



# ABD Engineering & Design

Architectural Acoustics • AV Design • Noise & Vibration

June 14, 2022

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## Re: George Rogers Park Pickleball Courts – Noise Study

### 1. Introduction

The City of Lake Oswego, OR converted the tennis courts at George Rogers Park into six pickleball courts. Following noise complaints from nearby residents, the Lake Oswego Parks and Recreation Department requested that ABD Engineering & Design, Inc. (ABD) visit the pickleball courts to perform a noise study. ABD measured sound levels generated by pickleball activity on two occasions in May and June 2022 in the surrounding neighborhood. This report summarizes the results of the noise study conducted by ABD.

### 2. Terminology

#### 2.1. **General Acoustical Terminology**

When dealing with sound, the physical quantity is expressed as sound pressure level (SPL), while the perceived level is expressed as loudness. Sound pressure level is measured in units called decibels (abbreviated dB). Decibels are power ratios that are quantified using logarithmic units. Using the logarithmic scale, an increase of 10 dB corresponds to a doubling of the perceived loudness; therefore, an increase of 20 dB would be 4 times as loud, and an increase of 30 dB would be 8 times as loud. Table 1 describes the subjective evaluation of how humans perceive a change in sound level.

**Table 1. Subjective effects of changes in sound levels**

Change in Sound Level	Change in Apparent Loudness
3 dB	Just perceptible
5 dB	Clearly perceptible
10 dB	Twice or half as loud
20 dB	Much louder or quieter

Adapted from Table 12.2 in *Engineering Principles of Acoustics* by Douglas D. Reynolds (1981)

Audible sound occurs over a wide frequency range, from approximately 20 Hertz (Hz) to 20,000 Hz. Human hearing does not respond equally to sounds at different frequencies (or pitches) – low-frequency noise (bass/rumble) is perceived as quieter than high-frequency noise (treble/hiss) of the same decibel level. To accommodate this variation in frequency sensitivity of human hearing, a frequency weighting can be applied to sound level measurements. When the weighting is applied, the resulting sound level measurements are said to be “A-weighted” and the decibel level is abbreviated dBA.

Table 2 lists some commonly encountered sounds, their A-weighted sound pressure levels, and associated subjective evaluations.

**Table 2. Sound level comparison**

Subjective Evaluation	A-weighted Decibels		Examples
Deafening	140 dBA		Near Jet Engine
	130 dBA		Threshold of Pain
	120 dBA		Threshold of Feeling – Rock Band
Very Loud	100 dBA		Loud Auto Horn (at 10 ft)
	90 dBA		OSHA 8 Hour Noise Exposure Limit
Loud	80 dBA		Shouting at 1 m (3 ft)
	70 dBA		Busy Office
Moderate	60 dBA		Conversational Speech at 1 m (3 ft)
	50 dBA		Average Office
Faint	40 dBA		Soft Radio Music in Apartment
	30 dBA		Average Residence without Stereo Playing
Very Faint	20 dBA		Average Whisper
	10 dBA		Human Breathing
Threshold of Hearing	0 dBA		Threshold of Audibility

Adapted from *Concepts in Architectural Acoustics* by M. David Egan (1972) and *Architectural Acoustics: Principles and Design* by M. Mehta, J. Johnson, and J. Rocafort (1999)

## 2.2. Acoustical Metrics

Since sound tends to fluctuate over time, especially for environmental measurements, statistical levels (also called percentile levels or  $L_n$ ) are used to describe the time-varying characteristics of the sound. The relevant statistical metrics for this project are the hourly  $L_1$ ,  $L_{10}$ , and  $L_{50}$  levels, which represent the sound level exceeded for 1% (36 seconds), 10% (6 minutes), and 50% (30 minutes) of an hour. For instance, if the hourly  $L_{10}$  of a

measurement is 55 dBA, this means that the sound level during the measurement hour was 55 dBA or louder for a total of 6 minutes (usually spread out over the hour), and quieter than 55 dBA for 54 minutes.  $L_1$  generally corresponds to short-term noise events such as loud vehicles, horns, or planes,  $L_{10}$  gives an idea of louder sounds that are more frequent, and  $L_{50}$  represents more continuous noise.

In addition to the statistical sound levels, the other relevant sound level metrics are the impulse sound level and the equivalent sound level. The impulse or peak level, abbreviated  $L_{pk}$ , represents the maximum instantaneous sound pressure level lasting shorter than 1 second, such as the impact sound of a pickleball paddle or a car door slam. The equivalent sound level, abbreviated as  $L_{eq}$ , is commonly used to indicate the average sound level over a period of time.  $L_{eq}$  represents the steady level of sound which would contain the same amount of sound energy as does the actual time-varying sound level. Although it is an average, the  $L_{eq}$  is strongly influenced by the loudest events occurring during the time period because these loudest events contain most of the sound energy.

In this report, Peak levels refer to  $L_{pk}$  measurements, while Maximum sound levels refer to  $L_{eq}$  measurements.

### **3. Noise Regulations**

There are several noise regulations in force at the City, County, and State levels. The following sections describe the various code requirements.

As is noted below, none of the codes provide a specific limit that is applicable to the pickleball noise. However, the OAR limits provide a good basis for comparison to other noise types that are regulated.

It is noted that the pickleball play only occurs during the daytime. For conciseness, nighttime criteria are not discussed because they are not applicable to the pickleball noise.

#### **3.1. Lake Oswego Municipal Code**

The Lake Oswego Municipal Code (LOC) includes a nuisance provision. LOC Section 34.10.537 prohibits “unnecessary loud or disturbing noise in the City at any time of day.” However, the LOC does not provide any guidance as to what would be considered a violation of this criterion.

LOC 34.10.539 includes several specific noise prohibitions, including animal noise, horns, mechanical equipment, construction, and nighttime music or gatherings. However, it does not specifically prohibit athletic or recreational noise.

Therefore, there is no specific noise criteria that is applicable to the pickleball courts in the LOC.

The full text of the LOC 34.10 regulation is provided in Appendix A for reference.

#### **3.2. Clackamas County Code**

The Clackamas County Code (CCC) Section 6.05.040 states a maximum sound level of 60 dBA during the daytime as measured within 3 feet of a residence. This is very poorly defined within the code, with no specific information on the type of sound level metric to be measured or over what time period.

However, the most relevant point is that pickleball noise from the city-provided courts is entirely exempt from the regulation. CCC 6.05.050.A states that “sounds caused by organized athletic... activities on property generally used for such purposes, including... parks,... between the hours of 7:00 a.m. and 11:00 p.m.” are exempt from the regulations of Chapter 6.05.

Therefore, the pickleball noise is exempt from the criteria in the CCC.

The full text of the CCC 6.05 regulation is provided in Appendix B for reference.

### **3.3. Oregon Administrative Rules – DEQ**

The Department of Environmental Quality (DEQ) section of the Oregon Administrative Rules includes noise control regulations for new and in-use motor vehicles, industrial and commercial noise sources, motorsport vehicles and facilities, and airports.

The OAR does not contain any regulations for noise from athletic or recreational activities.

While not legally applicable to the pickleball noise, the DEQ regulations for industry and commerce do provide a well-defined set of metrics and measurement procedures that are applicable for a wide range of sound types, including impulsive and variable sound. These regulations are presented here for reference.

The regulation for a new or existing industrial or commercial noise source stipulates that sound radiating from the source is regulated by what is commonly referred to as the “maximum allowable noise rule” [340-035-0035(1)(a)]. The maximum allowable noise rule prohibits the generation of hourly statistical sound levels (as measured at the receiving property line or 25 feet from the residence) exceeding the levels shown in Table 3.

**Table 3. Maximum allowable received noise levels generated by a new industrial or commercial noise source (OAR 340-035-0035, Table 8)**

<b>Hourly Statistical Sound Level</b>	<b>Daytime Limit (7:00 a.m. to 10:00 p.m.)</b>
L <sub>50</sub>	55 dBA
L <sub>10</sub>	60 dBA
L <sub>01</sub>	75 dBA

In addition to the hourly statistical limits, the DEQ regulations also impose a daytime limit of 100 dB peak on impulsive sound from industrial and commercial sources [340-035-0035(1)(d)(B)].

The full text of the DEQ Noise Control Regulations 340-035 and the pertinent tables are included in Appendix C of this report.

#### 4. Sound Measurement Results

At the request of the Lake Oswego Recreation department, ABD visited the site on two occasions to measure sound levels from the pickleball courts.

- Monday, May 16 – acoustical barrier material installed on north fence only. 9 a.m. – 11 a.m. slot mostly booked, 11 a.m. – 1 p.m. slot fully booked.
- Thursday, June 2 – acoustical barrier installed on all four fences. 9 a.m. – 11 a.m. and 11 a.m. – 1 p.m. slots mostly booked.

Measurements were taken at twelve locations in the public right-of-way, in front and behind the nearest houses to the courts, as shown in Figure 1 and Table 4. For each day of measurements, background sound was measured at several locations in the 8:00 a.m. hour (before play began), during the 9 a.m. – 11 a.m. session, and again during the 11 a.m. – 1 p.m. session. In addition to the short measurements at the 12 locations, several stationary sound level meters were installed to record the entire session as a reference – these were installed at M1, M4, and on the top center of the north fence of the court (M\_Ref).



Figure 1. Measurement locations

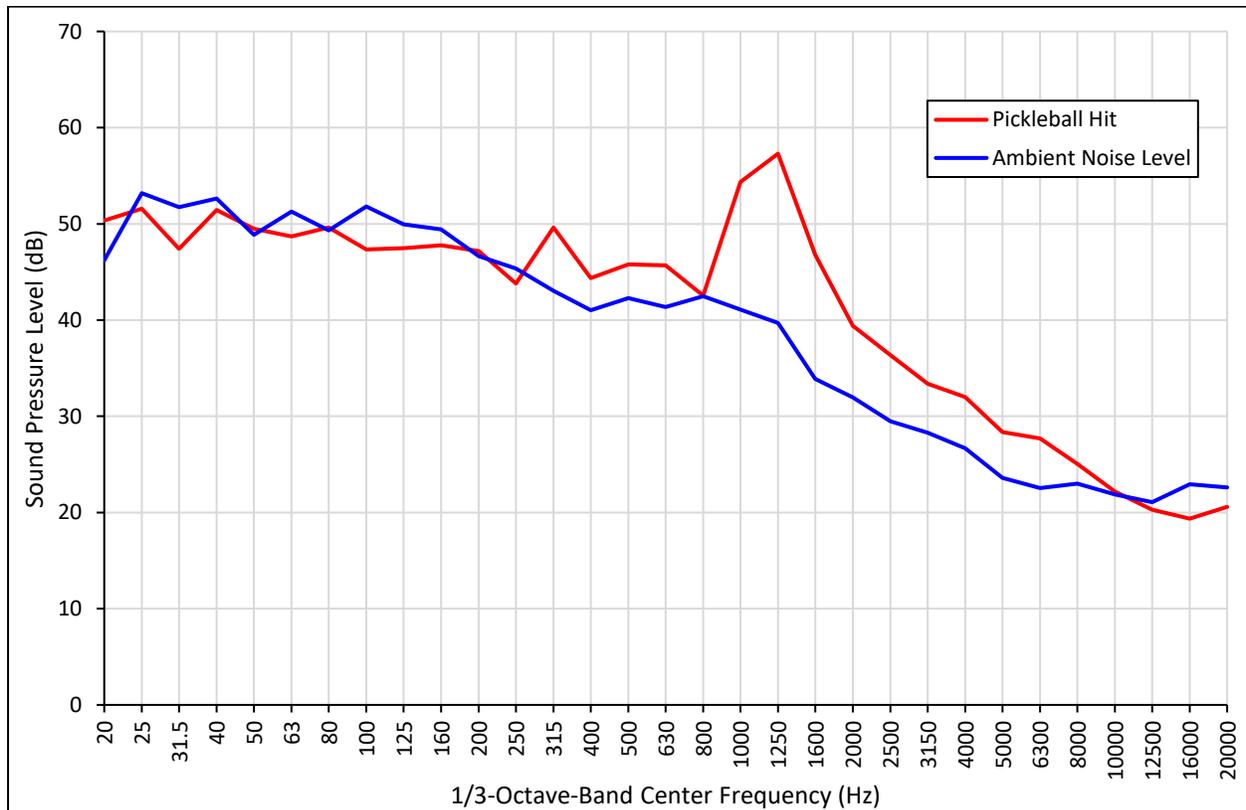
**Table 4. Measurement locations**

Residence Address	Front Measurement ID	Rear Measurement ID
71 Ladd St.	M1	M11
111 Ladd St.	M2	M12
119 Ladd St.	M3	M13
123 Ladd St.	M4	M14
143 Ladd St.	M5	M15
159 Ladd St.	M6	M16

**4.1. Pickleball Noise Spectrum**

As a reference, Figure 2 presents a graph of the sound spectrum of a pickleball hit (red), compared to the background traffic noise several seconds later (blue) as measured at location M2 on June 2.

As shown in the graph, the pickleball noise is primarily concentrated in the 1000 – 1600 Hz bands. This frequency range also happens to be where humans are most sensitive to sound and the frequencies usually associated with speech. The pickleball hit is about 15 dB louder than the background noise, which is perceived as about 3 times as loud. It is noted that there was no line-of-sight to the pickleball court at location M2, so the effect of the AcoustiFence barrier is already included.



**Figure 2. Comparison of pickleball noise to existing background at Location M2**

## 4.2. Overall Sound Levels

The following sections present the measured data for each of the twelve measurement locations on both days. The loudest level is included in the tables.

It is noted that there was some variation in the number of players and the activity level over both measurement periods. Therefore, the data in the following tables is somewhat dependent on the activity that occurred during the measurement. See Section 0 for a discussion of levels before and after the installation of the additional barrier material.

### 4.2.1. Peak Sound Levels

Table 5 presents the ranges of measured Peak or instantaneous sound levels at the twelve locations shown in Figure 1. These sound levels were confirmed to be generated by pickleball play (other sources such as nearby traffic and car door slams generated higher peak sound levels). As noted above, the type of players active on each day varied slightly, which means the Peak levels varied depending on how hard players hit the ball. However, as shown in the table, none of the measured levels exceeded the recommended peak level criterion.

**Table 5. Measured peak sound levels from pickleball**

Location	Measured $L_{pk}$ Range (dB)	Recommended Limit (OAR)
M1	73 – 93	100 dB pk
M2	75 – 91	
M3	74 – 92	
M4	74 – 94	
M5	72 – 88	
M6	70 – 85	
M11	70 – 76	
M12	70 – 79	
M13	69 – 81	
M14	67 – 76	
M15	65 – 73	
M16	65 – 70	

### 4.2.1. Statistical Sound Levels

The following tables present the measured statistical sound levels. Table 6 shows the  $L_1$  levels, which generally correspond to pickleball and traffic pass-by noise. The  $L_{10}$  levels, shown in Table 7, are dependent on the location – for locations close to the courts, such as M2 – M4, the  $L_{10}$  is mostly representative of pickleball noise, but for the other locations, the  $L_{10}$  level is primarily controlled by traffic. The  $L_{50}$  levels, shown in Table 8, are almost exclusively controlled by traffic.

However, even with these extraneous noise sources included in the data, the measured levels do not exceed the recommended criteria.

**Table 6. Measured L<sub>1</sub> sound levels**

Location	Measured L <sub>1</sub> (dB)		Recommended Limit (OAR)
	May 16	June 2	
M1	64	65	75 dBA
M2	63	69	
M3	62	64	
M4	64	66	
M5	62	67	
M6	59	61	
M11	55	57	
M12	52	58	
M13	52	54	
M14	57	52	
M15	54	48	
M16	53	54	

**Table 7. Measured L<sub>10</sub> sound levels**

Location	Measured L <sub>10</sub> (dB)		Recommended Limit (OAR)
	May 16	June 2	
M1	58	58	60 dBA
M2	57	60	
M3	57	58	
M4	59	56	
M5	54	59	
M6	50	51	
M11	49	53	
M12	49	53	
M13	47	51	
M14	50	47	
M15	49	47	
M16	48	48	

**Table 8. Measured L<sub>50</sub> sound levels**

Location	Measured L <sub>50</sub> (dB)		Recommended Limit (OAR)
	May 16	June 2	
M1	53	52	55 dBA
M2	52	54	
M3	53	53	
M4	54	52	
M5	50	54	
M6	47	48	
M11	47	49	
M12	46	48	
M13	45	46	
M14	45	44	
M15	43	44	
M16	43	46	

**4.3. Effect of Noise Barrier Changes**

In an attempt to reduce sound levels, the Lake Oswego Parks department installed AcoustiFence barrier material. This is a flexible mass-loaded vinyl barrier that is designed to be attached to a chain link fence. On May 16, the material was installed on the north fence only. On June 2, the material was extended upwards by approximately 8 inches to the top of the north fence, and was added to the other three fences except for the entry gates, as shown in Figure 3 and Figure 4.



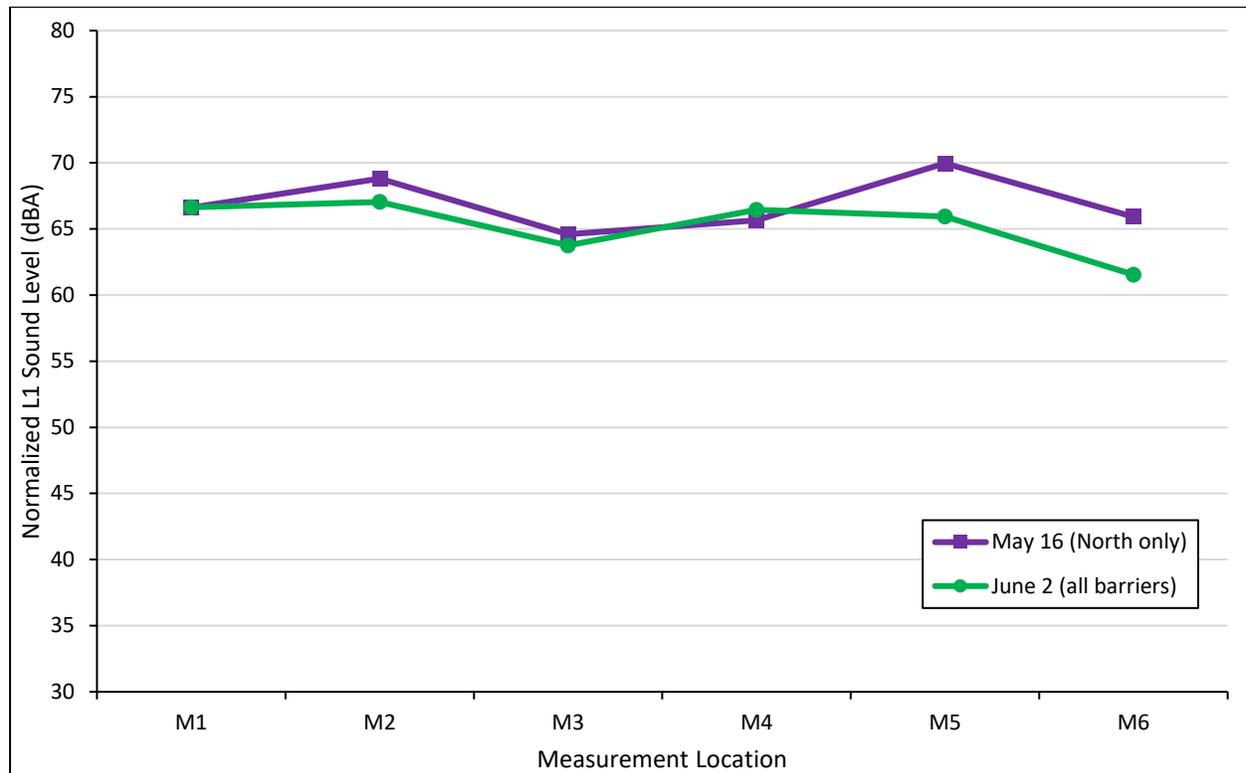
**Figure 3. Photos showing AcoustiFence barrier installed during May 16 (left) and June 2 (right) measurement sessions**



**Figure 4. Satellite image showing extents of noise barrier installation**

#### **4.3.1. Measured Effects of Barrier Material on L<sub>1</sub> Level**

To determine the effect of adding the barriers along the west and east fences, ABD used the sound levels measured at reference meter (M\_ref) just above the north court fence compared to the sound levels measured at Locations M1 – M6. Figure 5 presents the L<sub>1</sub> sound levels for the M1 – M6 measurement points.



**Figure 5. Comparison of adjusted L1 levels with the different side barrier conditions**

At location M1, traffic noise from S State St. controlled the measured levels, so no change is seen in the levels. With the addition of the barrier, individual pickleball hits are quieter, but this does not affect the overall level.

During the May 16 measurement, the north barrier blocked direct line-of-sight to location M2, but some sound did come around the side of the barrier. The addition of the west barrier reduced the level by 1-2 dB at street level, but this is not a noticeable change (see Table 1).

At locations M3 and M4, the north fence blocked line-of-sight to the court, so no change was observed at street level.

At locations M5 and M6, the addition of the barrier on the east fence caused a reduction of approximately 5 dB, which is noticeable.

#### **4.3.2. General Effects of Barrier Material**

The installation of the barrier material has both benefits and drawbacks.

- The barrier material on the north, northwest, and northeast fences is helpful in reducing the pickleball noise at the residences. Barriers are most effective if the source and/or receiver are close to the barrier. Although ABD did not measure prior to the installation of the north barrier, ABD estimates that the north barrier provided a reduction of approximately 10 dB at street level for locations M2 – M4 for pickleball activity. As discussed above, there is a reduction of approximately 5 dB to the residences to the northeast (M5 and M6) – because these locations are farther from the fence line, the barrier is not as effective.

- The barrier on the north side is only high enough to block sound to the ground floor of the residences. There is line-of-sight between the courts and the upper story windows of residences M2 and M3, as can be seen in Figure 3. Thus, the barrier fence does not protect the upper floor of M2 and M3 (111 Ladd and 119 Ladd).
- The gaps at the gates allow some sound to pass through, which reduces the effectiveness of the barrier to those residences with line-of-sight, including residences M1 and M5.
- The barrier material at the south of the court is detrimental to the acoustics. Because it is a hard (non-absorptive) barrier material, sound from the courts is reflected off the material and towards the residences, which slightly increases the sound level at street level. During the measurements, ABD staff noted the reflection as sounding like a double hit, particularly near to the courts. This effect would be more pronounced at the upper floors of M2 and M3 (an estimated increase of 2-3 dB) because the north fence is too short to block sound to the second floor. Given that there are no residences to the south, this south barrier does not provide any benefit.

## 5. Conclusions

The noise from the pickleball courts at George Rogers Park in Lake Oswego is exempt from all noise ordinances, or the ordinances do not provide any applicable criteria. ABD recommends using the OAR criteria for comparison.

ABD measured noise levels at the site in May and June 2022, with partial and full noise barriers installed. The noise from the pickleball courts did not exceed any of the recommended criteria, however the pickleball hits were clearly audible above the background noise.

Based on ABD's measurements and calculations, the noise barrier wall does provide some benefit, but it does not protect the upper floors of nearby residences, and the south barrier wall reflects sound towards the residences.

If you have any questions, please contact us.

Sincerely,

ABD Engineering & Design, Inc.

Per:



Benjamin Wolf, INCE Bd. Cert.  
*Senior Acoustical Consultant*

cc: Melinda Miller, Marci Boks – ABD

# Appendix A: LOC 34.10 Types of Nuisance

Lake Oswego Municipal Code  
Chapter 34: Crimes and Civil Violations  
Article 10: Types of Nuisance

**Article 34.10**  
**Types of Nuisance.**

Sections:

- [34.10.500](#) Attractive Nuisance.
- [34.10.510](#) Sidewalks and Streets to be Kept Free From Debris and Overhanging Brush and Limbs.
- [34.10.520](#) Periodic Brush Cutting Required; Exceptions.
- [34.10.525](#) Maintaining Inoperable Vehicles on Private Property Prohibited.
- [34.10.530](#) Public Nuisances; Composting Excepted.
- [34.10.535](#) Sidewalks to Be Kept Clear of Water, Snow, Debris, Etc.
- [34.10.536](#) Repealed. (Ord. No. 2100, Repealed, 08/01/94)
- [34.10.537](#) Loud or Disturbing Unnecessary Noise.
- [34.10.539](#) Specific Noise Prohibitions.
- 34.10.540 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.550 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.552 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.560 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.570 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.580 (Repealed by Ord. No. 1856; 12-28-82.)
- 34.10.582 (Repealed by Ord. No. 1859; 02-08-83.)

**34.10.500 Attractive Nuisance.**

It shall be unlawful for any owner, lessee, occupant or any person having control, custody or management of any premises to permit to remain unguarded or unsafe upon such premises, any abandoned or discarded item, or any item which is non-functional for its intended purpose, or unused objects or equipment, such as automobiles, furniture, stoves, refrigerators, freezers, cans, containers or any other device having the characteristics of an attractive nuisance or which is liable to attract children. It shall be unlawful for any such owner, lessee, occupant or person having control, custody or management of any such premises to permit to remain unguarded or unsafe upon such premises, any pit, quarry, cistern, well or other excavation. A violation of this section is a civil violation and a public nuisance.

(Ord. No. 1856, Sec. 1; 12-28-82.) (Ord. 2231, Amended, 03/21/2000)

**34.10.510 Sidewalks and Streets to be Kept Free From Debris and Overhanging Brush and Limbs.**

Property owners or users shall keep the sidewalks and streets abutting their property free from earth, rock, yard clippings, and other debris and from projecting or overhanging bushes, brush and limbs that may obstruct or render unsafe the passage of persons or vehicles. Limbs, branches, leaves and other vegetative growth shall not under any circumstances be allowed to project an elevation of less than nine (9) feet above the level of the sidewalk. A violation of this section is a civil violation and a public nuisance.

(Ord. No. 153, Sec. 2; 6-15-26. Ord. No. 1856, Sec. 2; 12-28-82.) (Ord. 2231, Amended, 03/21/2000)

**34.10.520 Periodic Brush Cutting Required; Exceptions.**

1. Property owners, lessees, occupants, or persons in possession or control of property shall:
  - a. Remove from their property:
    - i. Thistles and noxious weeds,
    - ii. Vegetation of an inflammable condition or nature,
    - iii. Dead trees that are a hazard to use of public property or public right-of-way, and
    - iv. All grass or weeds more than 10 inches in height.
  - b. Trim away from any property line to a distance of 10 feet all blackberry vines or plant material which characteristically spreads under or around barriers intended to prevent intrusion.
2. A violation of this section is a civil violation and a public nuisance.

(Ord. 2617, Amended, 06/04/2013; Ord. 2231, Amended, 03/21/2000; Ord. 1856, Sec. 3, 12/28/1982; Ord. 1233, Sec. 1, /08/06/1968; Ord. 153, Sec. 3, 06/15/1926)

**34.10.525 Maintaining Inoperable Vehicles on Private Property Prohibited.**

It shall be unlawful for any person to maintain any inoperable vehicle on private property for a period of time in excess of one month. For the purposes of this chapter an inoperable vehicle is defined as any vehicle which does not display a current state vehicle license and/or tags or which cannot be moved without being either repaired or dismantled or which is no longer safely usable for the purposes for which it was manufactured. This definition shall not include any vehicle kept in a building when not in use or any vehicles kept on the premises of a business lawfully engaged in wrecking, junking or repair of vehicles. Any owner of an inoperable vehicle or any person maintaining such a vehicle on premises under his control for a period of time in excess of one month shall be liable to abatement proceedings by the City as maintaining a public nuisance. Repeated violation of this section is also declared to be a public nuisance. For purposes of this section, "repeated violation" means that an individual or corporate entity has been convicted of violating this section two or more times within a five year period. It is no defense to the "repeated violation" allegation that different vehicles or properties were involved. The City may seek an injunction pursuant to LOC 34.08.431 against repeated violators in order to permanently enjoin maintenance of inoperable vehicles in violation of this section. A violation of this section is a civil violation and a public nuisance.

(Ord. No. 1459, 3-21-72. Ord. No. 1856, Sec. 4; 12-28-82. Ord. No. 2056, Sec. 1; 05-19-92. Ord. No. 2125, Amended, 09-19-95.) (Ord. 2231, Amended, 03/21/2000)

**34.10.530 Public Nuisances; Composting Excepted.**

1. Persons in possession or control of real property shall at all times maintain such property free from growth or material which may harbor or attract vermin or insects or aid in the spread of disease, or which may be offensive or unsightly to the community in which the property is located. Property not maintained free of such growth or material shall be considered and deemed a public nuisance. Without limitation upon the foregoing, the existence or maintenance of any of the following upon real property shall be a public nuisance: stagnant water, filth, dung (except manure used as fertilizer), rubbish, refuse, junk, noxious vegetation, garbage, scrap or waste materials. A violation of this section is a civil violation and a public nuisance.

2. It shall not be a public nuisance pursuant to subsection (1) of this section for persons in possession or control of real property to engage in composting on such property. For the purpose of this subsection:

- a. "Composting" means a controlled biological decay of compost material where moisture, heat, bacteria, earthworms and micro-organisms found in nature transform compost material into compost in a manner which does not create offensive odors or a health hazard.
- b. "Compost" means the end product resulting from the composting of the compost material commonly known as humus or soil amendments.
- c. "Compost material" means organic wastes, such as yard waste, leaves, grass clippings, sod, vegetable and fruit waste, dust, wood ashes, manure and other organic wastes.

(Ord. No. 1233, Sec. 3; 8-6-68. Ord. No. 1249, Sec. 1; 8-6-68. Ord. No. 1397, Sec. 1; 9-15-70. Ord. No. 1856, Sec. 5; 12-28-82. Ord. No. 2068, Sec. 1; 10-06-92.) (Ord. 2231, Amended, 03/21/2000)

**34.10.535 Sidewalks to Be Kept Clear of Water, Snow, Debris, Etc.**

It shall be unlawful for the owner, lessee or occupant of any building or structure to permit water, ice or snow to fall from any such building or structure upon any street, sidewalk or public pathway, to flow across any such street, sidewalk, or public pathway or to collect upon any sidewalk or public pathway. A violation of this section is a civil violation and a public nuisance.

(Ord. 2811, Amended, 01/02/2019; Ord. 2231, Amended, 03/21/2000; Ord. No. 1856, Sec. 6; 12-28-82)

**34.10.536 Repealed. (Ord. No. 2100, Repealed, 08/01/94)**

**34.10.537 Loud or Disturbing Unnecessary Noise.**

It shall be unlawful for any person to create, assist in creating, permit, continue or permit the continuance of any unnecessary loud or disturbing noise in the City at any time of day.

(Ord. 2772, Amended, 02/06/2018; Ord. 2397, Amended, 09/07/2004; Ord. 2231, Amended, 03/21/2000; Ord. No. 2145, Amended, 02/18/97; Ord. No. 2009, Sec. 1; 6-19-90; Ord. No. 1856, Sec. 6; 12-28-82)

**34.10.539 Specific Noise Prohibitions.**

1. It shall be unlawful for any person to commit, create, assist in creating, permit, continue or permit the continuance of any of the following:

- a. The keeping of any animal that by frequent or continued noise disturbs the comfort and repose of any person in the vicinity.
- b. The sounding of any horn or signal device on any automobile, motorcycle or other vehicle on any street, except as necessary warning of danger to property or person or as permitted to be used by authorized emergency vehicles.
- c. The use of any mechanical device, operated by compressed air, steam, gasoline or otherwise, unless the noise created thereby is effectively muffled.

- d. The erection, excavation, demolition, alteration or repair of any building or structure at any time other than during the following hours, except by special permit granted by the City Manager:
- i. Between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday in residential zones, or Monday through Saturday in other than residential zones;
  - ii. Between the hours of 8:00 a.m. and 6:00 p.m. on Saturday in residential zones;
  - iii. Between the hours of 10:00 a.m. and 6:00 p.m. on Sunday and the following holidays, if such work does not require a permit under Chapter 45 of this Code:
    - A. New Years Day (January 1);
    - B. Labor Day (the first Monday in September);
    - C. Thanksgiving Day (the fourth Thursday in November);
    - D. Christmas Day (December 25);
    - E. Monday, when New Years Day or Christmas Day falls on the preceding Sunday; and
    - F. Friday, when New Years Day or Christmas Day falls on the succeeding Saturday.

Absent a special permit granted by the City Manager, performance of such work at any time on Sunday or on any of the holidays listed in subsection 1 (d)(iii) A through F of this section shall violate this section if the work is of a type that requires a permit under Chapter 45 of this Code.

- e. In residential zones, the use or operation, by persons engaged in construction activity that requires a permit under Chapter 45 of this Code, of any device designed for sound production or reproduction so as to be plainly audible off the premises where the construction activity occurs. As used in this subsection (e), "construction activity" shall mean the erection, excavation, demolition or repair of any building or structure.
- f. The use or operation of any gong or siren upon any vehicle other than police, fire or other authorized emergency vehicle.
- g. The use or operation of any device designed for sound production or reproduction, including, but not limited to, any radio, television set, musical instrument, stereophonic equipment, loud speaker, sound production or reproduction device, bell, drum or chime between the hours of 10:00 p.m. and 7:00 a.m., so as to be plainly audible within any dwelling unit that is not the source of the sound.
- h. The gathering of any number of persons upon premises, whether public or private, and the creation of noise from the collective voices of such persons between the hours of 10:00 p.m. and 7:00 a.m. that is plainly audible within any dwelling unit that is not the source of the sound. Before a violation of this section is enforced the person or persons who creates or assists in creating the noise shall be warned or requested by any person, either in writing or orally to

cease, reduce or otherwise bring down the level of sound.

2. The prohibitions described in subsection 1 of this section are separate and distinct from the prohibitions described in LOC [34.10.537](#). For example, noise that does not occur within a parameter (such as time of day, date or frequency) described in subsection 1 of this section may nevertheless be unlawful if the noise violates LOC [34.10.537](#).

3. A violation of this section is a civil violation and a public nuisance.

(Ord. 2461, Amended, 06/06/2006; Ord. 2430, Amended, 09/06/2005; Ord. 2425, Amended, 08/10/2005; Ord. 2425, Amended, 08/02/2005; Ord. 2397, Add, 09/07/2004)

**34.10.540 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.550 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.552 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.560 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.570 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.580 (Repealed by Ord. No. 1856; 12-28-82.)**

**34.10.582 (Repealed by Ord. No. 1859; 02-08-83.)**

# Appendix B: CCC 6.05 Noise Control

Clackamas County Code  
Title 6: Public Protection  
Chapter 5: Noise Control

## Chapter 6.05

### 6.05 NOISE CONTROL

#### 6.05.010 Declaration Of Findings And Policy

The Board of Commissioners for Clackamas County finds that excessive sound can and does constitute a hazard to the health, safety, welfare, and quality of life of residents of the County. While certain activities essential to the economic, social, political, educational and technical advancements of the citizens of the County necessarily require the production of sounds which may offend, disrupt, intrude or otherwise create hardship among the citizenry, the Board is obliged to impose some limitation and regulation upon the production of excessive sound as will reduce the deleterious effects thereof.

Now, therefore, it is the policy of this Board to prevent and regulate excessive sound wherever it is deemed to be harmful to the health, safety, welfare, and quality of life of citizens of Clackamas County. This chapter shall be liberally construed to effectuate that purpose. [Codified by Ord. 05-2000, 7/13/00]

#### 6.05.020 Definitions

The following terms and definitions shall apply herein unless the context requires otherwise:

- A. INDUSTRIAL or COMMERCIAL ORGANIZATIONS or WORKERS those industrial or commercial sources of sound which are subject to noise regulation by the State of Oregon Department of Environmental Quality;
  - B. NOISE SENSITIVE UNIT any building or portion thereof, currently and regularly used for the overnight accommodation of persons, including, but not limited to individual residential units, individual apartments, hospitals, and nursing homes;
  - C. PERSON includes, in addition to any individual, any public or private corporation, association, partnership, or other legally recognized public or private entity;
  - D. SHERIFF the Sheriff of Clackamas County or the Sheriff's designee; and
  - E. SOUND SOURCE includes, but is not limited to,
    - 1. Loudspeakers, public address systems;
    - 2. Radios, tape recorders and/or tape players, phonographs, television sets, stereo systems including those installed in a vehicle;
    - 3. Musical instruments, amplified or un-amplified;
    - 4. Sirens, bells;
    - 5. Vehicle engines or exhausts, when the vehicle is not on a public right-of-way;
    - 6. Motorboats;
    - 7. Vehicle tires, when caused to squeal by excessive speed or acceleration;
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8. Tools, including drills, chain saws, lawnmowers, saws, hammers, and similar tools, but only between 10 p.m. and 6 a.m. of the following day;
  9. Heat pumps, air conditioning units, generators and refrigeration units, including those mounted on vehicles; and,
  10. Animals located in urban residential zoning districts.
- F. URBAN RESIDENTIAL ZONING DISTRICTS means that those zoning districts defined in the Clackamas County Zoning and Development Chapter. The Urban Low Density Residential (R-7/R-30), Medium Density Residential (MR-1), High Density Residential (HJDR), Special High Density Residential (SHD), Planned Medium Density (PMD), Medium High Density Residential (MR-2), and any other similar urban residential zoning district defined after the enactment of this chapter.
- G. VEHICLE means automobiles, motorcycles, motorbikes, go-karts, trucks, buses, and snowmobiles. [Codified by Ord. 05-2000, 7/13/00]

#### **6.05.030 Sound Measurement**

- A. Measurements shall be made with a sound level meter. The sound level meter shall be an instrument in good operating condition, meeting the requirements of a Type I or Type II meter, as specified in ANSI Standard 1.4-1971. For purposes of this chapter, a sound level meter shall contain at least an A weighted scale, and both fast and slow meter response capability.
- B. Personnel making measurements shall have completed training in the use of the sound level meter, and measurement procedures consistent with that training shall be followed.
- C. Measurements may only be made at, or within, three (3) feet of a window or door of a noise sensitive unit, occupied by a person making a complaint under this chapter.
- D. All measurements made pursuant to this chapter shall comply with the provisions of this section. [Codified by Ord. 05-2000, 7/13/00]

#### **6.05.040 Prohibitions**

- A. It shall be a violation of this chapter for any person to produce or permit to be produced, from a sound source either owned and operated by them or under their control, sound which, when measured at or within three feet of a window or door of a noise sensitive unit occupied by a person making a complaint under this chapter, exceeds:
    1. 50 dBA at any time between 10 p.m. and 7 a.m. the following day; or,
    2. 60 dBA at any time between 7 a.m. and 10 p.m. the same day.
  - B. When the sound is emitted from a motorboat it shall not be subject to the standards above but a violation shall be established where the sound exceeds 75 dBA as measured on shore, provided that the measurement be taken no closer than 150 feet from the boat. Where a measurement is taken from a distance close than 150 feet, a violation shall be established where the sound exceeds 84 dBA measured no closer than 50 feet from the boat. Motorboats shall not be operated on public waterways within the County unless equipped with a functioning underwater exhaust, muffler, or system which continuously pipes water into the
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exhaust line, except as may be permitted under ORS 830.260. [Codified by Ord. 05-2000, 7/13/00]

#### **6.05.050 Exceptions**

Notwithstanding 6.08.040, the following exceptions from this chapter are permitted when conditions therefor are met:

- A. Sounds caused by organized athletic, religious, educational, civic or racing activities on property generally used for such purposes, including stadiums, parks, schools, churches, athletic fields, race tracks, airports and waterways, between the hours of 7:00 a.m. and 11:00 p.m. the same day;
- B. Sounds caused by emergency work, or by the ordinary and accepted use of emergency equipment, vehicles and apparatus, whether or not such work is performed by a public or private agency, upon public or private property;
- C. Sounds caused by sources regulated as to sound production by federal law, including, but not limited to, sounds caused by railroad, aircraft or commercially licensed watercraft operations;
- D. Sounds caused by bona fide use of emergency warning devices and alarm systems authorized by the Clackamas County Burglary and Robbery Alarm Chapter 6.09 or successor provisions;
- E. Sounds caused by blasting activities when performed under a permit issued by appropriate governmental authorities and only between the hours of 9 a.m. and 4 p.m. excluding weekends, unless such permit expressly authorizes otherwise;
- F. Sounds caused by industrial, commercial, timber-harvesting, or utility organizations or workers during their normal operations;
- G. Sounds caused by animals, animal husbandry, or agricultural operations, when the source of such sound is located outside of urban residential zoning districts;
- H. Sounds caused by motor vehicles operated on public roads, which are regulated by state law (ORS 815.250) which the Sheriff has a mandate to enforce; or,
- I. Sounds caused by construction activity or by tools, including drills, chain saws, lawnmowers, saws, hammers, and similar tools, between the hours of 6 a.m. to 10 p.m. of the same day. [Codified by Ord. 05-2000, 7/13/00]

#### **6.05.060 Variances**

Any person who is planning the operation of a sound source which may violate any provision of this chapter, may apply to the Sheriff for a variance from such provision.

- A. Application. The application shall state the provision from which a variance is being sought, the period of time for which the variance is to apply, the reason for which the variance is sought and any other supporting information which the Sheriff may reasonably require.
  - B. Review Considerations. The Sheriff shall consider:
    1. The nature and duration of the sound emitted;
    2. Whether the public health, safety or welfare is endangered;
    3. If compliance with this chapter would produce a benefit to the public; and,
    4. Whether previous permits have been issued and the applicant's record of compliance.
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- C. Time Duration of Variance. A variance may be granted for a specific time interval only.
- D. The Sheriff shall within ten (10) days deny the application, approve it, or approve it subject to conditions.
- E. The Sheriff's decision may be appealed to the Board of County Commissioners. Notice of Appeal must be delivered to the Board of County Commissioners within thirty (30) days from the date of the Sheriff's decision. The Board shall review the application de novo and within fifteen (15) days, deny the application, approve it, or approve it subject to conditions.
- F. The authority granting the variance may at any time before or during the operation of any variance revoke the variance for good cause. [Codified by Ord. 05-2000, 7/13/00]

**6.05.070 Chapter Is Additional To Other Law.**

The provisions of this chapter shall be cumulative and non-exclusive. It shall not affect any other claim, cause of action or remedy; nor, unless specifically provided, shall it be deemed to repeal, amend or modify any law, ordinance or regulation relating to noise or sound, but shall be deemed additional to existing legislation and common law on such subject.

Such existing legislation includes exhaust system and sound emission standards for motor vehicles operated on public roads set forth by ORS 815.250 and OAR 340-35-030. Existing legislation also includes exhaust system standards for motorboats set forth by ORS 830.260. The Sheriff has a mandate to enforce ORS 815.250 and 830.260. [Codified by Ord. 05-2000, 7/13/00]

**6.05.080 Administration And Enforcement.**

- A. The Sheriff for Clackamas County shall administer, supervise, and perform all acts necessary to enforce this chapter.
  - B. Citation: whenever a person produces or permits to be produced sound which is found in violation of, or contrary to, any provision of this chapter, that person may be issued a citation.
  - C. Unsworn persons may be utilized, as the Sheriff deems necessary, to issue citations for violation of this chapter, under the provisions of ORS 204.635.
  - D. Forms of Citation: the form for the citation to be issued under this chapter shall contain the following: a description of the specific violation alleged, the name and address of the person producing or permitting the violation, the description of the sound source, the time and place of the occurrence of the violation, the name and address of the office of the Sheriff, a form for admitting or denying the violation as provided by subsection F of this section, and a schedule of the forfeiture amounts for specific violations.
  - E. Upon citation of a person for a violation of this chapter, the person issuing the citation may seize the offending sound source as evidence. It is the intent of this chapter to avoid such seizures except where the person being cited has received two previous citations within the previous six- (6) months for the same or similar
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- sound source. The previous citations may, but need not, occur on the same date as the citation, which prompts the seizure.
- F. A person who receives a citation for violation of this chapter shall respond within fourteen (14) days of the issuance of the citation by payment of any penalties established under this chapter, or by requesting a hearing as provided in subsections G and H of this section.
- G. Notice of Hearing: a person who receives a citation for violation of this chapter may deny all or part of the alleged violation by completing an appropriate response form, attached to the citation, and mailing or delivering it to the Sheriff's office, as indicated on the citation. Upon receipt, the Sheriff's office shall forward the form to the office of the hearing officer, who shall establish a time and place for the hearing and provide notice of it to the person who received the citation. Notice of the time and place of the hearing shall be made by mailing the notice to the address designated by the person who received the citation. The notice shall be sent by regular first class mail.
- H. Hearings Officer: the Board of County Commissioners shall appoint a quasi-judicial hearing officer or officers to hear and determine cases of alleged violations of this chapter. The hearing officer may establish a schedule of the amounts of forfeiture for violations with the approval of the Board of County Commissioners.
1. Every hearing to determine whether this chapter has been violated shall be held before a hearing officer. The hearing officer may prescribe procedures for the conduct of such hearings.
  2. Evidence, including rebuttal evidence, may be presented at the hearing and shall be limited to that which is relevant to the violation alleged.
  3. The hearing officer has the authority to administer oaths and take the testimony of witnesses. The hearings officer may issue subpoenas in accordance with Oregon Rule of Civil Procedure 55, provided that if the person who receives a citation desires that witnesses be ordered to appear by subpoena, he must so request in writing either at the time response is made to the citation or subsequently by mail at any time before five (5) days prior to the scheduled hearing. A deposit for each witness in an amount set by resolution of the Board of County Commissioners shall accompany the request, such deposit to be refunded if no forfeiture is assessed or if the total witness cost is less than the amount deposited. Witnesses appearing by subpoena shall be allowed the same fees and mileage as allowed in civil cases in district court. If a forfeiture is declared, the person ordered to forfeit shall also be ordered to pay all witness fees.
  4. The parties shall have the right to cross-examine witnesses who testify.
  5. After due consideration of the evidence and arguments, the hearings officer shall determine whether the violation as alleged in the complaint the complaint has been established. If the violation has been established, the hearings officer shall issue a decision including a brief statement of the findings of fact necessary to establish a violation and ordering the person to pay an appropriate forfeiture and witness costs, to be paid into the County General Fund. The decision and order may be oral and issued at the
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conclusion of the hearing, but in all cases must be recorded in the record of the hearing.

- I. In addition to any other enforcement procedures, the Board of County Commissioners may, upon its own motion, or upon receipt of a petition requesting hearing by the Board, issue its order to the person producing or permitting to be produced, the sound which allegedly violates this chapter, to appear before the Board and show cause why the Board should not declare the sound a violation of this chapter and order the violation abated. Noncompliance with the order may result in the Board referring the matter to the County Counsel for enforcement.
- J. An attorney at any hearing may represent a person who receives a citation or an order to show cause, provided that in the case of representation by an attorney, the person gives one (1) day of written notice to the hearings officer or Board of County Commissioners so that the County may, at its option, arrange for representation by an attorney on its behalf.
- K. County Counsel may prosecute or bring a civil action against violators of this chapter, or those who fail to comply with the hearing procedure, or an order of the Hearings Officer or Board. Such action shall be brought or pursued in the District or Circuit Court of the State of Oregon. [Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 05-2003, 3/13/03]

#### **6.05.090 Penalties**

Violation of this chapter shall be punishable by a penalty or fine in an amount set by resolution of the Board of County Commissioners. [Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 5-2003, 3-13-03]

#### **6.05.100 Payment**

Payment of all fines under this chapter shall be made by mailing or delivering the response form attached to the citation accompanied by a check or money order for the amount of the fine to the Sheriff's Office at 2223 5. Kaen Road, Oregon City, Oregon 97045. [Codified by Ord. 05-2000, 7/13/00]

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# Appendix C: OAR 340-035 Noise Control Regulations

Oregon Administrative Rules  
Chapter 340: Department of Environmental Quality  
Division 35: Noise Control Regulations

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 35

NOISE CONTROL REGULATIONS

General

340-035-0005

Policy

In the interest of public health and welfare, and in accordance with ORS 467.010, it is declared to be the public policy of the State of Oregon:

- (1) To provide a coordinated state-wide program of noise control to protect the health, safety, and welfare of Oregon citizens from the hazards and deterioration of the quality of life imposed by excessive noise emissions;
- (2) To facilitate cooperation among units of state and local governments in establishing and supporting noise control programs consistent with the state program and to encourage the enforcement of viable local noise control regulations by the appropriate local jurisdiction;
- (3) To develop a program for the control of excessive noise sources which shall be undertaken in a progressive manner, and each of its objectives shall be accomplished by cooperation among all parties concerned.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.010

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74 340-035-0010

Exceptions

- (1) Upon written request from the owner or controller of a noise source, the Department may authorize exceptions as specifically listed in these rules.
- (2) In establishing exceptions, the Department shall consider the protection of health, safety, and welfare of Oregon citizens as well as the feasibility and cost of noise abatement; the past, present, and future patterns of land use; the relative timing of land use changes; and other legal constraints. For those exceptions which it authorizes the Department shall specify the times during which the noise rules can be exceeded and the quantity and quality of the noise generated, and when appropriate shall specify the increments of progress of the noise source toward meeting the noise rules.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74

340-035-0015 Definitions As used in this division:

- (1) "Air Carrier Airport" means any airport that serves air carriers holding Certificates of Public Convenience and Necessity issued by the Civil Aeronautic Board.

- (2) "Airport Master Plan" means any long-term development plan for the airport established by the airport proprietor.
- (3) "Airport Noise Abatement Program" means a Commission-approved program designed to achieve noise compatibility between an airport and its environs.
- (4) "Airport Proprietor" means the person who holds title to an airport.
- (5) "Ambient Noise" means the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.
- (6) "Annual Average Day-Night Airport Noise Level" means the average, on an energy basis, of the daily Day-Night Airport Noise Level over a 12-month period.
- (7) "Any One Hour" means any period of 60 consecutive minutes during the 24-hour day.
- (8) "Closed Course Motorcycle Racing Vehicle" means any motorcycle racing vehicle that is operated in competition or practice session on a closed course motor sports facility, i.e., where public access is restricted and admission is generally charged.
- (9) "Commission" means the Environmental Quality Commission.
- (10) "Construction" shall mean building or demolition work and shall include all activities thereto such as clearing of land, earthmoving, and landscaping, but shall not include the production of construction materials.
- (11) "Day-Night Airport Noise Level (Ldn)" means the Equivalent Noise Level produced by airport/aircraft operations during a 24-hour time period, with a 10 decibel penalty applied to the level measured during the nighttime hours of 10 p.m. to 7 a.m.
- (12) "Department" means the Department of Environmental Quality.
- (13) "Director" means the Director of the Department.
- (14) "Drag Racing Vehicle" means any racing vehicle used to compete in any acceleration competition initiated from a standing start and continued over a straight line course.
- (15) "Emergency Equipment" means noise emitting devices required to avoid or reduce the severity of accidents. Such equipment includes, but is not limited to, safety valves and other unregulated pressure relief devices.
- (16) "Equivalent Noise Level (Leq)" means the equivalent steady state sound level in A-weighted decibels for a stated period of time which contains the same acoustic energy as the actual time-varying sound level for the same period of time.
- (17) "Existing Industrial or Commercial Noise Source" means any industrial or commercial noise source for which installation or construction was commenced prior to January 1, 1975.
- (18) "Farm Tractor" means any motor vehicle designed primarily for use in agricultural operations for drawing or operating plows, mowing machines, or other implements of husbandry.
- (19) "Four Wheel Drive Racing Vehicle" means any four-wheeled racing vehicle with at least one wheel on the front and rear axle driven by the engine or any racing vehicle participating in an event with predominantly four wheel drive racing vehicles.
- (20) "Go-Kart Racing Vehicle" means a light-weight four-wheeled racing vehicle of the type commonly known as a go-kart.
- (21) "Impulse Sound" means either a single pressure peak or a single burst (multiple pressure peaks) for a duration of less than one second as measured on a peak unweighted sound pressure measuring instrument or "C" weighted, slow response instrument and specified by dB and dBC respectively.
- (22) "In-Use Motor Vehicle" means any motor vehicle which is not a new motor vehicle.
- (23) "Industrial or Commercial Noise Source" means that source of noise which generates industrial or commercial noise levels.
- (24) "Industrial or Commercial Noise Levels" means those noises generated by a combination of equipment, facilities, operations, or activities employed in the production, storage, handling, sale, purchase, exchange, or maintenance of a product, commodity, or service and those noise levels generated in the storage or disposal of waste products.

- (25) "Motorboat" as used in OAR 340-035-0025 means a watercraft propelled by an internal combustion engine but does not include a boat powered by an outboard motor or an inboard/outboard power package designed to exhaust beneath the surface of the water.
- (26) "Motorcycle" means any motor vehicle, except farm tractors, designed to travel on not more than three wheels which are in contact with the ground.
- (27) "Motor Sports Advisory Committee" means a committee appointed by the Director, from among the nominees, for the purpose of technical advice on racing activities and to recommend Exceptions to these rules as specified in OAR 340-035-0040(12). This Committee shall consist of
  - (a) One permanent public member nominated by a noise impacted group or association; and
  - (b) One representative of each of the racing vehicle types identified in OAR 340-035-0040(2) as nominated by the respective sanctioning bodies; and
  - (c) The program manager of the Department's noise pollution control section who shall also serve as the departmental staff liaison to this body; and (d) An attorney; and (e) An acoustical engineer.
- (28) "Motor Sports Facility" means any facility, track or course upon which racing events are conducted.
- (29) "Motor Sports Facility Noise Impact Boundaries" means the daily 55 dBA day-night (Ldn) noise contours around the motor sports facility representing events that may occur on the day of maximum projected use.
- (30) "Motor Sports Facility Owner" means the owner or operator of a motor sports facility or an agent or designee of the owner or operator. When a Racing Event is held on public land, the event organizer (i.e., promoter) shall be considered the motor sports facility owner for the purposes of these rules.
- (31) "Motor Vehicle" means any vehicle which is, or is designed to be self-propelled or is designed or used for transporting persons or property. This definition excludes airplanes, but includes watercraft.
- (32) "New Airport" means any airport for which installation, construction, or expansion of a runway commenced after January 1, 1980.
- (33) "New Industrial or Commercial Noise Source" means any industrial or commercial noise source for which installation or construction was commenced after January 1, 1975 on a site not previously occupied by the industrial or commercial noise source in question.
- (34) "New Motor Sports Facility" is any permanent motor sports facility for which construction or installation was commenced after January 1, 1982. Any recreational park or similar facility which initiates sanctioned racing after this date shall be considered a new motor sports facility.
- (35) "New Motor Vehicle" means a motor vehicle whose equitable or legal title has never been transferred to a person who in good faith purchases the new motor vehicle for purposes other than resale. The model year of such vehicle shall be the year so specified by the manufacturer, or if not so specified, the calendar year in which the new motor vehicle was manufactured.
- (36) "Noise Impact Boundary" means a contour around the airport, any point on which is equal to the airport noise criterion.
- (37) "Noise Level" means weighted sound pressure level measured by use of a metering characteristic with an "A" frequency weighting network and reported as dBA.
- (38) "Noise Sensitive Property" means real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner.
- (39) "Octave Band Sound Pressure Level" means the sound pressure level for the sound being measured within the specified octave band. The reference pressure is 20 micropascals (20 micronewtons per square meter).
- (40) "Off-Road Recreational Vehicle" means any motor vehicle, including water craft, used off public roads for recreational purposes. When a road vehicle is operated off-road the vehicle shall be considered an off-road recreational vehicle if it is being operated for recreational purposes.
- (41) "One-Third Octave Band Sound Pressure Level" means the sound pressure level for the sound being measured within the specified one-third octave band at the preferred frequencies. The reference pressure is 20 micropascals (20 micronewtons per square meter).

- (42) "Open Course Motorcycle Racing Vehicle" means any motorcycle racing vehicle that is operated in competition on an open course motor sports facility, i.e., where public access is not generally restricted. This definition is intended to include the several types of motorcycles such as "enduro" and "cross country" that are used in events held in trail or other off-road environments.
- (43) "Oval Course Racing Vehicle" means any racing vehicle, not a motorcycle and not a sports car, which is operated upon a closed, oval-type motor sports facility.
- (44) "Person" means the United States Government and agencies thereof, any state, individual, public or private corporation, political subdivision, governmental agency, municipality, industry, co-partnership, association, firm, trust, estate, or any other legal entity whatever.
- (45) "Practice Sessions" means any period of time during which racing vehicles are operated at a motor sports facility, other than during racing events. Driver training sessions or similar activities which are not held in anticipation of a subsequent racing event, and which include only vehicles with a stock exhaust system, shall not be considered practice sessions.
- (46) "Preferred Frequencies" means those mean frequencies in Hertz preferred for acoustical measurements which for this purpose shall consist of the following set of values: 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10,000, 12,500.
- (47) "Previously Unused Industrial or Commercial Site" means property which has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of construction of a new industrial or commercial source on that property. Agricultural activities and silvicultural activities generating infrequent noise emissions shall not be considered as industrial or commercial operations for the purposes of this definition.
- (48) "Propulsion Noise" means that noise created in the propulsion of a motor vehicle. This includes, but is not limited to, exhaust system noise, induction system noise, tire noise, cooling system noise, aerodynamic noise, and, where appropriate in the test procedure, braking system noise. This does not include noise created by road vehicle auxiliary equipment such as power take-offs and compressors.
- (49) "Public Roads" means any street, alley, road, highway, freeway, thoroughfare, or section thereof in this state used by the public or dedicated or appropriated to public use.
- (50) "Quiet Area" means any land or facility designated by the Commission as an appropriate area where the qualities of serenity, tranquility, and quiet are of extraordinary significance and serve an important public need, such as, without being limited to, a wilderness area, national park, state park, game reserve, wildlife breeding area, or amphitheater. The Department shall submit areas suggested by the public as quiet areas, to the Commission, with the Department's recommendation.
- (51) "Racing Events" means any time, speed or distance competition using motor vehicles, conducted under a permit issued by the governmental authority having jurisdiction or under the auspices of a recognized sanctioning body. This definition includes, but is not limited to, events on the surface of land and water. Any motor sports event not meeting this definition shall be subject to the ambient noise limits of OAR 340-035-0030(1)(d).
- (52) "Racing Vehicle" means any Motor Vehicle that is designed to be used exclusively in Racing Events or any New Motor Vehicle that has not been certified by its manufacturer as meeting the applicable noise limits of OAR 340-035-0025 or any vehicle participating in or practicing for a Racing Event.
- (53) "Recreational Park" means a facility open to the public for the operation of off-road recreational vehicles.
- (54) "Road Vehicle" means any motor vehicle registered for use on public roads, including any attached trailing vehicles.
- (55) "Road Vehicle Auxiliary Equipment" means those mechanical devices which are built in or attached to a road vehicle and are used primarily for the handling or storage of products in that motor vehicle. This includes, but is not limited to, refrigeration units, compressors, compactors, chippers, power lifts, mixers, pumps, blowers, and other mechanical devices.

- (56) "Sound Pressure Level" (SPL) means 20 times the logarithm to the base 10 of the ratio of the root-mean-square pressure of the sound to the reference pressure. SPL is given in decibels (dB). The reference pressure is 20 micropascals (20 micronewtons per square meter).
- (57) "Special Motor Racing Event" means any racing event in which a substantial or significant number of out-of-state racing vehicles are competing or any event which has a special significance to the community and which has been recommended as a special motor racing event by the motor sports advisory committee and approved by the Department.
- (58) "Sports Car Racing Vehicle" means any racing vehicle which meets the requirements and specifications of the competition rules of any sports car organization.
- (59) "Statistical Noise Level" means the noise level which is equalled or exceeded a stated percentage of the time. An L10 = 65 dBA implies that in any hour of the day 65 dBA can be equalled or exceeded only 10% of the time, or for 6 minutes.
- (60) "Stock Exhaust System" means an original equipment manufacturer exhaust system or a replacement for original equipment for a street legal vehicle whose noise emissions do not exceed those of the original equipment.
- (61) "Temporary Autocross or Solo Course" means any area upon which a paved course motor sports facility is temporarily established. Typically such courses are placed on parking lots, or other large paved areas, for periods of one or two days.
- (62) "Top Fuel-Burning Drag Racing Vehicle" means a drag racing vehicle that operates using principally alcohol (more than 50 percent) or utilizes nitromethane as a component of its operating fuel and commonly known as top fuel and funny cars.
- (63) "Trackside" means a sound measuring point of 50 feet from the racing vehicle and specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPC-35.
- (64) "Warning Device" means any device which signals an unsafe or potentially dangerous situation.
- (65) "Watercraft Racing Vehicle" means any racing vehicle which is operated upon or immediately above the surface of water.
- (66) "Well Maintained Muffler" means a device or combination of devices which effectively decreases the sound energy of internal combustion engine exhaust without a muffler by a minimum of 5 dBA at trackside. A well maintained muffler shall be free of defects or modifications that reduce its sound reduction capabilities. Each outlet of a multiple exhaust system shall comply with the requirements of this subsection, notwithstanding the total engine displacement versus muffler length requirements. Such a muffler shall be a:
  - (a) Reverse gas flow device incorporating a multitube and baffle design; or a
  - (b) Perforated straight core device, fully surrounded from beginning to end with a sound absorbing medium, not installed on a rotary engine:
    - (A) At least 20 inches in inner core length when installed on any drag race engine exceeding 1600 cc (96.7 cubic inches) displacement; or
    - (B) At least 12 inches in inner core length when installed on any non-motorcycle drag race engine equal to or less than 1600 cc (96.7 cubic inches) displacement; or
    - (C) At least 6 inches in inner core length and installed at the outlet end of any four-cycle motorcycle drag race engine; or
    - (D) At least 8 inches in inner core length when installed on any two-cycle motorcycle drag race engine; or an
  - (c) Annular swirl flow (auger-type) device of:
    - (A) At least 16 inches in swirl chamber length when installed on any drag race engine exceeding 1600 cc (96.7 cubic inches) displacement; or
    - (B) At least 10 inches in swirl chamber length when installed on any drag race engine equal to or less than 1600 cc (96.7 cubic inches) displacement; or a
  - (d) Stacked 360° diffuser disc device; or a
  - (e) Turbocharger; or a

- (f) Go-kart muffler as defined by the International Karting Federation as specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPC-35; or an
- (g) Original equipment manufacturer motorcycle muffler when installed on a motorcycle model such muffler was designated for by the manufacturer; or
- (h) Boat motor whose exhaust exits beneath the water surface during operation; or a
- (i) Formula Vee four-into-one header/collector when installed on a Formula Vee sports car racing vehicle; or a
- (j) Hughes-type Racing muffler; or
- (k) Any other device demonstrated effective and approved by the motor sports advisory committee and the Department.

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 77, f. 9-5-74, ef. 9-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef. 6-7-77; DEQ 33-1979, f. & ef. 11-27-79; DEQ 17-1980, f. & ef. 5-28-80; DEQ 33-1980, f. 12-2-80, ef. 1-1-82; DEQ 7-1983, f. & ef. 4-22-83 340-035-0025

#### Noise Control Regulations for the Sale of New Motor Vehicles

##### (1) Standards and Regulations:

- (a) No person shall sell or offer for sale any new motor vehicle designated in this rule which produces a propulsion noise exceeding the noise limits specified in Table 1, except as otherwise provided in these rules.
- (b) Subsequent to the adoption of a Federal Environmental Protection Agency procedure to determine sound levels of passenger cars and light trucks, or a nationally accepted procedure for these vehicles not similar to those specified and approved under subsection (2)(a) of this rule, the Department shall conduct an evaluation under such new procedure.
- (c) After an appropriate evaluation of noise emission data measured under the procedure specified under subsection (1)(b) of this rule, the Department shall make recommendations to the Commission on the adequacy of the procedure and the necessity of amendments to this rule for incorporation of the procedure and associated standards.
- (d) No person shall sell or offer to sell any new motorcycle, new motorcycle exhaust system or new motorcycle exhaust system component manufactured after January 1, 1983 unless the motorcycle, exhaust system, or exhaust component is properly labeled or marked in accordance with federal noise regulations specified in Part 205 Subpart E of Title 40 of the Code of Federal Regulations.

##### (2) Measurement:

- (a) Sound measurements shall conform to test procedures adopted by the Commission in Motor Vehicle Sound Measurement Procedures Manual (NPC-21), or to standard methods approved in writing by the Department. These measurements will generally be carried out by the motor vehicle manufacturer on a sample of either prototype or production vehicles. A certification program shall be devised by the manufacturer and submitted to the Department for approval within 60 days after the adoption of this rule;
- (b) Nothing in this rule shall preclude the Department from conducting separate or additional noise level tests and measurements on new motor vehicles being offered for sale. Therefore, when requested by the Department a new motor vehicle dealer or manufacturer shall cooperate in reasonable noise testing of a specific class of motor vehicle being offered for sale.

##### (3) Manufacturer's Certification:

- (a) Prior to the sale of or offer for sale of any new motor vehicle designated in Table 1, the manufacturer or a designated representative shall certify in writing to the Department that vehicles listed in Table 1 made by that manufacturer and offered for sale in the State of Oregon meet applicable noise limits. Such certification will include a statement by the manufacturer that:

- (A) The manufacturer has tested sample or prototype vehicles;
  - (B) That such samples or prototypes met applicable noise limits when tested in accordance with the procedures specified;
  - (C) That vehicles offered for sale in Oregon are substantially identical in construction to such samples or prototypes.
- (b) Nothing in this rule shall preclude the Department from obtaining specific noise measurement data gathered by the manufacturer on prototype or production vehicles for a class of vehicles for which the Department has reasonable grounds to believe is not in conformity with the applicable noise limits.
- (4) Exceptions: Upon prior written request from the manufacturer or designated representative, the Department may authorize an exception to this noise rule for a class of motor vehicles, if it can be demonstrated to the Department that for that specific class a vehicle manufacturer has not had adequate lead-time or does not have the technical capability to either bring the motor vehicle noise into compliance or to conduct new motor vehicle noise tests.
- (5) Exemptions:
- (a) All racing vehicles, except racing motorcycles and racing motorboats, shall be exempt from the requirements of this rule provided that such vehicles are operated only at facilities used for sanctioned racing events;
  - (b) Racing motorcycles and racing motorboats shall be exempt from the requirements of this rule provided that racing motorcycles are operated only at facilities used for sanctioned racing events, racing motorboats are operated only at areas designated by the State Marine Board for testing or at an approved racing event, and the following conditions are complied with:
    - (A) Prior to the sale of a racing motorcycle or racing motorboat, the prospective purchaser shall file a notarized affidavit with the Department, on a Departmentally approved form, stating that it is the intention of such prospective purchaser to operate the vehicle only at facilities used for sanctioned racing events; and
    - (B) No racing vehicle shall be displayed for sale in the State of Oregon without notice prominently affixed thereto:
      - (i) That such vehicle will be exempt from the requirements of this rule only upon demonstration to the Department that the vehicle will be operated only at facilities used for sanctioned racing events, and
      - (ii) That a notarized affidavit will be required of the prospective purchaser stating that it is the intention of such prospective purchaser to operate the vehicle only at facilities used for sanctioned racing events; and
    - (C) No racing vehicle shall be locally advertised in the State of Oregon as being for sale without notice included:
      - (i) Which is substantially similar to that required in subparagraph (B)(i) and (ii) of this subsection; and
      - (ii) Which is unambiguous as to which vehicle such notice applies.

[ED. NOTE: The Table(s) referenced in this rule are not printed in the OAR Compilation. Copies are available from the agency.]

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef. 6-7-77; DEQ 143, f. & ef. 9-30-77; DEQ 146, f. & ef. 11-3-77; DEQ 18-1978, f. & ef. 12-1-78; DEQ 20-1978, f. & ef. 12-27-78; DEQ 3-1979, f. & ef. 2-2-79; DEQ 10-1980, f. & ef. 4-3-80; DEQ 17-1980, f. & ef. 5-28-80; DEQ 13-1982, f. & ef. 7-21-82; DEQ 7-1983, f. & ef. 4-22-83

340-035-0030

Noise Control Regulations For In-Use Motor Vehicles

(1) Standards and Regulations:

(a) Road Vehicles:

- (A) No person shall operate any road vehicle which exceeds the noise level limits specified in Table 2 or in such a manner to exceed the noise level limits specified in Table 3, except as otherwise provided in these rules.
- (B) No person shall operate a road vehicle with any of the following defects:
  - (i) No muffler;
  - (ii) Leaks in the exhaust system;
  - (iii) Pinched outlet pipe.
- (C) Non-conforming "classic" and other "special interest" vehicles may be granted an exception to this rule, pursuant to OAR 340-035-0010, for the purpose of maintaining authentic equipment.

(b) Off-Road Recreational Vehicles:

- (A) No person shall operate any off-road recreational vehicle which exceeds the stationary noise level limits specified in Table 4 or in such a manner as to exceed the moving vehicle noise level limits specified in Table 4;
- (B) No person shall operate an off-road recreational vehicle with any of the following defects:
  - (i) No muffler;
  - (ii) Leaks in the exhaust system;
  - (iii) Pinched outlet pipe.

(c) Trucks Engaged in Interstate Commerce. Motor vehicles with a GVWR or GCWR in excess of 10,000 pounds which are engaged in interstate commerce by trucking and are regulated by Part 202 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-574, shall be:

- (A) Free from defects which adversely affect sound reduction;
- (B) Equipped with a muffler or other noise dissipative device;
- (C) Not equipped with any "cut-out" devices, "by-pass" devices, or any other similar devices; and
- (D) Not equipped with any tire which as originally manufactured or newly retreaded has a tread pattern composed primarily of cavities in the tread, excluding sipes and local chunking, not vented by grooves to the tire shoulder or vented circumferentially to each other around the tire.

(d) Ambient Noise Limits:

- (A) No person shall cause, allow, permit, or fail to control the operation of motor vehicles, including motorcycles, on property which he owns or controls, nor shall any person operate any such motor vehicle if the operation thereof increases the ambient noise level such that the appropriate noise level specified in Table 5 is exceeded as measured from either of the following points, if located within 1,000 feet (305 meters) of the motor vehicle:
  - (i) Noise sensitive property; or
  - (ii) A quiet area.
- (B) Exempt from the requirements of this section shall be:
  - (i) Motor vehicles operating in racing events;
  - (ii) Motor vehicles initially entering or leaving property which is more than 1,000 feet (305 meters) from the nearest noise sensitive property or quiet area;
  - (iii) Motor vehicles operating on public roads; and
  - (iv) Motor vehicles operating off-road for non-recreational purposes.

(e) Auxiliary Equipment Noise Limits:

- (A) No person shall operate any road vehicle auxiliary equipment which exceeds the noise limits specified in Table 6, except as otherwise provided in these rules;
- (B) No person shall cause, allow, permit, or fail to control the operation of any road vehicle auxiliary equipment that exceeds 50 dBA for more than 30 minutes between 10 p.m. and 7 a.m.

at any appropriate noise sensitive property measurement point as specified in OAR 340-035-0035(3)(b).

- (f) Motorcycles manufactured after December 31, 1982 to Federal Noise Regulations (40 CFR Part 205):
  - (A) No person shall remove or render inoperative, or cause to be removed or rendered inoperative, other than for the purposes of maintenance, repair, or replacement of any device or element of design incorporated in the motorcycle for the purpose of noise control;
  - (B) No person shall remove or deface any noise label or mark required by federal law which is affixed to any motorcycle or motorcycle part for purposes of identifying the motorcycle or motorcycle part as a federally regulated product;
  - (C) No person shall operate any road or off-road motorcycle manufactured to federal noise law that does not bear a label or mark on the exhaust system that matches the model specific code of the motorcycle on which the system is installed;
  - (D) No person shall operate, nor shall any person cause, allow, permit or fail to control the operation of any competition motorcycle identified for "competition use only" by the noise label or mark required by federal law on any property other than a motor sports facility in a practice session or a racing event;
  - (E) No person shall operate, nor shall any person cause, allow, permit or fail to control the operation of any motorcycle fitted with an exhaust system or exhaust system component identified for "competition motorcycles only" by the noise label or mark required by federal law on any property other than a motor sports facility in a practice session or a racing event.
- (2) Measurement. Sound measurement shall conform to test procedures adopted by the Commission in Sound Measurement Procedures Manual (NPCS-1) and Motor Vehicle Sound Measurement Procedures Manual (NPCS-21) or to standard methods approved in writing by the Department.
- (3) Exemptions:
  - (a) Motor vehicles registered as antique or historical motor vehicles licensed in accordance with ORS 481.205(4) are exempt from these regulations;
  - (b) Motor vehicle warning devices are exempt from these regulations;
  - (c) Vehicles equipped with at least two snowtread tires are exempt from the noise limits of Table 3;
  - (d) Motor vehicles described in subsection (1)(c) of this rule, which are demonstrated by the operator to be in compliance with the noise levels in Table 3, for operation greater than 35 mph, are exempt from these regulations;
  - (e) Auxiliary equipment operated on construction sites or in the maintenance of capital equipment or to avoid or reduce the severity of accidents or operated on a farm for agricultural purposes or operated on forest land as defined in subsection (1) of ORS 526.324 for activities related to the growing or harvesting of forest tree species are exempt from these regulations.
- (4) Equivalency:
  - (a) The in-use motor vehicle standards specified in Table 2 and 3 have been determined by the Department to be substantially equivalent to the 25 foot stationary test standards set forth in 1977 Oregon, Laws, Chapter 273;
  - (b) Tests shall be conducted according to the procedures in Motor Vehicle Sound Measurement Procedures Manual (NPCS-21) or to standard methods approved in writing by the Department.

[ED. NOTE: The Table(s) referenced in this rule are not printed in the OAR Compilation. Copies are available from the agency.]

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74; DEQ 119, f. & ef. 9-1-76; DEQ 135, f. & ef. 6-7-77; DEQ 147(Temp), f. & ef. 12-1-77; DEQ 2-1978, f. & ef. 3-1-78; DEQ 7-1983, f. & ef. 4-22-83

340-035-0035

Noise Control Regulations for Industry and Commerce

(1) Standards and Regulations:

- (a) Existing Noise Sources. No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules.
- (b) New Noise Sources:
  - (A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.
  - (B) New Sources Located on Previously Unused Site:
    - (i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).
    - (ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.
    - (iii) For noise levels generated or caused by a wind energy facility:
      - (I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level .
      - (II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with windspeed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.
      - (III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.
      - (IV) For purposes of determining whether a proposed wind energy facility would satisfy the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are predicted assuming that all of the proposed wind facility's turbines are operating between cut-in speed and the wind speed corresponding to the maximum sound power level established by IEC 61400-11 (version 2002-12). These predictions must be compared to the highest of either the assumed ambient noise level of 26

dBA or to the actual ambient background L10 and L50 noise level, if measured. The facility complies with the noise ambient background standard if this comparison shows that the increase in noise is not more than 10 dBA over this entire range of wind speeds.

- (V) For purposes of determining whether an operating wind energy facility complies with the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are measured when the facility's nearest wind turbine is operating over the entire range of wind speeds between cut-in speed and the windspeed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled. The facility complies with the noise ambient background standard if the increase in noise over either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured, is not more than 10 dBA over this entire range of wind speeds.
  - (VI) For purposes of determining whether a proposed wind energy facility would satisfy the Table 8 standards, noise levels at the appropriate measurement point are predicted by using the turbine's maximum sound power level following procedures established by IEC 61400-11 (version 2002-12), and assuming that all of the proposed wind facility's turbines are operating at the maximum sound power level.
  - (VII) For purposes of determining whether an operating wind energy facility satisfies the Table 8 standards, noise generated by the energy facility is measured at the appropriate measurement point when the facility's nearest wind turbine is operating at the windspeed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled.
- (c) Quiet Areas. No person owning or controlling an industrial or commercial noise source located either within the boundaries of a quiet area or outside its boundaries shall cause or permit the operation of that noise source if the statistical noise levels generated by that source exceed the levels specified in Table 9 as measured within the quiet area and not less than 400 feet (122 meters) from the noise source.
  - (d) Impulse Sound. Notwithstanding the noise rules in Tables 7 through 9, no person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if an impulsive sound is emitted in air by that source which exceeds the sound pressure levels specified below, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule:
    - (A) Blasting. 98 dBC, slow response, between the hours of 7 a.m. and 10 p.m. and 93 dBC, slow response, between the hours of 10 p.m. and 7 a.m.
    - (B) All Other Impulse Sounds. 100 db, peak response, between the hours of 7 a.m. and 10 p.m. and 80 dB, peak response, between the hours of 10 p.m. and 7 a.m.
  - (e) Octave Bands and Audible Discrete Tones. When the Director has reasonable cause to believe that the requirements of subsection (1)(a), (b), or (c) of this rule do not adequately protect the health, safety, or welfare of the public as provided for in ORS Chapter 467, the Department may require the noise source to meet the following rules:
    - (A) Octave Bands. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceeds applicable levels specified in Table 10.
    - (B) One-third Octave Band. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median one-third octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, and in a one-third octave band at a preferred frequency, exceeds the arithmetic average of the median sound pressure levels of the two adjacent one-third octave bands by:
      - (i) 5 dB for such one-third octave band with a center frequency from 500 Hertz to 10,000 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or

- (ii) 8 dB for such one-third octave band with a center frequency from 160 Hertz to 400 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or
  - (iii) 15 dB for such one-third octave band with a center frequency from 25 Hertz to 125 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band;
  - (iv) This rule shall not apply to audible discrete tones having a one-third octave band sound pressure level 10 dB or more below the allowable sound pressure levels specified in Table 10 for the octave band which contains such one-third octave band.
- (2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.
- (3) Measurement:
  - (a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;
  - (b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:
    - (A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;
    - (B) That point on the noise sensitive property line nearest the noise source.
- (4) Monitoring and Reporting:
  - (a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);
  - (b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:
    - (A) Access to the site;
    - (B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;
    - (C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.
- (5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:
  - (a) Emergency equipment not operated on a regular or scheduled basis;
  - (b) Warning devices not operating continuously for more than 5 minutes;
  - (c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;
  - (d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;
  - (e) Sounds created by bells, chimes, or carillons;
  - (f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards.

An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

- (g) Sounds that originate on construction sites.
  - (h) Sounds created in construction or maintenance of capital equipment;
  - (i) Sounds created by lawn care maintenance and snow removal equipment;
  - (j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;
  - (k) Sounds created by the operation of road vehicle auxiliary equipment complying with the noise rules for such equipment as specified in OAR 340-035-0030(1)(e);
  - (l) Sounds created by agricultural activities;
  - (m) Sounds created by activities related to the growing or harvesting of forest tree species on forest land as defined in subsection (1) of ORS 526.324.
- (6) Exceptions: Upon written request from the owner or controller of an industrial or commercial noise source, the Department may authorize exceptions to section (1) of this rule, pursuant to rule 340-035-0010, for:
- (a) Unusual and/or infrequent events;
  - (b) Industrial or commercial facilities previously established in areas of new development of noise sensitive property;
  - (c) Those industrial or commercial noise sources whose statistical noise levels at the appropriate measurement point are exceeded by any noise source external to the industrial or commercial noise source in question;
  - (d) Noise sensitive property owned or controlled by the person who controls or owns the noise source;
  - (e) Noise sensitive property located on land zoned exclusively for industrial or commercial use.

[ED. NOTE: Tables referenced are available from the agency.]

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030 Hist.: DEQ 77, f. 9-5-74, ef. 9-25-74; DEQ 135, f. & ef. 6-7-77; DEQ 8-1980, f. & ef. 3-11-80; DEQ 7-1983, f. & ef. 4-22-83; DEQ 5-2004, f. & cert. ef. 6-11-04

340-035-0040

#### Noise Control Regulations for Motor Sports Vehicles and Facilities

- (1) Statement of Purpose:
- (a) The Commission finds that the periodic noise pollution caused by Oregon motor sports activities threatens the environment of citizens residing in the vicinity of motor sports facilities. To mitigate motor sports noise impacts, a coordinated statewide program is desirable to ensure that effective noise abatement programs are developed and implemented where needed. This abatement program includes measures to limit the creation of new noise impacts and the reduction of existing noise impacts to the extent necessary and practicable;
  - (b) Since the Commission also recognizes the need of Oregon's citizens to participate in recreational activities of their choice, these rules balance those citizen needs which may conflict when motor sports facilities are in operation. Therefore, a policy of continuing participation in standards development through the active cooperation of interested parties is adopted. The choice of these parties is to limit the noise emission levels of racing and recreational vehicles, to designate equipment requirements, and to establish appropriate hours of operation. It is anticipated that safety factors, limited technology, special circumstances, and special events may require exceptions to these rules in some instances; therefore, a mechanism to accommodate this necessity is included in this rule;

- (c) This rule is designed to encourage the motor sports facility owner, the vehicle operator, and government to cooperate to limit and diminish noise and its impacts. These ends can be accomplished by encouraging compatible land uses and controlling and reducing the racing vehicle noise impacts on communities in the vicinity of motor sports facilities to acceptable levels;
  - (d) This rule is enforceable by the Department and civil penalties ranging from a minimum of \$25 to a maximum of \$500 may be assessed for each violation. The motor sports facility owner, the racing vehicle owner and the racing vehicle driver are held responsible for compliance with provisions of this rule. A schedule of civil penalties for noise control may be found under OAR 340-012-0052.
- (2) Standards:
- (a) Drag Racing Vehicle. No motor sports facility owner and no person owning or controlling a drag racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well maintained muffler;
  - (b) Oval Course Racing Vehicle. No motor sports facility owner and no person owning or controlling an oval course racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;
  - (c) Sports Car Racing Vehicle. No motor sports facility owner and no person owning or controlling a sports car racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;
  - (d) Closed Course Motorcycle Racing Vehicle. No motor sports facility owner and no person owning or controlling a closed course motorcycle racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside or 105 dBA at 20 inches (.5 meter) from the exhaust outlet during the stationary measurement procedure;
  - (e) Open Course Motorcycle Racing Vehicle. No motor sports facility owner and no person owning or controlling an open course motorcycle racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions do not exceed 105 dBA at 20 inches (.5 meter) from the exhaust outlet during the stationary measurement procedure;
  - (f) Four Wheel Drive Racing Vehicles. No motor sports facility owner and no person owning or controlling a four wheel drive racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;
  - (g) Watercraft Racing Vehicle. No motor sports facility owner and no person owning or controlling a watercraft racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside;
  - (h) Autocross or Solo Racing Vehicle. No motor sports facility owner and no person owning or controlling an autocross or solo racing vehicle shall cause or permit its operation on any temporary autocross or solo course unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 90 dBA at trackside. Autocross and solo events conducted on a permanent motor sports facility, such as a sports car or go-kart course, shall comply with the requirements for sports car racing vehicles specified in subsection (2)(c) of this rule;
  - (i) Go-Kart Racing Vehicle. No motor sports facility owner and no person owning or controlling a go-kart racing vehicle shall cause or permit its operation at any motor sports facility unless the vehicle is equipped with a properly installed and well-maintained muffler and noise emissions from its operation do not exceed 105 dBA at trackside.
- (3) New Motor Sports Facilities. Prior to the construction or operation of any permanent new motor sports facility, the facility owner shall submit for Department approval the projected motor sports facility noise impact boundaries. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation. Upon approval of the boundaries, this

information shall be submitted to the appropriate local planning unit and the Department of Land Conservation and Development for their review and appropriate action.

- (4) Practice Sessions. Notwithstanding section (2) of this rule, all racing vehicles in order to operate in practice sessions, shall comply with a noise mitigation plan which shall have been submitted to and approved by the motor sports advisory committee and the Director. Such plans may be developed and submitted prior to each racing season. An approved plan may be varied with prior written approval of the Department.
- (5) Recreational Park. When a motor sports facility is used as a recreational park for the operation of off-road recreational vehicles, the ambient noise limits of OAR 340-035-0030(1)(d) shall apply.
- (6) Operations:
  - (a) General. No motor sports facility owner and no person owning or controlling a racing vehicle shall permit its use or operation at any time other than the following:
    - (A) Sunday through Thursday during the hours 8 a.m. to 10 p.m. local time; and
    - (B) Friday through Saturday, state and national holidays and the day preceding, not to exceed three consecutive days, during the hours 8 a.m. to 11 p.m. local time.
  - (b) Overruns. Each motor sports facility may overrun the specified curfew times, including the time specified in subsection (11)(c) of this rule, not to exceed 30 minutes, no more than six days per year due to conditions beyond the control of the owner. Each overrun shall be documented to the Department within ten days of the occurrence;
  - (c) Special Events. Any approved special motor racing event may also be authorized to exceed this curfew pursuant to subsection (12)(a) of this rule.
  - (d) Continued Special Events. Any approved special event that cannot be completed within established curfew times due to circumstances beyond the control of the owner, such as but not limited to oil spills and accidents, may be continued the following day under the same conditions provided in the special event exception. The Department shall be notified within ten days of any continued special event.
- (7) Measurement and Procedures. All instruments, procedures and personnel involved in performing sound level measurements shall conform to the requirements specified in Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35, or to standard methods approved in writing by the Department.
- (8) Monitoring and Reporting:
  - (a) It shall be the responsibility of the motor sports facility owner to measure and record the required noise level data as specified under subsections (2)(b) - (i) of this rule and the Motor Race Vehicle and Facility Sound Measurement and Procedure Manual, NPCS-35. The owner shall either keep such recorded noise data available for a period of at least one calendar year or submit such data to the Department for storage. Upon request the owner shall make such recorded noise data available to the Department;
  - (b) When requested by the Department, any motor sports facility owner shall provide the following:
    - (A) Free access to the facility;
    - (B) Free observation of noise level monitoring;
    - (C) Cooperation and assistance in obtaining the reasonable operation of any Racing Vehicle using the facility as needed to ascertain its noise emission level.
- (9) Vehicle standards. No motor sports facility owner and no person owning or controlling a racing vehicle shall cause or permit a racing event or practice session unless the vehicle is equipped and operated in accordance with these rules.
- (10) Vehicle Testing. Nothing in this section shall preclude the motor sports facility owner from testing or barring the participation of any racing vehicle for non-compliance with these rules.
- (11) Exemptions:
  - (a) Any motor sports facility whose racing surface is located more than 2 miles from the nearest noise sensitive property shall be exempt from this rule;
  - (b) Any top fuel-burning drag racing vehicle shall be exempt from the requirements of subsection (2)(a) of this rule. No later than January 31, 1985 the Department shall report to the Commission on progress toward muffler technology development for this vehicle class and propose any necessary recommendations to amend this exemption;

- (c) Operation of non-complying jet powered dragsters between the hours of 11 a.m. and 10 p.m.;
  - (d) Operation of non-muffled racing vehicles at practice sessions between 12 noon and 3 p.m. as part of an approved plan as required pursuant to section (4) of this rule.
- (12) Exceptions. The Department shall consider the majority and minority recommendations of the motor sports advisory committee prior to the approval or denial of any exception to these rules. Exceptions may be authorized by the Department for the following pursuant to OAR 340- 035-0010:
- (a) Special motor racing events;
  - (b) Race vehicle or class of vehicles whose design or mode of operation makes operation with a muffler inherently unsafe or technically unfeasible;
  - (c) Motor sports facilities previously established in areas of new development of noise sensitive property;
  - (d) Noise sensitive property owned or controlled by a motor sports facility owner;
  - (e) Noise sensitive property located on land zoned exclusively for industrial or commercial use;
  - (f) Any motor sports facility owner or race sanctioning body that proposes a racing vehicle noise control program that accomplishes the intended results of the standards of section (2) of this rule, the measurement and procedures of section (7) of this rule, the monitoring and the reporting of section (8) of this rule;
  - (g) Any motor sports facility demonstrating that noise sensitive properties do not fall within the motor sports facility noise impact boundaries may be except from the curfew limits of section (6) of this rule and the monitoring and reporting requirements of section (8) of this rule;
  - (h) Any practice session for non-muffled racing vehicles that does not meet the exemption requirements specified in subsection (11)(d) of this rule.
- (13) Motor Sports Advisory Committee Actions. The committee shall serve at the call of the chairman who shall be elected by the members in accordance with the rules adopted by the committee for its official action.
- (14) Effective Date. These rules shall be effective January 1, 1982.

[Publication: The Publication(s) referred to or incorporated by reference in this rule are available from the agency.]

Stat. Auth.: ORS 467 Stats. Implemented: ORS 467.030

Hist.: DEQ 33-1980, f. 12-2-80, ef. 1-1-82; DEQ 7-1983, f. & ef. 4-22-83

340-035-0045

#### Noise Control Regulations for Airports

- (1) Statement of Purpose:
- (a) The Commission finds that noise pollution caused by Oregon airports threatens the public health and welfare of citizens residing in the vicinity of airports. To mitigate airport noise impacts a coordinated statewide program is desirable to ensure that effective Airport Noise Abatement Programs are developed and implemented where needed. An abatement program includes measures to prevent the creation of new noise impacts or the expansion of existing noise impacts to the extent necessary and practicable. Each abatement program will primarily focus on airport operational measures to prevent increased, and to lessen existing, noise levels. The program will also analyze the effects of aircraft noise emission regulations and land use controls;
  - (b) The principal goal of an airport proprietor who may be required to develop an Airport Noise Abatement program under this rule should be to reduce noise impacts caused by aircraft operations, and to address in an appropriate manner the conflicts which occur within the higher noise contours;
  - (c) The Airport Noise Criterion is established to define a perimeter for study and for noise sensitive use planning purposes. It is recognized that some or many means of addressing aircraft/airport noise at the Airport Noise Criterion Level may be beyond the control of the airport proprietor. It is therefore necessary that abatement programs be developed, whenever possible, with the cooperation of federal, state and local governments to ensure that all potential noise abatement measures are fully evaluated;

- (d) This rule is designed to encourage the airport proprietor, aircraft operator, and government at all levels to cooperate to prevent and diminish noise and its impacts. These ends may be accomplished by encouraging compatible land uses and controlling and reducing the airport/aircraft noise impacts on communities in the vicinity of airports to acceptable levels.
- (2) Airport Noise Criterion. The criterion for airport noise is an Annual Average Day-Night Airport Noise Level of 55 dBA. The Airport Noise Criterion is not designed to be a standard for imposing liability or any other legal obligation except as specifically designated within this section.
- (3) Airport Noise Impact Boundary:
  - (a) Air Carrier Airports. Within 12 months of designation, the proprietor of any Air Carrier Airport shall submit for Department approval, the existing airport Noise Impact Boundary. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation;
  - (b) Existing Non-Air Carrier Airports. After an unsuccessful effort to resolve a noise problem pursuant to section (5) of this rule, the Director may require the proprietor of any existing non-air carrier airport to submit for Department approval, all information reasonably necessary for the calculation of the existing airport Noise Impact Boundary. This information is specified in the Department's Airport Noise Control Procedure Manual (NPCS-37), as approved by the Commission. The proprietor shall submit the required information within twelve months of receipt of the Director's written notification;
  - (c) New Airports. Prior to the construction or operation and any required local government land-use approval of any New Airport, the proprietor shall submit for Department approval the projected airport Noise Impact Boundary for the first full calendar year of operation. The data and analysis used to determine the boundary shall also be submitted to the Department for evaluation. The Department shall notify the appropriate local planning unit of the results of their evaluation;
  - (d) Airport Master Planning. Any airport proprietor who obtains funding to develop an airport Master Plan shall submit for Department approval an existing noise impact boundary and projected noise impact boundaries at five, ten, and twenty years into the future. The data and analysis used to determine the boundaries shall also be submitted to the Department for evaluation;
  - (e) Impact Boundary Approval. Within 60 days of the receipt of a completed airport noise impact boundary, the Department shall either consider the boundary approved or provide written notification to the airport proprietor of deficiencies in the analysis.
- (4) Airport Noise Abatement Program and Methodology:
  - (a) Abatement Program. The proprietor of an existing or new airport whose airport Noise Impact Boundary includes Noise Sensitive Property, or may include Noise Sensitive Property, shall submit a proposed Airport Noise Abatement Program for Commission approval within 12 months of notification, in writing, by the Director. The Director shall give such notification when the Commission has reasonable cause to believe that an abatement program is necessary to protect the health, safety or welfare of the public following a public informational hearing on the question of such necessity. Reasonable cause shall be based upon a determination that:
    - (A) Present or planned airport operations cause or may cause noise impacts that interfere with noise sensitive use activities such as communication and sleep to the extent that the public health, safety or welfare is threatened;
    - (B) These noise impacts will occur on property presently used for noise sensitive purposes, or where noise sensitive use is permitted by zone or comprehensive plan; and
    - (C) It appears likely that a feasible noise abatement program may be developed.
  - (b) Program Elements. An Airport Noise Abatement Program shall consist of all of the following elements, but if it is determined by the Department that any element will not aid the development of the program, it may be excluded:
    - (A) Maps of the airport and its environs, and supplemental information, providing:
      - (i) Projected airport noise contours from the Noise Impact Boundary to the airport property line in 5 dBA increments under current year of operations and at periods of five, ten, and twenty years into the future with proposed operational noise control measures designated in paragraph (4)(b)(B);
      - (ii) All existing Noise Sensitive Property within the airport Noise Impact Boundary;
      - (iii) Present zoning and comprehensive land use plan permitted uses and related policies;

- (iv) Physical layout of the airport including the size and location of the runways, taxiways, maintenance and parking areas;
  - (v) Location of present and proposed future flight tracks;
  - (vi) Number of aircraft flight operations used in the calculation of the airport noise levels. This information shall be characterized by flight track, aircraft type, flight operation, number of daytime and nighttime operations, and takeoff weight of commercial jet transports.
- (B) An airport operational plan designed to reduce airport noise impacts at Noise Sensitive Property to the Airport Noise Criterion to the greatest extent practicable. The plan shall include an evaluation of the appropriateness and effectiveness of the following noise abatement operations by estimating potential reductions in the airport Noise Impact Boundary and numbers of Noise Sensitive Properties impacted within the boundary, incorporating such options to the fullest extent practicable into any proposed Airport Noise Abatement Program:
- (i) Takeoff and landing noise abatement procedures such as thrust reduction or maximum climb on takeoff;
  - (ii) Preferential and priority runway use systems;
  - (iii) Modification in approach and departure flight tracks;
  - (iv) Rotational runway use systems;
  - (v) Higher glide slope angles and glide slope intercept altitudes on approach;
  - (vi) Displaced runway thresholds;
  - (vii) Limitations on the operation of a particular type or class of aircraft, based upon aircraft noise emission characteristics;
  - (viii) Limitations on operations at certain hours of the day;
  - (ix) Limitations on the number of operations per day or year;
  - (x) Establishment of landing fees based on aircraft noise emission characteristics or time of day;
  - (xi) Rescheduling of operations by aircraft type or time of day;
  - (xii) Shifting operations to neighboring airports;
  - (xiii) Location of engine run-up areas;
  - (xiv) Times when engine run-up for maintenance can be done;
  - (xv) Acquisition of noise suppressing equipment and construction of physical barriers for the purpose of reducing aircraft noise impact;
  - (xvi) Development of new runways or extended runways that would shift noise away from populated areas or reduce the noise impact within the Airport Noise Impact Boundary.
- (C) A proposed land use and development control plan, and evidence of good faith efforts by the proprietor to obtain its approval, to protect the area within the airport Noise Impact Boundary from encroachment by non-compatible noise sensitive uses and to resolve conflicts with existing unprotected noise sensitive uses within the boundary. The Plan is not intended to be a community-wide comprehensive plan; it should be airport-specific, and should be of a scope appropriate to the size of the airport facility and the nature of the land uses in the immediate area. Affected local governments shall have an opportunity to participate in the development of the plan, and any written comments offered by an affected local government shall be made available to the Commission. The Department shall review the comprehensive land use plan of the affected local governments to ensure that reasonable policies have been adopted recognizing the local government's responsibility to support the proprietor's efforts to protect the public from excessive airport noise. The plan may include, but not be limited to, the following actions within the specified noise impact zones:
- (i) Changes in land use through non-noise sensitive zoning and revision of comprehensive plans, within the Noise Impact Boundary (55 dBA);
  - (ii) Influencing land use through the programming of public improvement projects within the Noise Impact Boundary (55 dBA);
  - (iii) Purchase assurance programs within the 65 dBA boundary;
  - (iv) Voluntary relocation programs within the 65 dBA boundary;
  - (v) Soundproofing programs within the 65 dBA boundary, or within the Noise Impact Boundary (55 dBA) if the governmental entity with land use planning responsibility desires, and will play a major role in implementation.

- (vi) Purchase of land for airport use within the 65 dBA boundary;
  - (vii) Purchase of land for airport related uses within the 65 dBA boundary;
  - (viii) Purchase of land for non-noise sensitive public use within the Noise Impact Boundary (55 dBA);
  - (ix) Purchase of land for resale for airport noise compatible purposes within the 65 dBA boundary;
  - (x) Noise impact disclosure to purchaser within the Noise Impact Boundary (55 dBA);
  - (xi) Modifications to Uniform State Building Code for areas of airport noise impact within the Noise Impact Boundary (55 dBA).
- (c) Federal Aviation Administration Concurrence. The proprietor shall use good faith efforts to obtain concurrence or approval for any portions of the proposed Airport Noise Abatement Program for which the airport proprietor believes that Federal Aviation Administration concurrence or approval is required. Documentation of each such effort and a written statement from FAA containing its response shall be made available to the Commission;
- (d) Commission Approval. Not later than twelve months after notification by the Director pursuant to subsection (4)(a) of this rule, the proprietor shall submit a proposed Airport Noise Abatement Program to the Commission for approval. Upon approval, the abatement program shall have the force and effect of an order of the Commission. The Commission may direct the Department to distribute copies of the approved abatement program to interested federal, state and local governments, and to other interested persons, and may direct the Department to undertake such monitoring or compliance assurance work as the Commission deems necessary to ensure compliance with the terms of its order. The Commission shall base its approval or disapproval of a proposed Noise Abatement Program upon:
- (A) The completeness of the information provided;
  - (B) The comprehensiveness and reasonableness of the proprietor's evaluation of the operational plan elements listed under paragraph (4)(b)(B) of this rule;
  - (C) The presence of an implementation scheme for the operational plan elements, to the extent feasible;
  - (D) The comprehensiveness and reasonableness of the proprietor's evaluation of land use and development plan elements listed under paragraph (4)(b)(C) of this rule;
  - (E) Evidence of good faith efforts to adopt the land use and development plan, or obtain its adoption by the responsible governmental body, to the extent feasible;
  - (F) The nature and magnitude of existing and potential noise impacts;
  - (G) Testimony of interested and affected persons; and (H) Any other relevant factors.
- (e) Program Renewal. No later than six months prior to the end of a five-year period following the Commission's approval, each current airport Noise Abatement Program shall be reviewed and revised by the proprietor, as necessary, and submitted to the Commission for consideration for renewal.
- (f) Program Revisions. If the Director determines that circumstances warrant a program revision prior to the scheduled five year review, the Airport Proprietor shall submit to the Commission a revised program within 12 months of written notification by the Director. The Director shall make such determination based upon an expansion of airport capacity, increase in use, change in the types or mix of various aircraft utilizing the airport, or changes in land use and development in the impact area that were unforeseen in earlier abatement plans. Any program revision is subject to all requirements of this rule.
- (5) Consultation. The Director shall consult with the airport proprietor, members of the public, the Oregon Departments of Transportation, Land Conservation and Development and any affected local government in an effort to resolve informally a noise problem prior to issuing a notification under subsections (3)(b), (4)(a) and (4)(f) of this rule.
- (6) Noise Sensitive Use Deviations. The airport noise criterion is designed to provide adequate protection of noise sensitive uses based upon out-of-doors airport noise levels. Certain noise sensitive use classes may be acceptable within the airport Noise Impact Boundary if all measures necessary to protect interior activities are taken.
- (7) Airport Noise Monitoring. The Department may request certification of the airport Noise Impact Boundary by actual noise monitoring, where it is deemed necessary to approve the boundary pursuant to subsection (3)(e) of this rule.
- (8) Exceptions. Upon written request from the Airport Proprietor, the Department may authorize exceptions to this rule, pursuant to OAR 340-035-0010, for:

- (a) Unusual or infrequent events;
- (b) Noise sensitive property owned or controlled by the airport;
- (c) Noise sensitive property located on land zoned exclusively for industrial or commercial use.

[Publication: Publications referenced are available from the agency.] Stat. Auth.: ORS 467  
Stats. Implemented: ORS 467.030 Hist.: DEQ 33-1979, f. & ef. 11-27-79; DEQ 7-1983, f. & ef. 4-22-83

340-035-0100

#### Variances

- (1) Conditions for Granting. The Commission may grant specific variances from the particular requirements of any rule, regulation, or order to such specific persons or class of persons or such specific noise source upon such conditions as it may deem necessary to protect the public health and welfare, if it finds that strict compliance with such rule, regulation, or order is inappropriate because of conditions beyond the control of the persons granted such variance or because of special circumstances which would render strict compliance unreasonable, or impractical due to special physical conditions or cause, or because strict compliance would result in substantial curtailment or closing down of a business, plant, or operation, or because no other alternative facility or method of handling is yet available. Such variances may be limited in time.
- (2) Procedure for Requesting. Any person requesting a variance shall make his request in writing to the Department for consideration by the Commission and shall state in a concise manner the facts to show cause why such variance should be granted.
- (3) Revocation or Modification. A variance granted may be revoked or modified by the Commission after a public hearing held upon not less than 20 days notice. Such notice shall be served upon the holder of the variance by certified mail and all persons who have filed with the Commission a written request for such notification.

Stat. Auth.: ORS 467

Stats. Implemented: ORS 467.030

Hist.: DEQ 75, f. 7-25-74, ef. 8-25-74

340-035-0110

#### Suspension of Commission and Department Responsibilities

In 1991, the Legislative Assembly withdrew all funding for implementing and administering ORS Chapter 467 and the Department's noise program. Accordingly, the Commission and the Department have suspended administration of the noise program, including but not limited to processing requests for exceptions and variances, reviewing plans, issuing certifications, forming advisory committees, and responding to complaints. Similarly, the public's obligations to submit plans or certifications to the Department are suspended.

Stat. Auth.: ORS 467

Stats. Implemented: ORS 467

Hist.: DEQ 5-2004, f. & cert. ef. 6-11-04

**TABLE 7**  
**(340-35-035)****Existing Industrial and Commercial Noise Source Standards****Allowable Statistical Noise Levels in Any One Hour**

<b><u>7am – 10 pm</u></b>	<b><u>10 pm – 7am</u></b>
L <sub>50</sub> – 55 dBA	L <sub>50</sub> – 50 dBA
L <sub>10</sub> – 60 dBA	L <sub>10</sub> – 55 dBA
L <sub>1</sub> – 75dBA	L <sub>1</sub> – 60 dBA

**TABLE 8**  
**(340-35-035)****New Industrial and Commercial Noise Source Standards****Allowable Statistical Noise Levels in Any One Hour**

<b><u>7 am – 10 pm</u></b>	<b><u>10 pm – 7am</u></b>
L <sub>50</sub> – 55 dBA	L <sub>50</sub> – 50 dBA
L <sub>10</sub> – 60 dBA	L <sub>10</sub> – 55 dBA
L <sub>1</sub> - 75 dBA	L <sub>1</sub> – 60 dBA

**TABLE 9**  
**(340-35-035)**

**Industrial and Commercial Noise Source Standards for Quiet Areas**

**Allowable Statistical Noise Levels in Any One Hour**

<b><u>7 am – 10 pm</u></b>	<b><u>10 pm – 7 am</u></b>
L <sub>50</sub> – 50 dBA	L <sub>50</sub> – 45 dBA
L <sub>10</sub> – 55 dBA	L <sub>10</sub> – 50 dBA
L <sub>1</sub> – 60 dBA	L <sub>1</sub> – 55 dBA

**TABLE 10**  
**(340-35-035)**

**Median Octave Band Standards for Industrial and Commercial Noise Sources**

**Allowable Octave Band Sound Pressure Levels**

<b><u>Octave Band Center Frequency, Hz</u></b>	<b><u>7am – 10 pm</u></b>	<b><u>10 pm – 7 am</u></b>
31.5	68	65
63	65	62
125	61	56
250	55	50
500	52	46
1000	49	43
2000	46	40
4000	43	37
8000	40	34