

Appendix D Noise Monitoring Report

Appendices

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NOISE FUNDAMENTALS

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 (1×10^{-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, though 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.

AMBIENT NOISE MONITORING DATA

Measurement Report

Report Summary

Meter's File Name	LxT_Data.041.s	Computer's File Name	LxT_0005424-20241212 132204-LxT_Data.041.ldbin		
Meter	LxT1 0005424	Firmware	2.404		
User	IV	Location	ST-1		
Job Description	SYSD-04.0				
Note					
Start Time	2024-12-12 13:22:04	Duration	0:15:00.0		
End Time	2024-12-12 13:37:04	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2024-12-12 12:23:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA _{eq}	65.2 dB		
LAE	94.7 dB	SEA	--- dB
EA	331.1 μPa²h		
EA8	10.6 mPa²h		
EA40	53.0 mPa²h		
LA _{Speak}	94.3 dB	2024-12-12 13:25:03	
LA _{Smax}	78.5 dB	2024-12-12 13:30:30	
LA _{Smin}	48.7 dB	2024-12-12 13:32:36	
LA _{eq}	65.2 dB		
LC _{eq}	70.8 dB	LC _{eq} - LA _{eq}	5.6 dB
LA _{Ieq}	67.7 dB	LA _{Ieq} - LA _{eq}	2.5 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L _{DN}	---	L _{Day}	---	L _{Night}	0.0 dB
L _{DEN}	---	L _{Day}	---	L _{Eve}	---
				L _{Night}	---

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	65.2 dB		---		---	
L _{S(max)}	78.5 dB	2024-12-12 13:30:30	---	None	---	None
L _{S(min)}	48.7 dB	2024-12-12 13:32:36	---	None	---	None
L _{Peak(max)}	94.3 dB	2024-12-12 13:25:03	---	None	---	None

Overloads

Count	0
Duration	0:00:00.0

Statistics

LAS 2.0	73.8 dB
LAS 8.0	70.7 dB
LAS 25.0	65.1 dB
LAS 50.0	57.2 dB
LAS 90.0	52.3 dB
LAS 99.0	49.6 dB



Measurement Report

Report Summary

Meter's File Name	LxT_Data.042.s	Computer's File Name	LxT_0005424-20241212 133842-LxT_Data.042.ldbin		
Meter	LxT1 0005424	Firmware	2.404		
User	IV	Location	ST-2		
Job Description	SYSD-04.0				
Note					
Start Time	2024-12-12 13:38:42	Duration	0:15:00.0		
End Time	2024-12-12 13:53:42	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2024-12-12 12:23:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA _{eq}	66.0 dB		
LAE	95.5 dB	SEA	--- dB
EA	398.1 μPa²h		
EA8	12.7 mPa²h		
EA40	63.7 mPa²h		
LAS _{peak}	97.7 dB	2024-12-12 13:40:46	
LAS _{max}	77.2 dB	2024-12-12 13:46:54	
LAS _{min}	52.4 dB	2024-12-12 13:44:19	
LA _{eq}	66.0 dB		
LC _{eq}	70.5 dB	LC _{eq} - LA _{eq}	4.5 dB
LA _l _{eq}	68.1 dB	LA _l _{eq} - LA _{eq}	2.1 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L _{DN}	---	L _{Day}	---	L _{Night}	0.0 dB
L _{DEN}	---	L _{Day}	---	L _{Eve}	---
				L _{Night}	---

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	66.0 dB		---		---	
L _{s(max)}	77.2 dB	2024-12-12 13:46:54	---	None	---	None
L _{s(min)}	52.4 dB	2024-12-12 13:44:19	---	None	---	None
L _{Peak(max)}	97.7 dB	2024-12-12 13:40:46	---	None	---	None

Overloads

Count	0
Duration	0:00:00.0

Statistics

LAS 2.0	73.7 dB
LAS 8.0	71.1 dB
LAS 25.0	67.0 dB
LAS 50.0	60.8 dB
LAS 90.0	54.2 dB
LAS 99.0	52.8 dB



Measurement Report

Report Summary

Meter's File Name	LxT_Data.039.s	Computer's File Name	LxT_0005424-20241212 124820-LxT_Data.039.ldbin		
Meter	LxT1 0005424	Firmware	2.404		
User	IV	Location	ST-3		
Job Description	SYSD-04.0				
Note					
Start Time	2024-12-12 12:48:20	Duration	0:15:00.0		
End Time	2024-12-12 13:03:20	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2024-12-12 12:23:27	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA _{eq}	59.8 dB		
LAE	89.3 dB	SEA	--- dB
EA	95.5 μPa²h		
EA8	3.1 mPa²h		
EA40	15.3 mPa²h		
LA _{Speak}	86.8 dB	2024-12-12 12:53:43	
LA _{Smax}	72.7 dB	2024-12-12 12:53:43	
LA _{Smin}	55.4 dB	2024-12-12 12:49:37	
LA _{eq}	59.8 dB		
LC _{eq}	64.9 dB	LC _{eq} - LA _{eq}	5.1 dB
LA _{Ieq}	61.0 dB	LA _{Ieq} - LA _{eq}	1.2 dB



Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L _{DN}	---	L _{Day}	---	L _{Night}	0.0 dB
L _{DEN}	---	L _{Day}	---	L _{Eve}	---
				L _{Night}	---

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	59.8 dB		---		---	
L _{S(max)}	72.7 dB	2024-12-12 12:53:43	---	None	---	None
L _{S(min)}	55.4 dB	2024-12-12 12:49:37	---	None	---	None
L _{Peak(max)}	86.8 dB	2024-12-12 12:53:43	---	None	---	None

Overloads

Count	0
Duration	0:00:00.0

Statistics

LAS 2.0	63.4 dB
LAS 8.0	61.6 dB
LAS 25.0	60.3 dB
LAS 50.0	59.2 dB
LAS 90.0	57.3 dB
LAS 99.0	56.0 dB

LOCAL REGULATIONS AND STANDARDS

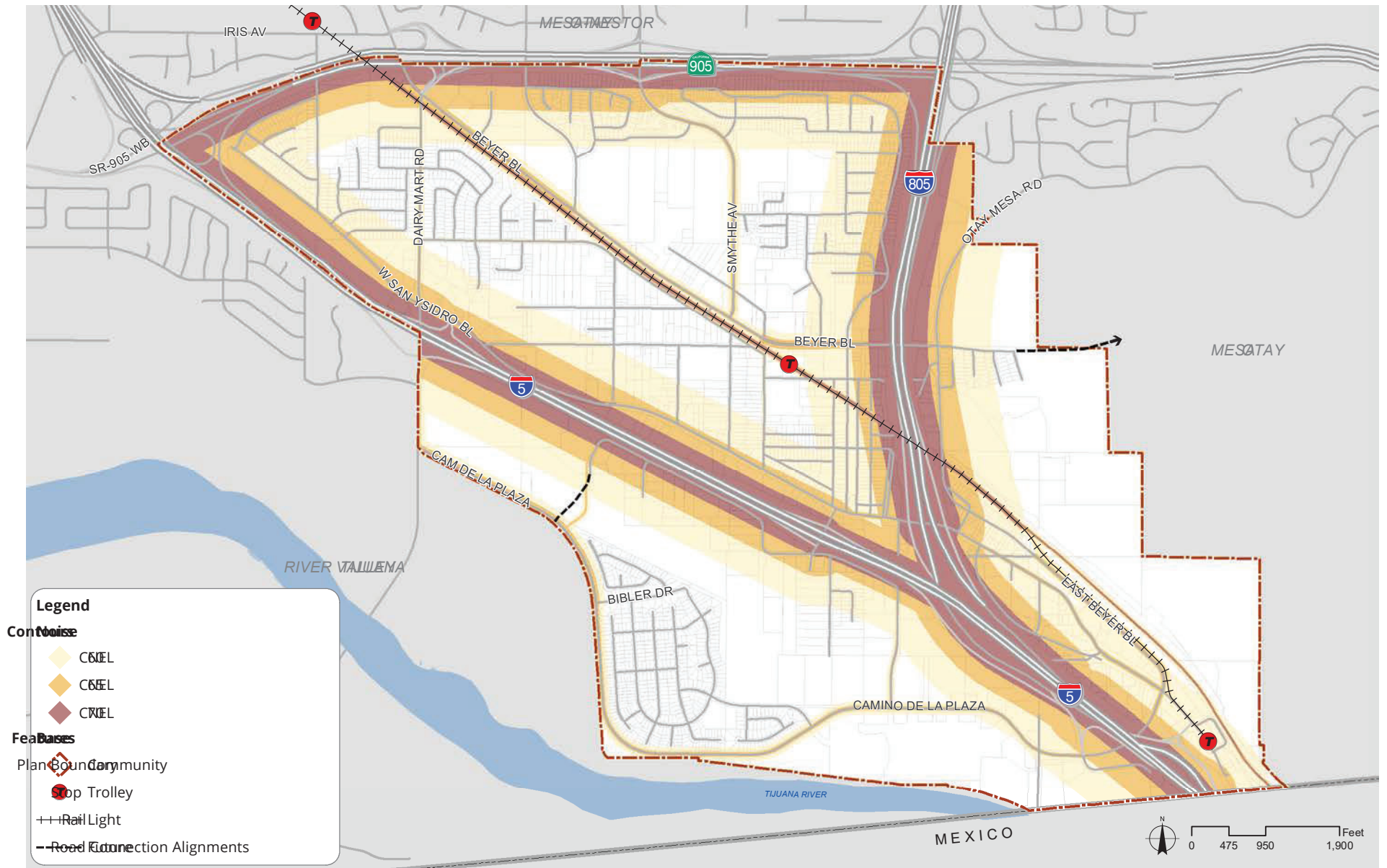
- n. Locate higher density and mixed-uses within a ¼ mile of transit stops.
- o. Provide sufficient community-serving commercial development within a ¼ mile of transit that supports the residents, workforce, and visitors.
- p. Include a detailed urban design plan for the residential, commercial, and mixed-uses, identifying retail, convenience uses, and public spaces.
- q. Provide architecture, urban design, and streetscape guidelines consistent with the policies in the San Ysidro Community Plan and the General Plan.
- r. Include illustrations for height, bulk, and scale of buildings and their relation to each other.
- s. Provide a street tree concept that utilizes species within the Appendix A of this document.
- t. Require a financing strategy to ensure timely provision of necessary public facilities to serve the proposed development.
- u. Provide a well-landscaped buffer between the development and the adjacent railroad and trolley corridor.

2.8 NOISE

Noise-sensitive land uses are locations where the presence of unwanted sound could adversely affect the use of the land. These include residences, schools, lodging, libraries, religious facilities, homes, playgrounds, and parks. San Ysidro is an urban community with a variety of land uses and proximity to one of the world's busiest ports and major transportation facilities. The sources of unwanted sound in the community are related to and airfreeway operations. Heavily traveled streets and certain activities associated with commercial and industrial land uses have the potential to generate unwanted noise (refer to **Figure 2-6 Noise Contours Map**).

Community Noise Equivalent Level (CNEL) is the noise rating scale used for land use compatibility. The CNEL rating represents the average of equivalent noise levels, measured in A-weighted decibels (dBA), at a location for a 24-hour period, with upward adjustments added to account for increased noise sensitivity in the evening and night periods. The A-weighted filter places a greater emphasis on frequencies within the range of the human ear. The General Plan provides compatibility guidelines for evaluating land uses based on noise levels. With the community largely residential, noise effects on residential land uses are a broad concern. However, noise effects on other sensitive receptors are also important. Per the General Plan, single family residential uses are compatible at locations with an exterior noise exposure at or below 65dB with standard construction methods attenuating interior noise below 45db. Multifamily residential developments may be allowed at locations with an exterior noise exposure at or below 70 dBA if additional sound attenuation measures are included to reduce the interior noise levels to 45 dB. Typical attenuation measures are addressed in the General Plan.

Figure 2-6: Noise Contours Map



Motor Vehicle Traffic Noise

Vehicle traffic noise including motorcycles, is directly related to the traffic volume, speed, and mix of vehicles. The three freeways that pass through the community (SR-905, I-5, and I-805) are the primary sources of motor vehicle noise within the community. Because commercial trucks generate more noise than cars and light trucks, they can have a proportionately greater noise impact. Potential sources of truck traffic are the commercial and industrial areas in the community as well as those passing through from the surrounding region.

The Port of Entry poses a central source for motor vehicle noise. The sheer volume of traffic crossing the border, idling vehicles on the freeway or local streets near the Port of Entry, and the buses that service the area make this a notable location for noise.

Rail Noise

Trolley Blue Line and freight cargo trains both utilize the rail that runs diagonally through the community adjacent to residential uses, parks, open space, schools, commercial business, and the Port of Entry. The rail is a potential source of noise throughout the day including bells and horns at rail roadway crossing, impacting many residents and other noise-sensitive uses within the community.

Commercial Activity

Where residential and other sensitive receptor uses are present or proposed adjacent to commercial uses, potential noise impacts from commercial activities are important to evaluate, such as deliveries during late night and early morning hours that generate noise that can affect the nearby residential uses. As new housing is built as part of mixed-use projects in the Village areas and along Beyer Boulevard and San Ysidro Boulevard, more attention to site design and noise attenuation will be necessary to reduce nuisances with other uses.

Policies

- 2.8.1 Site structures so as to minimize noise impacts from the adjacent freeways and rail while reflecting the lot configuration and building orientation of the adjacent neighborhood.
- 2.8.2 Reduce the effect from commercial activity noise through site planning and integrating noise attenuation measures in new buildings that will reduce interior sound levels. Refer to General Plan Policies NE-E-1 through NE-E-6.
- 2.8.3 Locate structures to minimize noise and visual impacts from freeways and the trolley corridor.
- 2.8.4 Improve noise quality within the existing built environment with buffer walls and landscaping when possible.

Article 9.5: Noise Abatement and Control

Division 4: Limits

*(“Noise Level Limits, Standards and Control”
added 9–18–1973 by O–11122 N.S.)*

(Retitled to “Limits” on 9–22–1976 by O–11916 N.S.)

§59.5.0401 Sound Level Limits

- (a) It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table, at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person.

TABLE OF APPLICABLE LIMITS

Land Use	Time of Day	One-Hour Average Sound Level (decibels)
1. Single Family Residential	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40
2. Multi-Family Residential (Up to a maximum density of 1/2000)	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
3. All other Residential	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
4. Commercial	7 a.m. to 7 p.m.	65
	7 p.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	60
5. Industrial or Agricultural	any time	75

- (b) The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. Permissible construction noise level limits shall be governed by Sections 59.5.0404 of this article.

- (c) Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of Part A. of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.
- (d) This section does not apply to firework displays authorized by permit from the Fire Department.
- (e) This section does not apply to noise generated by helicopters at heliports or helistops authorized by a conditional use permit, nor to any roller coaster operated on City-owned parkland.

(Amended 9-11-1989 by O-17337 N.S.)

(Amended 11-28-2005 by O-19446 N.S.; effective 2-9-2006.)

§59.5.0402 Motor Vehicles

- (a) Off-Highway
 - (1) Except as otherwise provided for in this article, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table for “45 mile-per-hour or less speed limits” contained in Section 23130 of the California Vehicle Code, and as corrected for distances set forth in subsection A.2. below.
 - (2) Corrections

The maximum noise level as the off-highway vehicle passes may be measured at a distance of other than fifty (50) feet from the center line of travel, provided the measurement is further adjusted by adding algebraically the applicable correction as follows:

Distance (Feet)	Correction (decibels)
25	-6
28	-5
32	-4
35	-3
40	-2
45	-1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5
100	+6

- (3) A measured noise level thus corrected shall be deemed in violation of this section if it exceeds the applicable noise-level limit as specified above.
- (b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations, including the blowing of sirens and/or horns.
(“Motor Vehicles” renumbered from Sec. 59.5.0403 on 9-22-1976 by O-11916 N.S.)

§59.5.0403 Watercraft

Violations for excessive noise of watercraft operating in waters under the jurisdiction of The City of San Diego shall be prosecuted under applicable provisions of the California Harbors and Navigation Code. Permits issued by The City of San Diego for the operation of watercraft not in compliance with noise criteria of the Harbors and Navigation Code shall be reviewed and approved by the Administrator prior to issuance.

(“Watercraft” renumbered from Sec. 59.5.0407 and amended 9-22-1976 by O-11916 N.S.)

§59.5.0404 Construction Noise

- (a) It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.0104 of the San Diego Municipal Code, with exception of Columbus Day and Washington’s Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. In granting such permit, the Administrator shall consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.
- (b) Except as provided in subsection C. hereof, it shall be unlawful for any person, including The City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.
- (c) The provisions of subsection B. of this section shall not apply to construction equipment used in connection with emergency work, provided the Administrator is notified within 48 hours after commencement of work.

(Amended 1-3-1984 by O-16100 N.S.)

(Amended 8-9-2019 by O-21114 N.S.; effective 9-8-2019.)

Ch.	Art.	Div.	
5	9.5	4	4

§59.5.0406 Refuse Vehicles and Parking Lot Sweepers

No person shall operate or permit to be operated a refuse compacting, processing, or collection vehicle between the hours of 7:00 p.m. to 6:00 a.m. or a parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the Administrator.

(“Refuse Vehicles” added 9-18-1973 by O-11122 N.S.; amended 9-22-1976 by O-11916 N.S.)

(Amended 6-9-2010 by O-19960 N.S.; effective 7-9-2010.)

<i>Ch.</i>	<i>Art.</i>	<i>Div.</i>	
5	9.5	4	5

Article 9.5: Noise Abatement and Control

Division 5: Public Nuisance Noise
*(“General Noise Regulations”
added 9-18-1973 by O-11122 N.S.)
(Retitled to “Public Nuisance Noise”
on 9-22-1976 by O-11916 N.S.)*

§59.5.0501 General Prohibitions

- (a) It shall be unlawful for any person to make, continue, or cause to be made or continued, within the limits of said City, any disturbing, excessive, or offensive noise which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.
- (b) The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists should include, but not be limited to the following:
 - (1) The level of the noise;
 - (2) Whether the nature of the noise is usual or unusual;
 - (3) Whether the origin of the noise is natural or unnatural;
 - (4) The level of the ambient noise;
 - (5) The proximity of the noise to sleeping facilities;
 - (6) The nature and zoning of the area from which the noise emanates and the area where it is received;
 - (7) The time of day or night the noise occurs;
 - (8) The duration of the noise; and
 - (9) Whether the noise is recurrent, intermittent, or constant.*(Amended 1-3-1984 by O-16100 N.S.)*

§59.5.0502 Disturbing, Excessive, Offensive Noises — Declaration of Certain Acts Constituting

The following activities, among others, are declared to cause disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

- (a) Horns, Signaling Devices, etc.

Unnecessary use or operation of horns, signaling devices, or other similar devices, on automobiles, motorcycles, or any other vehicle.

- (b) Radios, Television Sets, Phonographs, Loud Speaking Amplifiers and Similar Devices.

- (1) Uses Restricted

The use or operation of any sound production or reproduction device, radio receiving set, musical instrument, drums, phonograph, television set, loud speakers and sound amplifier or other similar machine or device for the producing or reproducing of sound in such a manner as to disturb the peace, quiet, or comfort of any reasonable person of normal sensitivity in any area of the City is prohibited. This provision shall not apply to any participant in a licensed parade, or to any person who has been otherwise duly authorized by The City of San Diego to engage in such conduct.

- (2) Prima Facie Violations

Any of the following shall constitute evidence of a prima facie violation of this section:

- (A) The operation of any such sound production or reproduction device, radio receiving set, musical instrument, drum, phonograph, television set, machine, loud speaker and sound amplifier or similar machine or device between the hours of 10:00 p.m. and 8:00 a.m. in such a manner as to be plainly audible at a distance of fifty feet from the building, structure, or vehicle in which it is located.
- (B) The operation of any sound amplifier, which is part of, or connected to, any radio, stereo receiver, compact disc player, cassette tape player, or other similar device when operated in

such a manner as to be plainly audible at a distance of fifty (50) feet and when operated in such a manner as to cause a person to be aware of vibration accompanying the sound at a distance of fifty (50) feet from the source.

(3) Enforcement of Prima Facie Violations

(A) Any person who is authorized to enforce the provisions of this Article and who encounters evidence of a prima facie violation of this section is empowered to confiscate and impound as evidence, any or all of the components amplifying or transmitting the sound.

(B) Any peace officer, as defined in Chapter 4.5 (commencing with Section 830) of the Penal Code, who encounters evidence of a prima facie violation of this section whereby the component(s) amplifying or transmitting the sound are attached to a vehicle may, in accordance with the provisions of California Vehicle Code section 22655.5, impound the vehicle, as containing evidence of a criminal offense, when the amplifying and/or transmitting component(s) cannot be readily removed from the vehicle without damaging the component(s) or vehicle.

(c) Animals

(1) The keeping or maintenance, or the permitting to be kept or maintained upon any premises owned, occupied, or controlled by any person of any animal or animals which by any frequent or long-continued noise, shall cause annoyance or discomfort to a reasonable person of normal sensitiveness in the vicinity.

(2) The noise from any such animal or animals that disturbs two or more residents residing in separate residences adjacent to any part of the property on which the subject animal or animals are kept or maintained, or three or more residents residing in separate residences in close proximity to the property on which the subject animal or animals are kept or maintained shall be prima facie evidence of a violation of this section.

- (d) Hospitals, Schools, Libraries, Rest Homes, Long–Term Medical or Mental Care Facilities

To make noise adjacent to a hospital, school, library, rest home, or long–term medical or mental care facility, which noise unreasonably interferes with the workings of such institutions or which disturbs or unduly annoys occupants in said institutions.

- (e) Playing of Radios on Buses and Trolleys

The operation of any radio, phonograph, or tape player on an urban transit bus or trolley so as to emit noise that is audible to any other person in the vehicle is prohibited.

- (f) Playing of Radios, Phonographs, and Other Sound Production or Reproduction Devices in Public Parks and Beach Areas and Public Parking Lots and Streets Adjacent Thereto.

The operation of any radio, phonograph, television set, or any other sound production or reproduction device in any public park or on any public beach or any public parking lot or street adjacent to such park or beach, without the prior written approval of the City Manager or the Administrator, in such a manner that such radio, phonograph, television set or sound production or reproduction device emits a sound level exceeding those found in the following table at any point ten (10) feet or more from the noise source is prohibited:

TABLE OF APPLICABLE LIMITS

Time of Day.....	Sound Level Limit
7 a.m. to 7 p.m.	65 decibels
7:01 p.m. to 6:59 a.m.	55 decibels

- (g) Leaf Blowers

- (1) A “leaf blower” means any portable, hand–held or back pack, engine powered device with a nozzle that creates a directable airstream which is capable of and intended for moving leaves and light materials.
- (2) No person shall operate a leaf blower in any residential zoned area between the hours of 7 p.m. and 8 a.m. on weekdays and 5 p.m. and 9

a.m. on weekends or on legal holidays specified in section 21.04 of this Code.

- (3) After October 9, 1991 and through June 30, 1993, no person may operate any leaf blower at a sound level in excess of 70 decibels measured at a distance of 50 feet or greater from the point of noise origin. Beginning on July 1, 1993, no person may operate any leaf blower at a sound level in excess of 65 decibels measured at a distance of 50 feet or greater from the point of noise origin.
- (4) Beginning on July 1, 1993, leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.
- (5) All litter and debris generated by leaf blower operation shall be cleaned up and disposed of in accordance with Chapter 9, Article 4, of this Code.

(Amended 9-9-1991 by O-17676 N.S.)

§59.5.0503 Burglar Alarms

- (a) Audible burglar alarms for structures or motor vehicles are prohibited unless the operation of such burglar alarms can be terminated within 20 minutes of being activated.
- (b) Notwithstanding the requirements of this provision, any member of the Police Department of The City of San Diego shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed in any building, dwelling, or motor vehicle at any time during the period of its activation. On or after thirty (30) days from the effective date of this article, any building, dwelling or motor vehicle upon which a burglar alarm has been installed shall prominently display the telephone number at which communication may be made with the owner of such building, dwelling, or motor vehicle.

(Amended 1-3-1984 by O-16100 N.S.)

<i>Ch.</i>	<i>Art.</i>	<i>Div.</i>	
5	9.5	5	5



California Environmental Quality Act

Significance Determination Thresholds

City of San Diego

DECEMBER 2020*

***Note:** Planning Department staff periodically revises sections of the thresholds in response to CEQA case law, and changes in federal, state, and local regulations. Staff also periodically provides updated information and clarification and direction for environmental analysts.

REVISION HISTORY	
Date	Comments
January 1991	Prior revision
January 1994	Prior revision
May 1999	Prior revision
April 2001	Prior revision
February April 2004 June July 2004	Updated
August 2006	Strikeout/Underline removed; minor edits
January 2007	New Traffic Threshold implemented; minor edits
January 2011	Minor edits to Health and Safety, Paleontology and Public Services and Utilities (Solid Waste Generation/Disposal) sections
July 2016	Addition of Greenhouse Gas Emissions Threshold
December 2020	New Transportation Threshold implemented

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K. NOISE

Noise is defined as unwanted or objectionable sound. Noise levels compatible with a person's life, health and enjoyment of property are regulated by Local, State, and Federal regulations, including the City of San Diego Progress Guide and General Plan, City Noise Abatement and Control Ordinance, California Noise Insulation Standards (Title 24), the State Public Utilities Code regulating airports, and other regulations. A direct and/or indirect noise impact should be evaluated in relation to applicable City standards, particularly, the City of San Diego Progress Guide and General Plan (Transportation Element). The following significance thresholds are in accordance with the City's Progress Guide and General Plan (Transportation Element) Land Use Compatibility with Annual Community Noise Equivalent Levels (CNEL).

Measurement of sound involves three variables, (1) magnitude; (2) frequency; and (3) duration. Noise levels in the City of San Diego are expressed and compared as dB (A) CNEL.

Definitions

The following definitions shall have the same meaning as defined in the Section 59.5.0102 of the City of San Diego Municipal Code:

A-Weighting

As in decibel A-weighting (dB [A]). Represents the frequency characteristics of the average human ear for various sound intensities. An A-Weight sound filters out lower frequencies, and provides a good indicator of the annoyance potential of a noise.

Average Sound Level

A sound level typical of the sound levels at a certain place during a given period of time, averaged by the general rule of combination for sound levels, said general rule being set forth in American National Standard Specifications for Sound Level Meters 1.4-1971. Average sound level is also called equivalent continuous sound level. (L_{eq})

Community Noise Equivalent Level (CNEL)

An average sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m., and after addition of ten (10) decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

CNEL recognizes that noise annoyance is related to duration, how often the noise is present, how long it persists, and when it occurs.

Decibel (dB)

A unit measure of sound (noise) level.

Just as feet is used to measure distances, decibels are used to measure sound (noise) levels. The decibel is defined as 10 times the common logarithm of the ratio of two amounts of sound power.

The human ear can hear sounds from less than 10 dB to over 100 dB (sounds which are 100,000 times greater than the faintest sounds). Table K-1 shows the approximate relationship between sound level changes and people's judgment of the relative loudness of the change.

**Table K-1
RELATIVE LOUDNESS**

Sound Level Change	Acoustic Energy Change	Relative Loudness
0 dB	0	Reference Point
3 dB	50 %	Perceptible Change
10 dB	90 %	Twice as Loud
20 dB	99 %	Four Times as Loud
30 dB	99.9 %	Eight Times as Loud
40 dB	99.99 %	Sixteen Times as Loud

Source: Miller 1989 pg. 1-6

Noise Level

The same as sound level. The terms may be used interchangeably.

Sound Level

In decibels, that quantity measured with a sound level meter as defined herein, by use of the "A" frequency weighting and "fast" time averaging unless some other time averaging is specified.

Sound Level Meter

An instrument for the measurement of sound, including a microphone, an amplifier, an attenuator, networks at least for standardized frequency weighting A, and an indicating instrument having at least the standardized dynamic characteristic "fast," as specified in American National Standard Specification for Sound Level Meters S1. 4-1971 or its successor.

INITIAL STUDY CHECKLIST QUESTIONS

The following questions are from the City's Initial Study Checklist and are used to provide guidance to determine potential significant impacts related to Noise:

Would the project:

1. Result or create a significant increase in the existing ambient noise levels?
2. Exposure of people to noise levels which exceed the City's adopted noise ordinance or are incompatible with Table K-4?
3. Exposure of people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan or an adopted airport Comprehensive Land Use Plan?

4. Result in land uses which are not compatible with aircraft noise levels as defined by an adopted airport Comprehensive Land Use Plan (CLUP)?

SIGNIFICANCE THRESHOLDS

1. Interior and Exterior Noise Impacts from Traffic Generated Noise (Table K-2 below provides the general thresholds of significance for uses affected by traffic noise.)

**Table K-2
TRAFFIC NOISE SIGNIFICANCE THRESHOLDS
(db(A) CNEL)**

Structure or Proposed Use that would be impacted by Traffic Noise	Interior Space	Exterior Useable Space ²²	General Indication of Potential Significance
Single-family detached	45 dB	65 Db	Structure or outdoor useable area ²³ is < 50 feet from the center of the closest (outside) lane on a street with existing or future ADTs > 7500 ²⁴
Multi-family, schools, libraries, hospitals, day care, hotels, motels, parks, convalescent homes.	- Development Services Department (DSD) ensures 45 dB pursuant to Title 24	65 dB	
Offices, Churches, Business, Professional Uses	n/a	70 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with existing or future ADTs > 20,000
Commercial, Retail, Industrial, Outdoor Spectator Sports Uses	n/a	75 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with existing or future ADTs > 40,000

Source: 1) City of San Diego Acoustical Report Guidelines (December 2003) and 2) City of San Diego Progress Guide and General Plan (Transportation Element)

2. HUD-Funded projects and Noise

If a project is receiving U.S. Department of Housing and Urban Development (HUD) funding, noise analysis and mitigation must be in accordance with the HUD Noise

²² If a project is currently at or exceeds the significance thresholds for traffic noise described above and noise levels would result in less than a 3 dB increase, then the impact is not considered significant.

²³ Exterior usable areas do not include residential front yards or balconies, unless the areas such as balconies are part of the required usable open space calculation for multi-family units.

²⁴ Traffic counts are available from:

- San Diego Regional Association of Governments (SANDAG) Regional Economic Development Information
- System (REDI): <http://cart.sandag.cog.ca.us/REDI/>
- SANDAG Traffic Forecast Information Center: <http://pele.sandag.org/trfic.html>

Guidebook²⁵ Minimum attenuation requirements are prescribed in Title 24 of the Code of Federal Regulations²⁶ (24 CFR 51.104(a)) which are the HUD Environmental Criteria and Standards.

3. Airport Noise Impacts

If the project is proposed within the Airport Environs Overlay Zone (AEOZ) as defined in Chapter 13, Article 2, Division 3 of the San Diego Municipal Code, the potential exterior noise impacts from aircraft noise would not constitute a significant environmental impact.

However, interior noise impacts will be regulated by the requirement for residential development within the AEOZ to reduce interior noise levels attributable to airport noise to 45 dB Community Noise Equivalent Level (CNEL). Interior noise levels for new construction of multi-family units are addressed by the Building Development Review Division (BDR) of the City's Development Services Department (DSD) and do not need to be mitigated through conditions in the environment report, but the BDR requirements should be noted. BDR requires additional insulation and upgraded building materials so that interior noise levels do not exceed 45 dB(A) CNEL. The requirements for an acoustical testing are defined in the City of San Diego Municipal Code, Chapter 13, Article 2, Division 3, §132.0308, "Acoustical Testing of Interior Noise Levels."

Requirements for noise studies are found in the Municipal Code at Chapter 13, Article 2, Division 3, §132.0308. This section of the municipal code applies to "development" as defined at, § 113.0103 to include "constructing, reconstructing, converting, establishing, altering, maintaining, relocating, demolishing, using, or enlarging any building, structure, improvement, lot, or premises."

Remodels and additions to single-family and multi-family residences subject to airport noise levels above 65 dB (A) CNEL ordinarily would not be considered a significant issue and a noise study would not be required for the purposes of CEQA analysis. However, new construction of hospitals, schools, day care centers, or other sensitive uses subject to airport noise levels in excess of 65 dB(A) CNEL would be considered a significant issue and a noise study would be required that could recommend measures to mitigate potential noise impacts to a level below significance. Table K-3 below addresses the general impacts from airport noise thresholds.

²⁵ <http://www.hud.gov/offices/cpd/energyenviron/environment/resources/guidebooks/noise/index.cfm>

²⁶ <http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1>

**Table K-3
IMPACTS FROM AIRPORT NOISE**

Structure or Proposed Use that would be impacted by Airport Noise	Regulation
Structure within an AEOZ	Exterior noise is one factor in determining land use compatibility. See Table K-4 and the applicable Comprehensive Land Use Plan (CLUP).
New Single Family and Multi-family	Building Development Review Division (BDR) of Development Services Department (DSD) ensures 45 dB interior noise levels. Discuss Airport noise impact & BDR requirements (insulation and upgraded building materials to ensure 45 dB(A) CNEL) in environmental document See also § 132.0309 Requirement for Aviation Easement
Remodels and additions to existing single and multi-family	Noise study & mitigation not required for airport noise > 65 dB(A) CNEL. See also § 132.0309 Requirement for Aviation Easement . For development within the 60 dB CNEL contour of Lindbergh Field the applicant must demonstrate that indoor noise levels that are attributable to airport operations shall not exceed 45 dB. Refer to § 132.0306 of the Municipal Code.
New construction of hospitals, schools, day care centers or other sensitive uses	Noise study and mitigation required for airport noise > 65 dB(A) CNEL. See also § 132.0309 Requirement for Aviation Easement .

4. Noise from Adjacent Stationary Uses (Noise Generators)

A project which would generate noise levels at the property line which exceed the City's Noise Ordinance Standards is considered potentially significant (such as potentially a carwash or projects operating generators or noisy equipment).

If a non-residential use, such as a commercial, industrial or school use, is proposed to abut an existing residential use, the decibel level at the property line should be the arithmetic mean of the decibel levels allowed for each use as set forth in Section 59.5.0401 of the Municipal Code. Although the noise level above could be consistent with the City's Noise Ordinance Standards, a noise level above 65 dB (A) CNEL at the residential property line could be considered a significant environmental impact.

1. Impacts to Sensitive Wildlife

Noise mitigation may be required for significant noise impacts to certain avian species during their breeding season, depending upon the location of the project such as in or adjacent to an MHPA, whether or not the project is occupied by the California gnatcatcher, least Bell's vireo, southern willow flycatcher, least tern, cactus wren, tricolored blackbird or western snowy plover, and whether or not noise levels from the project, including construction during the breeding season of these species would exceed 60dB(A) or existing ambient noise level if above 60dB(A). In

addition, please note that significant noise impacts to the California gnatcatcher are only analyzed if the project is within an MHPA; there are no restrictions for the gnatcatcher outside the MHPA any time of year. Please see Biological Resources Section, Step 2, Note (f).

6. Temporary Construction Noise

Temporary construction noise which exceeds 75 dB (A) L_{eq} at a sensitive receptor would be considered significant. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75-decibels (dB) during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator, in conformance with San Diego Municipal Code Section 59.5.0404.

Additionally, where temporary construction noise would substantially interfere with normal business communication, or affect sensitive receptors, such as day care facilities, a significant noise impact may be identified.

7. Noise/Land Use Compatibility

Noise is one factor to be considered in determining whether a land use is compatible. Land use compatibility noise factors are presented in Table K-4. Compatible land uses are shaded. Incompatible land uses are unshaded. The transition zone between compatible and incompatible should be evaluated by the environmental planner to determine whether the use would be acceptable based on all available information and the extent to which the noise from the proposed project would affect the surrounding uses.

**Table K-4
City of San Diego Noise Land Use Compatibility Chart**

<i>Land Use</i>		<i>Annual Community Noise Equivalent Level in Decibels</i>					
		50	55	60	65	70	75
1	Outdoor amphitheaters						
2	Schools, libraries						
3	Nature preserves, wildlife preserves						
4	Residential single-family, multi-family, mobile homes, transient housing						
5	Retirement homes, intermediate care facilities, convalescent homes						
6	Hospitals						
7	Parks, playgrounds						
8	Office buildings, business and professional						
9	Auditoriums, concert halls, indoor arenas, churches						
10	Riding stables, water recreation facilities						
11	outdoor spectator sports, golf courses						
12	livestock farming, animal breeding						
13	Commercial-retail, shopping centers, restaurants, movie theaters						
14	Commercial-wholesale, industrial manufacturing, utilities						
15	Agriculture (except livestock), extractive industry, farming						
16	Cemeteries						

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Asphalt Demolition

**** Receptor #1 ****

Description	Baselines (dBA)			
	Land Use	Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	89.6	84.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40	77.6	77.6	50.0	0.0
Dozer	No	40	81.7	81.7	50.0	0.0
Front End Loader	No	40	79.1	79.1	50.0	0.0

Results

Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	81.7	80.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Rough Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	85.0	83.7	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: 01/06/2025
 Case Description: SYSD-04.0 Utility Trenching

**** Receptor #1 ****

Description	Baselines (dBA)			
	Land Use	Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	84.0	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	

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Generator	No	50		80.6	50.0	0.0

Results

Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	80.6	79.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Equipment		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
	Impact Device	Usage (%)				
Compressor (air)	No	40		77.7	50.0	0.0
Generator (<25KVA, VMS signs)	No	50		72.8	50.0	0.0

Equipment	Results		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
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
Generator (<25KVA, VMS signs)	72.8	69.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.7	75.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Asphalt Paving

**** Receptor #1 ****

Description	Baselines (dBA)			
	Land Use	Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Roller	No	20		80.0	50.0	0.0
Paver	No	50		77.2	50.0	0.0
Paver	No	50		77.2	50.0	0.0

Results

Equipment	Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night			
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		
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		
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		
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		
Total	80.0	78.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/06/2025
 Case Description: SYSD-04.0 Finishing/Landscaping

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Reference Distance of 50 Feet	Residential	65.0	60.0	55.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results


Equipment	Noise Limits (dBA)									Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
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	
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	
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	
Total	80.6	78.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

SYSD-04.0 - Construction Noise Modeling Attenuation Calculations				
Levels in dBA Leq				
Phase	RCNM Reference Noise			
	Level	Receptor to West	Receptor to North	Receptor to South
<i>Distance in feet</i>	50	195	260	650
Demolition	85	73	71	63
Site Prep	81	69	67	59
Grading	84	72	70	62
Utility Trenching	82	70	68	60
<i>Distance in feet</i>	50	115	140	900
Building Construction	80	73	71	55
Architectural Coating	75	68	66	50
<i>Distance in feet</i>	50	100	250	660
Paving	79	73	65	57
<i>Distance in feet</i>	50	175	190	560
Finish/Landscaping	79	68	67	58
Attenuation calculated through Inverse Square Law: $L_p(R2) = L_p(R1) - 20\text{Log}(R2/R1)$				

SYSD-04.0 - Vibration Damage Attenuation Calculations				
Levels, PPV (in/sec)				
<i>Distance in feet</i>	Vibration Reference Level at 25 feet	Receptor to West 75	Receptor to North 130	Receptor to South 525
Vibratory Roller	0.21	0.040	0.018	0.002
Clam shovel	0.202	0.039	0.017	0.002
Hoe Ram	0.089	0.017	0.008	0.001
Large Bulldozer	0.089	0.017	0.008	0.001
Caisson Drilling	0.089	0.017	0.008	0.001
Loaded Trucks	0.076	0.015	0.006	0.001
Jackhammer	0.035	0.007	0.003	0.000
Small Bulldozer	0.003	0.001	0.000	0.000

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Sound Levels : as low as 74 dBA

Price Range : \$\$\$

Compressor Type : Two-stage Scroll Compressor

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1 REBATE UP TO \$600

Efficiency Range : 15.2 SEER2

Sound Levels : as low as 74 dBA

Price Range : \$\$\$

Compressor Type : Two-stage Scroll Compressor

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PHE4 14 SEER Packaged Heat Pump

TRAFFIC NOISE MODELING

Traffic Noise Calculator: FHWA 77-108			CERC San Ysidro SD MND (SYSD-04.0) Existing 2025 Traffic Noise																					
			Output			Inputs														Auto Inputs				
			dBA at 50 feet			Distance to CNEL Contour																		
ID	L _{eq} 24hr	L _{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway			ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Receiver	Ground Absorption	Lane Distance	
1	58.2	61.9	62.3	15	33	71	E. Beyer Blvd	the North	Project Site	7,030	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
2	55.5	59.2	59.6	10	22	47	E. Beyer Blvd	Project Site	the South	3,760	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
3	56.8	60.5	60.9	12	27	58	Otay Mesa Road	Beyer Blvd	the North	5,110	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
4	58.5	62.2	62.6	16	35	74	Beyer Blvd	the West	E Beyer Blvd/Otay Mesa Road	7,510	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
5	47.2	50.9	51.3	3	6	13	Beyer Blvd	E Beyer Blvd/Otay Mesa Road	the East	560	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	

Traffic Noise Calculator: FHWA 77-108			CERC San Ysidro SD MND (SYSD-04.0) Existing With Project Traffic Noise																					
			Output			Inputs														Auto Inputs				
			dBA at 50 feet			Distance to CNEL Contour																		
ID	L _{eq,24hr}	L _{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway			ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Receiver	Ground Absorption	Lane Distance	
1	58.3	62.1	62.4	16	34	73	E. Beyer Blvd	the North	Project Site	7,252	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
2	55.6	59.3	59.7	10	22	48	E. Beyer Blvd	Project Site	the South	3,855	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
3	56.9	60.6	61.0	13	27	58	Otay Mesa Road	Beyer Blvd	the North	5,202	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
4	58.6	62.3	62.7	16	35	75	Beyer Blvd	the West	E Beyer Blvd/Otay Mesa Road	7,637	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	
5	47.2	51.0	51.3	3	6	13	Beyer Blvd	E Beyer Blvd/Otay Mesa Road	the East	563	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20	

Traffic Noise Calculator: FHWA 77-108																							CERC San Ysidro SD MND (SYSD-04.0) 2027 No Project Traffic Noise																						
ID	Output						Inputs														Auto Inputs																								
	dBA at 50 feet			Distance to CNEL Contour			Roadway			Segment From - To			ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Receiver	Ground Absorption	Lane Distance																			
	L _{eq,24hr}	L _{dn}	CNEL	70 dBA	65 dBA	60 dBA																																							
1	58.3	62.0	62.4	16	33	72	E. Beyer Blvd	the North	Project Site	7,170	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
2	55.6	59.3	59.7	10	22	48	E. Beyer Blvd	Project Site	the South	3,840	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
3	56.9	60.6	61.0	13	27	58	Otay Mesa Road	Beyer Blvd	the North	5,210	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
4	58.6	62.3	62.7	16	35	75	Beyer Blvd	the West	E Beyer Blvd/Otay Mesa Road	7,660	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
5	47.3	51.0	51.4	3	6	13	Beyer Blvd	E Beyer Blvd/Otay Mesa Road	the East	570	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						

Traffic Noise Calculator: FHWA 77-108																							CERC San Ysidro SD MND (SYSD-04.0) 2027 With Project Traffic Noise																						
ID	Output						Inputs														Auto Inputs																								
	dBA at 50 feet			Distance to CNEL Contour			Roadway	Segment From - To	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Receiver	Ground Absorption	Lane Distance																							
L _{eq,24hr}	L _{dn}	CNEL	70 dBA	65 dBA	60 dBA																																								
1	58.4	62.1	62.5	16	34	74	E. Beyer Blvd	the North	Project Site	7,392	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
2	55.7	59.4	59.8	10	22	48	E. Beyer Blvd	Project Site	the South	3,935	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
3	57.0	60.7	61.1	13	27	59	Otay Mesa Road	Beyer Blvd	the North	5,302	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
4	58.6	62.4	62.7	16	35	76	Beyer Blvd	the West	E Beyer Blvd/Otay Mesa Road	7,787	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						
5	47.3	51.0	51.4	3	6	13	Beyer Blvd	E Beyer Blvd/Otay Mesa Road	the East	573	30	0.0%	98.5%	1.0%	0.5%	75.0%	10.0%	15.0%	2	Soft	50	0.5	20																						