it is the intent of this subsection that noise control plans as described below are not required for developments with minor sound impact.

(b) Other Developments

Technical information shall be submitted describing the applicant's plan and intent to make adequate provision for the control of sound. The applicant's plan shall contain the following information:

(1) A description of the proposed development, expansion or modification. A description of major sound sources, including tonal sound sources, associated with the construction, operation and maintenance of the proposed development including a site plan showing their locations within the proposed development and hours of operation.

(2) Maps and descriptions of the land uses, zoning districts, and existing sources of sound for the area potentially affected by sounds from the development. These maps and descriptions shall be adequate to describe the potentially affected area around the development and shall have a minimum coverage of 1,000 feet in all directions from the property line of the proposed development.

(3) A description of the daytime (7:00 A.M. to 9:00 P.M.) and nighttime (9:00 P.M. to 7:00 A.M.) equivalent sound levels ($L_{Aeq\ 1\text{-minute}}$) expected to be produced by these sound sources at the property line of the proposed development and at zone lines potentially crossed by sounds from the development, both as individual and as combined sound sources.

(4) A description of proposed noise control measures, including their locations and expected performance. This will include calculations of post-development operating sound levels showing source data and expected attenuation due to distance and proposed noise controls.

(5) A comparison of the expected sound levels from the proposed development with the sound level limits contained in Table 1 or the alternative limits established according to Sec. 30-5(b). This comparison shall include sound levels expected from the proposed development before and after application of noise control measures.

Sec. 30-7. Terms and Conditions

The City may, as a term or condition of approval, establish any reasonable requirement to ensure that the developer has made adequate provision for the control of noise and to reduce the impact of noise on noise sensitive receivers. Such conditions may include, but are not limited to: enclosing equipment or operations; imposing limits on hours of operation; requiring the employment of specific design technologies, site design, modes of operation, or surface vehicle traffic patterns; or requiring sound level monitoring to confirm sound level estimates and performance of noise controls. In no case shall a term or condition of approval be applied to an aircraft or helicopter that requires the operator of the aircraft or helicopter to cancel or delay a flight.

Sec. 30-8. Measurement Scope And Procedures

(a) Scope:

These procedures specify measurement criteria and methodology for use with applications, pre-development ambient and compliance testing, and enforcement. They provide methods for measuring ambient sound and sound from routine operation

of the development and define the information to be reported. The same methods shall be used for measuring the sound of maintenance activities and nighttime construction as applicable.

(b) Measurement Criteria:

(1) Measurement Personnel

Measurements shall be supervised by personnel who are qualified by training and experience in measurement and evaluation of environmental sound, or by personnel trained to operate under a specific measurement plan approved by the City. Qualifications include but are not limited to a college degree in Physics, Engineering, or related field, appropriate military training, industrial or commercial training or experience, formal course work in acoustics, completion of seminars related to measurement of environmental sound and practical experience, registration as a Professional Engineer with a focus area of practice in environmental acoustics, or Board Certification from the Institute of Noise Control Engineering.

(2) Measurement Instrumentation

(a) A sound level meter or alternative sound level measurement system used shall meet all of the Type 1 performance requirements of American National Standard Specifications for Sound Level Meters, ANSI S1.4.

(b) An integrating sound level meter (or measurement system) shall also meet the Type 1 performance requirements for integrating/averaging in the International Electrotechnical Commission Standard on Integrating-Averaging Sound Level Meters, IEC Publication 804.

(c) A filter for determining the existence of tonal sounds shall meet all the requirements of American National Standard Specification for Octave-Band and Fractional Octave-Band Analog and Digital Filters, ANSI S1.11 for Order 3, Type 3-D performance.

(d) An acoustical calibrator shall be used of a type recommended by the manufacturer of the sound level meter and that meets the requirements of American National Standard Specification for Acoustical Calibrators, ANSI S1.40.

(e) A microphone windscreen shall be used of a type recommended by the manufacturer of the sound level meter.

(3) Calibration

(a) All sound level instruments shall have been calibrated by an independent certified laboratory within 12 months of the measurement, and the meter's total response as well as the microphone's response shall be traceable to the National Institute of Standards and Technology (NIST) [formerly National Bureau of Standards].

(b) Field calibrations shall be recorded before and after each 24-hour measurement period and at shorter intervals if recommended by the manufacturer.

(4) Measurement Location, Configuration and Environment

(a) Measurement locations for development application and compliance testing purposes shall be in accordance with applicable ANSI standards [Reference: ANSI S1.13, S12.9 and S12.18] at the development's property line and at all potentially impacted zone lines at the points on the zone lines that are most likely to be affected by sound from routine operation of the development. For enforcement purposes, measurement locations shall be at the development's property line and at

the property line of the impacted premise(s) at points most likely affected by sound from operation of the development.

(b) The microphone shall normally be positioned in accordance with applicable ANSI standards [Reference: ANSI S1.13, S12.9 and S12.18], generally at a height of approximately 4 to 5 feet above the ground, and oriented in accordance with the manufacturer's recommendations. However, if the receivers most likely affected by noise from the development are impacted at another elevation - such as a second story residential bedroom window - then every reasonable attempt shall be made to also place a microphone at this elevation above the ground.

(c) Measurement locations should be selected so that no vertical reflective surface exceeding the microphone height is located within 30 feet of the microphone. When this is not possible, the measurement location may be closer than 30 feet to the reflective surface, but under no circumstances shall it be closer than 6 feet.

(d) When possible, measurement locations should be at least 50 feet from any regulated sound source on the premise, except as noted above in specific cases or when the sound source is less than 50 feet from the property line.

(e) Measurement periods shall be avoided when the average local wind speed over a one-hour period exceeds 5 mph at approximately 6 feet above the ground [Reference: ANSI S12.18] and/or precipitation would affect the measurement results.

(5) Measurement Plans

Plans for measurement of pre-development ambient sound or post-development sound must be reviewed and approved in advance by the City staff. The intent of this section is to ensure that measurements taken by the applicant will be accepted by the City as meeting the requirements of the NCO. Measurement Plans shall describe what is to be measured, why the measurements are to be taken, the qualifications of the person taking the measurements, where the measurements will be taken, the duration of planned measurements, the sound metrics that will be taken and reported under Sec. 30-6(b) and a map showing the proposed development, measurement locations, property boundaries, existing land uses, and all potentially affected City zones.

(c) Measurement of Ambient Sound

(1) Pre-Development Ambient Sound

Measurements of the pre-development ambient sound shall be as follows:

(a) Measurements shall be recorded at representative potential receivers for periods of time sufficient to adequately characterize the ambient sound. Unless otherwise agreed to by City staff and contained in a written Sound Level Measurement Plan prepared in accordance with Paragraph 30-8(b)(5) of this ordinance, the minimum measurements shall be recorded on two different weekdays and week nights (Monday through Friday) during all hours that the development will operate. If the proposed development will operate on Saturdays and/or Sundays, measurements shall also be made during all hours that the development will operate on these days.

(b) As a minimum, the measurements shall include the equivalent sound level $L_{Aeq\ 1\text{-minute}}$ occurring during each one-minute of the measurement period. Measurements may also include the equivalent, one-minute, one-third-octave band sound levels over the range of frequencies audible to the human ear for the purpose of determining the presence of existing tonal sounds. The one-third octave band sound levels shall be measured on the unweighted, linear scale and reported as $L_{eq\ 1/3\ 1\text{-minute}}$ in dB. Other sound level statistics necessary to fully characterize the existing sound environment can also be reported when included in the Sound Level Measurement Plan prepared in accordance with Paragraph 30-8(b)(5).

(c) Measurement periods with particularly high ambient sounds, such as during holiday traffic activity, significant insect activity, high coastline waves, or high river flows should generally be avoided as these conditions could underestimate the potential impact from the proposed development. If these conditions cannot reasonably be avoided, the Measurement Plan should explain why and how these conditions, when used, will not underestimate sound level impacts from the proposed development.

(d) At any measurement location, the daytime and nighttime pre-development ambient sound level shall be the measured $L_{Aeq\ 1-minute}$ for all of the daytime or nighttime periods. The pre-development background sound level for the period shall be all of the measured 1-minute sound levels $L_{Aeq\ 1-minute}$ averaged over the daytime or nighttime periods. The resultant average daytime and or nighttime sound level shall be used to determine alternative limits under Sec 30-5(b).

(2) Compliance Measurements (Post-Development Ambient Sounds)

All measurements shall be in accordance with Sec. 30-8(a) through Sec. 30-8(c)(1) as follows:

(a) Measurements of the post-development one-minute equivalent sound levels, $L_{Aeq\ 1-minute}$, and the, one-minute, one-third octave band, $Leq\ 1/3\ 1-minute$, equivalent sound levels shall be recorded at the most affected points along the property lines of the development, along the zone lines of the zone in which the development is located, and along the zone lines of impacted zoning districts. Measurements taken during representative routine operation of the development that are not greater than the applicable limits of Sec. 30-5 demonstrate compliance with those limits.

(b) Compliance with the limits of Sec. 30-5(b)(1) may be demonstrated by showing that the post-development equivalent sound level, $L_{Aeq\ 1-minute}$, measured during routine operation of the development, does not exceed the pre-development ambient equivalent sound level, $L_{Aeq\ 1-minute}$, by more than one decibel, and that the sound from routine operation of the development is not characterized by tonal sounds.

(c) Compliance with the limits of Sec. 30-5(b)(2) may be demonstrated by showing that the post-development equivalent sound level, $L_{Aeq\ 1-minute}$, measured during routine operation of the new development combined with the existing development, does not exceed the pre-development ambient equivalent sound level, $L_{Aeq\ 1-minute}$, by more than three decibels, and that the sound from routine operation of the new development is not characterized by tonal sounds.

(d) Compliance with the limits of Sec. 30-5(c) may be demonstrated by showing that the post-development equivalent sound level $L_{Aeq\ 1-minute}$ containing any tonal sound, measured during routine operation of the development, plus 5 dBA does not exceed applicable limits in Table 1 or the alternative limits established under Sec. 30-5(b)(2).

(e) If any of the conditions in Sec. 30-8 (c)(2) (a)(b)(c), or (d) are not met, compliance with respect to the applicable limits must be determined by measuring the sound from routine operation of the development in accordance with the procedures described in Sec. 30-8(d).

(d) Measurement of the Sound from Routine Operation of Developments

(1) General

(a) Measurements of the sound from routine operation of developments are generally necessary for specific compliance testing purposes, for validation of an applicant's calculated sound levels when requested by the City, for determination of existing one-minute equivalent sound levels $L_{Aeq\ 1-minute}$ for an existing development

or for enforcement by the City in the event that community complaints result from operation of the development.

(b) Measurements shall be obtained during representative weather conditions when the development sound is most clearly noticeable. Preferable weather conditions for sound measurements at distances greater than 250 feet from a sound source include overcast days when the measurement location is downwind of the development and or the wind is calm.

(c) Measurements of the development sound shall be made so as to exclude the contribution of sound from equipment that is exempt from this NCO, from sounds emitted by the portion of the development not regulated by this NCO and from offsite sources. Measurements that intend to exclude equipment that is exempt under Sec. 30-3 and from offsite sources shall be in accordance with the Sound Level Measurement Plan prepared in accordance with Sec. 30-8(b)(5) (e.g., use of other metrics such as $L_{A50 \text{ 1-minute}}$, $L_{A90 \text{ 1-minute}}$, pause capability, observations with measurements).

(2) Measurement of Sound Levels from Routine Operation of a Development

(a) When the post-development ambient sound levels are greater than the sound level limits, additional measurements can be used to determine the one-minute equivalent, $L_{Aeq \text{ 1-minute}}$, sound levels that result from routine operation of the development. These additional measurements may include diagnostic measurements made close to the development and extrapolated to the property or zone lines or special checkmark measurement techniques that include the separate identification of audible sound sources. Full-time observers or special data recording equipment must be used to provide intelligence to measured data to determine sound sources contributing to measurements. The L_{AFmax} , L_{AFmin} and exceedance statistics such as the L_{A10} , L_{A50} , L_{A90} can be used in conjunction with observations to assist with determination of regulated source contributions to measured sound levels. The use of sound level meters with pause capabilities that allow the operator to exclude non-development sounds shall be used with extreme caution to ensure that regulated sound sources are not excluded. With agreement from the City, other statistical parameters such as the L_{50} or L_{90} may be used to remove non-development sound levels from sounds generated by routine operation of the development. This latter method is most applicable to projects with relatively steady-state operations.

(b) For the purposes of computing the one-minute equivalent sound level, $L_{Aeq \text{ 1-minute}}$, resulting from routine operation of the development, diagnostic measurements may be made of each source and then combined to obtain the one-minute equivalent sound levels, $L_{Aeq \text{ 1-minute}}$, for the development. Diagnostic measurements shall be completed in accordance with the applicable ANSI or ASTM standard methods to the extent they exist or as otherwise agreed to by the City under Sec 30-8(b)(5).

(c) Identification of tonal sounds produced by the routine operation of a development for the purpose of adding the 5 dBA penalty in accordance with Sec. 30-5(c) requires the use of one-third octave band spectrum analysis instrumentation. If one or more sounds from routine operation of the development are found by observation, measurement and analysis to be tonal sounds, the equivalent sound level from routine operation shall be computed by adding 5 dBA to the measured equivalent, $L_{Aeq \text{ 1-minute}}$, sound levels for those sounds. The resultant shall be known as the adjusted sound level $L_{Aeq \text{ T 1-minute}}$. The sound level shall then be used for comparison to applicable limits for purposes of demonstrating compliance. The resultant $L_{Aeq \text{ T 1-minute}}$'s shall be compared with the applicable limits to determine compliance.

(d) The daytime or nighttime equivalent one-minute sound level resulting from routine operation of a development is the energy sum of the equivalent sound levels derived from combining all sounds emitted from the routine operation of regulated components of the development, including tonal penalties. If this resultant one-

minute equivalent sound level adjusted for any tonal component is equal to or less than the applicable daytime or nighttime sound level limit, then the development is in compliance at that zoning district boundary line and/or the property line of the development as appropriate.

(e) Reporting Sound Measurement Data

A sound measurement data report shall be submitted to City staff whenever sound level measurements are made in support of a development application, as part of a condition of approval requiring post-approval compliance demonstration, or in connection with an enforcement action, and it shall include the following:

- (1) The dates, days of the week and hours of the day when measurements were made.
- (2) The average one-minute wind direction and speed, temperature, relative humidity and sky condition, including monitoring location and elevation above ground level.
- (3) Identification of all measurement equipment by make, model and serial number.
- (4) The most recent dates of laboratory calibration of sound level measuring equipment.
- (5) The dates, times and results of all field calibrations during the measurements.
- (6) The applicable sound level limits, together with the measured equivalent sound levels, $L_{Aeq\ 1\text{-minute}}$, and the measurement data from which they were computed. Measurement data relevant to the mathematical determination of tonal sounds from existing ambient conditions or from the development shall be included.
- (7) A sketch of the site, not necessarily to scale, but properly orienting the development on the premise, showing City zones, noise sensitive receivers in all compass directions, the limits applicable to the property lines and to zone lines, location of the sound sources, measurement locations, topographic features, relevant distances, other physical features that can affect the propagation of sound outdoors and containing sufficient information for another investigator to repeat the measurements under similar conditions. Coverage shall be as applicable to the development and, as a minimum, shall be approximately 1,000 feet in any direction from regulated zone line and or property lines. The sketch is to be sufficiently accurate and readable to identify all zoning districts impacted by the proposed development, expansion or modification. City tax maps, City zoning maps, commercially available City street maps, USGS topographic maps and development Site Plans are all acceptable as base maps on which to provide the sketch details required in this subsection. Any size sketch is acceptable as long as it contains all the required information and is readable.
- (8) A description of sound from the development by character and location, a summary table comparing the limits applicable to all impacted zoning district lines, and the measurement results (adjusted for penalties for tonal sounds as applicable). In addition, if using the alternative sound level limits according to Sec.30-5(b), a description of the pre-development ambient sound levels.

Sec. 30-9. Enforcement

The South Portland Police Department in conjunction with the Code Enforcement Officer shall investigate and enforce the provisions contained in the NCO unless another enforcement agent is designated by the City Manager. Nothing in this NCO shall prevent the enforcement agent from obtaining voluntary compliance by way of warning, notice or education.

Sec. 30-10. Legal Action and Violation.

When any violation of any provision of this chapter shall be found to exist, the Corporation Counsel, either on his/her own initiative or upon notice from the Code Enforcement Officer, is hereby authorized and directed to institute any and all actions and proceedings either legal or equitable that may be appropriate or necessary for the enforcement of the provisions of this chapter, the same to be brought in the name of the city.

Sec. 30-11. Penalties

Violations of this Article shall be punishable as follows:

1st violation of any provision: at least \$250 but not more than \$500

2nd violation of same provision: at least \$500 but not more than \$1000

3rd or greater violation of same provision: at least \$1000 but not more than \$2000

In the case of continuous violations, each day or portion thereof that the violation occurs or continues constitutes a separate offense and may be punished separately.

Three or more violations of the same provision, in addition to subjecting the violator(s) to the fines recited above, shall also constitute a nuisance subject to injunctive relief.

Sec. 30-12. Severability Clause

A determination of invalidity or unconstitutionality by a court of competent jurisdiction of any clause, sentence, paragraph, section or part, of this Ordinance shall not affect the validity of the remaining parts to this Ordinance.

Sec. 30-13. Review of Ordinance

After one year~~s~~ but no later than two years after the effective date of this ordinance, the Planning Director shall hold a public meeting and otherwise obtain comments from business representatives, residents, and other stakeholders regarding the functioning of the ordinance. The Planning Director shall then submit a report to the City Manager and City Council that summarizes the comments received and makes recommendations for ordinance revisions as necessary.

Sec. 30-14. Definitions.

The following words and phrases, when used in this chapter, shall have the meanings respectively ascribed to them:

Ambient noise (also ambient sound) shall mean the all-encompassing noise associated with a given environment at a specified time, being usually a composite of sounds from many sources near and far, including the specific premise of interest.

"A" weighted sound level shall mean the sound level as measured with a sound level meter using the A weighting network per ANSI S1.4. The standard notation is dB(A).

Chief of Police shall mean the Chief of Police of the City or a duly authorized officer subject to the Chief's orders.

Commercial premise shall mean any premise where uses such as but not limited to offices, clinics, kennels, shopping and service establishments exist—or any related activity permitted by right or special exception in one of South Portland's business or commercial zoning districts—and where the use of less than twenty-five (25) percent of the gross floor area meets the definition of residential premises.

Construction equipment shall mean any equipment or devices, such as but not limited to, pile drivers, power shovels, derricks, hoist tractors, loaders, rollers, concrete hauling motor vehicles, pavement breakers, bulldozers, crawler-tractors, rotary drills and augers, cranes, ditchers, trenchers, scrapers, wagons, pumps, compressors and pneumatic power equipment, or other mechanical apparatus operated by fuel or electric power in the construction, repair or demolition of any building, structure, land, street, alley, waterways or appurtenance thereto.

Construction shall mean any activities and operations associated with building the development or expansion of a development or its site.

Decibel shall mean a logarithmic unit of measure used in measuring magnitudes of sound. The symbol is dB.

Development shall mean any change in physical form, structure or process by construction or installation, other than single-family and two-family dwelling units, that requires approval from the South Portland Planning Board or Code Enforcement Office or that constitutes a change to a development for which an approval was previously granted by the Planning Board.

Development with Minor Sound Impact shall mean a development where the regulated sound from routine operation of the development will not exceed 8 dBA less than the applicable limits established under Section E. This may be demonstrated by estimate or example and the submission of manufacturers' specifications related to sound generation for machinery with the potential to be heard beyond the property lines. Examples of developments with minor sound impact include but are not limited to: residential developments, office buildings without heating/ventilating/air conditioning systems (HVAC); storage buildings without HVAC systems and which will not normally be accessed at night (9:00 P.M. to 7:00 A.M); and, golf courses.

Device shall mean any equipment or mechanism which produces sound when operated or handled.

Emergency shall mean an unforeseen combination of circumstances which calls for immediate action.

Emergency vehicle shall mean a motor vehicle authorized by this Code to have sound warning devices such as sirens and bells which can lawfully be used when responding to an emergency, or during a police activity.

Emergency work (also emergency maintenance and repairs) shall mean work done in response to an emergency or work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from exposure to imminent danger.

Energy sum of a series of levels shall mean ten times the logarithm of the arithmetic sum of the antilogarithms of one-tenth of the levels. Example: $10 \times \log (10^{sp1/10} + 10^{sp2/10} + 10^{sp3/10} + \dots + 10^{spn/10})$.

Equivalent sound level shall mean the level of the mean-square A-weighted sound pressure during a stated time period, or equivalently the level of the sound exposure during a stated time period divided by the duration of the period. Symbol: L_{Aeq}

Existing development shall mean a development constructed before the effective date of this ordinance or a proposed development for which the development

application is complete for processing on or before the effective date of this ordinance. Any development with a Planning Board or Zoning Board of Appeals or Building Permit approval which has been remanded to the City by a court of competent jurisdiction for further proceedings relating to noise limits or noise levels prior to the effective date of this ordinance shall not be deemed an existing development and this ordinance shall apply to the existing noise sources at that development.

Existing sound level shall mean the sound level resulting from routine operation of an existing development prior to the first expansion that is subject to this ordinance.

Gross floor area shall mean the sum of the gross horizontal areas of the several floors of a building, including interior balconies and mezzanines, but excluding exterior balconies. All horizontal dimensions of each floor are to be measured by the exterior faces of walls of each such floor, including the walls of roofed porches having more than one (1) wall. The floor area of a building shall include the floor area of accessory buildings on the same zone lot, measured the same way. In computing gross floor area there shall be excluded the following:

- a. Any floor area devoted to mechanical equipment serving the building;
- b. Any floor area used exclusively as parking space for motor vehicles; and
- c. Floor area which serves as a pedestrian mall or public access way to shops and stores.

Historic areas shall mean historic sites administered by the City or the Maine State Bureau of Parks and Recreation of the Maine Department of Conservation.

Industrial premise shall mean any premise where manufacturing, processing or fabrication of goods or products takes place, or any related activity permitted by right or special exception in one of South Portland's industrial zoning districts.

L_{A50} shall mean the sound level that is exceeded 50% of the time during the measurement measured on the A-weighted scale.

L_{A90} shall mean the sound level that is exceeded 90% of the time during the measurement measured on the A-weighted scale.

Motor vehicle shall mean any vehicle driven or powered by any means other than muscular power.

New Development shall mean a development constructed after the effective date of this ordinance or a proposed development for which the development application is not complete for processing on or before the effective date of this ordinance. Any development with a Planning Board or Zoning Board of Appeals or Building Permit approval which has been remanded to the City by a court of competent jurisdiction for further proceedings relating to noise limits or noise levels prior to the effective date of this ordinance shall be deemed a new development and this ordinance shall apply to the noise sources of that development .

Noise shall mean unwanted sound that is measured as the sound level in decibels (dB).

Noise premise shall mean those premises as defined herein as residential, commercial, industrial and public.

Noise sensitive receiver shall mean any location on a parcel of land zoned for or containing a residential premise or planned residential premise or approved residential subdivision, house of worship, academic school, college, library, duly licensed hospital or nursing home near the development site at the time a development application is submitted; or any location within a public park, state- or federally-designated historic area, a nature preserve owned by the Maine or National Audubon Society or the Maine Chapter of the Nature Conservancy, federally-

designated wilderness area, state wilderness area designated by statute, City-designated passive recreation area or any location within consolidated public reserve lands designated by rule by the Bureau of Public Lands as a noise sensitive receiver under MDEP Chapter 375.10.

(1) Houses of worship, academic schools, libraries, City, State and National Parks without camping areas, Historic Areas, nature preserves, federally-designated wilderness areas without camping areas, state wilderness areas designated by statute without camping areas, and City-designated passive recreation areas without camping areas are considered noise sensitive receivers only during their regular hours of operation and the daytime sound level limits shall apply regardless of the time of day.

(2) Transient living accommodations are generally not considered noise sensitive receivers; however, in certain special situations where it is determined by the City that the health and welfare of the guests and/or the economic viability of the establishment will be unreasonably impacted, the City may designate certain hotels, motels, campsites and duly licensed campgrounds as noise sensitive receivers.

(3) This term does not include buildings and structures located on leased camp lots, owned by the developer, used for seasonal purposes. *Nuisance* shall mean the doing of or the failure to do something which allows or permits noise to be emitted from any sources in excess of the standards of this chapter.

One minute equivalent sound level shall mean the equivalent sound level for one minute measured or computed in accordance with this ordinance ($L_{Aeq\ 1-minute}$).

Ordinance shall mean the City of South Portland Noise Control Ordinance and shall also be referred to as the NCO.

Passive recreation area shall mean any site or area designated by the City for passive recreation that is open and maintained for public use and which:

- (1) has fixed boundaries,
- (2) is owned in fee simple by the City or is accessible by virtue of public easement or license, and,
- (3) has been identified and designated prior to the filing of the applicant's development application.

Person shall mean any person, firm, association, organization, partnership, business, trust, corporation, company, contractor, supplier, installer, user or owner, and shall include any municipal corporation, state or federal governmental agency, district, or any officer or employee thereof.

Pre-development ambient noise sound level shall mean the ambient sound level at a specified location in the vicinity of a development site prior to the construction and operation of the proposed development, modification, or expansion. The parameter is the one-minute equivalent sound level measured on the A-weighted scale, $L_{Aeq\ 1-minute}$.

Premise shall mean any building, structure, land, utility or portion thereof, including all appurtenances, and shall include yards, lots, courts, inner yards and real properties without buildings or improvements, owned or controlled by a person.

Property line shall mean that real or imaginary line and its vertical extension which separates real property owned or controlled by any person from contiguous real property owned or controlled by another person or separates real property from a public premise.

Public premise shall mean all real property including appurtenances thereon which is owned or controlled by any public governmental entity.

Residential premise shall mean any premise where single or multiple dwelling units exist—or any related use permitted by right or special exception in one of South Portland's residential zoning districts—and shall include schools, churches, hospitals, nursing homes and similar institutional facilities including any commercial premise where the use of more than twenty-five (25) percent of the gross floor area meets this definition of residential premise.

Routine operation shall mean regular and recurrent operation or maintenance of regulated sound sources associated with the development and operating on the development site (premises).

Sound shall mean an oscillation in pressure, stress, particle displacement and particle velocity which induces auditory sensation.

Sound component shall mean the measurable sound from an audibly identifiable source or group of sources.

Sound level shall mean ten times the common logarithm of the square of the ratio of the frequency-weighted and time-exponentially averaged sound pressure to the reference sound of 20 micropascals. For the purpose of this ordinance, sound level measurements are obtained using the A-weighted frequency response and fast dynamic response of the measuring system, unless otherwise noted.

Sound level meter shall mean an apparatus or instrument including a microphone, amplifier, attenuator, output meter and frequency weighting networks for the measurement of sound levels. The sound level meter shall be of a design and have the characteristics of a Type 1 or better instrument as established by the American National Standards Institute, publication S1.4 entitled Specification for Sound Level Meters.

Sound pressure shall mean the root-mean-square of the instantaneous sound pressures in a stated frequency band and during a specified time interval. Unit: pascal (Pa).

Tonal sound shall be defined as follows: For the purpose of this ordinance, a tonal sound exists if, at a noise sensitive receiver, the one-third octave band sound level in the band containing the tonal sound exceeds the arithmetic average of the sound levels of the two contiguous one-third octave bands by 5 dB for center frequencies at or between 500 Hz and 8,000 Hz, by 8 dB for center frequencies at or between 160 and 400 Hz, and by 15 dB for center frequencies at or between 25 Hz and 125 Hz. Tonal sounds can include, but are not limited to rumbles, hums, whines, whistles, squeals, etc.

Zones shall mean the City's zoning districts as set forth in Chapter 27 of the South Portland Code of Ordinances and summarized in Table 1 of this ordinance.

Additional acoustical terminology shall be incorporated into this ordinance by reference and shall be defined as follows: Additional acoustical terms used in work associated with this ordinance shall be in accordance with the following American National Standards Institute (ANSI) standards:

ANSI S12.9-1988 - American National Standard Quantities and Procedures for Description and Measurements of Environmental Sound, Part 1;

ANSI S3.20-1973 - American National Standard Psychoacoustical Terminology;

ANSI S1.1-1994 - American National Standard Acoustical Terminology.