Appendix G Noise Background

Appendix

This page intentionally left blank.

Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Maximum Sound Level (L_{max})**. The highest RMS sound level measured during the measurement period.
- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.
- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level

± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology

except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual*. Prepared by ICF International.

LOCAL REGULATIONS AND STANDARDS

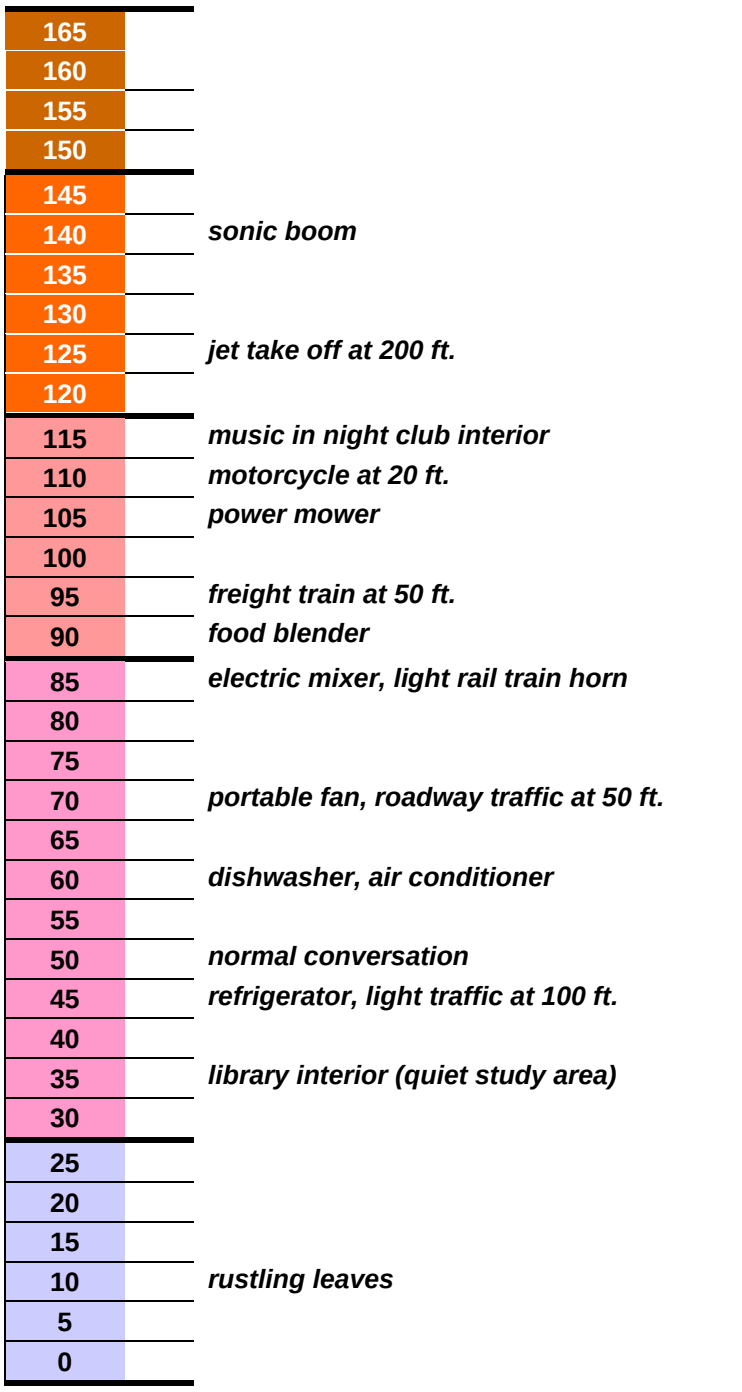

Exhibit 6-5
Typical Noise Levels
City of Irwindale General Plan

Noise and Land Use Compatibility

Guidelines governing land use and noise compatibility have been prepared by a number of Federal and State agencies including the Federal Highway Administration, the Environmental Protection Agency (EPA), the Department of Housing and Urban Development, the American National Standards Institute and the State of California. These guidelines, presented in the following paragraphs, are all based upon cumulative noise criteria such as Leg, LDN or CNEL.

- *Environmental Protection Agency.* In March 1974, the EPA published "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety" (EPA 550/9-74-004). This report indicates that 55 LDN is the requisite level with an adequate margin of safety for areas with outdoor uses, including residential and recreational areas. The EPA "levels document" does not constitute a standard, specification or regulation, but identifies safe levels of environmental noise exposure without consideration for economic cost for achieving these levels.

- *Federal Highway Administration (FHWA).* The FHWA has adopted and published noise abatement criteria for highway construction projects. The FHWA noise abatement criterion established an exterior noise goal for residential land uses of 67 Leq and an interior goal for residences of 52 Leq. The noise abatement criterion applies to private yard areas and assumes that typical wood frame homes with windows open provide a 10 dB noise reduction (outdoor to indoor) and 20 dB noise reduction with windows closed.

- *State of California.* The State requires every city and county to adopt noise elements as part of their general plans. Such noise elements must contain a noise/land use compatibility matrix. A recommended (but not mandatory) matrix is presented in the "Guidelines for the Preparation and Content of Noise Elements of the General Plan," (Office of Noise Control, California Department of Health, February 1976).

Ambient Noise Environment in Irwindale

The sources of noise in Irwindale fall into five basic categories. These include freeways, both the Foothill Freeway and the San Gabriel River Freeway; aircraft over flights; major and minor arterial roadways; railroad lines; and stationary sources. Each of these sources and their impacts on the noise environment of Irwindale are summarized in the following paragraphs.

- *Freeways.* The San Gabriel River Freeway (I-605) traverses the westerly boundary of the city in a north/south direction. This freeway is generally below grade with respect to the adjacent areas. Most of the development along the freeway is commercial, along with quarry operations. The Foothill Freeway (I-210) is elevated at least twenty feet above the adjacent areas and no walls exist at the present time.

- *Traffic Noise.* Traffic noise on surface streets is a significant source of noise within the community. Noise levels along roadways are affected by a number of factors. Most important is the average daily traffic (ADT). Roadways in Irwindale have a very high percentage of truck traffic resulting from the mining operations and industrial development in the City.

- *Airports and Heliports.* There are no airports located in Irwindale, nor are there any specific flight corridors that overfly the City. The nearest general aviation airport is located in El Monte. During field surveys conducted in the City, helicopter operations were observed in the vicinity of the Santa Fe Dam.

- *Railroads.* The City of Irwindale has a number of main railroad and spur lines. Major lines located in the city include the BN&SF Railroad, the Los Angeles Junction Railroad Company, Southern Pacific Railroad Company and the Union Pacific Railroad Company. The majority of the railroad traffic consists of freight trains performing switcher operations. A Metrolink commuter line is located in the southern portion of the City.

- *Stationary Sources.* The City of Irwindale contains a large number of stationary noise sources. Commercial areas located near residential areas from adjacent cities result in occasional noise impacts. The primary noises associated with industrial and commercial operations include truck traffic, air compressors, generators, outdoor loudspeakers and gas venting.

The existing traffic noise levels from major roadways in the City were computed using the Highway Noise Model published by the Federal Highway Administration ("FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108, December 1978). The FHWA model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the Leq noise level. The results of this analysis are shown in Table 6-2.

Table 6-2
Traffic Noise Levels Along Major Arterial Roadways Serving the City

Roadway Segment	Distance to CNEL Contour (in feet)				CNEL (dBA) 50' from Centerline
	55 CNEL	60 CNEL	65 CNEL	70 CNEL	
Foothill Freeway (I-210)	2,157	1,930	993	110	72.3
San Gabriel River Freeway (I-605)	2,303	2,120	1,220	125	74.1
Arrow Highway (north of Live Oak)	1,100	750	510	15	63.1
Arrow Highway (between Live Oak & Irwindale	1,215	727	493	27	61.7
Arrow Highway (east of Irwindale)	1,201	693	373	19	61.3
Foothill Boulevard	975	427	210	0	61.0
Irwindale Avenue (north of Arrow)	750	375	163	0	60.7
Irwindale Avenue (south of Arrow)	501	320	110	0	60.5
Live Oak Avenue	275	101	47	0	58.2

Source: FHWA Noise Prediction Model

The City of Irwindale has three types of noise-sensitive receptors within the city boundaries. Residential areas, the school, and the Santa Fe Dam Recreation Area are currently exposed to several fixed and transient sources of noise. In general, mining operations in the City of Irwindale are not considered significant stationary noise sources. Because noise travels in a line-of-sight manner and attenuates with distance, the depth of the quarries provide significant separation and the pit walls serve as a barrier around the operating equipment. Above-grade sand and gravel mining plant sites and their conveyor systems, however, have been a source of stationary noise for the community.

The Irwindale Speedway is an additional source of noise. Designers have been deliberate about mitigating any potential impact to the City or neighboring communities. The track has been designed so that the major noise contributors located within the pit and paddock areas are located further away from sensitive noise receptors. Noise attenuating bleachers are also used to dampen any noise created by activities and capture it within the Speedway site rather than allowing it to release into neighboring areas. The City has implemented a noise monitoring program with the cooperation of the Speedway operator to ensure this potential noise source remains in compliance with the City codes.

The noise environment in Irwindale was determined through comprehensive noise measurement surveys with nine sites selected for the measurement of the ambient noise levels. The measurement locations were selected based on proximity to major noise sources and noise sensitivity of the land use. Each site was monitored for a minimum of 15 minutes. The quantities measured were the Equivalent Noise Level (Leg) and the Percent Noise Levels (L%). Percent Noise Levels are another method of characterizing ambient noise where, for example, L90 is the noise level exceeded 90% of the time, L50 represents the noise level exceeded 50% of the time, and L10 is the level exceeded 10% of the time. L90 represents the background or minimum noise level, L50 represents the average noise level, and L10 the peak or intrusive noise levels. The results of this measurement survey are summarized below in Table 6-3.

Table 6-3 Noise Measurement Survey Results				
Map Reference No. and Location	Measured Noise Levels (in dBA)			Major Source of Noise Affecting the Area
	L10	L50	L90	
1. Foothill/Irwindale	73.3	71.7	69.5	Freeway traffic
2. Irwindale/I 210 Freeway	74.1	73.0	70.1	Freeway traffic
3. Live Oak/I 605 Freeway	71.3	69.7	65.7	Freeway traffic
4. Arrow/Motor	69.1	67.2	64.3	Traffic
5. Arrow/Irwindale	68.5	66.6	63.4	Traffic/machinery
6. Irwindale/Gladstone	67.1	65.3	62.1	Trucks
7. Civic Center	62.3	60.1	58.7	Traffic
8. Vincent/Cypress	61.5	59.3	52.1	Traffic
9. Los Angeles Street	60.7	58.7	54.3	Traffic
Source: Blodgett/Baylosis Associates				

Air Quality

The City of Irwindale is located in the South Coast Air Basin, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and the San Bernardino Counties. In 1996, the federal standards for ozone and PM-10 were exceeded in this Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for monitoring and measuring air quality in the area and maintains a monitoring station in the City of Azusa.

The South Coast Air Basin has been declared a non-attainment area because it has levels of one or more pollutants exceeding national ambient air quality standards. Generally there are five main sources of air pollution emissions in the City of Irwindale: truck traffic; vehicular traffic (including employee work trips); on-site gas/diesel powered equipment operations; stationary emissions from asphalt and cement plants, and particulate matter associated with mining activities.

The area's climate is semi-arid and characterized by moist, mild winters and hot, dry summers accompanied by sea breezes. Wind patterns vary seasonally; westerly winds predominate in the summer months and northeasterly winds in the winter months. Local Southern California weather is affected by winter storms moving along the Pacific Coast, warm tropical air masses, and hot, dry Santa Ana winds caused by high-pressure systems in the Great Basin.

The dominant daily wind pattern consists of a daytime sea breeze blowing inland from the ocean followed by a nighttime land breeze blowing from the inland areas toward the coast. The climate in Irwindale is consistent with the region's temperate weather patterns. The average daily temperatures range from between 40 F. and 90°F. with an average annual temperature of 64.4°F. Annual precipitation averages approximately 15 to 18 inches per year with most of this precipitation occurring during the winter months. During the summer, the air within the high-pressure center over the ocean sinks and warms. Near the ocean's surface, the air cools due to its contact with the cooler water. This forms a shallow, well-mixed layer of marine air approximately 1,000 feet deep capped by a massive layer of warm air. Pollutants emitted near the ground remain trapped within that shallow layer.

As each pollution source adds its contribution to that layer, the air arriving at the eastern portion of the Los Angeles metropolitan area may become highly polluted with visibility-degrading aerosols and with unhealthful, invisible gaseous pollutants. This condition will continue and become more concentrated until either the inversion breaks or surface winds increase to disperse the pollutants horizontally. The primary source of emissions in

Irwindale include the quarry operations and the industries within the City as well as the numerous trucks and cars operating on the city's roadways and on the San Gabriel River and the Foothill Freeways that traverse the city. In addition, air pollution generated by traffic and point sources in the immediate vicinity and in the surrounding region contributes to the overall decline in air quality within the city. The SCAQMD is responsible for the implementation of the protocols of the Federal Clean Air Act. In addition, the SCAQMD is responsible for ensuring that the more stringent California clean air standards are met. The SCAQMD Governing Board adopted the 2003 Air Quality Management Plan (AQMP) on August 1, 2003. The 2003 AQMP replaced the 1997 AQMP and included an update of the attainment demonstration for the federal standards for ozone and particulate matter (PM_{10}), replaced the 1997 attainment demonstration for the Federal carbon monoxide (CO) standard with a maintenance plan for CO for the future; and updated the maintenance plan for the Federal nitrogen dioxide (NO_2) standard that the South Coast Air Basin (SCAB) has met since 1992. The most recent revisions to the AQMP also addressed several State and Federal planning requirements and incorporated significant new scientific data. Pollutants regulated by the Federal and State Clean Air Acts include the following:

- Criteria air pollutants;
- Toxic air contaminants, and
- Global warming and ozone-depleting gases.

Pollutants in each of these categories are monitored and regulated differently. Criteria air pollutants are measured by ambient air sampling. For some criteria pollutants, such as carbon monoxide, there are also secondary standards designed to protect the environment, in addition to human health. Toxic air contaminants are typically measured at the source and their evaluation and control is generally site or project-specific. Finally, global warming and ozone-depleting gases are not monitored though sources of green house gas emissions are subject to Federal and regional policies that call for their eventual elimination.

The EPA has established National Ambient Air Quality Standards (NAAQS) for the following air pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), particulate matter (PM^{10}), and fine particulate matter ($PM^{2.5}$). In May 1999, the Federal Court of Appeals in Washington, D.C. overturned the $PM^{2.5}$ standard. Pending the court decision on the rehearing, the new standard cannot be implemented. It is possible for the EPA to re-promulgate the standard with a more adequate explanation, if the appeal is denied). The EPA recently issued a notice of proposed revisions to the NAAQS) for particulate matter. The EPA will take final action on the proposal by September 27, 2006. This notice provides advance notice of key issues for consideration in the development of potentially new or revised policies and/or regulations to implement revisions to the NAAQS for PM. The EPA's preferred approach is to revoke of the 1997 $PM_{2.5}$ standards once any new 2006 $PM_{2.5}$ standards would be in place, and to revoke the 24-hour PM_{10} standard in areas where it would remain after promulgation of any new $PM_{10-2.5}$ standards. The Federal standards are shown in Table 6-4.

The California Air Resources Board (CARB) has also established ambient air quality standards for six of the aforementioned pollutants regulated by the EPA (CARB has not established standards for $PM^{2.5}$). Some of the California ambient air quality standards are more stringent than the national ambient air quality standards. In addition, California has established ambient air quality standards for the following: sulfates, vinyl chloride, and visibility. Table 6-4 lists the current national and California ambient air quality standards for each criteria pollutant.

Table 6-4
National and California Ambient Air Quality Standards

Pollutants	National Standards	State Standards
Lead (Pb)	1.5 μg/m3(calendar quarter)	1.5 μg/m3 (30-day average)
Sulfur Dioxide (S02)	0.14 ppm (24-hour)	0.25 ppm (1-hour) 0.04 ppm (24-hour)
Carbon Monoxide (CO)	9.0 ppm(8-hour) 35 ppm(1-hour)	9.0 ppm (8-hour) 20 ppm (1-hour)
Nitrogen Dioxide (NO2)	0.053 ppm (annual average)	0.25 ppm (1-hour)

Table 6-4 National and California Ambient Air Quality Standards (continued)		
Pollutants	**National Standards**	**State Standards**
Ozone (O3)	0.12 ppm (1-hour)	0.09 ppm (1-hour)
Fine Particulate Matter (PM10)	150 μg/m3 (24-hour)	50 μg/m3 (24-hour)
Sulfate	None	25 μg/m3 (24-hour)
Visual Range	None	10 miles (8-hour) w/humidity < 70 percent
Source: South Coast Air Quality Management District. 2004		

The criteria pollutants of special concern include the following:

- *Ozone (O_2)* is a nearly colorless gas that irritates the lungs and damages materials and vegetation. O_2 is formed by photochemical reaction (when nitrogen dioxide is broken down by sunlight).
- *Carbon Monoxide (CO),* a colorless, odorless toxic gas that interferes with the transfer of oxygen to the brain, is produced by the incomplete combustion of hydrocarbon fuels.
- *Nitrogen dioxide (NO_2)* is a yellowish-brown gas that, at high levels, can cause breathing difficulties. NO_2 is formed when nitric oxide (a pollutant from burning processes) combines with oxygen. Although NO_2 concentrations have not exceeded Federal standards since 1991 and the State hourly standard since 1993, NO_x emissions remain a concern because of their contribution to the formation of O_3 and particulate matter.
- *Sulfur dioxide* (SO_2) is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children.
- *PM* refers to particulate matter less than ten microns in diameter. PM_{10} causes a greater health risk than larger-sized particles, since fine particles can more easily cause respiratory irritation.

The sources and potential health effects of the criteria pollutants are summarized in Table 6-5.

Table 6-5 Primary Sources and Effects of Criteria Pollutants		
Pollutants	**Emissions Source**	**Primary Effects (including health effects)**
Sulfur Dioxide (SO^2)	Combustion of sulfur-containing fossil fuels Smelting of sulfur-bearing metal ores Industrial processes	Plant injury Reduced visibility Deterioration of metals, textiles, leather, & finishes Irritation of eyes Aggravation of respiratory diseases (asthma, emphysema)
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust Natural events, such as decomposition of organic matter	Plant injury Reduced visibility Deterioration of metals, textiles, leather, finishes, coatings Irritation of eyes Aggravation of respiratory diseases (asthma, emphysema)
Nitrogen Dioxide (NO^2)	Motor vehicle exhaust High-temperature stationary combustion Atmospheric reactions	Aggravation of respiratory illness Reduced visibility Reduced plant growth Formation of acid rain
Ozone (O^3)	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Plant leaf injury Irritation of eyes Aggravation of respiratory & cardiovascular diseases Impairment of cardiopulmonary function
Fine Particulate Matter (PM)	Mining of Aggregate Stationary combustion of solid fuels Construction activities Industrial processes Atmospheric chemical reactions	Soiling Reduced visibility Aggravation of the effects of gaseous pollutants Increased cough and chest discomfort Aggravation of respiratory and cardio-respiratory diseases
Source: South Coast Air Quality Management District.		

SAFETY PLAN

Public Safety Element Policies

The policies included in this element focus on the following major issue areas:

- The City's commitment to emergency preparedness as a means to respond to disasters resulting from earthquakes, hazardous materials incidents, and other natural and man-made hazards; and
- The City's commitment to reduce the high levels of noise exposure associated with the existing development and transportation facilities in the City.

Issue Area – Emergency Preparedness. The City of Irwindale will strive to maintain the highest levels of readiness to respond to disasters or local emergencies.

Safety Element Policy 1. The City of Irwindale will continue to review and if necessary, update its comprehensive emergency preparedness plan and hazard mitigation plan.

Safety Element Policy 2. The City of Irwindale, at a minimum, will maintain current emergency response standards.

Safety Element Policy 3. The City of Irwindale will work to reduce potential hazards through conscientious land use planning. The City shall require liquefaction assessment studies as part of development proposals in areas identified by the California Geological Survey as susceptible to liquefaction. The studies shall be conducted in accordance with the California Geological Survey's Special Publication 117; Guidelines for Evaluating and Mitigating Seismic Hazards in California, and the Southern California Earthquake Center's (1999) procedures to implement Special Publication 117 – Liquefaction Hazards (both documents are incorporated herein by reference). On

Chapter 9.28 - NOISE REGULATION

Sections:

Footnotes:
--- () ---
** For statutory provisions dealing with noise control, see Health and Saf. Code § 46000 et seq. ; for provisions on the requirement of noise element as a guideline for use in land development, see Gov. Code § 65302(G); for provisions on noise limits for motor vehicles, see Vehicle Code § 27200 et seq.*

9.28.010 - Declaration of policy.

It is declared to be the policy of the city to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power and contrary to the public interest. At certain levels noises are detrimental to the health and welfare of the citizenry and in the public interest shall be systematically proscribed.

(Ord. 297 § 1(part), 1976: prior code § 4800).

9.28.020 - Definitions.

As used in this chapter, unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined as follows:

A. "Ambient base noise level" means reasonable and representative ambient noise levels in various land use categories in the city and at various times as established by the planning commission.

B. "Ambient noise level" means the all-encompassing noise associated with a given environment, usually being a composite of sounds with many sources excluding the alleged offensive noise at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

C. "Commercial purpose" means and includes the use, operation, or maintenance of any sound amplifying equipment for the purpose of advertising any business, or any good, or any services, or for the purpose of attracting the attention of the public to, or advertising for, or soliciting patronage or customers to or for any performance, show entertainment, exhibition, or event, or for the purpose of demonstrating any such sound equipment.

D. "Decibel (dB)" means a unit of level which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.

E. "Emergency work" means work made necessary to restore property to a safe condition

following a public calamity, or work required to protect persons or property from an imminent exposure to danger, or work performed by public utilities or public agencies and utility companies.

F. "Motor vehicles" includes, but is not limited to, off-road vehicles, minibikes and gocarts.

G. "Noise level" means the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty micronewtons per square meter. The unit of measure is the dB(A).

H. "Noncommercial purpose" means the use, operation, or maintenance of any sound amplifying equipment for other than a commercial purpose. "Noncommercial purpose" means and includes, but shall not be limited to, philanthropic, political, patriotic and charitable purposes.

I. "Person" means a person, firm, association, copartnership, joint venture, corporation, or any entity, public or private in nature.

J. "Sound amplifying equipment" means any machine or device for the amplification of the human voice, music, or any other sound. "Sound amplifying equipment" does not include standard automobile radios when used and heard only by the occupants of the vehicle in which the automobile radio is installed. "Sound amplifying equipment," as used in this chapter, does not include warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

K. "Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

L. "Sound pressure level," in decibels, of a sound means twenty times the logarithm to the base ten of the ratio of the pressure of this sound to the reference pressure, which reference pressure shall be explicitly stated.

M. "Sound truck" means any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.

(Ord. 297 § 1(part), 1976: prior code § 4801).

9.28.030 - Ambient base noise levels designated—Proof of violation.

A. Where the ambient noise level is less than designated in this section, the ambient base noise level in this section shall govern.

Zone	Ambient Base Noise Level

	10 p.m. to 7 a.m.	7 a.m. to 10 p.m.
Residential	45	50
Commercial	50	55
Industrial	60	70

B. Any noise at a level which exceeds the ambient or the ambient base level as set forth in subsection A of this section, whichever is greater, by more than ten dB when measured at any boundary line of the property from which the noise emanates shall constitute sufficient proof of a violation.

(Ord. 297 § 1(part), 1976: prior code § 4803).

9.28.040 - Noise level violation designated.

It is unlawful for any person to wilfully make or continue, or cause to be made or continued any noise at a level which exceeds by more than five dB the ambient or the ambient base level as set forth in Section 9.28.030, whichever is greater, when measured at any boundary line of the property from which the noise emanates.

(Ord. 297 § 1(part), 1976: prior code § 4804).

9.28.050 - Radios, television sets and similar devices.

It is unlawful for any person within any residential zone of the city to use or operate any radio receiving set, musical instrument, phonograph, television set or other machine or device for the producing or reproducing of sound in a manner which would constitute a violation of Section 9.28.040.

(Ord. 297 § 1(part), 1976: prior code § 4820).

9.28.060 - Hawkers and peddlers.

It is unlawful for any person within the city to sell anything by outcry within any area of the city zones for residential uses.

(Ord. 297 § 1 (part), 1976: prior code § 4821).

9.28.070 - Drums.

It is unlawful for any person to use any drum or other instrument or device of any kind for the purpose of attracting attention for commercial purposes by the creation of noise within the city. This section shall not apply to any person who is a participant in a duly authorized parade or who has been otherwise duly authorized to engage in such conduct.

(Ord. 297 § 1(part), 1976: prior code § 4822).

9.28.080 - Schools and churches.

It is unlawful for any person to create any noise on any street, sidewalk or public place adjacent to any school, institution of learning, or church while the same is in use, if such noise unreasonably interferes with the working of such institution or would constitute a violation of Section 9.28.040.

(Ord. 297 § 1(part), 1976: prior code § 4823).

9.28.090 - Animals and fowl.

No person shall keep or maintain, or permit the keeping of, upon any premises owned, occupied or controlled by such person, any animal or fowl otherwise permitted to be kept which, by any sound, cry, or behavior, shall cause noise in any residential neighborhood which would constitute a violation of Section 9.28.040, or otherwise constitute a nuisance.

(Ord. 297 § 1(part), 1976: prior code § 4824).

9.28.100 - Machinery, equipment, fans, and air conditioning.

It is unlawful for any person to operate any machinery, equipment, pump, fan, air-conditioning apparatus, or similar mechanical device in any manner so as to create any noise which would cause the noise level at any boundary line of any property from which such noise emanates to exceed the ambient noise level or the ambient base level as set forth in Section 9.28.030, whichever is greater, by more than ten decibels; provided, however, this section shall not prevent the reasonable operation of customary household gardening equipment or hobby shop equipment during the hours of eight a.m. to nine p.m., Monday through Saturday, and ten a.m. to eight p.m. on Sunday, provided the same may not exceed eighty decibels (as measured from the adjacent property line) for more than three hours from sunup to sundown.

(Ord. 297 § 1(part), 1976: prior code § 4825).

9.28.110 - Construction of building and projects—Times specified.

A. It is unlawful for any person within a residential zone, or within a radius of five hundred feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or

other construction type device on a development requiring a city permit, in such a manner that noise is produced which would constitute a violation of Section 9.28.040, unless beforehand authorization therefor has been duly obtained from the building inspector. Such activity is unlawful without a permit during all hours on Sunday. No permit shall be required to perform emergency work as defined in subsection E of 9.28.020.

B. Construction authorized by subsection A of this section shall be limited to seven a.m. to seven p.m.

(Ord. 297 § 1(part), 1976: prior code § 4830).

9.28.120 - Industry and racetracks.

The noise level from industrial plants, auto wreckers, junkyards, racetracks or other industrial user shall not exceed the levels set forth in Section 9.28.040, except as may be specifically authorized by permit from the city.

(Ord. 297 § 1(part), 1976: prior code § 4860).

9.28.130 - Vehicle repairs.

It is unlawful for any person within any residential area of the city to repair, rebuild or test any motor vehicle thereby producing noise which would constitute a violation of Section 9.28.040.

(Ord. 297 § 1 (part), 1976: prior code § 4840).

9.28.140 - Motor-driven vehicles.

It is unlawful for any person to operate any motor-driven vehicle within the city in such a manner producing noise which would constitute a violation of Section 9.28.040.

(Ord. 297 § 1(part), 1976: prior code § 4841).

9.28.150 - Amplified sound—Purpose of provisions.

The council enacts this legislation for the sole purpose of securing and promoting the public health, comfort, safety and welfare for its citizenry. While recognizing that the use of sound amplifying equipment for certain purposes is protected by the constitutional rights of freedom of speech and assembly, the council nevertheless feels obligated to reasonably regulate the use of sound amplifying equipment in order to protect the correlative constitutional rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise.

(Ord. 297 § 1(part), 1976: prior code § 4850).

9.28.160 - Amplified sound—Commercial use prohibited.

It is unlawful for any person to install, use, or operate within the city for commercial purposes, a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon an.y sound truck.

(Ord. 297 § 1(part), 1976: prior code § 4851).

9.28.170 - Amplified sound—Registration statement—Required.

It is unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate within the city for noncommercial purposes a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purposes of giving instructions, directions, talks, addresses, lectures or transmitting music to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without first filing a registration statement and obtaining approval thereof, as set forth in Section 9.28.180.

(Ord. 297 § 1(part), 1976: prior code § 4852).

9.28.180 - Amplified sound—Registration statement—Filing—Approval—Disapproval—Revocation.

A. Filing. Every user of sound amplifying equipment for noncommercial purposes shall file a registration statement with the chief of police ten days prior to the date on which the sound amplifying equipment is intended to be used, which statement shall contain the following information:

1. The name, address and telephone number of both the owner and user of the sound amplifying equipment;
2. The maximum sound producing power of the sound amplifying equipment which shall include the wattage to be used, the volume in decibels of sound which will be produced, and the approximate distance for which sound will be audible from the sound amplifying equipment;
3. The license and motor number if a sound truck is to be used;
4. A general description of the sound amplifying equipment which is to be used; and
5. The nature of the use of the sound amplifying equipment proposed to be used for noncommercial purposes.

B. Approval. The chief of police shall return to the applicant an approved certified copy of the registration statement unless he finds that:

1. The conditions of the motor vehicle movement are such that in the opinion of the chief of police, use of the equipment would constitute a detriment to traffic safety; or
2. The conditions of pedestrian movement are such that use of the equipment would constitute a detriment to traffic safety; or

3. The registration statement required reveals that the applicant would violate the provisions set forth in Section 9.28.150, or any other provisions of this code.

C. Disapproval. In the event the registration statement is disapproved, the chief of police shall endorse upon the statement his reasons for disapproval and return it forthwith to the applicant.

D. Revocation. Any such permit may be revoked for violation of Section 9.28.150.

(Ord. 297 § 1(part), 1976: prior code § 4853).

9.28.190 - Amplified sound—Appeals.

Any person aggrieved by disapproval of a registration statement may file an appeal to the city council within ten days of the date of disapproval. The city council shall decide the appeal at its next meeting.

(Ord. 297 § 1(part), 1976: prior code § 4854).

9.28.200 - Amplified sound—Regulations of noncommercial use.

The noncommercial use of sound amplifying equipment shall be subject to the following regulations:

A. The only sound permitted shall be either music or human speech or both.

B. The operation of sound amplifying equipment shall only occur between the hours of eight a.m. and six p.m. each day except on Sundays and legal holidays. The operation of sound amplifying equipment on Sundays and legal holidays shall only occur between the hours of ten a.m. and six p.m.

C. No sound emanating from sound amplifying equipment shall exceed fifteen dB above the ambient as measured at any property line.

D. Notwithstanding the provisions of subsection C of this section, sound amplifying equipment shall not be operated within two hundred feet of churches, schools, or city or county buildings, except by special permit.

E. In any event, the volume of sound shall be so controlled that it will not be unreasonably loud, raucous, jarring, disturbing or a nuisance to reasonable persons of normal sensitiveness within the area of audibility.

(Ord. 297 § 1(part), 1976: prior code § 4855).

9.28.210 - Excessive noise prohibited.

Notwithstanding any other provision of this chapter, it is unlawful for any person to wilfully make or continue, or cause to be made or continued, any loud, unnecessary, or unusual noise which disturbs the peace or quiet of any neighborhood.

(Ord. 297 § 1(part), 1976: prior code § 4870).

9.28.220 - Standards for determining violation of Section 9.28.210.

The standards which may be considered in determining whether a violation of the provisions of Section 9.28.210 exists shall include, but not be limited to, the following:

A. The loudness of the noise;
B. The intensity of the noise;
C. Whether the nature of the noise is usual or unusual;
D. Whether the origin of the noise is natural or unnatural;
E. The loudness and intensity of the background noise, if any;
F. The proximity of the noise to residential sleeping facilities;
G. The nature and zoning of the area within which the noise emanates;
H. The density of the inhabitation of the area within which the noise emanates;
I. The time of the day or night the noise occurs;
J. The duration of the noise;
K. Whether the noise is recurrent, intermittent, or continuous; and
L. Whether the noise is produced by a commercial or residential activity.

(Ord. 297 § 1(part), 1976: prior code § 4871).

9.28.230 - Exclusions to chapter applicability.

The provisions of this chapter shall not apply to:

A. Sound produced by motor vehicles as regulated by sound limitation provisions of the California Vehicle Code when such vehicle is located or operated on any public street, right-of-way or highway;
B. Aircraft operated in conformity with federal law;
C. Public and private schools, organized activities including sports, carnivals, assemblies and other regular activities;
D. Construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation departments, public works projects or essential public services and facilities, including those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission;
E. Activities of the federal, state or local government;
F. Any noise continuing for less than thirty seconds at intervals greater than once in three hours.

(Ord. 297 § 1(part), 1976: prior code § 4880).

9.28.240 - Effect of chapter.

Nothing in this chapter shall authorize any use otherwise prohibited or regulated by this code.

(Ord. 297 § 1(part), 1976: prior code § 4808).

9.28.250 - Noise level enforcement criteria.

Enforcement of the provisions of this chapter shall be based on a noise level measurement to establish the noise level. The measurement shall be taken in accordance with the city's administrative instruction concerning noise level measurement procedure.

(Ord. 297 § 1(part), 1976: prior code § 4802).

9.28.251 - Residential parties—Publicized commercialism regulated.

A. Definitions. For the purpose of this section:

1. "Major party" means a group of more than fifty persons meeting together for social, recreational or amusement purposes, but excluding meetings for political, charitable or religious purposes.
2. "Residence" means:
    a. any property used for residential use; and
    b. any property situated in any of the residential zones as defined and zoned in the zoning code of this city.
3. "Publicized" means an open invitation circulated by flyer or advertised by publication, posting or distribution in or about public places suggesting unlimited or unreserved attendance.
4. "Commercial" means the suggestion or request of a monetary charge for admission.
5. "Permit" means a permit issued by either the city council, city manager or police chief. Such permit shall be issued upon application unless the issuer finds that such party will (or is likely to) cause problems relating to traffic, overcrowding, noise, hours after eleven p.m. or other matters affecting residential quality of life. Such permits may also contain appropriate conditions.

B. It is unlawful to have or permit a publicized commercial major party in a residence in this city without a permit or other than in compliance with such permit.

C. violation of this section is punishable by a fine not to exceed five hundred dollars or by imprisonment for not to exceed six months, or by both such fine and imprisonment.

(Ord. 408 § 1, 1986: Ord. 366 § 1, 1983).

9.28.260 - Violations—Penalties.

Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined in an amount not exceeding five hundred dollars or be imprisoned in the county jail for a period not exceeding six months, or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 297 § 1(part), 1976: prior code § 4805).

9.28.270 - Violations—Additional remedies—Injunctions.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle, or machinery in violation of any provision of this chapter shall be deemed, and is declared to be, a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

(Ord. 297 § 1(part), 1976: prior code § 4806).

Chapter 12.08 - NOISE CONTROL

Parts:

Part 1 - GENERAL PROVISIONS

12.08.010 - Title for citation.

The ordinance codified in this chapter may be cited as the "noise control ordinance of the county of Los Angeles."

(Ord. 11778 § 2 (Art. 1 § 101), 1978: Ord. 11773 § 2 (Art. 1 § 101), 1978.)

12.08.020 - Declaration of policy—Nuisances deemed misdemeanors.

A. In order to control unnecessary, excessive and annoying noise and vibration in the county of Los Angeles, it is declared to be the policy of the county to prohibit such noise and vibration generated from any sources as specified in this chapter. It shall be the policy of the county to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the county where noise levels are above acceptable values.

B. It is determined that certain noise levels and vibration are detrimental to the public health, welfare and safety and contrary to public interest, and therefore the board of supervisors of the county does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter is a public nuisance and shall be punishable as such.

(Ord. 11778 § 2 (Art. 2 § 201), 1978: Ord. 11773 § 2 (Art. 2 § 201), 1978.)

Part 2 - DEFINITIONS

12.08.030 - Terminology—Conformity with ANSI standards.

All terminology used in this chapter, not defined in this Part 2, shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body.

(Ord. 11778 § 2 (Art. 3 § 301), 1978: Ord. 11773 § 2 (Art. 3 § 301), 1978.)

12.08.040 - Definitions applicable.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated in this Part 2.

(Ord. 11778 § 2 (Art. 3 § 302 (part)), 1978: Ord. 11773 § 2 (Art. 3 § 302 (part)), 1978.)

12.08.050 - Agricultural property.

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

(Ord. 11778 § 2 (Art. 3 § 302(a)), 1978: Ord. 11773 § 2 (Art. 3 § 302(a)), 1978.)

12.08.060 - Ambient noise histogram.

"Ambient noise histogram" means the composite of all noise from sources near and far, excluding the alleged intrusive noise source. In this context, the ambient noise histogram shall constitute the normal or existing level of environmental noise at a given location.

(Ord. 11778 § 2 (Art. 3 § 302(b)), 1978: Ord. 11773 § 2 (Art. 3 § 302(b)), 1978.)

12.08.070 - A-weighted sound level.

"A-weighted sound level" means the sound level in decibels as measured on a soundlevel meter using the A-weighting network. The level so read is designated dB (A) or dBA.

(Ord. 11778 § 2 (Art. 3 § 302(c)), 1978: Ord. 11773 § 2 (Art. 3 § 302(c)), 1978.)

12.08.080 - Commercial property.

"Commercial property" means a parcel of real property which is developed and used either in part or in whole for commercial purposes. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable. (See Title 22 of this code.)

(Ord. 11778 § 2 (Art. 3 § 302(d)), 1978: Ord. 11773 § 2 (Art. 3 § 302(d)), 1978.)

12.08.090 - Construction.

"Construction" means any site preparation, assembly, erection, substantial repair, alteration, or similar action, for or of public or private rights-of-way, structures, utilities, or similar property.

(Ord. 11778 § 2 (Art. 3 § 302(e)), 1978: Ord. 11773 § 2 (Art. 3 § 302(e)), 1978.)

12.08.100 - Cumulative period.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

(Ord. 11778 § 2 (Art. 3 § 302(f)), 1978: Ord. 11773 § 2 (Art. 3 § 302(f)), 1978.)

12.08.110 - Decibel.

"Decibel" means a unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base of 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

(Ord. 11778 § 2 (Art. 3 § 302(g)), 1978: Ord. 11773 § 2 (Art. 3 § 302(g)), 1978.)

12.08.120 - Dwelling unit.

"Dwelling unit" means a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

(Ord. 11778 § 2 (Art. 3 § 302(h)), 1978: Ord. 11773 § 2 (Art. 3 § 302(h)), 1978.)

12.08.130 - Emergency machinery, vehicle or alarm.

"Emergency machinery, vehicle or alarm" means any machinery, vehicle or alarm used, employed, performed or operated in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

(Ord. 11778 § 2 (Art. 3 § 302(i)), 1978: Ord. 11773 (Art. 3 § 302(i)), 1978.)

12.08.140 - Emergency work.

"Emergency work" means any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

(Ord. 11778 § 2 (Art. 3 § 302(j)), 1978: Ord. 11773 (Art. 3 § 302(j)), 1978.)

12.08.150 - Fixed noise source.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless, including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps,

fans, compressors, air conditioners and refrigeration equipment.

(Ord. 11778 § 2 (Art. 3 § 302(k)), 1978: Ord. 11773 (Art. 3 § 302(k)), 1978.)

12.08.160 - Grading.

"Grading" means any excavating or filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

(Ord. 11778 § 2 (Art. 3 § 302(1)), 1978: Ord. 11773 (Art. 3 § 302(1)), 1978.)

12.08.170 - Health care institution.

"Health care institution" means any hospital, convalescent home, or other similar facilities which provide health care, medical treatment, room, board or other services for the ill, retarded or convalescent.

(Ord. 11778 § 2 (Art. 3 § 302(m)), 1978: Ord. 11773 (Art. 3 § 302(m)), 1978.)

12.08.180 - Health officer.

"Health officer" means the director of the department of public health of the county of Los Angeles, or his duly authorized representative.

(Ord. 2006-0040 § 106, 2006: Ord. 11778 § 2 (Art. 3 § 302(n)), 1978: Ord. 11773 (Art. 3 § 302(n)), 1978.)

12.08.190 - Impulsive noise.

"Impulsive noise" means a sound of short duration, usually less than one second and of high intensity, with an abrupt onset and rapid decay.

(Ord. 11778 § 2 (Art. 3 § 302(o)), 1978: Ord. 11773 (Art. 3 § 302 (o)), 1978.)

12.08.200 - Industrial property.

"Industrial property" means property which is developed and used either in part or in whole for manufacturing purposes. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable. (See Title 22 of this code.)

(Ord. 11778 § 2 (Art. 3 § 302(p)), 1978: Ord. 11773 § 2 (Art. 3 § 302(p)), 1978.)

12.08.210 - Intrusive noise.

"Intrusive noise" means that alleged offensive noise which intrudes over and above the existing ambient noise at the receptor property.

(Ord. 11778 § 2 (Art. 3 § 302(q)), 1978: Ord. 11773 § 2 (Art. 3 § 302(q)), 1978.)

12.08.220 - Mobile noise source.

"Mobile noise source" means any noise source other than a fixed noise source.

(Ord. 11778 § 2 (Art. 3 § 302(r)), 1978: Ord. 11773 § 2 (Art. 3 § 302(r)), 1978.)

12.08.230 - Noise disturbance.

"Noise disturbance" means an alleged intrusive noise which violates an applicable noise standard as set forth in this chapter.

(Ord. 11778 § 2 (Art. 3 § 302(s)), 1978: Ord. 11773 § 2 (Art. 3 § 302(s)), 1978.)

12.08.240 - Noise histogram.

"Noise histogram" means a graphical representation of the distribution of frequency of occurrence of all noise levels near and far measured over a given period of time.

(Ord. 11778 § 2 (Art. 3 § 302(u)), 1978: Ord. 11773 § 2 (Art. 3 § 302(u)), 1978.)

12.08.250 - Noise level (L).

"Noise level (L_N)" means that noise level expressed in decibels which exceeds the specified (L_N) value as a percentage of total time measured. For instance, an L_{25} noise level means that noise level which is exceeded 25 percent of the time measured.

(Ord. 11778 § 2 (Art. 3 § 302 (v)), 1978: Ord. 11773 § 2 (Art. 3 § 302(v)), 1978.)

12.08.260 - Noise-sensitive zone.

"Noise-sensitive zone" means any area designated pursuant to Part 4 of this chapter for the purpose of ensuring exceptional quiet.

(Ord. 11778 § 2 (Art. 3 § 302(t)), 1978: Ord. 11773 § 2 (Art. 3 § 302(t)), 1978.)

12.08.270 - Noise zone.

"Noise zone" means any defined area or region of a generally consistent land use, as described in Section

12.08.380.

(Ord. 11778 § 2 (Art. 3 § 302(w)), 1978: Ord. 11773 § 2 (Art. 3 § 302(w)), 1978.)

12.08.280 - Person.

"Person" means any individual, firm, association, partnership, joint venture, or corporation.

(Ord. 11778 § 2 (Art. 3 § 302(x)), 1978: Ord. 11773 § 2 (Art. 3 § 302(x)), 1978.)

12.08.290 - Powered model vehicle.

"Powered model vehicle" means any self-propelled airborne, waterborne or landborne plane, vessel or vehicle which is not designed to carry individuals, including but not limited to any model airplane, boat, car or rocket.

(Ord. 11778 § 2 (Art. 3 § 302(y)), 1978: Ord. 11773 § 2(Art. 3 § 302(y)), 1978.)

12.08.300 - Public right-of-way.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk or alley, or similar place, which is owned or controlled by a governmental entity.

(Ord. 11778 § 2 (Art. 3 § 302(z)), 1978: Ord. 11773 § 2 (Art. 3 § 302(z)), 1978.)

12.08.310 - Pure tone noise.

"Pure tone noise" means any sound which can be judged as audible as a single pitch or a set of single pitches by the health officer, for the purposes of this chapter, a pure tone shall exist if the one-third octave band sound-pressure level in the band with the tone exceeds the arithmetic average of the sound-pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies of 500 Hertz and above, and by 8 dB for center frequencies between 160 and 400 Hertz, and by 15 dB for center frequencies less than or equal to 125 Hertz.

(Ord. 11778 § 2 (Art. 3 § 302(aa)), 1978: Ord. 11773 § 2 (Art. 3 § 302(aa)), 1978.)

12.08.320 - Real property boundary.

"Real property boundary" means an imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one person from that owned by another person, but not including intra-building real property divisions.

(Ord. 11778 § 2 (Art. 3 § 302(bb)), 1978: Ord. 11773 § 2 (Art. 3 § 302(bb)), 1978.)

12.08.330 - Residential property.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable.

(Ord. 11778 § 2 (Art. 3 § 302(cc)), 1978: Ord. 11773 § 2 (Art. 3 § 302(cc)), 1978.)

12.08.340 - Sound level meter.

"Sound level meter" means an instrument, including a microphone, an amplifier, an output meter and frequency weighting network, for the measurement of sound levels, which satisfies the requirements pertinent for Type S2A meters in American National Standards Institute specifications for sound level meters, S1.4-1971, or the most recent revision thereof.

(Ord. 11778 § 2 (Art. 3 § 302(dd)), 1978: Ord. 11773 § 2 (Art. 3 § 302(dd)), 1978.)

12.08.350 - Vibration.

"Vibration" means the minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observations of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

(Ord. 11778 § 2 (Art. 3. § 302(ee)), 1978: Ord. 11773 § 2 (Art. 3 § 302(ee)), 1978.)

12.08.360 - Weekday.

"Weekday" means any day, Monday through Friday, which is not a legal holiday.

(Ord. 11778 § 2 (Art. 3 § 302(ff)), 1978: Ord. 11773 § 2 (Art. 3 § 302(ff), 1978.)

Part 3 - COMMUNITY NOISE CRITERIA

12.08.370 - Decibel measurement—Basis.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound-pressure of 20 micropascals, as measured with a sound level meter using the A-weighted network

(scale) at slow response, or at the fast response when measuring impulsive sound levels and vibrations.

(Ord. 11778 § 2 (Art. 4 § 401), 1978: Ord. 11773 § 2 (Art. 4 § 401), 1978.)

12.08.380 - Noise zones designated.

Receptor properties described hereinafter in this chapter are hereby assigned to the following noise zones:

Noise Zone I—Noise-sensitive area; Noise Zone II—Residential properties; Noise Zone III—Commercial properties; Noise Zone IV—Industrial properties.

(Ord. 11778 § 2 (Art. 4 § 402), 1978: Ord. 11773 § 2 (Art. 4 § 402), 1978.)

12.08.390 - Exterior noise standards—Citations for violations authorized when.

A. Unless otherwise herein provided, the following exterior noise levels shall apply to all receptor properties within a designated noise zone:

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45
		7:00 am to 10:00 pm (daytime)	50

III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55
		7:00 am to 10:00 pm (daytime)	60
IV	Industrial properties	Anytime	70

B. Unless otherwise herein provided, no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated, to exceed any of the following exterior noise standards:

Standard No. 1 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from subsection A of this section; or, if the ambient L50 exceeds the foregoing level, then the ambient L50 becomes the exterior noise level for Standard No. 1.

Standard No. 2 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from subsection A of this section plus 5dB; or, if the ambient L25 exceeds the foregoing level, then the ambient L25 becomes the exterior noise level for Standard No. 2.

Standard No. 3 shall be the exterior noise level which may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L8.3 exceeds the foregoing level, then the ambient L8.3 becomes exterior noise level for Standard No. 3.

Standard No. 4 shall be the exterior noise level which may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from subsection A of this section plus 15dB; or, if the ambient L1.7 exceeds the foregoing level, then the ambient L1.7 becomes the exterior noise level for Standard No. 4.

Standard No. 5 shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L0 exceeds the foregoing level then the ambient L0 becomes the exterior noise level for Standard No. 5.

C. If the measurement location is on a boundary property between two different zones, the exterior noise level utilized in subsection B of this section to determine the exterior standard shall be the arithmetic mean of the exterior noise levels in subsection A of the subject zones. Except as provided for above in this subsection C, when an intruding noise source originates on an industrial property and is impacting another noise zone, the applicable exterior noise level as designated in subsection A shall be the daytime exterior noise level for the subject receptor property.

D. The ambient noise histogram shall be measured at the same location along the property line utilized in subsection B of this section, with the alleged intruding noise source inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise histogram will be estimated by performing a measurement in the same general area of the alleged intruding noise source but at a sufficient distance such that the noise from the alleged intruding noise source is at least 10dB below the ambient noise histogram in order that only the actual ambient noise histogram be measured. If the difference between the ambient noise histogram and the alleged intruding noise source is 5 to 10dB, then the level of the ambient noise histogram itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the alleged intruding noise source.

E. In the event the intrusive exceeds the exterior noise standards as set forth in subsections B and C of this section at a specific receptor property and the health officer has reason to believe that this violation at said specific receptor property was unanticipated and due to abnormal atmospheric conditions, the health officer shall issue an abatement notice in lieu of a citation. If the specific violation is abated, no citation shall be issued therefor. If, however, the specific violation is not abated, the health officer may issue a citation.

(Ord. 11778 § 2 (Art. 4 § 403), 1978: Ord. 11773 § 2 (Art. 4 § 403), 1978.)

12.08.400 - Interior noise standards.

A. No person shall operate or cause to be operated within a dwelling unit, any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed the following standards:

Standard No. 1 The applicable interior noise level for cumulative period of more than five minutes in

any hour; or

Standard No. 2 The applicable interior noise level plus 5dB for a cumulative period of more than one minute in any hour; or

Standard No. 3 The applicable interior noise level plus 10dB or the maximum measured ambient noise level for any period of time.

B. The following interior noise levels for multifamily residential dwellings shall apply, unless otherwise specifically indicated, within all such dwellings with windows in their normal seasonal configuration.

Noise Zone	Designated Land Use	Time Interval	Allowable Interior Noise Level (dB)
All	Multifamily	10 pm—7 am	40
	Residential	7 am—10 pm	45

C. If the measured ambient noise level reflected by the L50 exceeds that permissible within any of the interior noise standards in subsection A of Section 12.08.390, the allowable interior noise level shall be increased in 5dB increments in each standard as appropriate to reflect said ambient noise level (L50).

(Ord. 11778 § 2(Art. 4 § 404), 1978: Ord. 11773 § 2 (Art. 4 § 404), 1978.)

12.08.410 - Correction for certain types of sounds.

For any source of sound which emits a pure tone or impulsive noise, the noise levels as set forth in Sections 12.08.390 and 12.08.400 shall be reduced by five decibels.

(Ord. 11778 § 2 (Art. 4 § 405), 1978: Ord. 11773 § 2 (Art. 4 § 405), 1978.)

12.08.420 - Measurement methods.

A. Utilizing the A-weighting scale of the sound-level meter and the "slow" meter response (use "fast" response for impulsive type sounds), the noise level shall be measured at a position or positions at any point on the receiver's property.

B. In general, the microphone shall be located four to five feet above the ground; 10 feet or

more from the nearest reflective surface, where possible. However, in those cases where another elevation is deemed appropriate, the latter shall be utilized.

C. Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibrator, shall be performed immediately prior to recording any noise data.

(Ord. 11778 § 2 (Art. 4 § 406), 1978: Ord. 11773 § 2 (Art. 4 § 406), 1978.)

Part 4 - SPECIFIC NOISE RESTRICTIONS

12.08.430 - Acts deemed violations when.

Notwithstanding any other provisions of this chapter, the acts set out in this Part 4, and the causing or permitting thereof, are declared to be in violation of this chapter.

(Ord. 11778 § 2 (Art. 5 § 501 (part)), 1978: Ord. 11773 § 2 (Art. 5 § 501 (part)), 1978.)

12.08.440 - Construction noise.

A. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited.

B. Noise Restrictions at Affected Structures. The contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings will not exceed those listed in the following schedule:

1. At Residential Structures.

a. Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:

	Single-family Residential	Multi-family Residential	Semiresidential/ Commercial

Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75dBA	80dBA	85dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60dBA	64dBA	70dBA

b. Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:

	Single-family Residential	Multi-family Residential	Semiresidential/ Commercial

Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60dBA	65dBA	70dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50dBA	55dBA	60dBA

2. At Business Structures.

a. Mobile equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:

Daily, including Sunday and legal holidays, all hours: maximum of 85dBA.

C. All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

D. In case of a conflict between this chapter and any other ordinance regulating construction activities, provisions of any specific ordinance regulating construction activities shall control.

(Ord. 11778 § 2 (Art. 5 § 501(c)), 1978: Ord. 11778 § 2 (Art. 5 § 501(c)), 1978.)

12.08.450 - Forced-air blowers in tunnel car washes.

Operating or permitting the operation of any forced-air blower in a tunnel car wash between the hours of 7:00 a.m. and 8:00 p.m. in such a manner as to exceed any of the following sound levels is prohibited:

	Units Installed	
Measurement Location	Before 1-1-80 dB	On or After 1-1-80 dB
Any point on contiguous receptor property, five feet above grade level, no closer than three feet from any wall		
Residential	70	60
Commercial/Industrial	75	65

(Ord. 11778 § 2 (Art. 5 § 501(m)), 1978: Ord. 11773 § 2 (Art. 5 § 501(m)), 1978.)

12.08.460 - Loading and unloading operations.

Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 p.m. and 6:00 a.m. in such a manner as to cause noise disturbance is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(b)), 1978: Ord. 11773 § 2 (Art. 5 § 501(b)), 1978.)

12.08.470 - Noise disturbances in noise-sensitive zones.

A. Creating or causing the creation of any noise disturbance within any noise-sensitive zone, as designated by the health officer, is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone.

B. Noise-sensitive zones must be indicated by the display of conspicuous signs in at least three separate locations within 164 meters (one-tenth mile) of the institution or facility.

(Ord. 11778 § 2 (Art. 5 § 501(k)), 1978: Ord. 11773 § 2(Art. 5 § 501(k)), 1978.)

12.08.480 - Places of public entertainment.

Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier or similar device which produces, reproduces or amplifies sound in any place of public entertainment at a sound level greater than 95dBA, as read by the slow response on a soundlevel meter at any point that is normally occupied by a customer is prohibited, unless a conspicuous and legible sign is located outside such place, near each public entrance, stating "WARNING: SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT."

(Ord. 11778 § 2 (Art. 5 § 501(f)), 1978: Ord. 11773 § 2 (Art. 5 § 501(f)), 1978.)

12.08.490 - Powered model vehicles.

Operating or permitting the operation of powered model vehicles so as to create a noise disturbance across a residential real-property boundary, or within a noise-sensitive zone between the hours of 8:00 p.m. and 7:00 a.m. the following day is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(g)), 1978: Ord. 11773 § 2 (Art. 5 § 501(g)) 1978.)

12.08.500 - Emergency signaling devices.

A. The intentional sounding or permitting the sounding outdoors of any emergency signaling device, including fire, burglar or civil-defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in subsection B2 below, is prohibited.

B. 1. Testing of a stationary emergency signaling device shall not occur before 7:00 a.m. or after 7:00 p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed 60 seconds.

2. Testing of the complete emergency signaling system, including the functioning of the signaling device, and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall not occur before 7:00

a.m. or after 10:00 p.m. The time limit specified in subsection B1 above shall not apply to such complete-system testing.

C. Sounding or permitting the sounding of any exterior burglar or fire alarm, or any motor-vehicle burglar alarm is prohibited, unless such alarm is terminated within 15 minutes of activation.

(Ord. 11778 § 2 (Art. 5 § 501(i)), 1978: Ord. 11773 § 2 (Art. 5 § 501(i)), 1978.)

12.08.510 - Stationary nonemergency signaling devices.

A. Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than 10 consecutive seconds in any hourly period is prohibited.

B. Houses of religious worship shall be exempt for the operation of this provision.

C. Sound sources covered by this provision and not exempted under subsection B may be exempted by a variance issued by the health officer.

(Ord. 11778 § 2 (Art. 5 § 501(h)), 1978: Ord. 11773 § 2(Art. 5 § 501(h)), 1978.)

12.08.520 - Refuse collection vehicles.

A. On or after three years following August 17, 1978, the effective date of the ordinance codified in this chapter, operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse and which creates, during the compacting cycle, a sound level in excess of 86dBA when measured at 50 feet from any point of the vehicle is prohibited.

B. Operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse between the hours of 10:00 p.m. and 6:00 a.m. the following day in a residential area or noise-sensitive zone, or within 500 feet thereof is prohibited.

C. Collecting refuse with collection vehicle between the hours of 10:00 p.m. and 6:00 a.m. the following day in a residential area or noise-sensitive zone or within 500 feet thereof.

D. In the case of conflict between this chapter and any other ordinance regulating refuse collection, provisions of any specific ordinance regulating refuse collection shall control.

(Ord. 11778 § 2 (Art. 5 § 501(j)), 1978: Ord. 11773 § 2 (Art. 5 § 501(j)), 1978.)

12.08.530 - Residential airconditioning or refrigeration equipment.

Operating or permitting the operation of any airconditioning or refrigeration equipment in such a

manner as to exceed any of the following sound levels is prohibited.

Measurement Location	Units Installed Before 1-1-80 dBA	Units Installed On or After 1-1-80 dBA
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60	55
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55	50

Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface.	55	50

(Ord. 11778 § 2 (Art. 5 § 501(1)), 1978: Ord. 11773 § 2 (Art. 5 § 501(1)), 1978.)

12.08.540 - Street sales.

Offering for sale, selling anything, or advertising by shouting or outcry within any residential or commercial area or noise-sensitive zone of the unincorporated areas of the county is prohibited except by variance issued by the health officer. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at licensed sporting events, parades, fairs, circuses, or other similar licensed public-entertainment events.

(Ord. 11778 § 2 (Art 5 § 501(a)), 1978: Ord. 11773 § 2 (Art. 5 § 501(a)), 1978.)

12.08.541 - Street sales—Restrictions on sound system speakers.

A person offering for sale, selling or advertising anything edible shall not emit music or other sounds from an external speaker affixed to a motor vehicle between the hours of 8:00 p.m. and 6:00 a.m. within any residential, commercial or noise sensitive-zone of the unincorporated area of the County. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages, at licensed sporting events, parades, fairs, circuses, or other similar licensed-

entertainment events.

(Ord. 2002-0028 § 2, 2002)

12.08.550 - Vehicle or motorboat repairs and testing.

Repairing, rebuilding, modifying or testing any motor vehicle, motorcycle or motorboat in such a manner as to cause a noise disturbance across a real-property boundary or within a noisesensitive zone is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(e)), 1978: Ord. 11773 § 2 (Art. 5 § 501(e)), 1978.)

12.08.560 - Vibration.

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

(Ord. 11778 § 2 (Art. 5 § 501(d)), 1978: Ord. 11773 § 2 (Art. 5 § 501(d)), 1978.)

Part 5 - EXEMPTIONS

12.08.570 - Activities exempt from chapter restrictions.

The following activities set out in this chapter shall be exempted from the provisions of this chapter:

A. Emergency Exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work;
B. Warning Devices. Warning devices necessary for the protection of public safety, as for example police, fire and ambulance sirens, and train horns;
C. Outdoor Activities. Activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;
D. Exemption from Exterior Noise Standards. The following activities are exclusively regulated by the prohibitions of Part 4 of this chapter:
    1. Construction,
    2. Stationary nonemergency signaling devices,

3. Emergency signaling devices,

4. Refuse collection vehicles,

5. Residential air-conditioning or refrigeration equipment,

6. Forced-air blowers;

E. Motion Picture Production and Related Activities;

F. Railroad Activities. All locomotives and rail cars operated by any railroad which is regulated by the California Public Utilities Commission;

G. Federal or State Preexempted Activities. Any activity, to the extent regulation thereof has been preempted by state or federal law;

H. Public Health and Safety Activities. All transportation, flood control, and utility company maintenance and construction operations at any time on public right-of-way, and those situations which may occur on private real property deemed necessary to serve the best interest of the public and to protect the public's health and well being, including but not limited to street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, snow removal, house moving, vacuuming catchbasins, removal of damaged poles and vehicles, repair of water hydrants and mains, gas lines, oil lines, sewers, etc.;

I. Motor Vehicles on Private Right-of-way and Private Property. Except as provided in Section 12.08.550, all legal vehicles of transportation operating in a legal manner in accordance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property;

J. Seismic Surveys Authorized by the State Land Commission;

K. Agricultural Operations. All mechanical devices, apparatus or equivalent associated with agricultural operations conducted on agricultural property, unless if in the vicinity of residential land uses, in which case a variance permit is required to operate noise-producing devices, with the following stipulations:

1. Operations do not take place between 8:00 p.m. and 6:00 a.m., or

2. Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or

3. Such operations and equipment are associated with agricultural pest-control through pesticide application, provided the application is made in accordance with

permits issued by or regulations enforced by the county agricultural commissioner,

4. Such devices utilized for pest control which incorporate stationary or mobile noise sources (electro-mechanical birdscare devices, etc.) are operated only by permit issued by the health officer. The allowable hours and days for operation of these devices will be specified in the permit,
5. All equipment and machinery powered by internal combustion engines shall be equipped with a proper muffler and air-intake silencer in good working order;

L. Minor Maintenance to Residential Real Property. Noise sources associated with the minor maintenance of residential real property, provided said activities take place as follows:

1. During Pacific Standard Time between the hours of 8:00 a.m. and 6:00 p.m. on any day except Sunday, when such activities may take place between the hours of 9:00 a.m. and 6:00 p.m., and
2. During Daylight Savings Time between the hours of 8:00 a.m. and 7:00 p.m. on any day except Sunday, when such activities may take place between the hours of 9:00 a.m. and 6:00 p.m.;

M. Operation of Oil and Gas Wells.

1. Normal well servicing, remedial or maintenance work performed within an existing well which does not involve drilling or redrilling and which is restricted to the hours between 7:00 a.m. and 10:00 p.m., and
2. Drilling or redrilling work which is done in full compliance with the conditions of permits issued under Chapter 5, Article 1, of the County Zoning Ordinance, as amended, as set out in Title 22 of this code.

(Ord. 97-0007 § 1, 1997: Ord. 11778 § 2(Art. 6 § 601), 1978: Ord. 11773 § 2 (Art. 6 § 601), 1978.)

Part 6 - VARIANCES

12.08.580 - Conditions for granting variances—Health officer authority.

A. Variances from the requirements of this chapter may be granted by the health officer for a period of not to exceed two years, subject to such terms, conditions and requirements as he may deem reasonable. A variance may be granted only if the health officer makes the findings that:

1. Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or
2. The activity, operation or noise source cannot feasibly be done in a manner that

would comply with the provisions of this chapter, and no other reasonable alternative is available to the applicant.

B. In granting a variance, the health officer may prescribe any conditions or requirements he deems necessary to minimize adverse effects upon the community or the surrounding neighborhood.

C. In granting variances, the health officer shall consider the magnitude of nuisance caused by the offensive noise, the uses of property within the area of impingement by the noise, operations carried on under existing nonconforming rights or conditional use permits or zone variances, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment, the general public interest, health and welfare, the feasibility of plans submitted for correction, and the effect on the community if the variance was refused.

(Ord. 11778 § 2 (Art. 7 § 701), 1978: Ord. 11773 § 2 (Art. 7 § 701), 1978.)

12.08.590 - Application—Contents.

Every applicant for a variance shall file with the health officer a written application on a form prescribed by the health officer. The application shall state the name and address of the applicant, the nature of the noise source involved, and such other information as the health officer may require.

(Ord. 11778 § 2 (Art. 7 § 702), 1978: Ord. 11773 § 2 (Art. 7 § 702), 1978.)

12.08.600 - Application—Fee.

Every applicant shall pay a fee of $25.00 for each application for variance.

(Ord. 11778 § 2 (Art. 7 § 703), 1978: Ord. 11773 § 2 (Art. 7 § 703), 1978.)

12.08.610 - Application—Action by health officer.

A. The health officer shall act, within 30 days, if possible, on an application for a variance, and shall notify the applicant of the action taken, namely, approval, conditional approval, or denial. Before acting on an application for a variance, the health officer may require the applicant to furnish further information. Failure of the applicant to provide such further information may be grounds for denial of the variance.

B. In the event of denial of an application for a variance, the health officer shall notify the applicant in writing of the reasons therefor. The health officer shall not accept a further application unless the applicant has complied with the objections specified by the health officer as his reasons for denial.

(Ord. 11778 § 2 (Art. 7 § 704), 1978: Ord. 11773 § 2 (Art. 7 § 704), 1978.)

12.08.620 - Application—Denial conditions.

The applicant may at his option deem the variance denied if the health officer fails to act on the application within 30 days after filing or within 10 days after applicant furnishes the further information requested by the health officer, whichever is later.

(Ord. 11778 § 2 (Art. 7 § 705), 1978: Ord. 11773 § 2 (Art. 7 § 705), 1978.)

12.08.630 - Public hearing—For reconsideration of health officer decision.

Within 10 days after notice by the health officer of the decision on application for variance, any interested party may petition the health officer in writing for a public hearing to reconsider the decision. The health officer shall thereupon appoint a hearing officer to conduct said hearing.

(Ord. 11778 § 2 (Art. 7 § 706), 1978: Ord. 11773 § 2 (Art. 7 § 706), 1978.)

12.08.640 - Public hearing—Decision and findings—Appeals.

A. Based upon the evidence presented at the public hearing, the hearing officer may affirm, modify or reverse the previous determination subject to such terms, conditions and requirements as he may deem necessary. The hearing officer shall be guided by the same considerations as set forth in Section 12.08.580.

B. A decision by the hearing officer to grant a variance may be made only if the hearing officer makes the findings that:

    1. Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

    2. The activity, operation or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter, and no other reasonable alternative is available to the applicant.

C. The decision of the hearing officer shall be by written order, and shall be final. Appeals from an adverse decision shall be made to a court of competent jurisdiction.

(Ord. 11778 § 2 (Art. 7 § 707), 1978: Ord. 11773 § 2 (Art. 7 § 707), 1978.)

Part 7 - VIOLATIONS AND ENFORCEMENT

12.08.650 - Enforcement—Health officer powers and duties.

The health officer shall have primary responsibility for the enforcement of the noise regulations contained in this chapter. The health officer shall make all noise-level measurements required for the enforcement of this chapter. Nothing in this chapter shall prevent the health officer from efforts to obtain voluntary compliance by way of warning, notice, or educational means.

(Ord. 11778 § 2 (Art. 8 § 801), 1978: Ord. 11773 § 2 (Art. 8 § 801), 1978.)

12.08.660 - Initial violations.

In the event of an initial violation of the provisions of this chapter a written notice of violation shall be given the alleged violator, specifying the time by which the condition shall be corrected or an application for permit or variance shall be received by the health officer. The health officer shall take no further action in the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

(Ord. 11778 § 2 (Art. 8 § 802), 1978: Ord. 11773 § 2 (Art. 8 § 802), 1978.)

12.08.670 - Violation—Penalty.

Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not more than $500.00 or be imprisoned in the County Jail for a period not exceeding six months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 11778 § 2 (Art. 8 § 803), 1978: Ord. 11773 § 2 (Art. 8 § 803, 1978.)

12.08.680 - Severability.

If any provision, clause, sentence or paragraph of this chapter or the application thereof to any person or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of the provisions of this chapter which can be given effect without the invalid provisions or application and, to this end, the provisions of this chapter are hereby declared to be severable.

(Ord. 11778 § 2 (Art. 8 § 804), 1978: Ord. 11773 § 2 (Art. 8 § 804), 1978.)

Chapter 12.12 - BUILDING CONSTRUCTION NOISE

12.12.010 - Definitions.

A. "Board" means the board of supervisors of the county of Los Angeles.

B. "Person" means an individual, partnership, firm or corporation.

C. "Section" means a section of the ordinance codified in this chapter.

(Ord. 8594 §§ 1, 2 and 3, 1964.)

12.12.020 - References to provisions.

Whenever any reference is made to the ordinance codified in this chapter or any other ordinance, or to any statute, such reference shall apply to all amendments and additions thereto now or hereafter made.

(Ord. 8594 § 4, 1964.)

12.12.030 - Construction noise prohibited when.

Except as otherwise provided in this chapter, a person, on any Sunday, or at any other time between the hours of 8:00 p.m. and 6:30 a.m. the following day, shall not perform any construction or repair work of any kind upon any building or structure, or perform any earth excavating, filling or moving, where any of the foregoing entails the use of any air compressors; jackhammers; power-driven drill; riveting machine; excavator, diesel-powered truck, tractor or other earth moving equipment; hand hammers on steel or iron, or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in a dwelling, apartment, hotel, mobilehome, or other place of residence.

(Ord. 9818 § 1, 1969: Ord. 8594 § 6, 1964.)

12.12.040 - Exemptions—Certain zoned areas.

The provisions of this chapter do not apply in any territory which is in a zone in which the Zoning Ordinance, codified in Title 22 of this code, prohibits any residential use and which is not less than 500 feet from any territory in any residential zone as defined in Section 201 of Ordinance 1494, or any territory in a residential zone in any city.

(Ord. 8594 § 11, 1964.)

12.12.050 - Exemptions—Work performed with county engineer's permission.

The provisions of Section 12.12.030 do not apply to any person who performs the construction, repair, excavation or earthmoving work involved pursuant to the express written permission of the county engineer to perform such work at times prohibited in Section 12.12.030. Upon receipt of an application in

writing therefor, stating the reasons for the request and the facts upon which such reasons are based, the county engineer may grant such permission if he finds that:

A. The work proposed to be done is effected with a public interest; or

B. Hardship or injustice, or unreasonable delay, would result from the interruption thereof during the hours and days specified in Section 12.12.030; or

C. The building or structure involved is devoted or intended to be devoted to a use immediately incident to public defense.

(Ord. 9818 § 2, 1969: Ord. 8594 § 7, 1964.)

12.12.060 - Exemptions—Work by public utilities—Conditions.

The provisions of Section 12.12.030 do not apply to the construction, repair or excavation by a public utility which is subject to the jurisdiction of the Public Utilities Commission as may be necessary for the preservation of life or property, and where such necessity makes it necessary to construct, repair or excavate during the prohibited hours.

(Ord. 8594 § 10, 1964.)

12.12.070 - Exemptions—Emergency work—Permit requirements.

The provisions of Section 12.12.030 do not apply to such construction, repair or excavation during prohibited hours as may be necessary for the preservation of life or property when such necessity arises during such hours as the offices of the county are closed or where such necessity requires immediate action prior to the time at which it would be possible to obtain a permit pursuant to Section 12.12.050, if the person doing such construction, repair or excavation obtains a permit therefor within one day after the offices of the county engineer are first opened subsequent to the making of such construction, repair or excavation.

(Ord. 8594 § 9, 1964.)

12.12.080 - Appeals from county engineer's decision.

Any person dissatisfied with the decision of the county engineer may appeal to the business license commission as provided in Ordinance 5860, on business licenses, set out at Title 7 of this code, including the appointment of and reference to a referee, as in the case of a notification by the tax collector that he intends to deny a license.

(Ord. 9849 § 1, 1969: Ord. 8594 § 8, 1964.)

12.12.090 - Violation—Penalty.

Any person violating any provision of this chapter is guilty of a misdemeanor punishable by a fine of not more than $500.00 or by imprisonment in the County Jail for not more than six months, or by both such fine and imprisonment. Every such person is guilty of a separate offense for every day during any portion of which any violation or any of the provisions of this chapter is committed, continued or permitted by such person, and shall be punished as provided by this chapter.

(Ord. 8594 § 12, 1964.)

12.12.100 - Severability.

If any provision of the ordinance codified in this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the ordinance, and the application of such provision to other persons or circumstances, shall not be affected thereby.

(Ord. 8594 § 5, 1964.)

Sec. 15-95. - Construction and building projects.

(a) *Regulation.* Between the hours of 8:00 p.m. of one day and 7:00 a.m. of the next day, it shall be unlawful for any person within a residential zone, or within a radius of five hundred (500) feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other construction type device in such manner as to create any noise which causes the noise level at the property line to exceed the ambient noise level by more than five (5) decibels unless a permit therefor has been duly obtained in accordance with paragraph (b) of this section. No permit shall be required to perform emergency work as defined in section 15-83 of this article.

(b) *Permit procedure.* A permit may be issued authorizing noises prohibited by this section whenever it is found that the public interest will be served thereby. Applications for permits shall be in writing, shall be accompanied by an application fee in the amount of five dollars ($5.00), and shall set forth in detail facts showing that the public interest will be served by the issuance of such permit. Applications shall be made to the building director; provided, however, that, with respect to work upon or involving the use of a public street, alley, building, or other public place under the jurisdiction of the engineering department, applications shall be made to the city engineer. Anyone dissatisfied with the denial of a permit may appeal to the council.

(c) *Unloading and Loading.* Between the hours of 8:00 p.m. of one day and 6:00 a.m. of the next day, it shall be unlawful for any person within the radius of five hundred (500) feet of generally occupied residences to unload, load or otherwise perform duties preparatory to the commencement of construction or repair work on buildings or structures. Generally occupied residences shall include, but not be limited to, areas in which there is a reasonable probability of occupancy within the area.

(Code 1960, § 4611; Ord. No. 1826, § 2, 11-13-89)

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/23/2021
Case Description: IRW-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Equipment Leq	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Bar Bender	No	20	80.0		50.0	0.0
Blasting	Yes	1	94.0		50.0	0.0
Boring Jack Power Unit	No	50		83.0	50.0	0.0
Chain Saw	No	20		83.7	50.0	0.0
Clam Shovel (dropping)	Yes	20		87.3	50.0	0.0
Compactor (ground)	No	20		83.2	50.0	0.0
Compressor (air)	No	40		77.7	50.0	0.0
Concrete Batch Plant	No	15	83.0		50.0	0.0
Concrete Mixer Truck	No	40		78.8	50.0	0.0
Concrete Pump Truck	No	20		81.4	50.0	0.0
Concrete Saw	No	20		89.6	50.0	0.0
Crane	No	16		80.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Drill Rig Truck	No	20		79.1	50.0	0.0
Drum Mixer	No	50		80.0	50.0	0.0
Dump Truck	No	40		76.5	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Flat Bed Truck	No	40		74.3	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Noise Limits (dBA) Day Leq	Noise Limits (dBA) Evening Lmax	Noise Limits (dBA) Evening Leq	Noise Limits (dBA) Night Lmax	Noise Limits (dBA) Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Noise Limit Exceedance (dBA) Day Leq	Noise Limit Exceedance (dBA) Evening Lmax	Noise Limit Exceedance (dBA) Evening Leq	Noise Limit Exceedance (dBA) Night Lmax	Noise Limit Exceedance (dBA) Night Leq
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bar Bender	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A
Blasting 94.0 74.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Boring Jack Power Unit 83.0 80.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Chain Saw 83.7 76.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Clam Shovel (dropping) 87.3 80.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Compactor (ground) 83.2 76.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Compressor (air) 77.7 73.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Concrete Batch Plant 83.0 74.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Concrete Mixer Truck 78.8 74.8 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Concrete Pump Truck 81.4 74.4 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Concrete Saw 89.6 82.6 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Crane 80.6 72.6 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Dozer 81.7 77.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Drill Rig Truck 79.1 72.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Drum Mixer 80.0 77.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Dump Truck 76.5 72.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Excavator 80.7 76.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Flat Bed Truck 74.3 70.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Total 94.0 89.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/23/2021
Case Description: IRW-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Equipment Leq	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Front End Loader	No	40		79.1	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Gradall	No	40		83.4	50.0	0.0
Grader	No	40	85.0		50.0	0.0
Grapple (on backhoe)	No	40		87.0	50.0	0.0
Horizontal Boring Hydr. Jack	No	25		82.0	50.0	0.0
Hydra Break Ram	Yes	10	90.0		50.0	0.0
Jackhammer	Yes	20		88.9	50.0	0.0
Man Lift	No	20		74.7	50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20		90.3	50.0	0.0
Pavement Scarafier	No	20		89.5	50.0	0.0
Paver	No	50		77.2	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0
Pneumatic Tools	No	50		85.2	50.0	0.0
Pumps	No	50		80.9	50.0	0.0
Refrigerator Unit	No	100		73.0	50.0	0.0
Rivet Buster/chipping gun	Yes	20		79.1	50.0	0.0
Rock Drill	No	20		81.0	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Scraper	No	40		83.6	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gradall	83.4	79.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A N/A
Grader 85.0 81.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Grapple (on backhoe) 87.0 83.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Horizontal Boring Hydr. Jack 82.0 76.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A N/A
Hydra Break Ram 90.0 80.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Jackhammer 88.9 81.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Man Lift 74.7 67.7 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Mounted Impact Hammer (hoe ram) 90.3 83.3 N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A N/A
Pavement Scarafier 89.5 82.5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Paver 77.2 74.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Pickup Truck 75.0 71.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Pneumatic Tools 85.2 82.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Pumps 80.9 77.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Refrigerator Unit 73.0 73.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Rivet Buster/chipping gun 79.1 72.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A N/A
Rock Drill 81.0 74.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Roller 80.0 73.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A
Scraper 83.6 79.6 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Total 90.3 92.1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/23/2021
Case Description: IRW-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Equipment Leq	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Shears (on backhoe)	No	40		96.2	50.0	0.0
Slurry Plant	No	100		78.0	50.0	0.0
Slurry Trenching Machine	No	50		80.4	50.0	0.0
Soil Mix Drill Rig	No	50	80.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Vacuum Excavator (Vac-truck)	No	40		85.3	50.0	0.0
Vacuum Street Sweeper	No	10		81.6	50.0	0.0
Ventilation Fan	No	100		78.9	50.0	0.0
Vibrating Hopper	No	50		87.0	50.0	0.0
Vibratory Concrete Mixer	No	20		80.0	50.0	0.0
Warning Horn	No	5		83.2	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Shears (on backhoe)	96.2	92.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Slurry Plant	78.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Slurry Trenching Machine	80.4	77.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Soil Mix Drill Rig	80.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Excavator (Vac-truck)	85.3	81.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	81.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A N/A
Ventilation Fan 78.9 78.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Vibrating Hopper 87.0 84.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Vibratory Concrete Mixer 80.0 73.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Warning Horn 83.2 70.2 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Welder / Torch 74.0 70.0 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A N/A
Total 96.2 93.9 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
N/A

IRW-03 Construction Noise Modeling Attenuation Calculations

Levels in dBA Leq

Phase	RCNM Reference Noise Level	Residence to southwest
Distance in feet	*50*	*1250*
Max Leq	84.0	56
Min Leq	68.0	40

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

IRW-03 Vibration Annoyance Attenuation Calculations

Levels in VdB

Equipment	Vibration @ 25 ft	Residential south	Residential east	Manzanita Elementary
Distance in feet		*1,270*	*1,550*	*1450*
Vibratory Roller	94	43	40	41
Large Bulldozer	87	36	33	34
Caisson Drilling	87	36	33	34
Loaded Trucks	86	35	32	33
Jackhammer	79	28	25	26
Small Bulldozer	58	7	4	5

IRW-03 Vibration Damage Attenuation Calculations

Levels in in/sec PPV

Distance in feet	**Vibration Reference Level at *25 feet***	**Industrial building to east** *115*	**Industrial building to south** *140*	**Residential to south** *550*
Vibratory Roller	0.21	0.021	0.016	0.002
Large Bulldozer	0.089	0.009	0.007	0.001
Caisson Drilling	0.089	0.009	0.007	0.001
Loaded Trucks	0.076	0.008	0.006	0.001
Jackhammer	0.035	0.004	0.003	0.000
Small Bulldozer	0.003	0.000	0.000	0.000
Clam shovel	0.202	0.020	0.015	0.002
Hoe Ram	0.089	0.009	0.007	0.001

TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Noise Calculator: FHWA 77 Project Title: Existing With Pepsi Baseline

	Output			Inputs											
	dBA at 50 feet														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.1	67.7	68.1	Azusa Canyon Road - north of Cypress Street	16,723	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
2	64.3	67.8	68.2	Azusa Canyon Road - south of Cypress Street	17,181	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
3	65.1	68.7	69.1	Cypress Street - west of Azusa Canyon Road	15,744	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	3	Hard	50
4	62.7	66.2	66.7	Azusa Canyon Road - north of Los Angeles Street	12,010	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
5	62.1	65.6	66.0	Azusa Canyon Road - south of Los Angeles Street	10,416	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
6	51.1	54.6	55.0	Los Angeles Street - east of Azusa Canyon Road	1,181	25	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
7	65.7	69.2	69.7	Los Angeles Street - west of Azusa Canyon Road	10,341	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
8	62.0	65.5	65.9	Azusa Canyon Road - north of San Bernardino Road	10,416	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
9	66.4	69.9	70.4	San Bernardino Road - east of Azusa Canyon Road	20,862	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
10	63.7	67.2	67.6	San Bernardino Road - west of Azusa Canyon Road	11,054	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
11	55.0	58.5	59.0	Azusa Canyon Road - north of Arrow Highway	2,083	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
12	62.7	66.2	66.6	Azusa Canyon Road - south of Arrow Highway	11,919	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
13	72.6	76.1	76.6	Arrow Highway - east of Azusa Canyon Road	48,946	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
14	72.7	76.2	76.6	Arrow Highway - west of Azusa Canyon Road	49,428	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
15	62.7	66.2	66.6	Azusa Canyon Road - north of Olive Street	11,919	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
16	64.1	67.7	68.1	Azusa Canyon Road - south of Olive Street	16,723	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
17	61.3	64.9	65.3	Olive Street - east of Azusa Canyon Road	8,947	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50

Traffic Noise Calculator: FHWA 77 Project Title: Existing with Pepsi Baseline Plus Project

	Output			Inputs											
	dBA at 50 feet														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.3	67.8	68.2	Azusa Canyon Road - north of Cypress Street	17,261	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
2	64.4	67.9	68.3	Azusa Canyon Road - south of Cypress Street	17,629	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
3	65.2	68.7	69.1	Cypress Street - west of Azusa Canyon Road	15,832	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	3	Hard	50
4	62.9	66.4	66.8	Azusa Canyon Road - north of Los Angeles Street	12,458	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
5	62.2	65.7	66.2	Azusa Canyon Road - south of Los Angeles Street	10,732	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
6	51.1	54.6	55.0	Los Angeles Street - east of Azusa Canyon Road	1,181	25	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
7	65.8	69.3	69.7	Los Angeles Street - west of Azusa Canyon Road	10,509	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
8	62.1	65.7	66.1	Azusa Canyon Road - north of San Bernardino Road	10,732	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
9	66.5	70.0	70.5	San Bernardino Road - east of Azusa Canyon Road	21,270	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
10	63.8	67.3	67.7	San Bernardino Road - west of Azusa Canyon Road	11,322	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
11	55.0	58.5	59.0	Azusa Canyon Road - north of Arrow Highway	2,083	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
12	63.1	66.6	67.1	Azusa Canyon Road - south of Arrow Highway	13,183	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
13	72.9	76.4	76.9	Arrow Highway - east of Azusa Canyon Road	52,270	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
14	73.0	76.5	76.9	Arrow Highway - west of Azusa Canyon Road	53,060	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
15	63.1	66.6	67.1	Azusa Canyon Road - north of Olive Street	13,183	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
16	64.3	67.8	68.2	Azusa Canyon Road - south of Olive Street	17,261	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
17	61.5	65.0	65.4	Olive Street - east of Azusa Canyon Road	9,281	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50

Traffic Noise Calculator: FHWA 77 Project Title: Cumulataive with Pepsi Baseline No Project

	Output			Inputs											
	dBA at 50 feet														
ID	$L_{eq-24hr}$	L_{dn}	CNEL	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.5	68.0	68.5	Azusa Canyon Road - north of Cypress Street	18,270	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
2	64.7	68.2	68.6	Azusa Canyon Road - south of Cypress Street	18,957	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
3	65.6	69.1	69.5	Cypress Street - west of Azusa Canyon Road	17,331	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	3	Hard	50
4	63.8	67.4	67.8	Azusa Canyon Road - north of Los Angeles Street	15,606	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
5	62.8	66.4	66.8	Azusa Canyon Road - south of Los Angeles Street	12,434	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
6	51.7	55.2	55.7	Los Angeles Street - east of Azusa Canyon Road	1,364	25	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
7	66.9	70.4	70.8	Los Angeles Street - west of Azusa Canyon Road	13,557	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
8	62.8	66.3	66.7	Azusa Canyon Road - north of San Bernardino Road	12,434	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
9	66.9	70.4	70.8	San Bernardino Road - east of Azusa Canyon Road	23,171	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
10	64.2	67.7	68.1	San Bernardino Road - west of Azusa Canyon Road	12,405	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
11	55.4	58.9	59.3	Azusa Canyon Road - north of Arrow Highway	2,276	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
12	63.1	66.6	67.0	Azusa Canyon Road - south of Arrow Highway	13,092	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
13	73.1	76.6	77.1	Arrow Highway - east of Azusa Canyon Road	54,977	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
14	73.2	76.7	77.1	Arrow Highway - west of Azusa Canyon Road	55,419	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
15	63.1	66.6	67.0	Azusa Canyon Road - north of Olive Street	13,092	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
16	64.5	68.0	68.5	Azusa Canyon Road - south of Olive Street	18,270	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
17	61.7	65.2	65.7	Olive Street - east of Azusa Canyon Road	9,731	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50

Traffic Noise Calculator: FHWA 77 Project Title: Cumulataive with Pepsi Baseline Plus Project

	Output			Inputs											
	dBA at 50 feet														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	64.5	68.1	68.5	Azusa Canyon Road - north of Cypress Street	18,382	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
2	64.7	68.2	68.7	Azusa Canyon Road - south of Cypress Street	19,081	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
3	65.6	69.1	69.5	Cypress Street - west of Azusa Canyon Road	17,343	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	3	Hard	50
4	63.8	67.4	67.8	Azusa Canyon Road - north of Los Angeles Street	15,628	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
5	62.9	66.4	66.8	Azusa Canyon Road - south of Los Angeles Street	12,478	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
6	52.1	55.6	56.0	Los Angeles Street - east of Azusa Canyon Road	1,486	25	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
7	66.9	70.4	70.9	Los Angeles Street - west of Azusa Canyon Road	13,613	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
8	62.8	66.3	66.7	Azusa Canyon Road - north of San Bernardino Road	12,480	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
9	66.9	70.4	70.8	San Bernardino Road - east of Azusa Canyon Road	23,205	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
10	64.2	67.7	68.1	San Bernardino Road - west of Azusa Canyon Road	12,417	35	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
11	55.4	58.9	59.3	Azusa Canyon Road - north of Arrow Highway	2,276	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50
12	63.1	66.6	67.1	Azusa Canyon Road - south of Arrow Highway	13,192	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
13	73.1	76.6	77.1	Arrow Highway - east of Azusa Canyon Road	55,033	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
14	73.2	76.7	77.1	Arrow Highway - west of Azusa Canyon Road	55,463	45	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	6	Hard	50
15	63.1	66.6	67.1	Azusa Canyon Road - north of Olive Street	13,192	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
16	64.5	68.1	68.5	Azusa Canyon Road - south of Olive Street	18,382	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	4	Hard	50
17	61.7	65.2	65.7	Olive Street - east of Azusa Canyon Road	9,743	30	0.0%	95.0%	3.1%	1.9%	75.2%	10.8%	13.9%	2	Hard	50

Tilt Warehouse - IRW-03

Traffic Noise Summary Calculations

	CNEL dBA				dBA CNEL Increae		
Roadway Segment	Existing No Project	Existing Plus Project	Cumulative no Project	Cumulative Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
Azusa Canyon Road - north of Cypress Street	68.1	68.2	68.5	68.5	0.1	0.4	0.0
Azusa Canyon Road - south of Cypress Street	68.2	68.3	68.6	68.7	0.1	0.5	0.0
Cypress Street - east of Azusa Canyon Road	69.1	69.1	69.5	69.5	0.0	0.4	0.0
Azusa Canyon Road - north of Los Angeles Street	66.7	66.8	67.8	67.8	0.2	1.1	0.0
Azusa Canyon Road - south of Los Angeles Street	66.0	66.2	66.8	66.8	0.1	0.8	0.0
Los Angeles Street - east of Azusa Canyon Road	55.0	55.0	55.7	56.0	-	1.0	0.4
Los Angeles Street - west of Azusa Canyon Road	69.7	69.7	70.8	70.9	0.1	1.2	0.0
Azusa Canyon Road - north of San Bernardino Road	65.9	66.1	66.7	66.7	0.1	0.8	0.0
San Bernardino Road - east of Azusa Canyon Road	70.4	70.5	70.8	70.8	0.1	0.5	0.0
San Bernardino Road - west of Azusa Canyon Road	67.6	67.7	68.1	68.1	0.1	0.5	0.0
Azusa Canyon Road - north of Arrow Highway	59.0	59.0	59.3	59.3	-	0.4	-
Azusa Canyon Road - south of Arrow Highway	66.6	67.1	67.0	67.1	0.4	0.4	0.0
Arrow Highway - east of Azusa Canyon Road	76.6	76.9	77.1	77.1	0.3	0.5	0.0
Arrow Highway - west of Azusa Canyon Road	76.6	76.9	77.1	77.1	0.3	0.5	0.0
Azusa Canyon Road - north of Olive Street	66.6	67.1	67.0	67.1	0.4	0.4	0.0
Azusa Canyon Road - south of Olive Street	68.1	68.2	68.5	68.5	0.1	0.4	0.0
Olive Street - west of Azusa Canyon Road	65.3	65.4	65.7	65.7	0.2	0.4	0.0

STATIONARY NOISE CALCULATIONS

Azusa Canyon Road Warehouse: IRW-03

Receptor: Residences and School

Reference Levels		Reference Adjusted (@ 20 ft)	Distance Attenuation, ft 18 docks			Distance Attenuation, ft 18 docks with partial shielding		
Noise Metric	Ref @ 20 ft	18 trucks	1,350	1,650	650	1,350	1,650	650
Leq	66.0	78.6	42.0	40.2	48.3	39	37	45
L50	65.5	78.1	41.5	39.7	47.8	38	37	45

RCNM Appendix A: Practices for Calculating Estimated Shielding (fwha.dot.gov)

3	If a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of-sight between the noise source and the receptor
5	If the noise source is in a enclosure and/or barrier that has some gaps in it
5	If a noise source is enclosed or shielded with heavy vinyl noise curtain material (e.g., SoundSeal BBC-13-2" or equivalent)
8	If the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source
10	If the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source

References

Loading dock measurments at Westminster Mall Dock A, conducted by PlaceWorks Staff 2019.