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). 2013, September. Transportation and Construction Vibration Guidance Manual.

LOCAL REGULATIONS AND STANDARDS

Chapter 8.36 - NOISE CONTROL

8.36.010 - Definitions.

As used in this chapter, the following words and phrases shall be defined and have the meaning ascribed to them as follows:

A. "Person" means and includes any individual, group of individuals, club, association, partnership or corporation.

B. "Loud and raucous noise" means any sound created and/or transmitted in any manner whatever which is of such volume, intensity or carrying power as to interfere with or disturb the reasonable and quiet comfortable enjoyment of life or property or which is adverse to the general public welfare in any neighborhood.

C. "Public address system" or "sound equipment" means any mechanical and/or electrical device for the reproduction, amplification or broadcasting of the human voice, music, or any other sound whatsoever.

D. "Permanent building" shall expressly be deemed to exclude any structure with outer walls or roof composed, in whole or in part, of canvas or similar materials, and any structure commonly described as an "open air pavilion."

E. "Broadcast" means any voice, music, or any sound whatever transmitted, amplified, reproduced or otherwise emitted from any public address system.

F. "Construction" means any activity associated with a project or work for which a permit may be required under the Kern County Code of Building Regulations.

G. "Construction site" is any parcel on which the construction is occurring.

H. "Emergency work" means work to restore property to a safe condition following a calamity, work required to protect persons or property from exposure to danger, or work by private or public utilities to restoring utility services.

(Ord. G-7577 § 2, 2007; Ord. G-6301 § 2, 1996; prior code § 6350)

8.36.020 - Prohibited sounds.

It is unlawful for any person to do, or cause to be done, any of the following acts within the unincorporated areas of the county:

A. Operate any public address system in any event when the sound emanating therefrom can be heard beyond the confines of any permanent building to such degree that such sound constitutes a loud and raucous noise;

B. Operate upon any public street or highway any vehicle equipped with and operating any

public address system when such operation constitutes a traffic hazard or interferes with the safe and orderly flow of traffic over and along any such public street or highway;

C. In any manner whatever willfully make, emit or transmit any loud or raucous noise upon or from any public street or highway or upon or from any public park or any public property whatever;

D. Operate any public address system when the sound emanating therefrom can be heard beyond the confines of a permanent building when such operation constitutes the promotion or advertisement of any private affair or business or commercial enterprise;

E. Operate any public address system when the sound emanating therefrom can be heard beyond the confines of a permanent building when such operation is for purposes other than the promotion or advertisement of any private affair or business or commercial enterprise unless such operation shall first be declared as hereinafter provided;

F. The provisions of subsection (D) of this section shall not prohibit the incidental sounding, between the hours of nine (9:00) a.m. and nine (9:00) p.m. of any day, of a musical sound apparatus consisting of bells or the sounding of a bell or horn when the sound thereof is not audible to a person of average hearing faculties or capacity at a distance of one hundred fifty (150) feet, when such incidental sounding is in connection with the ordinary use and operation of a tradesman's, peddler's, or huckster's cart, wagon or other vehicle; provided, however, that no such sounding in any event shall be permitted between the hours of nine (9:00) p.m. of any day and nine (9:00) a.m. of the following day;

G. Operate or permit to be operated any public address system or sound equipment so as to be audible to a person of average hearing faculties or capacity at a distance of:

   1. One hundred fifty (150) feet from the public address system or sound equipment, if operated on a public street, sidewalk or any other public property; or
   2. If operated elsewhere, one hundred fifty (150) feet from the property line of the property on which the public address system or sound equipment is located; or
   3. Between the hours of eight (8:00) a.m. and midnight (12:00) a.m., one thousand (1,000) feet from the public address system or sound equipment connected with either short-term events held on public property with the consent of the responsible public agency, short-term public events held historically and regularly, or short-term events authorized by any kind of permit or license issued by the county. This subsection shall not apply to acts proscribed by Section 27007 of the California Vehicle Code, as amended from time to time.

H. Create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet

from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

(Ord. G-7577 § 3, 2007; Ord. G-6301 §§ 4, 5, 1996; prior code § 6351)

(Ord. No. G-8035, § 25, 4-20-10; Ord. No. G-8911, § 2, 2-25-20)

8.36.030 - Violation of chapter.

A violation of any provision of this title is guilty of a misdemeanor.

(Ord. G-7577 § 4, 2007)

8 Health & Safety Element

8.1 Introduction

The State of California has mandated that all cities prepare Noise and Safety Elements as part of the General Plan. These two State-mandated elements have been combined into one Health and Safety Element which will provide a basis for development of comprehensive programs to control and abate natural and man-made hazards created within and adjacent to the community.

Hazards are defined as natural conditions that can affect the health or life of any person or cause significant property damage. The Element provides a policy and program input to City operational practices and the physical development process so that unnecessary exposure to these hazards can be avoided or minimized.

Significant progress has been made throughout the community to protect residents and property from natural and man-made threats to the safety of persons and property within the City. Additionally, special concessions are provided for emergency operations that support and direct public safety actions during times of emergency. The General Plan policies and implementation measures are directed toward the provision of an acceptable level of protection for existing and future residents.

KEY TERMS

100 Year Storm. A storm that is projected to occur only once in a 100 year period of time. It is an intense storm that causes severe damage and loss of life.

Alquist-Priolo Fault Zone. The Alquist-Priolo Earthquake Fault Zoning Act, passed in 1972, requires the State Geologist to identify zones of special study around active faults.

Ambient Noise. The total noise associated with a given environment and usually comprising sounds from many sources, both near and far.

Attenuation. Reduction in the level of sound resulting from absorption by the surrounding topography, the atmosphere, distance, barriers, and other factors.

A-Weighted Decibel (dBA). A unit of measurement for noise having a logarithmic scale and measured using the A-weighted sensory network on a noise-measuring device. An increase or decrease of 10 decibels corresponds to a tenfold increase or decrease in sound energy. A doubling or halving of sound energy corresponds to a 3-dBA increase or decrease.

California Building Standard Code. Standards. Set by the California Building Standards Commission to promote safe building, fire prevention, access for persons with disabilities, and energy efficiency within the State.

Community Noise Equivalent Level (CNEL). CNEL is used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels. Leq values (equivalent sound levels measured over a 1-hour period - see below) for the evening period (7:00 p.m. to 10:00 p.m.) are increased by 5 dB, while Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) are increased by 10 dB. For a given set of sound measurements, the CNEL value will usually be about 1 dB higher than the Ldn value (average sound exposure over a 24-hour period – see below). In practice, CNEL and Ldn are often used interchangeably.

Day-Night Average Sound Level (Ldn). Ldn represents an average sound exposure over a 24-hour period. Ldn values are calculated from hourly Leq values, with the Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Decibel (dBA). A unit of measurement describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ration of the pressure of the sound measured to the reference pressure (which is 20 micronewtons per square meter).

Drainage Channel. An open channel such as a swale, constructed channel, or natural drainage course that conveys, provides store and often some treatment of runoff.

Emergency Preparedness Plan. A specific plan of action that can be put into effect within a moments notice to protect the community from a sudden disaster.

Equivalent Sound Level (Leq). The level of a steady-state sound that, in a stated time period and at a stated location, has the same sound energy as the time-varying sound (approximately equal to the average sound level). The equivalent sound level measured over a 1-hour period is called the hourly Leq or Leq (h).

Fault. A fault is a fracture in the Earth's crust that is accompanied by displacement between the two sides of the fault. An active fault is defined as a fault that has moved in the last 10,000 to 12,000 years (Holocene time). A potentially active fault is one that has been active in the past 1.6 million years (Quaternary period). A sufficiently active fault is one that shows evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

Floodplain. Land adjacent to a stream, slough, or river that is subject to flooding or inundation from a storm event. FEMA defines the floodplain to be the area inundated by the 100-year floodplain.

Flood Plain Management Program. Corrective and preventative measures set forth through local programs for reducing flood damage. These measures normally are enacted through zoning, subdivision or building, and special-purpose floodplain ordinances.

Hazardous Materials. A hazardous material is defined by the California Code of Regulations (CCR) as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

Kern County Air Pollution Control District (KCAPCD). The KCAPCD is the regulatory agency responsible for developing air quality plans, monitoring air quality, and reporting air quality data for eastern Kern County.

Lmax and Lmin. The maximum and minimum sound levels, respectively, measured during the measurement period. When a sound meter is set to the "slow" response setting, as is typical for most community noise measurements, the Lmax and Lmin values are the maximum and minimum levels measured over a 1-second period.

Magnitude. Earthquake magnitude is measured by the Richter scale, indicated as a series of Arabic numbers with no theoretical maximum magnitude. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Magnitude increases logarithmically in the Richter scale;

thus, an earthquake of magnitude 7.0 is thirty times stronger than one of magnitude 6.0. Earthquake energy is most intense at the point of fault slippage, the epicenter, which occurs because the energy radiates from that point in a circular wave pattern. The farther an area is from an earthquake's epicenter, the less likely it is that groundshaking will occur.

Noise Contours. Connecting points of equal noise exposure (typically 65, 70, and 75 DNL).

Ozone. Ozone is a pungent, colorless toxic gas created in the atmosphere rather than emitted directly into the air. Ozone is produced in complex atmospheric reactions involving oxides of nitrogen and reactive organic gases with ultraviolet energy from the sun. Motor vehicles are the major sources of ozone precursors.

Percentile-Exceeded Sound Level (Lx). The sound level exceeded during a given percentage of a measurement period. Examples include L10, L50, and L90. L10 is the A-weighted sound level that is exceeded 10% of the measurement period, L50 is the level exceeded 50% of the period, and so on. L50 is the median sound level measured during the measurement period. L90, the sound level exceeded 90% of the time, excludes high localized sound levels produced by nearby sources such as single car passages or bird chirps. L90 is often used to represent the background sound level. L50 is also used to provide a less conservative assessment of the background sound level.

Photochemical. Some air pollutants are direct emissions, such as the carbon monoxide that is part of the exhaust from an automobile. Other pollutants, primarily ozone, are formed when two or more chemicals react (using energy from the sun) in the atmosphere to form a new chemical. This is a photochemical reaction.

PM10. Dust and other particulates come in a range of particle sizes. Federal and State air quality regulations reflect the fact that smaller particles are easier to inhale and can be more damaging to health. PM10 refers to dust/particulates that are 10 microns in diameter or smaller.

PM2.5. The Federal government has recently added standards for smaller dust particles. PM2.5 refers to dust/particulates that are 2.5 microns in diameter or smaller.

Sensitive Receptors. Sensitive receptors are defined to include residential areas, hospitals, convalescent homes and facilities, schools, and other similar land uses.

Sheet Flows. Floodwaters that do not have defined channels to move through, and spread across large expanses of land. They occur after intense or prolonged rainfall when soils are saturated and water can not seep into the ground.

8.2 Existing Conditions

HAZARD AND RISK SUMMARY

Earthquakes and floods are the most significant hazards, followed by severe weather. Historic incidents indicate that floods and windstorms have impacted the City. Environmental hazards that have occurred in the City include:

High Wind/Tornados. High winds are a frequent occurrence in the area, but tornados, while they have been sighted, are very infrequent. Newer structures are constructed in accordance with the building codes. Some problems may exist with the older structures however.

Geologic Hazards. Earthquakes are common and present the only geologic hazard in the area. The area just north of the town has been the source of several moderate sized earthquake event periods during 1980-1991, 1992-1994, and 1995. The largest of these was a magnitude 5.8 on August 17, 1995. Newer construction is built in compliance with modern building codes and should withstand seismic loads. Older structures may not fair as well.

Drought. The City of Ridgecrest exists in a high desert climate and with a lack of natural precipitation creates the opportunity for drought conditions throughout the year. Indian Wells Valley Water District provides water service in the Valley from ground water sources. The City of Ridgecrest recycles water using treated wastewater to water a golf course and to grow alfalfa. Low water consumption plants are encouraged.

Wildfires and Grassfires. Due to the sparse vegetation in the area, naturally occurring wildfires are rare. The tumbleweed is present and is a source of a fire hazard if not controlled. Fires are generally due to tumbleweeds and trash accumulation. Fire protection is provided by the Kern County Fire Department.

Noxious Weeds and Insects. Mosquitoes carrying the West Nile Virus present a concern. The City of Ridgecrest has a spraying program in the summer designed to control this issue. The cities detention/retention basins must be sprayed during the summer months to prevent mosquitoes.

Floods. Flooding can be a problem in the City of Ridgecrest. These events are infrequent and usually short in duration. Measures are usually taken to protect structures by elevating the first floor above the adjacent ground. The City of Ridgecrest does have a master drainage plan; but the funding to implement a plan is not available.

8.3 Goals and Policies

General

Goal	Protect the City and its residents from injury and damage resulting from

HS-1	natural catastrophes and hazardous conditions including aircraft operations, air quality, flooding, fire, and noise. [Source: Goal 8.1, Safety Element - revised]

HS-1.1 Development Constraints

The City shall permit development only in areas where the potential danger to the health and safety of people can be mitigated to an acceptable level. [New Policy]

HS-1.2 Maintain Emergency Services

The City shall ensure that during natural catastrophes and emergencies the City can continue to provide essential emergency public services. [New Policy]

HS-1.3 Contamination Prevention

The City shall protect soils, surface water, and groundwater from contamination. [New Policy]

Air Quality

Goal HS-2	To reduce the generation of air pollutants and promote alternative methods of transportation to maximize the quality of life or residents. [New Goal]

HS-2.1 Kern County Air Pollution Control District

The City shall participate in the Kern County Air Pollution Control District air quality management programs in place for the southeast desert air basin and shall work to develop programs in conjunction with the Kern County Air Quality Attainment Plan and the California Clean Air Act to reduce impacts to air quality. [Source: Policies 5.1.1 and 5.3.2, Conservation Element]

HS-2.2 Coordination with Local and Regional Agencies

The City shall coordinate with other local, regional, and State agencies in developing an effective approach to implementing air quality plans that achieve State and Federal Ambient Air Quality Standards and control regional air transport pollution problems (such as NAWS China Lake's programs to control fugitive dust at Owens Lake). [Source: Policy 5.1.2, Conservation Element - revised]

HS-2.3 State and Federal Legislation

The City shall support State and Federal legislation to reduce and control air pollution. [Source: Policy 5.1.3, Conservation Element]

HS-2.4 Alternative Methods of Transportation

The City shall implement programs, including the development of incentives, to businesses that encourage car and van pooling, bus transit and use of clean

fuels to minimize the locally generated air pollutants. [Source: Policy 5.1.4, Conservation Element - revised]

HS-2.5 PM 10 State Implementation Plan

The City shall work with Kern County to implement the adopted PM 10 State Implementation Plan for the Searles Valley Planning Area adopted on November 15, 1991. This includes encouraging Kern County Public Works to apply dust control measures on unpaved roads and requesting Kern Planning and Development Services reconsider its policy of allowing large concentrations of housing in areas without paved roads. [Source: Policy 5.1.5, Conservation Element - revised]

HS-2.6 Solid and Liquid Waste Disposal

The City shall require that the method in which solid and liquid wastes are disposed is in accordance with state and federal regulations to prevent air quality degradation. [Source: Policy 5.1.6, Conservation Element - revised]

HS-2.7 Construction Methods

The City shall require developments to be located, designed and constructed in a manner that would minimize the production of air pollutants and avoid land use conflicts. [New Policy]

HS-2.8 Environmental Programs

To generate better air quality, foster a sense of community and encourage a more cohesive and aesthetically appealing community, the City shall encourage the development and use of native landscaping and other urban design features in new development projects and redevelopment programs for existing development. [New Policy]

HS-2.9 Air Pollution Control Technology

The City shall utilize the Best Available Control Measures (BACM) and Reasonably Available Control Measures (RACM) as adopted by the City to maintain healthful air quality and high visibility standards. These measures shall be applied to new development approvals and permit modifications as appropriate. [New Policy]

HS-2.10 Cumulative Air Quality Impacts

The City shall require developments to be located, designed, and constructed in a manner that would minimize cumulative air quality impacts. Developers shall be required to present alternatives that reduce air emissions and enhance, rather than harm, the environment. [New Policy]

HS-2.11 Dust Suppression Measures

The City shall require developers to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to, the following:

- Site watering or application of dust suppressants,

- Phasing or extension of grading operations,
- Covering of stockpiles,
- Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour), and
- Revegetation of graded areas.

[New Policy]

HS-2.12 Indirect Source Review

The City shall require major development projects, as defined by the Kern County Air Pollution Control District (KCAPCD), to mitigate air quality impacts associated with the project. As feasible the City shall work with KCAPCD to determine mitigations that may include, but are not limited to the following:

- Providing bicycle access and parking facilities,
- Increasing density,
- Encouraging mixed use developments,
- Providing walkable and pedestrian-oriented neighborhoods,
- Providing increased access to public transportation,
- Providing preferential parking for high-occupancy vehicles, car pools, or alternative fuels vehicles, and
- Establishing telecommuting programs or satellite work centers.

[New Policy]

HS-2.13 Paving or Treatment of Roadways for Reduced Air Emissions

The City shall require that all new roads be paved or treated to reduce dust generation where feasible. For new projects with unpaved roads, funding for roadway maintenance shall be addressed and secured prior to development approval. [New Policy]

HS-2.14 Transportation and Air Quality

When developing the regional transportation system, the City shall work with Kern COG and other transportation agencies to comprehensively study and transportation modes which may contribute to a reduction in air pollution in the City of Ridgecrest. Some possible alternatives include:

- Public transportation such as buses and light rail, to serve between communities of the valley, publicly subsidized if feasible.
- Intermodal public transit such as buses provided with bicycle racks, bicycle parking at bus stations, and park and ride facilities.
- Community bus or other public transportation systems, such as cycling or walking trails, with particular attention to high-density areas.

[New Policy]

Emergency Response

Goal HS-3	Ensure the maintenance of the Emergency Response Plan in order to maintain its effectiveness in preparing and responding to a natural or human-made disaster. [New Goal]

HS-3.1 Fire Protection Services

The City shall coordinate with the Kern County Fire Department to assess the adequacy of available fire protection services for existing and proposed developments on an annual and project by project basis. In addition, recommendations for needed improvements will be given to responsible agencies. [Source: Policy 8.1.7, Policy 8.1.9, Safety Element - revised]

HS-3.2 Fire Education

The City shall support County Fire Department efforts to reduce fire hazards through public education. [Source: Policy 8.1.8, Safety Element]

HS-3.3 Reduce Fire Response Time

The City shall encourage more concentrated urban development patterns in order to reduce the response time for the provision of fire protection services in areas outside the five minute response radius of an existing fire station. [Source: Policy8.1.10, Safety Element - revised]

HS-3.4 Improve Traffic Circulation

To minimize fire and emergency response time, the City shall make improvements to traffic circulation systems and expansions of the level of fire protection. [Source: Policy 8.1.11, Safety Element]

HS-3.5 Water Main Upgrades

The City shall support Water District efforts to upgrade water mains in order to provide adequate fire flows in all parts of the City. [Source: Policy 8.1.12, Safety Element]

HS-3.6 Minimum Fire Protection Standards

The City shall strive to maintain the following minimum standards for fire protection within the City.

1. Achieve a maximum city-wide fire alarm response time of three (3) minutes

2. Meet fire flow standards established in the zoning ordinance, developed with the assistance of the Kern County Fire Prevention District, for all existing and new development within the City

3. Achieve and, if possible, reduce the Insurance Services Office (ISO) rating in cooperation with the Kern County Fire Prevention District

[Source: Existing Implementation Standard]

HS-3.7 Police Department Involvement

The City shall involve the Police Department in review of development plans for safety and prevention of crimes. [Source: Policy 8.1.16, Safety Element]

HS-3.8 Improve Operational Methods to Efficiently Use Law Enforcement Resources

The City shall continually explore means, including land use planning, of improving operational methods to reduce response time and achieve the most effective and efficient use of law enforcement resources. [Source: Policy 8.1.17, Safety Element]

HS-3.9 Minimum Public Protection Standards

The City shall strive to maintain the following minimum standards for public protection within the City.

1. Ensure that the level of sworn police officers per 1,000 population is not less than 1.5

2. Target an average response time of five (5) minutes to calls for assistance

[Source: Existing Implementation Standard]

HS-3.10 Emergency Response Plan

The City shall continue to update and ensure that the Emergency Response Plan meets current federal, State, and local emergency requirements. [New Policy]

HS-3.11 Coordinate Emergency Response Services with Local Agencies

The City shall continue to coordinate emergency response services with Kern County, other cities within Kern County, special districts, service agencies, voluntary organizations, and state and federal agencies. [New Policy]

HS-3.12 Educate Public on Emergency Response

The City shall conduct training programs for staff in disaster preparedness. [New Policy]

HS-3.13 Coordinate with Kern County

The City will strive to work with other local agencies including Kern County and cities within the County to develop coordinated geographical information systems (GIS) planning for emergency response services. [New Policy]

HS-3.14 Siting of Critical Emergency Responses

The City shall ensure that the siting of critical emergency response facilities such as hospitals, fire stations, police offices, substations, emergency operations centers and other emergency service facilities and utilities have minimal exposure to flooding, seismic and geological effects, fire, and explosions. [New Policy]

HS-3.15 Volunteer Citizen Disaster Groups

The City shall work with volunteer citizen disaster groups to help during emergencies. [New Policy]

Flood Hazards

Goal HS-4	Minimize loss of life and property of City residents from flood hazards. [New Goal]

HS-4.1 Natural Drainage Ways Protection

The City shall protect natural drainage ways from loss or encroachment to urban uses. [Source: Policy 8.1.1, Safety Element]

HS-4.2 City-Wide Flood Control System

The City shall consider the feasibility for the development of a comprehensive city-wide flood control system with adequate design capacity for, at a minimum, 50-year storm conditions and 100-year storm capacity where feasible. [Source: Policy 8.1.2, Safety Element]

HS-4.3 Infrastructure Improvements

The City shall aggressively pursue the completion of curbs, gutters and sidewalks. [Source: Policy 8.1.3, Safety Element]

HS-4.4 100-Year Storm Improvements

The City shall assess the long-term feasibility of developing 100-year storm improvements to the south and west of Ridgecrest. [Source: Policy 8.1.3, Safety Element]

HS-4.5 Recreational and Open Space Uses

Where feasible, the City shall pursue multiple uses of flood control features for recreational and open space uses. [Source: Policy, 8.1.5, Safety Element]

HS-4.6 Comprehensive Flood Plain Management Program

To regulate development and land uses within the 100-year flood plain, the City shall prepare and adopt a comprehensive flood plain management program. [Source: Policy 8.1.6, Safety Element]

HS-4.7 Master Drainage Plans

The City shall require master drainage plans as a condition of approval for large development projects. [New Policy]

HS-4.8 New Residential Construction

The City shall require new residential construction to have its lowest habitable floor elevated above the base flood level elevation, determined by FEMA standards. [New Policy]

HS-4.9 Stream Channels

The City shall prohibit development along stream channels that would reduce the stream capacity, increase erosion, or cause deterioration of the channel. [New Policy]

HS-4.10 Development within the 100-year Floodplain

The City shall ensure that development within the 100-year floodplain complies with standards established within City ordinances and the National Flood Insurance Program (NFIP) standards. [Source: Existing Implementation Standard]

Geologic and Seismic Hazards

Goal HS-5	Minimize loss of life and reduce to a minimum the loss or disruption of the flow of goods and services and destruction of property that could result form seismic and/or geologic activity. [New Goal]

HS-5.1 Construct of Fault Traces

The City shall prohibit the construction of buildings intended for human occupancy on identified active or potentially active fault traces based on the best available geologic information. [Source: Policy 8.1.1, Safety Element, Seismic Safety]

HS-5.2 Preliminary Soils and Geologic Reports

The City shall require preliminary soils and geologic reports for every proposed and existing subdivision. [Source: Policy 8.1.2, Safety Element, Seismic Safety}

HS-5.3 Detailed Soils and Geologic Reports

The City shall require detailed geologic and soils investigations for development within areas that have a high potential for soli and geologic hazards or in areas where slopes exceed 20%. Investigations should include:

1. The evaluation of liquefaction potential of land on which all structures other than one or two-story wood-frame dwellings are to be built.

2. The investigation of faults for development in the vicinity of a potentially active or active fault. The need for and distance of any setback of buildings for human occupancy from the fault shall be determined by the geologic and soil investigation and approved by the City.

In addition to the report, the City shall require that all projects are designed and constructed to minimize the risk to residents associated with seismic hazards and meet government regulations. [Source: Policy 8.1.3, Safety Element, Seismic Safety - revised]

HS-5.4 Correction of Potentially Hazardous Conditions

To reduce potential hazardous conditions in commercial and public areas, the City shall require the correction of loose roof tiles, poorly tied signs or other objects that could fall during seismic activity. [Source: Policy 8.1.4, Safety Element, Seismic Safety]

HS-5.5 Building Requirements

The City shall include seismic requirements as the primary consideration in determining the location and design of government buildings (local, State and Federal) and critical public facilities (hospital, schools, police, fire, rest homes). [Source: Policy 8.1.5, Safety Element, Seismic Safety - revised]

HS-5.6 Minimize Seismic Risk

The City shall evaluate and implement methods to minimize seismic risk on existing public buildings and facilities, especially those impacted by seismic hazards. [Source: Policy 8.1.6 Safety Element, Seismic Safety - revised]

HS-5.7 Seismic Research Program

The City shall establish a detailed high priority research program, to include field research in order to refine the boundaries of areas subject to seismic hazard. [Source: Policy 8.1.7, Safety Element, Seismic Safety]

HS-5.8 Earthquake Awareness

The City shall provide a continuous citywide educational program on potential seismic risks in the Indian Wells Valley and steps residents can take to minimize the effects of an earthquake. [Source: Policy 8.1.8, Safety Element, Seismic Safety]

HS-5.9 Building and Safety Codes

The City shall continuously review and update city-and state adopted building and safety codes as well as emergency plans to reflect changes in the community related to exposure to seismic hazard. [Source: Policy 8.1.9, Safety Element, Seismic Safety - revised]

HS-5.10 Underground Utility Lines

To minimize the crossing of active fault traces, the City shall implement the construction of underground service and utility lines. [Source: Policy 8.1.10, Safety Element Seismic Safety]

HS-5.11 Emergency Cut Off Valves

The City shall require that any new installation of utilities that cross active fault traces have emergency cut off valves at accessible locations. [Source: Policy 8.1.11, Safety Element Seismic Safety]

HS-5.12 California Building Standard Code

The City shall continue to require that alterations to existing buildings and all new buildings are built in accordance with the California Building Standard Code seismic requirements. [New Policy]

HS-5.13 Building Modifications

The City shall encourage and support modifications to buildings that are structurally seismic deficient. [New Policy]

HS-5.14 Limit Hillside Development

The City shall discourage development in areas with severe slopes. [New Policy]

HS-5.15 Soil Erosion and Soil Conservation Programs

The City shall support erosion control (wind and water) and soil conservation programs of other agencies in Indian Wells Valley. [Source: Policy 5.1.20, Conservation Element]

HS-5.16 Runoff Mitigation

The City shall require proper channelization, detention and disposal of runoff in new subdivisions to prevent erosion during and after construction. [Source: Policy 5.1.22, Conservation Element]

HS-5.17 Off-Road Vehicle Restrictions

The City shall coordinate with appropriate State and Federal agencies to reduce soil erosion destabilization caused by off-road vehicle use in the Indian Wells Valley. [Source: Policy 5.1.23, Conservation Element]

HS-5.18 Require Site Soil Characteristics

The City shall require all developers to provide site soil characteristic information and incorporate any required changes in a development. [Source: Policy 5.1.24, Conservation Element]

HS-5.19 Northeast Kern County Soils Survey

The City shall utilize information and erosion mitigation measures within the Northeast Kern County Soils Survey by the U.S. Soil Conservation Service in the development review process. [Source: Policy 5.1.25, Conservation Element]

HS-5.20 Solid and Liquid Disposal

The City shall require the disposal of solid and liquid wastes in a manner which is consistent with State and Federal regulations and that prevents soil contamination. [Source: Policy 5.1.26, Conservation Element]

HS-5.21 Soil Erosion

The City shall require new development to implement measures that minimize soil erosion from wind and water related to construction. Measures may include, but not be limited to the following:

1. Grading requirements that limit grading to the amount necessary to provide stable areas for structural foundations, street rights-of-way, parking facilities, or other intended uses; and/or

2. Construction techniques that utilize site preparation, grading, and best management practices that provide erosion and sediment control to prevent construction-related contaminants from leaving development sites and polluting local waterways.

[New Policy]

Global Warming

Goal HS-6	Support the analysis and development of programs to mitigate the impacts of global warming. [New Goal]

HS-6.1 Support Statewide Global Warming Solutions

The City shall continue to monitor and support the efforts of the California Air Resources Board, under AB32, to formulate mitigation strategies, and when any such strategies become available, shall implement them in some

appropriate form, such as, by mitigation measures on development. [New Policy]

HS-6.2 Support Statewide Global Warming Solutions

The City will develop a Greenhouse Gas Emissions Reduction Plan (Plan) that identifies greenhouse gas emissions within the City as well as ways to reduce those emissions. The Plan will parallel the requirements adopted by the California Air Resources Board specific to this issue. Specifically, the City will work with the Kern County Council of Governments and other applicable agencies to include the following key items in the regional planning efforts.

1. Inventory all known, or reasonably discoverable, sources of greenhouse gases in the City,

2. Inventory the greenhouse gas emissions level in 1990, the current level, and that projected for the year 2020, and

3. Set a target for the reduction of emissions attributable to the City's discretionary land use decisions and its own internal government operations.

[New Policy]

HS-6.3 Greenhouse Gas Emissions Reduction Plan

The City will develop a Greenhouse Gas Emissions Reduction Plan (Plan) that identifies greenhouse gas emissions within the City as well as ways to reduce those emissions. The Plan will parallel the requirements adopted by the California Air Resources Board specific to this issue. Specifically, the City will work with the Kern Council of Governments and other appropriate jurisdictions in Kern County to include the following key items in the Plan:

- Inventory all known, or reasonably discoverable, sources of greenhouse gases in the City,

- Inventory the greenhouse gas emissions level in 1990, the current level, and that projected for the year 2020, and

- Set a target for the reduction of emissions attributable to the City's discretionary land use decisions and its own internal government operations.

[New Policy]

Hazardous Materials

Goal HS-7	Minimize the risks associated with the transportation, distribution, use and storage of hazardous materials within the City. [New Goal]

HS-7.1 Handling of Hazardous Materials

The City shall strive to ensure that hazardous materials are used, transported, and disposed within the City in a safe manner and in compliance with local, state and federal safety standards. [New Policy]

HS-7.2 Attraction/Retention of Clean Industries

The City shall emphasize the attraction of clean non-polluting industries and maintain existing clean industries in the City. [New Policy]

HS-7.3 Hazardous Waste Minimization Audit Requirements

Prepare a hazardous waste minimization audit and a hazardous waste minimization program as part of the development review process. [New Policy]

HS-7.4 Designated Hazardous Materials Routes

Avoid routing of hazardous materials near residential, tourist, and recreational areas. [New Policy]

HS-7.5 Limiting High Risk Land Uses

Do not permit uses that pose an unacceptably high risk to the health, safety, and welfare of the residents, workers and visitors or the natural environment of the City [New Policy]

HS-7.6 Increase Public Awareness

Continue to seek methods to increase public awareness as to the types and proper disposal methods for household hazardous wastes. [New Policy]

HS-7.7 Accidental Oil Spillage

Take steps to prevent accidental oil spillage at City-owned facilities. [New Policy]

HS-7.8 Establishment of Hazardous Facilities

Establishment of hazardous waste collection and/or transfer facilities shall only be considered in conjunction with a subregional evaluation of waste generation sources. [New Policy]

HS-7.9 Hazardous Materials Inventory

Continue to require, as appropriate, and as a component of the environmental review process, a hazardous materials inventory for project sites, including an assessment of materials and operations for any development applications. [New Policy]

HS-7.10 Compatible Land Uses

Use the development review process to ensure compatibility between hazardous material users and surrounding land uses. [New Policy]

HS-7.11 Hazardous Materials Studies

Ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy federal or State cleanup standards outlined in the studies will be implemented as part of the construction phase for each project. [New Policy]

HS-7.12 Treatment of Industrial Waste

The City will discourage the location of firms in the planning area which require treatment of industrial waste, unless the waste is pre- treated to a secondary stage level as defined by the State of California. [New Policy]

Noise

Goal HS-8	Maintain a desirable quality of life and protect citizen's health and welfare by reducing noise sources within the community and lessening the effects of noise sources which cannot be avoided. [Source: Noise Element, Goal 7.1]

HS-8.1 Comprehensive Noise Ordinance

The City shall develop and enforce a comprehensive noise ordinance seeking to ensure noise compatible land uses and to reduce noise levels at their source. [Source: Policy 7.1.1, Noise Element]

HS-8.2 City Noise Standards

The City shall stress compliance with established City noise standards as a primary consideration in the siting, design and construction of new development in the city. [Source: Policy 7.1.2, Noise Element]

HS-8.3 Isolated Facilities for Recreational Vehicles

The City shall encourage efforts to provide facilities for legitimate operation of noisy recreational vehicles which are sufficiently isolated or buffered from residential and other noise sensitive land uses. [Source: Policy 7.1.3, Noise Element]

HS-8.4 Public Awareness and Public Involvement on Noise Problems

The City shall promote public awareness of the effects of noise and public involvement in solving local noise problems. [Source: Policy 7.1.4, Noise Element]

HS-8.5 Circulation Systems with Low Noise Levels

The City shall develop and encourage the use of circulation systems which do not produce high noise levels, including bicycle and pedestrian systems. [Source: Policy 7.1.5, Noise Element]

HS-8.6 Restrict Commercial Vehicles over 10,000 GVW on Streets

The City shall discourage the operation of commercial vehicles over 10,000 GVW on streets not designated as truck routes, except for the purpose of pick-up or delivery. [Source: Policy 7.1.6, Noise Element]

HS-8.7 Sensitive Receptors

The City shall allow development of new noise sensitive land uses (which include, but are not limited to, residential, health care facilities and schools) only in areas exposed to existing or projected levels of noise which satisfy the levels specified in Table 8.1, Maximum Allowable Noise Exposure by Land Use. Noise mitigation measures spaces to levels specified in Table 8.1. [New Policy]

HS-8.8 Noise Compatibility Guidelines

The City shall use adopted noise compatibility guidelines to evaluate the compatibility of proposed new development and ensure compatibility between residential, commercial and other surrounding land uses (See Table 8.1, Maximum Allowable Noise Exposure by Land Use). [New Policy]

HS-8.9 Conduct Noise Monitoring

The City shall establish an ongoing noise monitoring program to enforce City noise standards. [New Policy]

HS-8.10 Coordinate with Caltrans

The City shall work with Caltrans to mitigate noise impacts on sensitive receptors near state roadways, by requiring noise buffering or insulation in new construction. [New Policy]

HS-8.11 Construction Noise

The City shall seek to limit the potential noise impacts of construction activities on surrounding land uses. [New Policy]

HS-8.12 Limiting Construction Activities

The City shall limit construction activities to the hours of 7am to 7pm, Monday through Saturday. No construction shall occur on Sundays or national holidays without a written permit from the City. [New Policy]

Table 8-1. Maximum Allowable Noise Exposure by Land Use

	Noise Level (CNEL)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Residential - Low Density Single Family, Duplex, Mobile Homes							
Residential - Multiple Family, Group Homes							
Motels / Hotels							
Schools, Libraries, Churches, Hospitals, Extended Care Facilities							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	Normally Acceptable. Specified land use is satisfactory, based on the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design.
	Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
	Unacceptable. New construction or development should not be undertaken.

HS-8.13 Sound Attenuation Features

The City shall require sound attenuation features such as walls, berming, heavy landscaping between commercial, industrial, and residential uses to reduce noise and vibration impacts. [New Policy]

HS-8.14 Noise Analysis

The City shall require noise analysis of proposed development projects as part of the environmental review process and to require mitigation measures to reduce noise impacts to acceptable levels. The acoustical analysis shall:

1. Be the responsibility of the applicant.

2. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.

3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

4. Estimate existing and projected (20 years) noise levels in terms of Ldn/CNEL and compare the levels to the adopted policies of the Safety Element.

5. Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards of this Noise Element. Where the noise source in question consists of intermittent single events, the acoustical analysis must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

6. Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the Safety Element, the analysis must provide acoustical information for a statement of overriding considerations for the project.

7. Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.

[New Policy]

HS-8.15 Noise Buffering

The City shall require noise buffering or construction treatments (additional insulation, double paned glass, etc.) in new development that includes noise sensitive uses located near major streets, highways, the airport, railroad tracks, or other significant noise sources. [New Policy]

HS-8.16 State Noise Insulation Standards

The City shall enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code. [New Policy]

HS-8.17 California Vehicle Code Standards

The City shall actively support enforcement of California Vehicle Code sections relating to vehicle mufflers and modified exhaust systems. [New Policy]

HS-8.18 City Vehicles and Equipment

The City shall ensure that new equipment and vehicles purchased by the City of Ridgecrest are equipped with the best available noise reduction technology. [New Policy]

HS-8.19 Commercial Uses

The City shall require that noise produced by commercial uses not exceed 75 dB Ldn/CNEL at the nearest property line. [New Policy]

HS-8.20 Noise Easements

The City shall grant exceptions to the noise standards for commercial and industrial uses only if a recorded noise easement is conveyed by the affected property owners. [New Policy]

Safety Education

Goal HS-9	To protect the health and safety of Citizens from preventable accidents through efficient planning and public education. [New Policy]

HS-9.1 Citizen Involvement

The City shall establish programs which promote citizen involvement and neighborhood support in the prevention of crime and the identification and apprehension of offenders. [Source: Policy 8.1.14, Safety Element]

HS-9.2 Public Education

The City shall promote awareness among City residents of measures they can take to reduce the potential of personal and property crimes. [Source: Policy 8.1.15, Safety Element]

HS-9.3 Increase Public Awareness of Household Hazardous Waste

The City shall work with educational providers to educate the public as to the types of household hazardous waste and proper methods of disposal. [New Policy]

Transportation Hazards

Goal HS-10	Reduce the community safe and environmental health hazards associated with transportation. [New Goal]

HS-10.1 Planning Programs

Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality. [New Policy]

HS-10.2 Speed Reduction

Work to reduce speeds on roads where excessive rates of speed occur by increasing enforcement, improving signage, and/or traffic calming measures. Within neighborhood and community areas, alternative traffic calming techniques shall be first considered before resorting to other methods. [New Policy]

HS-10.3 Bicycle Safety

The City shall encourage efforts to educate the community about the bicycle circulation systems and safety, courtesy and motor vehicle code regulations pertinent to its use. [Source: Policy 8.1.18, Safety Element]

HS-10.4 Pedestrian Safety

To encourage a pedestrian friendly environment, the City shall develop a program to construct and improve sidewalks throughout the community. [Source: Policy 8.1.19, Safety Element - revised]

See also the policies under Chapter 4, Military Sustainability for hazards associated NAWS China Lake and Chapter 6, Circulation for transportation hazards.

Urban and Wildland Fire Hazards

Goal HS-11	Minimize the risks to life and property from urban and wildland fires. [New Goal]

HS-11.1 Enforce Code / Ordinances

The City shall enforce the City building code, fire code, and ordinances in regard to fire safety and fire protection. [New Policy]

HS-11.2 Educate Residents of Fire Hazards

The City shall educate residents of urban and wildland fire hazards and safety measures. [New Policy]

HS-11.3 Wildland Fire Management Plans

The City shall require the development of wildland fire management plans for projects adjoining significant areas of open space that may have high fuel loads. [New Policy]

HS-11.4 Buffer Zones for Fire Protection

The City shall require new development to incorporate additional greenbelts, fuel breaks, fuel reduction and buffer zones around communities to minimize potential fire losses. [New Policy]

HS-11.5 Weed Abatement

The City shall maintain a weed abatement program to ensure clearing of dry brush areas. Weed abatement activities shall be conducted in a manner consistent with all applicable environmental regulations. [New Policy]

8.4 Implementation Measures

Table 8-2, Health and Safety Implementation Measures, identifies the implementation measures the City should take to implement the goals and policies of this General Plan. The implementation program lists each specific implementation measure, a reference to which General Plan policy it is implementing, who is responsible to implement the program, and the timeframe for implementation.

Table 8-2. Health & Safety Implementation Measures

Implementation Measure		Policy	Who is Responsible	Timeframe			
				2008-2010	2010-2015	2015-2030	On-going
1.0	The City shall develop and implement a program for training staff in disaster preparedness and response. Contingency plans for disaster response and recovery should be incorporated into this program. [New Implementation Plan]	HS-1.2	Administration; Police	■			
2.0	The City shall coordinate and practice with the Indian Wells Valley Emergency Services Committee, Naval Air Weapons Station, other local agencies, and surrounding communities a plan defining emergency procedures. [Existing Implementation Measure #8, Safety Element]	HS-1.2 HS-3.11	Administration; Police				■

Implementation Measure		Policy	Who is Responsible	Timeframe			
				2008-2010	2010-2015	2015-2030	On-going
3.0	The City shall continue to participate in regional air quality planning. [Existing Implementation Measure #2, Conservation Element]	HS-2.1 HS-2.2	Public Services				■
4.0	The City shall replace City fleet vehicles with low-emission technology vehicles, wherever feasible. [New Implementation Measure]	HS-2.1 HS-2.2	Public Works				■
5.0	The City shall review and update the Emergency Response Plan a minimum of every 5 years. [New Implementation Measure]	HS-3.10	Administration; Police		■		■
6.0	The City shall develop educational programs to encourage the public to be prepared for emergency situations, including keeping adequate supplies of food and water on hand and to prepare and maintain an earthquake survival kit. [Existing Implementation Measure #11, Safety Element - revised]	HS-3.12	Administration; Police				■
7.0	The City shall establish standards and limitations for development within the 100-year flood plain to ensure public safety. [Existing Implementation Measure #7, Conservation Element]	HS-4.10	Public Services; Public Works	■			
8.0	The City shall evaluate new seismic information as it becomes available and continually update seismic safety educational programs and seismic maps. [Existing Implementation Measure #6, Safety Element]	HS-5.1 HS-5.5 HS-5.6	Public Services; Public Works				■
9.0	The City shall adopt an ordinance requiring commercial and public buildings that have been vacant for one or more years to conform to the latest edition of the Uniform Building Code. [Existing Implementation Measure #9, Safety Element]	HS-5.4	Public Services	■			
10.0	The City shall ensure that new development meets the current seismic safety standards in accordance with the Uniform Building Code. [New Implementation Measure]	HS-5.9	Public Services				■

	Implementation Measure	Policy	Who is Responsible	Timeframe			
				2008-2010	2010-2015	2015-2030	On-going
11.0	The City shall evaluate and implement dust control alternatives for dirt roads and seek an agreement from Kern County and other state and federal land management agencies to implement similar regulations. [Implementation Measure #10, Conservation Element - revised]	HS-5.15 HS-5.21	Public Works	■			
12.0	The City shall adopt guidelines and procedures for evaluating and mitigating geologic hazards (e.g., liquefaction, expansive soils, faults) in the review and approval of both public and private development projects.. [New Implementation Measure]	HS-5.18	Public Services	■			
13.0	The City should reduce greenhouse gas emissions from City operations as well as from private development in compliance with the California Global Warming Act of 2006 and any applicable State regulations. [New Implementation Measure]	HS-6.3	Administration				■
14.0	The City shall develop a household hazardous waste drop-off and transfer program. This program should include the continuation of the routine collection of hazardous materials in conjunction with Kern County. [New Implementation Measure]	HS-7.6 HS-9.3	Public Services		■		
15.0	The City shall maintain an update list of sites within the Planning Area that store, use, or dispose of hazardous materials. [New Implementation Measure]	HS-7.9 HS-7.10	Public Services				■
16.0	The City shall develop siting and enforcement criteria for businesses that use, produce, or transport hazardous materials and wastes. The criteria shall be adopted as a provision in the City's Zoning Ordinance. [New Implementation Measure]	HS-7.10	Public Services	■			
17.0	Discourage incompatible land uses in areas impacted by noise along transportation routes that lie within 60 dBA noise contours, unless adequate noise insulation and buffering is provided. [Existing Implementation Measure #1, Noise Element]	HS-8.1 HS-8.5 HS-8.7 HS-8.8	Public Services				■

Implementation Measure		Policy	Who is Responsible	Timeframe			
				2008-2010	2010-2015	2015-2030	On-going
18.0	Develop a plan for circulation on local streets which would minimize noise levels from traffic in residential areas. [Existing Implementation Measure #2, Noise Element]	HS-8.1 HS-8.5	Public Works	■			
19.0	The City shall develop a municipal noise ordinance. [Existing Implementation Measure #5, Noise Element]	HS-8.1 HS-8.2	Public Services	■			
20.0	The City shall evaluate new noise information and regulations as it becomes available, and continually update the noise program, figures, and regulations. [Existing Implementation Measure #8, Noise Element]	HS-8.1 HS-8.16	Public Services				■
21.0	The City shall assess the need for monitoring of traffic noise and developing noise contours for heavily traveled streets. [Existing Implementation Measure #7, Noise Element]	HS-8.10	Public Works		■		
22.0	The City shall prepare guidelines for developers for reducing potential noise impacts (including construction-related noise impacts) on surrounding land uses. [New Implementation Measure]	HS-8.11 HS-8.14	Public Services	■			
23.0	The City shall develop a public information program designed to educate residents on safety hazards within the community and methods for reducing the potential for hazard occurrences or mitigating the impact of hazards if they were to occur. [New Implementation Measure]	HS-9.1 HS-9.2	Public Services	■			■

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Sec. 11-1. - Nuisance; general.

The following conditions may be detrimental to the public health, safety, or general welfare and constitute a public nuisance:

(1) A building, structure, or portion thereof, which is in a dilapidated or dangerous condition so as to be unfit, unsafe, or unsuitable for human occupancy, such as:
   a. Inadequate or inoperable mechanical, electrical, plumbing, or sanitation systems or equipment.
   b. Lack of sound and effective exterior walls or roof covering to provide weather protection.
   c. Lack of structural integrity, including deteriorated or inadequate foundations, joints, vertical or horizontal supports.
   d. Broken, missing, or inoperable windows or doors constituting a hazardous condition or a potential attraction to trespassers.
   e. Unpainted buildings or structures causing dry rot, warping or termite infestation.
   f. Broken, deteriorated, or substantially defaced structures visually impacting on the neighborhood or presents a risk to public safety.
   g. Substandard building conditions described in the State Housing Law, including, but not limited to, Health and Safety Code § 7920.3.

(2) Abandoned building or structure, such as:
   a. An unoccupied and unsecured building or structure.
   b. Partially constructed, reconstructed, or demolished building or structure where work is abandoned for 120 consecutive days.
   c. Damaged or partially destroyed building or structure not removed or repaired within 120 days after the damage or destruction, or, if the removal or repair cannot reasonably be accomplished within 120 days, have not been commenced within such period and prosecuted diligently toward completion.

(3) Property maintained in a condition so defective, unsightly, or in a state of such deterioration, disrepair or neglect that it causes a health, safety or fire hazard or an attractive nuisance to children, such as:
   a. Accumulation of debris, junk, garbage or refuse.
   b. Storage of personal property (other than items designated for outdoor use) in front or exterior side yard areas visible to public view, including, but not limited to, inoperative or dismantled motor vehicles or vehicle parts, building materials not currently being used for the construction of improvements on the site, and broken or discarded furniture, appliances or household furnishings.
   c. Trees, weeds, or other vegetation which are dead, decayed, infested, diseased, or overgrown.
   d. Abandoned and broken equipment or machinery, or parts thereof.
   e. Parking lots, driveways, paths or other paved surfaces with cracks, potholes or other deficiencies posing a risk of harm to the public.
   f. A condition or object obscures the visibility to the public of street intersections constituting a hazard to vehicular or pedestrian traffic on adjacent streets or sidewalks, including, but not limited to, landscaping, fencing, signs, posts or equipment.

(4) Building or structure constructed, altered, or maintained in violation of specific requirements applicable to such building or structure.

(5) Property having a condition thereon constituting a fire hazard, including, but not limited to:

a. Inflammable substance, explosive, or other dangerous material kept or stored contrary to federal, state or local law or regulation.

b. Building or structure having inoperative, defective, or deteriorated fire prevention or fire extinguishing equipment, systems or devices required by federal, state or local law or regulation.

(6) The accumulation and storage of abandoned, wrecked, dismantled, or inoperative vehicles or parts thereof as described in this Code and Vehicle Code § 22660.

(7) The burning of a substance or the existence or maintenance of a condition or thing causing dense smoke, or noxious, foul or offensive odors or gases, resulting in the air being tainted to such extent as to render it unwholesome or injurious to health, or offensive to persons of ordinary sensibilities. Or a condition allowing foul or obnoxious smell or odor evident to the general public or those in a normal proximity to the property or condition.

(8) Loud or unusual noise or vibration unreasonably disturbing, offending, injuring or annoying the normal sensibilities of occupants of neighboring properties.

(9) Swimming pool, pond, well, or other body or container of water abandoned, unfiltered, polluted, or otherwise maintained in an unhealthy or unsafe condition, or a condition in which mosquitos may breed.

(10) A condition contributing to infestation of rodents or other wild animals or insects.

(11) Property having a topography, geology or configuration which, whether in a natural state or as a result of grading operations or other work being performed on the site, causes or threatens to cause erosion, subsidence, unstable soil conditions, surface or subsurface drainage problems that will, or may, be injurious to the public or to adjacent properties.

(12) A building or place where unlawfully selling, serving or giving away any spirituous, vinous, malt or other alcoholic liquor occurs as described in Penal Code § 11200.

(13) A building or place of illegal gambling or prostitution as described in Penal Code § 11225.

(14) A building or place used for the purpose of unlawfully selling, serving, storing, keeping, manufacturing or giving away any controlled substance or analog as described in Health and Safety Code § 11570.

(15) Other condition which, within the meaning of Civil Code § 3479 or Penal Code § 370, is injurious to health, or is indecent or offensive to the senses, or constitutes an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, or unlawfully obstructs the free passage or use, in the customary manner, of any stream or any public park, square, sidewalk, pathway, street, highway, or other public place.

(16) Other violations of a statute, ordinance, rule, regulation or condition which is specifically declared therein, constituting the creation or existence of a public nuisance subject to abatement by the city.

(Code 1980, § 4-15.101; Ord. No. 97-02, § 3)

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/05/2020
Case Description: SSSD-06

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Architectural Coating	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1000.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	51.6	47.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	51.6	47.7	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: 10/05/2020
Case Description: SSSD-06

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building Construction	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	1000.0	0.0
Tractor	No	40	84.0		1000.0	0.0
Front End Loader	No	40		79.1	1000.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Generator	54.6	51.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.0	56.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/05/2020
Case Description: SSSD-06

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		1000.0	0.0
Scraper	No	40		83.6	1000.0	0.0
Tractor	No	40	84.0		1000.0	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
Grader	59.0	55.0	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	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	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	59.0	59.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/05/2020
Case Description: SSSD-06

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Paving	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Paver	No	50	77.2	1000.0		0.0
Pavement Scarafier	No	20	89.5	1000.0		0.0
Roller	No	20	80.0	1000.0		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
Paver	51.2	48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	63.5	56.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	54.0	47.0	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	63.5	57.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/05/2020
Case Description: SSSD-06

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site Prep	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1000.0	0.0
Tractor	No	40	84.0		1000.0	0.0
Front End Loader	No	40		79.1	1000.0	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
Dozer	55.6	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.0	56.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Noise Calculator: FHWA 77-108 **Project Title: SSSD-06 Existing Conditions**

	Output						Inputs													Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																	
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	52.8	56.5	56.9	2	8	24	Richmond Road	North of Gold Canyon St	500	50	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
2	55.8	59.5	59.9	5	15	49	Richmond Road	Gold Canyon St to School Driveways	1,000	50	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
3	52.1	55.8	56.1	2	7	21	Richmond Road	School Driveways to Ridgecrest Blvd*	1,000	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
4	53.8	57.5	57.9	3	10	31	Richmond Road	South of Ridgecrest Blvd	1,500	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
5	65.0	68.7	69.1	41	129	408	Ridgecrest Boulevard	West of China Lake Blvd	8,000	40	0.0%	92.5%	2.0%	5.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
6	64.9	68.6	69.0	40	126	398	Ridgecrest Boulevard	China Lake Blvd to Sunland St	11,100	40	0.0%	95.8%	1.9%	2.3%	75.0%	10.0%	15.0%	4	Hard	50	0	44
7	65.1	68.8	69.2	42	132	417	Ridgecrest Boulevard	Sunland St to Gateway Blvd	9,000	45	0.0%	95.8%	1.9%	2.3%	75.0%	10.0%	15.0%	4	Hard	50	0	44
8	65.1	68.8	69.1	41	130	411	Ridgecrest Boulevard	Gateway Blvd to Richmond Rd	7,000	50	0.0%	95.8%	1.9%	2.3%	75.0%	10.0%	15.0%	4	Hard	50	0	44
9	51.6	55.3	55.7	2	6	19	Gold Canyon Street	West of Richmond Road	900	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
10	64.8	68.5	68.9	39	122	385	China Lake Blvd/SR 178	North of Drummond Ave	13,400	40	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
11	64.6	68.4	68.7	37	118	374	China Lake Blvd/SR 179	Drummond Ave to Las Flores Ave	13,000	40	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
12	63.6	67.3	67.7	29	93	294	China Lake Blvd/SR 180	Las Flores Ave to French Ave	14,000	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
13	64.8	68.5	68.9	38	121	384	China Lake Blvd/SR 181	French Ave to Ridgecrest Blvd	18,300	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
14	63.9	67.6	68.0	31	100	315	China Lake Blvd/SR 182	South of Ridgecrest Blvd	15,000	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
15	62.8	66.6	66.9	25	78	247	Drummond Avenue	West of China Lake Blvd	8,600	40	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
16	61.5	65.2	65.6	18	57	181	Drummond Avenue	East of China Lake Blvd	8,600	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
17	59.5	63.2	63.6	11	36	115	Las Flores Avenue	West of China Lake Blvd	4,000	40	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
18	56.9	60.6	61.0	6	20	63	Las Flores Avenue	East of China Lake Blvd	2,200	40	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
19	57.6	61.3	61.7	7	23	73	French Avenue	West of China Lake Blvd	3,500	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
20	52.9	56.6	57.0	3	8	25	Sunland Street	North of Ridgecrest Blvd	1,200	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
21	56.9	60.6	61.0	6	20	63	Sunland Street	South of Ridgecrest Blvd	3,000	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	4	Hard	50	0	44
22	51.6	55.3	55.7	2	6	19	Gateway Blvd	North of Ridgecrest Blvd	900	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20
23	53.8	57.5	57.9	3	10	31	Gateway Blvd	South of Ridgecrest Blvd	1,500	35	0.0%	97.9%	1.0%	1.1%	75.0%	10.0%	15.0%	2	Hard	50	0	20

RICHMOND ELEMENTARY SCHOOL REPLACEMENT - SSSD-06

Traffic Noise Increase Calculations

	ADT Volumes				dBA CNEL Increae		
Roadway Segments	**Existing No Project**	**Existing Plus Project**	**2022 No Project**	**2022 with Project**	**Project Noise Increase**	**Cumulative Increase**	**Project Cumulative Contribution**
Richmond Road	-	-	-	-	-	-	-
North of Gold Canyon St	500	760	510	770	1.8	1.9	1.8
Gold Canyon St to School Driveways	1,000	1,510	1,020	1,530	1.8	1.8	1.8
*School Driveways to Ridgecrest Blvd**	1,000	2,040	1,020	2,060	3.1	3.1	3.1
South of Ridgecrest Blvd	1,500	1,520	1,530	1,550	0.1	0.1	0.1
Ridgecrest Boulevard	-	-	-	-	-	-	-
West of China Lake Blvd	8,000	8,030	8,200	8,230	0.0	0.1	0.0
China Lake Blvd to Sunland St	11,100	11,890	11,300	12,090	0.3	0.4	0.3
Sunland St to Gateway Blvd	9,000	9,990	9,200	10,190	0.5	0.5	0.4
Gateway Blvd to Richmond Rd	7,000	8,020	7,100	8,120	0.6	0.6	0.6
Gold Canyon Street	-	-	-	-	-	-	-
West of Richmond Road	900	1,150	920	1,170	1.1	1.1	1.0
China Lake Blvd/SR 178	-	-	-	-	-	-	-
North of Drummond Ave	13,400	13,870	13,700	14,170	0.1	0.2	0.1
Drummond Ave to Las Flores Ave	13,000	13,710	13,300	14,010	0.2	0.3	0.2
Las Flores Ave to French Ave	14,000	14,670	14,300	14,970	0.2	0.3	0.2
French Ave to Ridgecrest Blvd	18,300	19,000	18,700	19,400	0.2	0.3	0.2
South of Ridgecrest Blvd	15,000	15,060	15,300	15,360	0.0	0.1	0.0
Drummond Avenue	-	-	-	-	-	-	-
West of China Lake Blvd	8,600	9,000	8,800	9,200	0.2	0.3	0.2
East of China Lake Blvd	8,600	8,760	8,800	8,960	0.1	0.2	0.1
Las Flores Avenue	-	-	-	-	-	-	-
West of China Lake Blvd	4,000	4,030	4,100	4,130	0.0	0.1	0.0
East of China Lake Blvd	2,200	2,280	2,250	2,330	0.2	0.2	0.2
French Avenue	-	-	-	-	-	-	-
West of China Lake Blvd	3,500	3,530	3,600	3,630	0.0	0.2	0.0
Sunland Street	-	-	-	-	-	-	-
North of Ridgecrest Blvd	1,200	1,390	1,220	1,410	0.6	0.7	0.6
South of Ridgecrest Blvd	3,000	3,020	3,100	3,120	0.0	0.2	0.0
Gateway Blvd	-	-	-	-	-	-	-
North of Ridgecrest Blvd	900	920	920	940	0.1	0.2	0.1
South of Ridgecrest Blvd	1,500	1,520	1,530	1,550	0.1	0.1	0.1

**Segmetns have no adjacent sensitive receptors*

Project: SSSD-06 Traffic Noise Levels at Project Site from Adjacent Roadways

Roadway Segment	Distance to nearest classroom building façade/outdoor area, ft.*	Future dBA CNEL at 50 feet (Existing plus cumulative increase)	dBA CNEL at the nearest façade of proposed classroom building
Richmond Rd – Gold Canyon St to School Driveways	160	61.7	56.6
Richmond Rd – School Driveways to Ridgecrest Blvd	160	59.2	54.1
Ridgecrest Boulevard – Gateway Blvd to Richmond Rd	1350	69.7	55.4
Gold Canyon St – west of Richmond St	125	56.8	52.8
Gateway Blvd – north of Ridgecrest Blvd	140	61.2	56.7

*Referecne RD 77-108 Distance, 50 ft