

APPENDIX A

Noise Survey Report

Noise Survey Report
for the
Noise Measurements in Burbank

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Introduction

This report details the noise measurements obtained at five locations in Burbank, California. The noise measurements were conducted from August 22 through 29 and September 11 to 12, 2023. This report outlines the measurement locations, measurement equipment, and measurement results. The noise measurement locations were selected to represent the closest possible residential sites nearest to construction and demolition and the closest communities with environmental justice concerns to construction and demolition areas and are shown in Figure 1.



Figure 1 Noise measurement locations

Appendix I provides a description of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dBA). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

Noise Measurement

Noise measurements were conducted at five locations chosen by RS&H. The measurements were obtained with model SVAN 971 type 1 precision sound level meters manufactured by Svantek and a

model 2250 type 1 precision sound level meter manufactured by Bruel & Kjaer. The sound meters were calibrated before the measurements. The noise measurement locations and periods are described in Table 1. Figures 2 through 6 show the installations of sound meters at the measurement locations. Figure 7 provides the hourly average sound levels at noise measurement locations 1 through 5. One-second sound level data are provided separately in excel format.

Table 1. Noise Measurement Locations and Periods

Locations	Measurement periods	Measurement locations
1	4:00 pm on August 22 through 4:00 pm on August 29	Sound meter located 9 feet above ground on a light pole on Gentry Avenue approximately 240 feet from Hart Street.
2	4:00 pm on August 22 through 11:59 pm on August 27; 12:00 am on September 11 through 4:00 pm on September 12.	Sound meter located 9 feet above ground on a light pole at the intersection of Hart Street and Morella Avenue.
3	4:00 pm on August 22 through 4:00 pm on August 29	Sound meter located 9 feet above ground on a light pole at an alley between Ontario Street and Fairview Street approximately 120 feet from Vanowen Street
4	4:00 pm on August 22 through 4:00 pm on August 29	Sound meter located 9 feet above ground on a tree located on eastern boundary of Robert E. Gross Park approximately 130 feet from Empire Avenue.
5	4:00 pm on August 22 through 4:00 pm on August 29	Sound meter located 9 feet above ground on a light pole on Greg Avenue approximately 160 feet from San Fernando Road.



Figure 2 Sound meter installation at measurement location 1



Figure 3 Sound meter installation at measurement location 2



Figure 4 Sound meter installation at measurement location 3



Figure 5 Sound meter installation at measurement location 4



Figure 6 Sound meter installation at measurement location 5

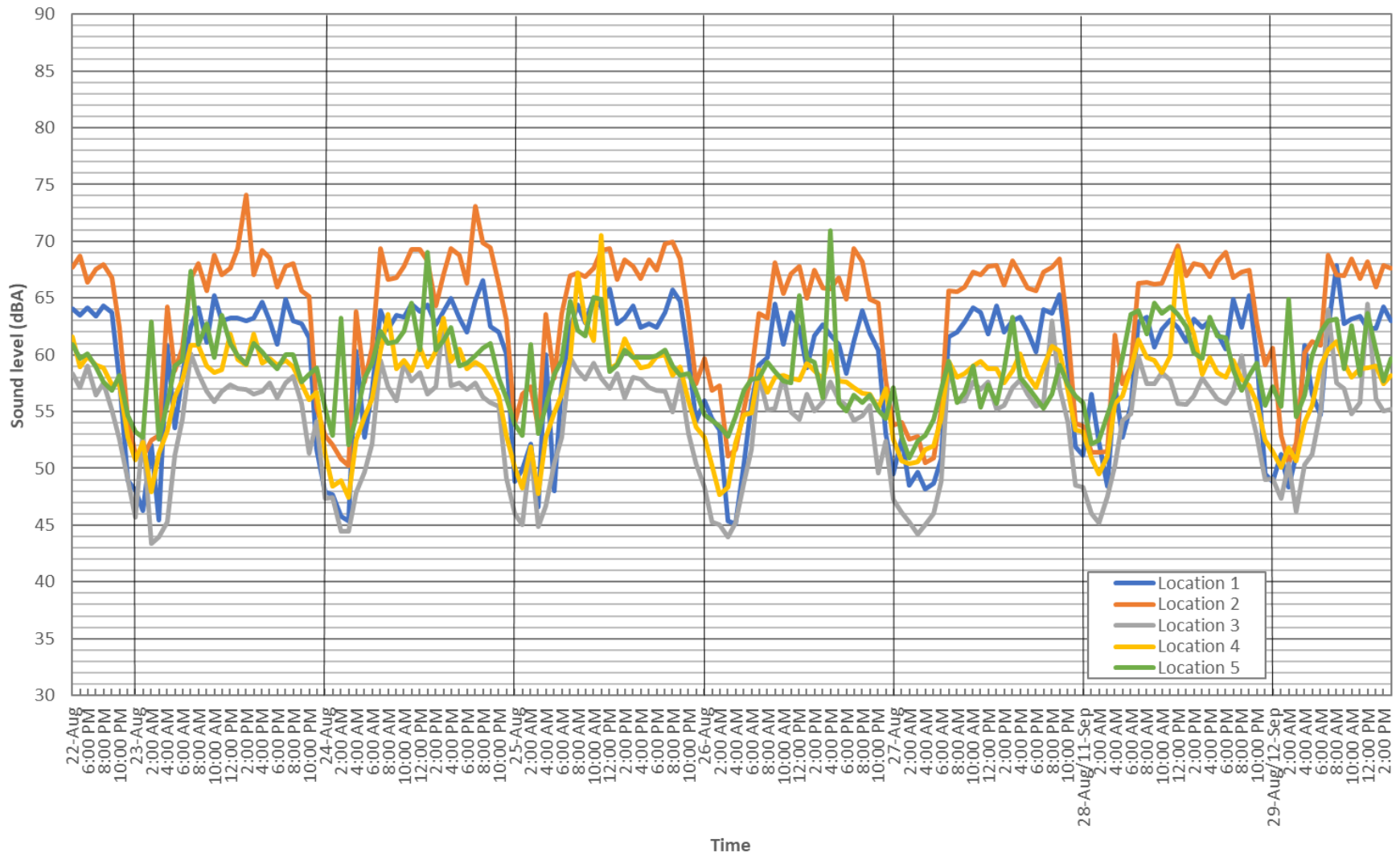


Figure 7 Measured hourly noise levels at the noise measurement locations 1 through 5

Appendix I

Glossary of Acoustical Terms

Glossary of Terms

The following is a list of definitions of terms commonly used in the field of acoustics. Some, or all, of these terms may have been used in the preceding report:

Ambient Noise: The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources both near and far.

Average Sound Level: See Equivalent-Continuous Sound Level.

A-Weighted Sound Level, dB(A): The sound level obtained by use of A-weighting. Weighting systems were developed to measure sound in a way that more closely mimics the ear's natural sensitivity. The A-weighting system is incorporated into the sound level meter to alter its sensitivity relative to frequency so that the instrument is less sensitive to noise at frequencies where the human ear is less sensitive and more sensitive at frequencies where the human ear is more sensitive. A range of noise levels associated with common indoor and outdoor activities is shown in Figures I-1 and I-2.

Community Noise Equivalent Level (CNEL): A 24-hour A-weighted average sound level which takes into account the fact that a given level of noise may be more or less tolerable depending on when it occurs. The CNEL measure of noise exposure weights average hourly noise levels by 5 dB for the evening hours (between 7:00 p.m. and 10:00 p.m.), and 10 dB between 10:00 p.m. and 7:00 a.m., then combines the results with the daytime levels to produce the final CNEL value. It is measured in decibels, dB. (Refer to Figure I-2 for typical noise exposure levels.) For aviation noise analyses, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities is established in terms of Day Night Average Sound Level (DNL), the FAA's primary noise metric. The CNEL may be used in lieu of DNL for FAA actions needing approval in California.

CNEL: See Community Noise Equivalent Level.

Day-Night Average Sound Level (DNL or Ldn): A measure of noise exposure level that is similar to CNEL except that there is no weighting applied to the evening hours of 7:00 p.m. to 10:00 p.m. It is measured in decibels, dB. (Refer to Figure I-2 for typical noise exposure levels.)

Daytime Average Sound Level (Leq(12)): The time-averaged A-weighted sound level measured between the hours of 7:00 am to 7:00 pm. It is measured in decibels, dB.

Decay Rate: The time taken for the sound pressure level at a given frequency to decrease in a room. It is measured in decibels per second, dB/s.

Decibel (dB): The basic unit of measure for sound level.

Direct Sound: Sound that reaches a given location in a direct line from the source without any reflections.

Divergence: The spreading of sound waves from a source in a free field, resulting in a reduction in sound pressure level with increasing distance from the source.

Energy Basis: This refers to the procedure of summing or averaging sound pressure levels on the basis of their squared pressures. This method involves the conversion of decibels to pressures, then performing the necessary arithmetic calculations, and finally changing the pressures back to decibels.

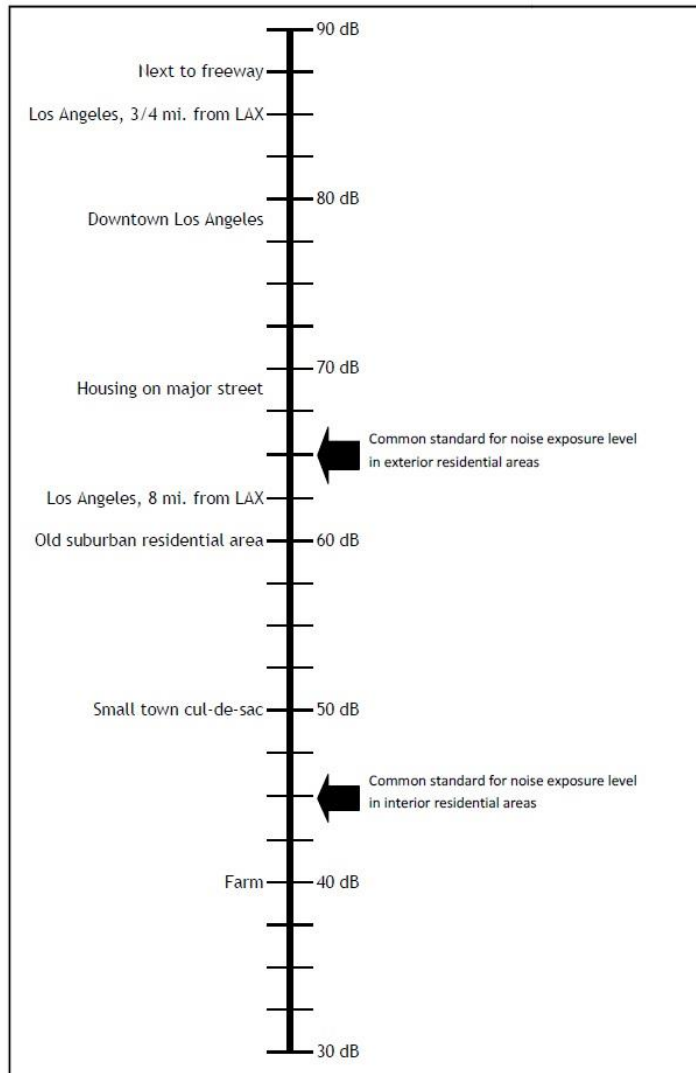


Figure I-1 Common CNEL noise exposure levels at various locations

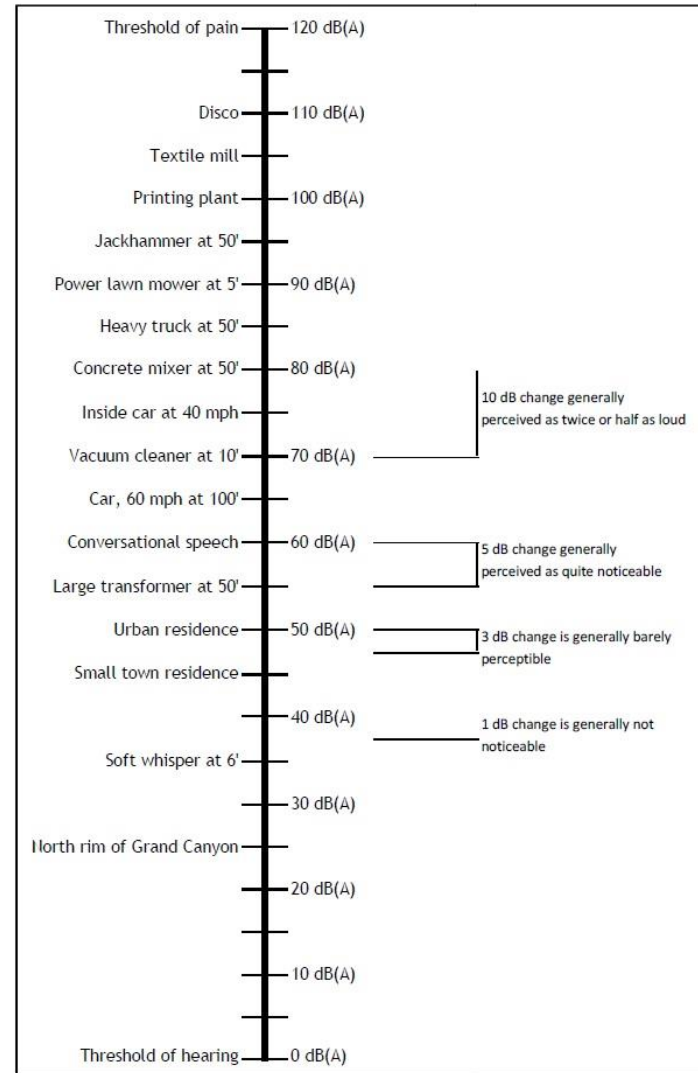


Figure I-2 Common noise sources and A-weighted noise levels

Equivalent-Continuous Sound Level (Leq): The average sound level measured over a specified time period. It is a single-number measure of time-varying noise over a specified time period. It is the level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound. For example, a person who experiences an Leq of 60 dB(A) for a period of 10 minutes standing next to a busy street is exposed to the same amount of sound energy as if he had experienced a constant noise level of 60 dB(A) for 10 minutes rather than the time varying traffic noise level. It is measured in decibels, dB.

Fast Response: A setting on the sound level meter that determines how sound levels are averaged over time. A fast sound level is always more strongly influenced by recent sounds, and less influenced by sounds occurring in the distant past, than the corresponding slow sound level. For the same non-steady sound, the maximum fast sound level is generally greater than the corresponding maximum slow sound level. Fast response is typically used to measure impact sound levels.

Field Impact Insulation Class (FIIC): A single number rating similar to the impact insulation class except that the impact sound pressure levels are measured in the field.

Field Sound Transmission Class (FSTC): A single number rating similar to sound transmission class except that the transmission loss values used to derive this class are measured in the field.

FIIC: See Field Impact Insulation Class.

Flanking Sound Transmission: The transmission of sound from a room in which a source is located to an adjacent receiving room by paths other than through the common partition. Also, the diffraction of noise around the ends of a barrier.

Frequency: The number of oscillations per second of a sound wave (i.e., the number of cycles per second). It is measured in hertz. Hz.

FSTC: See Field Sound Transmission Class.

Hertz (Hz): See Frequency.

Hourly Average Sound Level (HNL): The equivalent-continuous sound level, Leq, over a 1-hour time period. It is measured in decibels.

Impact Insulation Class (IIC): A single number rating used to compare the effectiveness of floor/ceiling assemblies in providing reduction of impact-generated sounds such as the sound of a person walking across the upstairs floor.

Impact Noise: The noise that results when two objects collide.

Impulse Noise: Noise of a transient nature due to a sudden impulse of pressure like that created by a gunshot or a balloon bursting.

Insertion Loss: The decrease in sound power level measured at the location of the receiver when an element (e.g., a noise barrier) is inserted in the transmission path between the sound source and the receiver. It is measured in decibels.

Inverse Square Law: A rule by which the sound intensity varies inversely with the square of the distance from the source. This results in a 6 dB decrease in sound pressure level for each doubling of distance from the source.

L₂, L₈, L₂₅, L₅₀: See X-Percentile-Exceeded Sound Level.

L_{dn}: See Day-Night Average Sound Level.

Leq: See Equivalent-Continuous Sound Level.

Leq(12): See Daytime Average Sound Level.

L_{max}: See Maximum Sound Level.

L_n: See X-Percentile-Exceeded Sound Level.

L_{pk}: See Peak Sound Level.

Masking: The process by which the threshold of hearing for one sound is raised by the presence of another sound.

Maximum Sound Level (L_{max}): The greatest sound level measured on a sound level meter during a designated time interval or event. It is measured in decibels.

NC Curves (Noise Criterion Curves): A system for rating the noisiness of an occupied indoor space. An actual octave-band spectrum is compared with a set of standard NC curves to determine the NC level of the space.

NIC: See Noise Isolation Class.

NNIC: See Normalized Noise Isolation Class.

Noise: Any unwanted or disagreeable sound.

Noise Criterion Curves: See NC Curves.

Noise Isolation Class (NIC): A single number rating derived from measured values of noise reduction between two enclosed spaces that are connected by one or more partitions. Unlike STC or NNIC, this rating is not adjusted or normalized to a measured or standard reverberation time.

Noise Reduction: The difference in sound pressure level between any two points.

Noise Reduction Coefficient (NRC): A single number rating of the sound absorption properties of a material. It is the average of the sound absorption coefficients at 250, 500, 1000, and 2000 Hz, rounded to the nearest multiple of 0.05.

Normalized Noise Isolation Class (NNIC): A single number rating similar to the noise isolation class except that the measured noise reduction values are normalized to a reverberation time of 0.5 seconds.

NRC: See Noise Reduction Coefficient.

Octave: The frequency interval between two sounds whose frequency ratio is 2. For example, the frequency interval between 500 Hz and 1,000 Hz is one octave.

Octave-Band Sound Level (Octave-Band Level): For an octave frequency band, the sound pressure level of the sound contained within that band. It is measured in decibels.

One-Third Octave: The frequency interval between two sounds whose frequency ratio is $2^{1/3}$ (1.26). For example, the frequency interval between 200 Hz and 250 Hz is one-third octave.

One-Third-Octave-Band Sound Level (One-Third-Octave-Band Level): For a one-third-octave frequency band, the sound pressure level of the sound contained within that band. It is measured in decibels.

Outdoor-Indoor Transmission Class (OITC): A single number rating used to compare the sound insulation properties of building facade elements. This rating is designed to correlate with subjective impressions of the ability of facade elements to reduce the overall loudness of ground and air transportation noise.

Peak Sound Level (Lpk): The maximum instantaneous sound level during a stated time period or event. It is measured in decibels.

Pink Noise: Noise that has approximately equal intensities at each octave or one-third-octave band.

Point Source: A source that radiates sound as if from a single point.

RC Curves (Room Criterion Curves): A system for rating the noisiness of an occupied indoor space. An actual octave-band spectrum is compared with a set of standard RC curves to determine the RC level of the space.

Real-Time Analyzer (RTA): An instrument for the determination of a sound spectrum.

Receiver: A person (or persons) or equipment which is affected by noise.

Reflected Sound: Sound that persists in an enclosed space as a result of repeated reflections or scattering. It does not include sound that travels directly from the source without reflections.

Reverberation: The persistence of a sound in an enclosed or partially enclosed space after the source of the sound has stopped, due to the repeated reflection of the sound waves.

Reverberation Time (T_{60}): The time required for the sound pressure level of a given frequency in an enclosed or partially enclosed space to decrease by 60 dB after the source of the sound has stopped. It is measured in seconds.

Room Absorption: The total absorption within a room due to all objects, surfaces and air absorption within the room. It is measured in Sabins or metric Sabins.

Room Criterion Curves: See RC Curves.

RTA: See Real-Time Analyzer.

SLM: See Sound Level Meter.

Slow Response: A setting on the sound level meter that determines how measured sound levels are averaged over time. A slow sound level is more influenced by sounds occurring in the distant past than the corresponding fast sound level.

Sound: A physical disturbance in a medium (e.g., air) that is capable of being detected by the human ear.

Sound Absorption: The process of dissipation of sound energy, and the property of materials and structures to dissipate sound energy.

Sound Absorption Coefficient (α): A measure of the sound-absorptive property of a material.

Sound Insulation: The capacity of a structure or element to prevent sound from reaching a receiver room either by absorption or reflection.

Sound Level: See Sound Pressure Level.

Sound Level Meter (SLM): An instrument used for the measurement of sound level, with a standard frequency-weighting and standard exponentially weighted time averaging.

Sound Power Level: A physical measure of the amount of power a sound source radiates into the surrounding air. It is measured in decibels.

Sound Pressure Level: A physical measure of the magnitude of a sound. It is related to the sound's energy. The terms sound pressure level and sound level are often used interchangeably. It is measured in decibels.

Sound Transmission Class (STC): A single number rating used to compare the sound's insulation properties of walls, floors, ceilings, windows, or doors. This rating is designed to correlate with subjective impressions of the ability of building elements to reduce the overall loudness of speech, radio, television, and similar noise sources in offices and buildings.

Source Room: A room that contains a noise source or sources.

Spectrum: The spectrum of a sound wave is a description of its resolution into components, each of different frequency and usually different amplitude (level).

STC: See Sound Transmission Class.

T₆₀: See Reverberation Time.

Tone: A sound with a distinct pitch (i.e., a dominant frequency).

Windscreen: A porous covering for a microphone, designed to reduce the noise generated by the passage of wind over the microphone.

X-Percentile-Exceeded Sound Level (L_n): The A-weighted sound level equaled or exceeded by a fluctuating sound level x percent of a stated time period. E.g., the letter symbol L₁₀, represents the sound level which is exceeded 10 percent of the stated time period. For a 1-hour measurement, L₅₀, is the sound level exceeded for more than 30 minutes in an hour, L₂₅ is the sound level exceeded for more than 15 minutes in an hour. L₈ is the sound level exceeded for more than 5 minutes in an hour, and L₂ is the sound level exceeded for more than 1 minute in an hour.