Appendix G Noise Data

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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."

- **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.

- **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	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies, David A. and Colin H. Hansen. 2009. *Engineering Noise Control: Theory and Practice*. 4th ed. New York: Spon Press.

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). 2009, November. Technical Noise Supplement ("TeNS"). Prepared by ICF International.

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

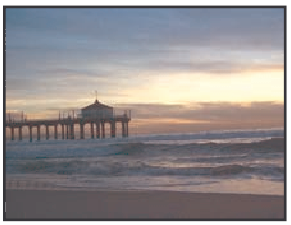
Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
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). 2004, June. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International.

LOCAL REGULATIONS

Noise Element

Vision



The beach and vast expanse of the Pacific Ocean draw many residents and visitors to Manhattan Beach. The sound of the ocean is refreshing and soothing. We enjoy relaxing where noise does not invade our thoughts and activities on Sunday morning or other times when we expect relative quiet. Excessive noise from traffic, business and industrial operations, construction, and concentrated activities can be disruptive and erode the quality of our community. Manhattan Beach strives to substantially reduce noise and its impacts within the urban environment, with a focus on protecting residential neighborhoods, schools, and similar noise-sensitive uses.

Noise Environment

Measuring Noise

Noise is generally defined as unwanted or intrusive sound. Because noise consists of pitch, loudness, and duration, describing noise with a single unit of measure presents a challenge. The A-weighted decibel scale, or dB(A), has been developed to describe the loudness of a sound or sound environment based on the sensitivity of the human ear. A sound level meter that measures A-weighted decibels has an electrical circuit that allows the meter to have the same sensitivity to sound at different frequencies as the average human ear.

Studies have documented the adverse effects of noise on human health. Based on these studies, criteria have been developed for establishing noise limits that can avoid adverse health effects. The criteria contained in the State *General Plan Guidelines* are presented in Table N-1.

Table N-1
Maximum Limits to Minimize Adverse Noise Effects

Objective	Maximum dB(A) Range
Prevent Hearing Loss	75-80
Prevent Physiological Effects (Other than hearing loss)	65-75
Prevent Speech Interference	50-60
Address People's Subjective Preference for Noise Control	45-50
Prevent Sleep Interruption	35-45

Source: *California General Plan Guidelines*, 2000.

The dB(A) descriptor only reports noise from a single source or combination of sources at a point in time. To allow a more comprehensive description of a noise environment, Federal and State agencies have established noise and land use compatibility guidelines that use averaging approaches to noise measurement. Two measurement scales commonly used in California are the Community Noise Equivalent Level (CNEL) and the day-night level (Ldn). To account for increased human sensitivity at night, the CNEL level includes a five-decibel penalty on noise during the 7:00 P.M. to 10:00 P.M. time period and a ten-decibel penalty on noise during the 10:00 P.M. to 7:00 A.M. time period. The Ldn level includes only the ten decibel weighting for late-night noise. These values are nearly identical for all but unusual noise sources.

Sources of Noise

Noise typically is categorized as transportation-related or non-transportation noise. Transportation noise refers to noise from automobiles, trucking, airport operations, and rail activity. Non-transportation noise refers to noise from stationary sources such as machinery, air conditioning systems, compressors, landscape maintenance equipment, and a range of activities (e.g., live music/concerts, outdoor cafes, amplified music from stereos, and loud voices of crowds).

In Manhattan Beach, vehicular traffic represents the primary noise source. Stationary sources such as industrial and commercial activities also present some concerns, particularly where such operations abut residential neighborhoods. Aviation activities and heavy industrial operations in adjacent communities also impact the City. Due to the compactness of development in Manhattan Beach, noise impacts generated by construction activities, as well as special events at schools, parks, commercial businesses and public assembly places, are also of concern.

Figure N-1 displays a composite picture of average noise levels in Manhattan Beach in 2002 using noise contours. Noise contours define areas of equal noise exposure. Noise is at the highest level near the source and decreases with distance.

Transportation-Related Noise

Traffic is one of the most important quality of life issues faced by Manhattan Beach residents and businesses. Traffic-related issues like noise also impact our community. Large volumes of vehicles travel to, from, and through Manhattan Beach daily. Noise is generated as vehicles travel at high speeds, drivers use their horns, and vehicle engines gear up after stalling behind a red light, stop sign, or traffic jam. The most heavily traveled roadways in the City include Sepulveda Boulevard, Rosecrans Avenue, Aviation Boulevard, Artesia Boulevard, and Manhattan Beach Boulevard, and portions of Highland Avenue and Marine Avenue. As shown in Figure N-1, noise levels are highest along these travel routes.

Many trucks carrying heavy loads of goods travel to and from commercial and industrial operations in Manhattan Beach, as well as through the City to other communities. These heavy trucks present traffic-related issues such as wide turn radius, noise, air quality, and vibrations. Truck routes have been designated for use by heavy trucks to access most commercial areas in the City, including Downtown and North End, to protect residences from such impacts.

See the Infrastructure Element for discussion and map of truck routes.

Residential uses along portions of Rosecrans Avenue, Aviation Boulevard, and Marine Avenue are particularly impacted by the heavy traffic. To mitigate traffic noise impacts on residences, the City has designated residential lots along a portion of Rosecrans Avenue as Design Overlay District 1. Residents are allowed to erect higher fences in the setback areas to screen out traffic noise. Similarly, portions of Marine Avenue and Aviation Boulevard are designated Design Overlay District 4 – Traffic Noise Impact Areas. Residential properties within Traffic Noise Impact Areas are also permitted to have fences and other noise-shielding barriers above standard heights.

See the Land Use Element for additional discussion on Design Overlay Districts.

Some neighborhoods are impacted by noise associated with cut-through traffic. The City has adopted a Neighborhood Traffic Management Program to address cut-through traffic and related impacts on residential neighborhoods.

See the Infrastructure Element for detailed discussions on Neighborhood Traffic Management Program.

Non-Transportation Noise

Stationary noise sources that affect noise-sensitive land uses in Manhattan Beach include the El Segundo Power Generation Facility, the Chevron Refinery, and the Los Angeles International Airport, as well as other industrial and commercial uses in El Segundo and Hawthorne, all of which are located north and east of the City boundary. Residents in the North End and El Porto neighborhoods, and those in the north end of the Tree Section, are mainly affected by these industrial uses. Additionally, commercial uses within the City near residential uses can cause noise impacts, such as in the Downtown, the North End and El Porto, and along Sepulveda Boulevard.

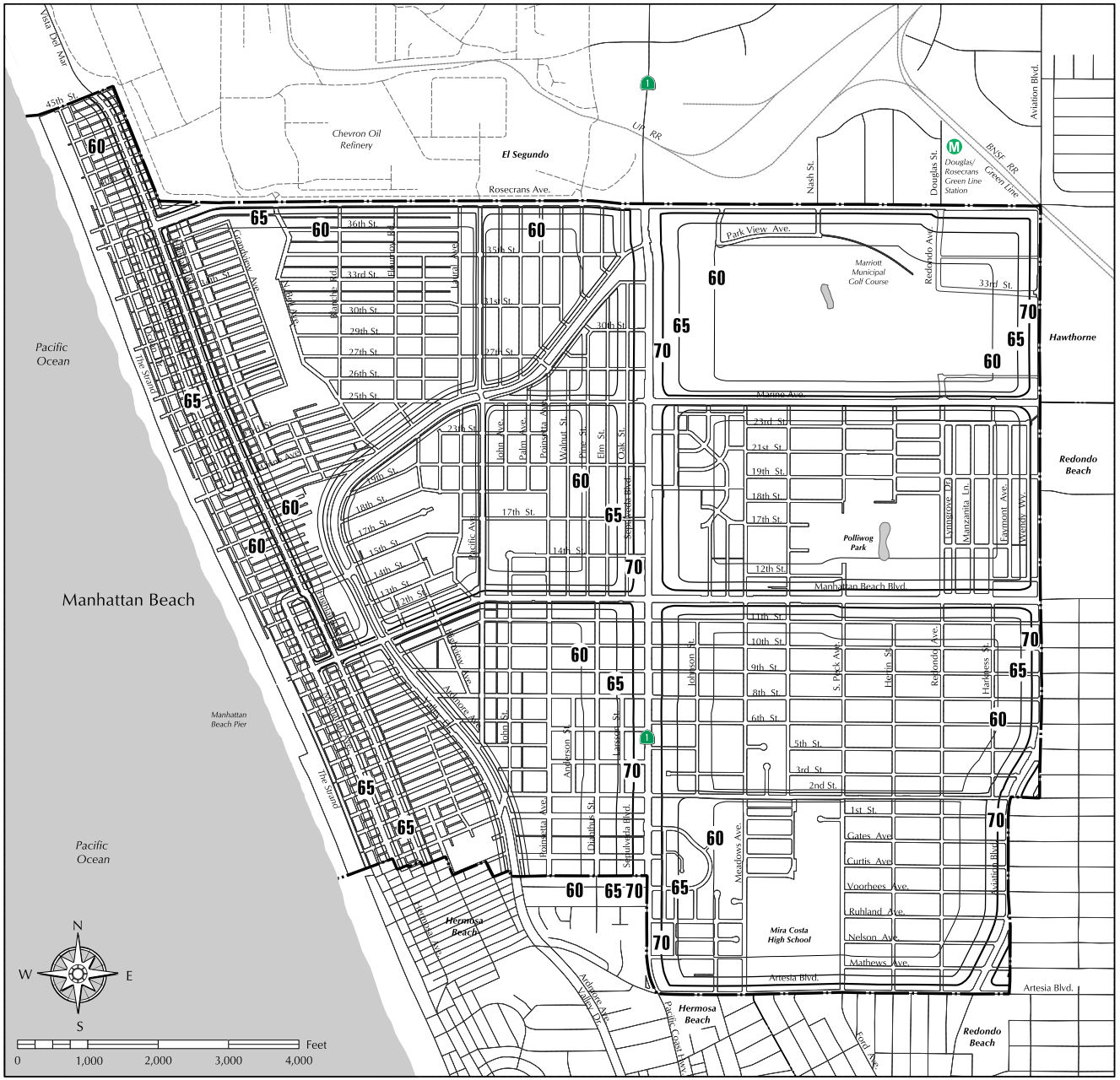
El Segundo Generating Station

The El Segundo Generating Station (ESGS), located immediately north of Manhattan Beach, provides electric power to Southern California residents and businesses. While located in an industrial area of El Segundo, the facility abuts residential uses in Manhattan Beach, and for many years the noisy operations have impacted North End residents. The operator has initiated a phased program to remove and replace two electric generation units (Units 1 and 2) located on the north end of the facility, with three new Units (Units 5, 6, and 7) in the same location. Only minor modifications are planned for Units 3 and 4 located in the middle of the ESGS. The expansion program also includes the removal of two large fuel oil tanks that visually and acoustically shield Manhattan Beach residents from the ESGS. Residents are concerned that removal of the tanks could significantly increase noise levels from the ESGS. Construction noise impacts are also a concern. The City will need to work with the California Energy Commission to proactively monitor the construction and operation of the ESGS to ensure that North End residents are not exposed to significant noise impacts.

Chevron Oil Refinery

The Chevron Oil Refinery in El Segundo lies directly north of Manhattan Beach (north of Rosecrans Avenue and east of Highland Avenue). This oil refinery is configured to produce large volumes of high-value, cleaner-burning gasoline and diesel fuels designed to meet the air quality standards of the California market. This facility has a capacity of 260,000 BCD (Barrels per Calendar Day).[1] Operating around the clock daily, this facility contributes to the ambient noise environment that impacts Manhattan Beach residents, particularly those whose homes face Rosecrans Avenue.

[1] Energy Information Administration, U.S. Department of Energy, 2002.



Source: 1986 Manhattan Beach General Plan.

MANHATTAN BEACH GENERAL PLAN

Figure N-1

Average Noise Levels (2003)

MANHATTAN · BEACH · GENERAL · PLAN

Aircraft Noise

Los Angeles International Airport (LAX) is located four miles north of Manhattan Beach, and Hawthorne Municipal Airport lies approximately seven miles northeast of the City.

Typically, aircraft noise has more impact on neighborhoods during take-offs than during landings. Out-bound flights from LAX generally follow an east-west route, then turn north or south to all directions.[2] In-bound flights from the south or west may fly over Manhattan Beach to allow the aircraft to turn around for landing on the runways. Due to the altitude of incoming flights, noise impacts on Manhattan Beach fall below 60 dB(A). The City of Manhattan Beach is not located within any Airport Influence Area, as defined by the State of California.

In 2002, LAX accommodated 2,300 operations daily, serving approximately 70 million passengers annually. To accommodate growth in air travel and cargo demands, airport planners have developed a master plan that accommodates expansion. The LAX Master Plan provides for expansion in aircraft operations by adding a new runway either to the north or south of the airport. If expanded, daily operations will increase to 2,700 flights.[3] Increased operations at LAX may potentially increase the aircraft noise impact on nearby communities, including Manhattan Beach. Noise studies conducted for the LAX Master Plan indicate that aircraft operations will not create noise conditions in the City inconsistent with the noise/land use compatibility criteria set forth in this Element (Figure N-2).

Hawthorne Municipal Airport is a small general aviation reliever airport, owned and operated by the city of Hawthorne. Hawthorne Airport is home to fewer than 200 aircraft and handles approximately 85,000 takeoffs and landings annually.[4] Noise from low-flying aircraft using Hawthorne Municipal Airport occasionally impact residential neighborhoods.

A number of agencies and others operate low-flying propeller planes and helicopters that generate occasional noise. These include news helicopters that monitor traffic and report on other events, lifeguards and other agencies that patrol the beach area, "flying" advertisements, and police/sheriff personnel that monitor emergency situations.

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[2] Airport Monitor system, Los Angeles International Airport.
[3] Los Angeles International Airport Master Plan – Alternatives Under Study, 2002.
[4] In Flight USA News Magazine, August 2001.

Construction

Manhattan Beach is a highly desirable residential community. Due to the high real estate values, new homes are constantly being built, replacing older, smaller homes with larger homes with more amenities. Commercial redevelopment is also active in the Downtown area and along Sepulveda Boulevard and Manhattan Beach Boulevard. Because of the dense development pattern and narrow streets in some neighborhoods, construction activities present not only traffic congestion issues but also noise impacts, particularly when multiple construction projects occur on the same block. Monitoring of construction activities is necessary to ensure that noise impacts are mitigated to the extent feasible.

The City limits construction activities to between the hours of 7:30 A.M. and 6:00 P.M. on Monday through Friday and between 9:00 A.M. and 6:00 P.M. on Saturday. Construction activities are prohibited on Sundays and on six specified public holidays. The City also enforces the "reasonable person" standard, meaning that noise is considered a nuisance if it causes discomfort or annoyance to any reasonable person of normal sensitivity, or if it exceeds the noise standards set forth in the Manhattan Beach Municipal Code.

Neighborhood Noise

See Noise Ordinance discussion under Goal N-3.

Regular neighborhood activities generate noise. Stereos, pets, outdoor activities such as children at playgrounds or sports events, emergency signaling devices (e.g., car and fire alarms, home security devices), and landscape and garden maintenance equipments all generate noise. The City adopted the Noise Ordinance to regulate excessive neighborhood noise that may erode the quality of our neighborhoods. Specifically, the use of mechanical blowers is prohibited in Manhattan Beach.

Noise and Land Use Planning

Noise is most problematic when noise-sensitive uses are affected. Noise-sensitive uses -- defined as activities that are interrupted by noise -- include residences, schools, hospitals, recreation areas, and public assembly places.

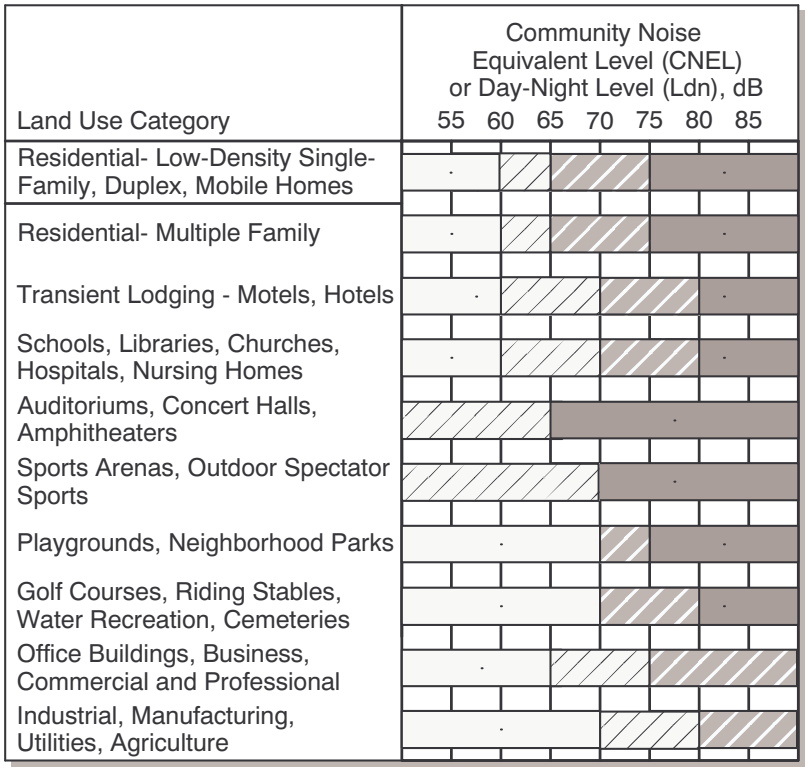
Because of Manhattan Beach's built-out character and well-established land use patterns, the City has limited latitude to plan using noise/land use compatibility criteria at a broad scale. Land use decisions instead are made at a project-specific level, such as reviewing proposals for new commercial businesses adjacent to residences. Specifically, in Downtown, in the North End and El Porto, along Oak Street, and in other neighborhoods directly

behind Sepulveda Boulevard frontages, the City routinely considers the type and arrangement of commercial use proposed and how such might affect surrounding residences. For example, bar and restaurant operations that extend into the late night may significantly impact adjacent residences, and mitigation measures are required to protect residences from excessive noise.

The noise/land use compatibility guidelines in Figure N-2, based on cumulative noise criteria for outdoor noise, are used to review development proposals and to identify and mitigation measures necessary to avoid or minimize impacts – including traffic noise impacts – that a new use may have on established uses.

Land use policy set forth in the Land Use Element provides for established land use patterns to continue. Thus, any change in noise levels over time will be attributable to increased traffic volumes due to regional growth, expanded operations at Los Angeles International Airport, and activity on industrial and commercial properties in surrounding communities. The projected future noise environment graphic shown in Figure N-3 accounts for future traffic volumes. The noise/land use compatibility matrix recognizes the densely character of the City and the presence of mixed-use districts.

Figure N-2
Noise/Land Use Compatibility Matrix



Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB
Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB
Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

65-75 dB
Very noisy urban areas near arterials, freeways or airports.

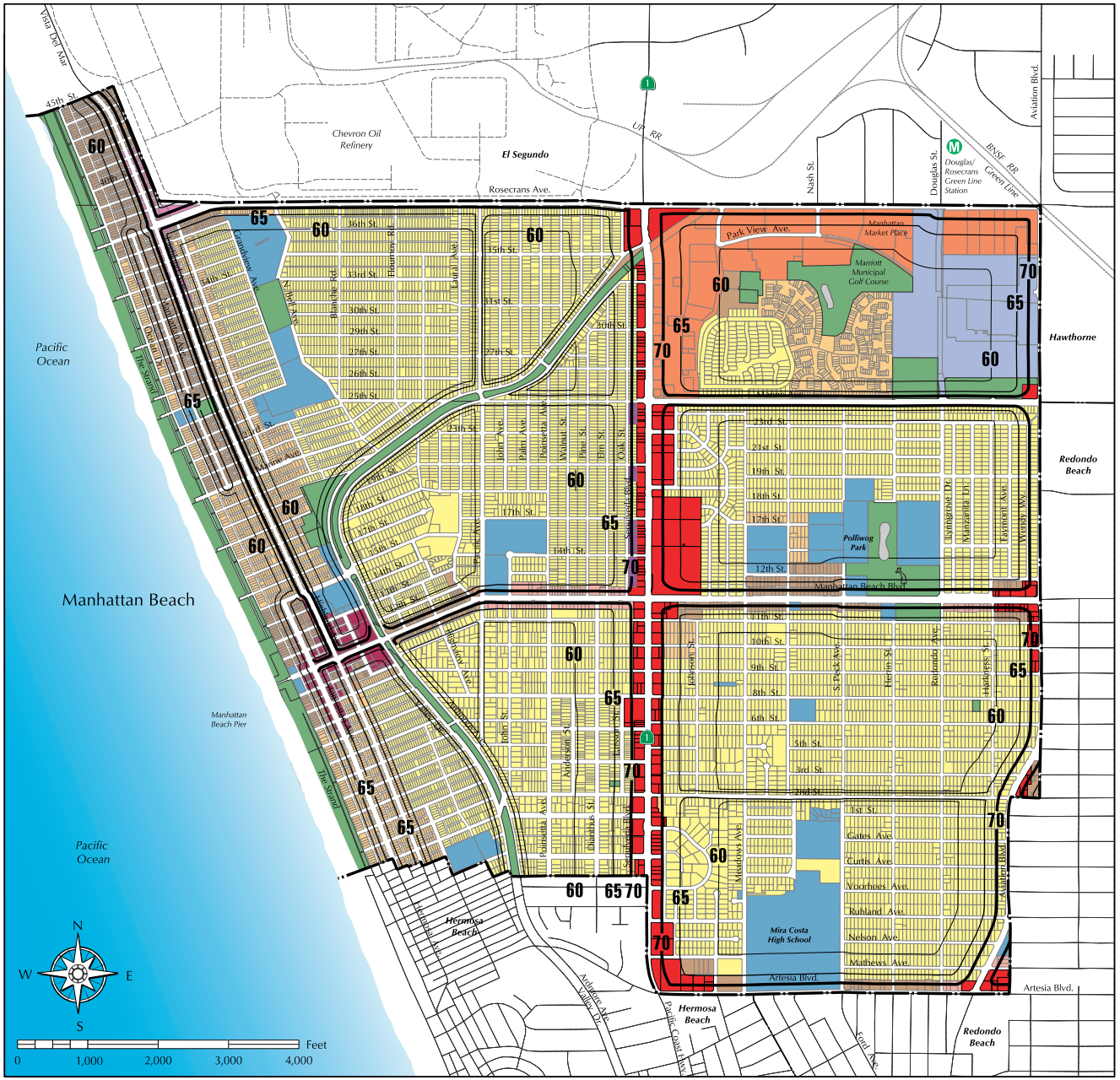
75+ dB
Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.

Normally Acceptable
Specified land use is satisfactory, based on the assumption that any buildings 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 noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.

Clearly Unacceptable
New construction or development should generally not be undertaken.



Source: 1986 Manhattan Beach General Plan.

Figure N-3

Future Noise Levels

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Goals and Policies

To control unnecessary, excessive, and annoying noise in Manhattan Beach, the City's policy is to maintain and preserve the quiet atmosphere of the City, to implement programs aimed at retaining ambient noise levels throughout the City, and to mitigate noise conflicts.

Goal N-1: Provide for measures to reduce noise impacts from transportation noise sources.

Policy Discussion

In Manhattan Beach, major transportation-related noise sources include Sepulveda Boulevard, and arterials and collectors such as Rosecrans Avenue, Aviation Boulevard, Artesia Boulevard, Marine Avenue, Manhattan Beach Boulevard, Manhattan Avenue, Highland Avenue, and Valley/Ardmore. Vehicular traffic along collector streets that traverse residential neighborhoods, such as Valley Drive/Ardmore Avenue, Highland Avenue, and Manhattan Avenue, also impacts residents living along these routes.

Policy N-1.1: Use proven methods of reducing the transmission of traffic noise onto adjacent noise-sensitive land uses (e.g., residences, schools, medical facilities).

Policy N-1.2: Ensure the inclusion of noise mitigation measures in the design of new roadway projects in Manhattan Beach.

Policy N-1.3: Reduce transportation noise through proper design and coordination of vehicle routing.

Policy Discussion

The Infrastructure Element establishes truck routes in the City where truck traffic is only permitted along regional and major arterial streets. Neighborhood traffic management tools are also to help reduce cut-through traffic in residential neighborhoods, thereby reducing undesirable traffic noise.

The Infrastructure Element identifies the Roadway Classifications, including designated truck routes.

Policy N-1.4: Ensure the effective enforcement of City, State, and Federal noise levels by all appropriate City divisions.

Policy N-1.5: Work with appropriate agencies to mitigate impacts from existing and proposed aviation operations.

Policy N-1.6: Work with surrounding jurisdictions and other agencies to mitigate noise impacts.

Policy Discussion

Intensification of development or land use changes that occur in neighboring jurisdictions may potentially degrade the ambient environment if transportation-related noise is increased.

Goal N-2: Incorporate noise considerations into land use planning decisions.

Policy Discussion

As a built-out community, land use patterns in Manhattan Beach are well-established; little opportunity exists to relocate noise-sensitive uses to areas of lower ambient noise levels. However, land use planning and development decisions in the future must take into consideration noise impacts. Other tools, such as neighborhood traffic management tools, may also be applied to redirect traffic and associated noise impacts from sensitive land uses.

Policy N-2.1: Establish acceptable limits of noise for various land uses throughout the community.

Policy N-2.2: Ensure acceptable noise levels near residences, schools, medical facilities, and other noise-sensitive areas.

Policy Discussion

The City adopted a Neighborhood Traffic Management Program that includes a menu of tools for mitigating neighborhood traffic intrusion issues, which will also serve to reduce transportation noise impacts in noise-sensitive areas.

See the Circulation Plan of the Infrastructure Element for discussion on Neighborhood Traffic Management Program.

Policy N-2.3: Establish standards for all types of noise not already governed by local ordinances or preempted by State or Federal law.

Policy N-2.4: Encourage acoustical design in new construction.

Policy N-2.5:	Require that the potential for noise be considered when approving new development to reduce the possibility of adverse effects related to noise generated by new development, as well as impacts from surrounding noise generators on the new development.
Policy N-2.6:	Work with businesses in surrounding jurisdictions to manage noise impacts on City residents and businesses.

Goal N-3: Minimize the impact of non-transportation noise sources.

Policy Discussion

The City adopted the Noise Ordinance (Ordinance No. 1957) that establishes exterior noise standards by land use and the maximum duration of time that the noise standards may be exceeded without being considered a nuisance punishable by law. The Noise Ordinance regulates a variety of noise generators, focusing primarily on non-transportation sources.

Policy N-3.1:	Monitor and update the Noise Ordinance to mitigate noise conflicts.
Policy N-3.2:	Enforce the Noise Ordinance.
Policy N-3.3:	Minimize impacts associated with single-event noise activities.
Policy N-3.4:	Recognize in the Noise Ordinance that nighttime noise levels create a greater sensitivity than do daytime noise levels.
Policy N-3.5:	Encourage jurisdictions, including cities, and other agencies to require compliance with the City of Manhattan Beach Noise Ordinance where activities affect Manhattan Beach residents and businesses.

Policy Discussion

Commercial establishments and heavy industrial operations such as the power plant in El Segundo generate noise that impacts our residents and businesses.

Policy N-3.6: Monitor and minimize noise impacts associated with construction activities on residential neighborhoods.

Policy Discussion

As a highly desirable community in which to live, Manhattan Beach experiences constant demolition and construction activities in residential neighborhoods. With the compact development pattern in this community, construction activities are often concentrated and pose more significant impacts on the neighborhoods than would be in communities where developments are more spread out.

Chapter 5.48 - NOISE REGULATIONS

Sections:

5.48.010 - Declaration of policy.

In order to control unnecessary, excessive, and annoying noise in the City of Manhattan Beach, it is hereby declared to be the policy of the City to prohibit such noise generated from or by all sources as specified in this ordinance.

It shall be the policy of the City to maintain and preserve the quiet atmosphere of the City, to implement programs aimed at retaining ambient noise levels throughout the City, and to mitigate noise conflicts. It is determined that certain noise levels are detrimental to the public health, welfare and safety, and are contrary to the public interest. Therefore, creating, maintaining, causing, or allowing to be created, caused, or maintained, any noise in a manner prohibited by the provisions of this chapter is a public nuisance and shall be punishable as such.

(Ord. 1875, eff. June 3, 1993, as amended by § 6, Ord. 1957, eff. December 5, 1996)

5.48.020 - Definitions.

Unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined in this section.

All terminology used in this chapter not defined below shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body. The following words, phrases, and terms as used in this chapter shall have the meanings as follows:

"Ambient noise" means the composite of all noise from sources near and far, excluding the alleged intrusive noise source. The ambient noise constitutes the normal or existing level of environmental noise at a given location.

"Amplified sound" means any increase of sound above ambient noise levels by the use of electronic equipment.

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

"Commercial property" means a parcel of real property which is zoned and used entirely, or partially, for commercial purposes.

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

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

"Decibel" means a unit for measuring the amplitude of noise, equal to twenty (20) times the logarithm to the base of ten (10) the ratio of the pressure of the noise measured to the referenced pressure, which is twenty (20) micropascals.

"Dominant noise source" means the most significant source of noise at a given location which is identifiable by the officer.

"Emergency" means any occurrence or set of circumstances involving actual or imminent physical trauma or property damage which demands immediate action.

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

"Equivalent noise level (LEE)" means the constant noise level that, in a given situation and time period, contains, the same acoustic energy as the actual time-varying A-weighted noise level.

"Fixed noise source" means a stationary device which creates noise while in a fixed or stationary position including, but not limited to, industrial and commercial machinery and equipment, pumps, fan compressors, generators, air conditioners, and refrigeration equipment.

"Impulsive noise" means a noise of short duration usually of high intensity with an abrupt onset and rapid decay. Impulsive noise sources include but are not limited to impact wrenches, pneumatic hammers, hammering devices, explosions, fire arms and other similar noise sources.

"Industrial property" means a parcel of real property which is zoned and used entirely for industrial purposes.

"Intrusive noise" means that alleged offensive noise which exceeds the existing ambient noise at a given location.

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

"Noise" means an unwanted sound which is generally random in nature.

"Noise disturbance" means any noise which, as judged by a City employee or contractor that annoys or disturbs a reasonable person or exceeds the standard set forth in this chapter. Compliance with the quantitative standards as listed herein shall constitute elimination of a noise disturbance.

"Noise level" means the sound pressure level as measured with a sound level meter.

"Noise level (LNG)" means that noise level expressed in decibels which exceeds the specified (LNG) value as a percentage of total time measured. For instance, an L25 noise level means that noise level which is exceeded twenty-five percent (25%) of the time measured.

"Person" means any individual, firm, association, partnership, joint venture or corporation and includes any officer, employee, department, agency, or instrumentality of a State or political subdivision of a State.

"Pitch" means the frequency of a noise.

"Public right-of-way" means any street, parkway, trail, public way, sidewalk, bike path, or alley or similar place which is owned or controlled by a governmental entity.

"Pure tone" means any noise which is judged as audible as a single pitch or a set of single pitches. Pure tones include, but are not limited to, noise from whistles, bells, fans and other mechanical devices that emit audible tones.

"Real property boundary" means an imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one (1) person from that owned by another person or a public right-of-way.

"Residential property" means a parcel of real property which is zoned and used either in part or in whole for residential purposes.

"Sound" means a pressure oscillation in air which is capable of evoking the sensation of hearing.

"Sound amplifying equipment" means any device for the amplification of the human voice, music, or any other sound, excluding automobile radios when used and heard only by the occupants of the vehicle in which the radio is installed, and, as used in this chapter, warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

"Sound level meter" means an instrument, including a microphone, amplifier, output meter, and frequency weighing networks for the measurement of noise levels, which satisfies the requirements pertinent for Type 2A meters in American National Standards Institute specifications for sound level meters, S1.4-1983, or the most recent revision thereof.

"Sound truck" means any motor vehicle, or any other vehicle, except public health and safety vehicles, regardless of motive power, whether in motion or stationary, having mounted thereon or attached thereto any sound amplifying equipment.

"Weekday" means any day, Monday through Friday, which is not a City-specified holiday.

(Ord. 1875, eff. June 3, 1993, as amended by § 6, Ord. 1957, eff. December 5, 1996)

5.48.030 - Purpose and applicability.

No person shall unnecessarily make, continue, or cause to be made or continued, any noise disturbance. The following actions, and the causing or permitting thereof, are prohibited and are declared to be in violation of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.040 - Street sales.

A. It is prohibited for any person to offer for sale, selling anything, or advertise by shouting or outcry within any area of the City. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food, and beverages at licensed sporting events, parades, fairs, circuses, or other similar licensed public entertainment events.
B. It is prohibited for any person to operate a horn or bell or similar signaling device on a lunch truck within a residential area.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.050 - Animals and fowl.

Any animal or fowl which emanates sound or outcry in an excessive, continuous, or untimely fashion, shall be considered a public nuisance and is subject to Section 5.01.280 of this title.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.060 - Reserved.

Editor's note— Ord. No. 16-0020, § 2, eff. November 19, 2016 repealed § 5.48.060. Former § 5.48.060 pertained to construction prohibitions and derived from Ord. 1957, eff. December 5, 1996; Ord. 2004, eff. August 5, 1999; and Ord. 2079, eff. January 6, 2006.

5.48.080 - Stationary non-emergency signaling devices.

A. It is prohibited for any person to intentionally sound or permit the sounding outdoors of any electronically-ampli from any stationary bell, chime, siren, whistle, or similar device intended primarily for non-emergency purposes, place, for more than fifteen (15) seconds in any hour.

B. It is prohibited for any person to operate or permit the operation of a horn or bell or any other signaling device on a parking lot sweeper.

C. Church bells and chimes sounding at a church site shall be exempt from the provisions of this section.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.090 - Emergency signaling devices.

A. It is prohibited for any person to intentionally sound or permit the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as provided in subsection B of this section.

B. The testing of a stationary emergency signaling device shall not occur except between 7:00 a.m. and 7:00 p.m. Any such testing shall only use the minimum cycle test time. In no case shall such test time exceed sixty (60) seconds. The testing of the complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month.

C. It is prohibited for any person to sound or permit the sounding of any exterior audible burglar or fire alarm or any motor vehicle burglar alarm unless such alarm is automatically terminated within fifteen (15) minutes after activation.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.100 - Domestic power tools.

A. It is prohibited for any person to operate or permit the operation of any power saw, sander, drill, grinder, or similar tool, or pneumatic or other air-powered tool, except between 7:30 a.m. and 10:00 p.m. so as to be audible at or beyond the property line where the tool is located.

B. It is prohibited for any person to operate, or permit the operation of any internal combustion-powered lawn mower or other power-operated lawn maintenance tool within the City, except during the hours of 8:00 a.m. to 8:00 p.m., Monday through Friday, and except during the hours of 9:00 a.m. to 8:00 p.m. on Saturday, Sunday, and City-specified holidays, or as provided by Sections 5.48.275 and 5.48.330 of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996, as amended by § 3, Ord. 1986, eff. October 15, 1998)

5.48.110 - Refuse collection vehicles.

It is prohibited for any person to operate any refuse collection vehicle except between the hours of 7:30 a.m. and 6:00 p.m. in a residential area; except that the City's refuse collection contractor shall be permitted to operate during the hours specified in the City-approved contract, provided that noise levels do not exceed the exterior noise standards described in Section 5.48.160 of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.120 - Amplified sounds—Electronic devices.

It is prohibited for any person to permit the transmission of, or cause to be transmitted, any amplified sound on any public street, sidewalk, alley, right-of-way, park, or any other public place or property which sound is audible at fifty feet (50'). This section shall not apply to any noncommercial public speaking, public assembly, or other activity for which a permit has been issued.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.130 - Amplified sound on public property.

It shall be prohibited for any person, other than personnel of law enforcement and government agencies, to permit the transmission of, or cause to be transmitted, any amplified sound on any public street, sidewalk, alley, right-of-way, park, or any other public place or property, without first filing an application and obtaining a permit as set forth in this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.140 - Noise disturbances.

A. Notwithstanding any other provisions of this chapter and in addition thereto, it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness. The standard which may be considered in determining whether a violation of the provisions of this section exists may 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 and intensity of the background noise if any;
    5. The proximity of the noise to residential sleeping facilities;
    6. The nature and zoning of the area within which the noise emanates;
    7. The density of the inhabitation of the area within which the noise emanates;
    8. The time of the day and night the noise occurs;
    9. The duration of the noise;
    10. Whether the noise is recurrent, intermittent or constant;
    11. Whether the noise is produced by a commercial or noncommercial entity;
    12. Whether the noise occurs on a weekday, weekend, or holiday.
B. The City may issue a citation against the person, persons, or entity responsible for the noise including, but not limited to, the property owner or business operator on whose premises the noise originates.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.150 - Amplified sound permits.

Every user of sound amplifying equipment on public or private property shall file an application with the Chief of Police at least ten (10) days prior to the date on which the sound amplifying equipment is to be used.

A. **Restrictions.** The commercial and non-commercial use of sound amplifying equipment shall be subject to the following restrictions:

1. The only sounds permitted shall be either music or human speech, or both.
2. The operation of sound amplifying equipment shall occur only between the hours of:

8:00 a.m. through 8:00 p.m. Monday through Thursday;

8:00 a.m. through 11:00 p.m. Friday;

10:00 a.m. through 11:00 p.m. Saturday;

10:00 a.m. through 8:00 p.m. Sunday and City specified holidays.

Exempt from these hours of operation are those activities which are authorized by the City of Manhattan Beach or the public school districts serving the residents of the City, including the use of the Civic Center facilities, athletic fields and courts, community centers, and the conduct of City approved special events.

3. Notwithstanding the provisions of this chapter, sound amplifying equipment shall not be operated within one hundred (100') feet of churches, schools during school hours, hospitals, or City buildings during normal business hours.
4. Individuals or locations may only be granted up to two amplified sound permits in any one calendar year.

B. **Contents of the Application.**

1 The name, address, and phone number of both the owner and the user of the sound amplifying equipment;

2. The address where the sound amplifying equipment will be used;
3. The dates and times the sound amplifying equipment will be used;
4. The maximum sound producing power of the sound amplifying equipment which shall include the wattage to be used, the volume in decibels of sound which will be produced, and the approximate distance for which sound will be audible from the sound amplifying equipment;
5. The license and motor number if a sound truck is to be used;
6. A general description of the sound amplifying equipment which is to be used;
7. Whether the sound amplifying equipment will be used for commercial or non-commercial purposes;

C. **Fees.** Prior to the issuance of the permit, a fee established by the City Council shall be paid to the City.

D. **Approval of Permit.** The Chief of Police or his designee shall approve the application unless he finds that:

1. Use of the equipment would constitute a detriment to traffic safety;
2. The issuance of the permit would be otherwise detrimental to the public health, safety or welfare;
3. The issuance of the permit will substantially interfere with the peace and quiet of the neighborhood or the community;
4. The applicant would violate the provisions of this Code or any other law.

E. **Disapproval of Permit.** In the event the permit application is declined, the Chief of Police or his designee shall state the reason(s) for disapproval and return the written disapproval to the applicant.

F. **Right of Appeal.** Any person whose permit application is disapproved may appeal to the City Council within ten (10) calendar days from the date of notification of decision.

(§ 6, Ord. 1957, eff. December 5, 1996, as amended by § 2, Ord. 2107, eff. November 16, 2007)

5.48.160 - Exterior noise standards.

A. The following exterior noise level standards unless otherwise specifically indicated, shall apply to all receptor properties within a designated noise zone. The LEE method (Table 6) or the LNG method (Tables 1 through 5) may be utilized at the option of the investigating City employee or contractor.

B. Unless otherwise herein provided, no person shall operate or cause to be operated, any source of noise at any location within the City, or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on any other property to exceed the standards in Tables 1 through 6 of this section.

Table 1

Exterior noise standard which may not be exceeded for a cumulative period of more than thirty (30) minutes in any hour—L50

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	50 dB
	10:00 p.m.—7:00 a.m.	45
Commercial	7:00 a.m.—10:00 p.m.	65
	10:00 p.m.—7:00 a.m.	60
Industrial	7:00 a.m.—10:00 p.m.	70
	10:00 p.m.—7:00 a.m.	70

If the thirty (30) minute per hour ambient level (L50) exceeds the level in Table 1, then the ambient L50 becomes the exterior noise standard which may not be exceeded for a cumulative period of more than thirty (30) minutes in any hour.

Table 2

Exterior noise standard which may not be exceeded for a cumulative period of more than fifteen (15) minutes in any hour—L25

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	55 dB
	10:00 p.m.—7:00 a.m.	50

Commercial	7:00 a.m.—10:00 p.m.	70
	10:00 p.m.—7:00 a.m.	65
Industrial	7:00 a.m.—10:00 p.m.	75
	10:00 p.m.—7:00 a.m.	75

If the fifteen (15) minute per hour ambient level (L25) exceeds the level in Table 2, then the ambient L25 becomes the exterior noise standard which may not be exceeded for a cumulative period of more than fifteen (15) minutes in any hour.

Table 3

Exterior noise standard which may not be exceeded for a cumulative period of more than five (5) minutes in any hour—L8

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	60 dB
	10:00 p.m.—7:00 a.m.	55
Commercial	7:00 a.m.—10:00 p.m.	75
	10:00 p.m.—7:00 a.m.	70
Industrial	7:00 a.m.—10:00 p.m.	80
	10:00 p.m.—7:00 a.m.	80

If the five (5) minute per hour ambient level (L8) exceeds the level in Table 3, then the ambient L8 becomes the exterior noise standard which may not be exceeded for a cumulative period of more than five (5) minutes in any hour.

Table 4

Exterior noise standard which may not be exceeded for a cumulative period of more than one (1) minute in any hour —L2

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	65 dB
	10:00 p.m.—7:00 a.m.	60
Commercial	7:00 a.m.—10:00 p.m.	80
	10:00 p.m.—7:00 a.m.	75
Industrial	7:00 a.m.—10:00 p.m.	85
	10:00 p.m.—7:00 a.m.	85

If the one (1) minute per hour ambient level (L2) exceeds the level in Table 4, then the ambient L2 becomes the exterior noise standard which may not be exceeded for a cumulative period of more than one (1) minute in any hour.

Table 5

Exterior noise standard which may not be exceeded for any period of time—L0

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	70 dB
	10:00 p.m.—7:00 a.m.	65
Commercial	7:00 a.m.—10:00 p.m.	85
	10:00 p.m.—7:00 a.m.	80
Industrial	7:00 a.m.—10:00 p.m.	90
	10:00 p.m.—7:00 a.m.	90

If the maximum ambient noise level (L0) exceeds the level in Table 5, then the ambient L0 becomes the exterior noise standard which may not be exceeded for any period of time.

Table 6

Exterior equivalent noise standard—LEE

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
Residential	7:00 a.m.—10:00 p.m.	55 dB
	10:00 p.m.—7:00 a.m.	50
Commercial	7:00 a.m.—10:00 p.m.	70
	10:00 p.m.—7:00 a.m.	65
Industrial	7:00 a.m.—10:00 p.m.	75
	10:00 p.m.—7:00 a.m.	75

If the ambient LEE exceeds the level in Table 6, then the ambient LEE becomes the exterior noise standard.

C. The ambient noise shall be measured at the same location as the measurement of the alleged intrusive noise with the alleged intrusive noise source not operating. If the operator of the alleged intrusive noise source cannot or will not stop the operation of the alleged noise source then the total noise level measured by the City employee or City's contractor shall be considered to be the alleged intrusive noise if in the opinion of the officer the alleged intrusive noise is the dominant noise sources at the measurement location.

D. If the ambient noise level is measured by stopping the operation of the alleged intrusive noise source, then the alleged intrusive noise source shall be determined by subtracting a value from the total noise level measured at the same location with the alleged intrusive noise source in operation. The values in the following table shall be utilized to determine the intrusive noise level based on the amount by which the noise level decreases when the noise source is turned off.

Noise Level Decrease with Noise Source Off	Value to Subtract from Total Noise Level to Obtain Intrusive Noise Level
0	10 dB
1	7
2	4
3	3
4—5	2

6—9	1
10 or more	0

E. Correction for Character of Sound. For any source of noise which emits a pure tone or contains impulsive noise, the noise standards as set forth in this section shall be reduced by five (5) dB. Examples of impulsive noise include fire alarms, hammering operations, impact wrenches, and other mechanical devices that produce noise levels with a quick onset and delay. Examples of pure tone noises include whistles, bells, and other mechanical devices that emit a tone that is distinguishable by the City employee or contractor.

F. If the measurement location is on a boundary between two (2) different land use classifications, the noise level limit applicable to the more restrictive land use classification plus five (5) dB, shall apply.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.170 - Interior noise standards.

A. The following interior noise levels for common wall residential dwellings shall apply, unless otherwise specifically indicated, with windows open or closed.

1. Prohibition. No person shall operate or cause to be operated within a dwelling unit, any source of sound or allow the creation of any noise which causes the noise level when measured inside a neighboring receiving dwelling unit within the same building to exceed the standards in Table 7 through 9 of this section.

Table 7

Interior noise standard which may not be exceeded for a cumulative period of more than five minutes in any hour—L8.

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
All	7:00 a.m.—10:00 p.m.	45 dB
	10:00 p.m.—7:00 a.m.	40

If the five (5) minutes per hour ambient level (L8) exceeds the level in Table 7, then the ambient L8 becomes the interior noise standard which may not be exceeded for a cumulative period of more than five (5) minutes in any hour.

Table 8

Interior noise standard which may not be exceeded for a cumulative period of more than one minute in any hour—L1.

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
All	7:00 a.m.—10:00 p.m.	50 dB
	10:00 p.m.—7:00 a.m.	45

If the one (1) minute per hour ambient level (L2) exceeds the level in Table 8, then the ambient L2 becomes the interior noise standard which may not be exceeded for a cumulative period of more than one (1) minute in any hour.

Table 9

Interior noise standard which may not be exceeded for any period of time—L0

Designated Land Use or Zoning Classification	Time of Day	Exterior A-Weighted Noise Level
All	7:00 a.m.—10:00 p.m.	55 dB
	10:00 p.m.—7:00 a.m.	50

If the maximum ambient noise level (L0) exceeds the level in Table 9, then the ambient L0 becomes the interior noise standard which may not be exceeded for any period of time.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.180 - Emergency exemptions.

The emission of noise for the purpose of alerting persons to the existence of an emergency or the emission of noises in the performance of emergency work is exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.190 - Warning devices.

Warning devices necessary for the protection of public safety, as for example fire, police, and ambulance sirens, including the testing of such devices, are exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.200 - Outdoor activities.

Permitted activities conducted on public playgrounds and public or private school grounds including but not limited to school athletic and entertainment events are exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.210 - Trash collection activities.

All trash collection activities in residential areas within the City are exempted from the provisions of this chapter except as prohibited in Section 5.48.110. Trash collection activities in commercial areas, except City contracted services are not exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.220 - Public works activities.

Public works activities, City maintenance projects and city street projects are exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.230 - Public utilities.

Public utilities operating under the authority of the Public Utilities Commission are exempted from the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.240 - Residential lawn maintenance activities.

Residential lawn and garden maintenance activities are exempted from the provisions of this chapter except as prohibited in Sections 5.48.100 and 5.48.330.

(§ 6, Ord. 1957, eff. December 5, 1996, as amended by § 3, Ord. 1986, eff. October 15, 1998)

5.48.250 - Construction activity.

Construction activity as defined in Section 9.44.010 is exempt from the provisions of this chapter except as provided in Chapter 9.44.

(§ 6, Ord. 1957, eff. December 5, 1996; § 4, Ord. No. 16-0020, eff. November 19, 2016)

5.48.260 - Public service activities.

Activities required for operations, maintenance, and employee training which are initiated by the City of Manhattan Beach.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.270 - Animals and fowl.

Noises emanating from animals and fowl are exempted from the provisions of this chapter except as prohibited in Section 5.48.050.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.275 - Landscaping maintenance plans.

All landscape maintenance activities (including steam-cleaning) for a site over five (5) acres which are expressly permitted by a landscaping maintenance plan which has been approved by the Director of Community Development are exempted from the provisions of this chapter except for the provisions of Section 5.48.330 of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996, as amended by § 3, Ord. 1986, eff. October 15, 1998)

5.48.280 - Investigations.

Upon the receipt of a complaint, a City employee or City's agent equipped with a sound level meter may investigate the complaint. The investigation, at the discretion of the City employee or City's contractor shall consist of a measurement and the gathering of data to adequately define the noise problem and may include, but not be limited to, the following:

A. The type of the noise source;
B. The location of the noise source relative to the complainant's property;
C. The time period during which the noise source is considered by the complainant to be intrusive;
D. The total duration of the noise produced by the noise source; and
E. The date and time of the noise measurement survey if one is conducted.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.290 - Sound level meter and measurement locations.

A. The A-weighting scale shall be used. The sound level meter shall be mounted on a tripod and noise level shall be measured at a position or positions along the complainant's property line closest to the noise source or at the location along the boundary line where the noise level is at a maximum.

An alternate location may be utilized within the property of the complainant if in the opinion of the City employee or agent, the intrusive noise is greater at that location.

B. The microphone shall be located at a minimum of five feet (5') above the ground, ten feet (10') or more from the nearest large reflective surface (other than the ground) where possible. However, in those cases where another elevation is deemed appropriate by the City employee or City's agent the latter may be utilized.
C. If the noise complaint is related to interior noise levels, interior noise measurements may be made within the affected residential unit. The measurement shall be made at a point at least four feet (4') from the wall, ceiling, or floor nearest the noise source with the windows open or closed at the option of the unit occupant.
D. The sound level meter shall be calibrated prior to measurement following the meter manufacturer's recommendations with an acoustical calibrator or a piston phone calibrator. Single-tone calibrators operating at one thousand (1,000) Hz shall be acceptable. The sound level meter shall be calibrated following any measurement period. Any measurements made between two (2) subsequent calibration checks that differ by more than one (1) dB shall not be considered valid.

E. A windscreen shall be utilized with the sound level meter in accordance with the meter manufacturer's recomme No noise measurements shall be made during periods in which the steady wind speed exceeds twelve (12) mph. measurements shall be made during periods of precipitation.

F. The receiving microphone shall be oriented with respect to the noise source in accordance with the recommendations of the manufacturer of the sound level meter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.300 - Prima facie violation.

Any noise exceeding the noise level limits for a designated noise zone as specified in this chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.310 - Reserved.

Editor's note— Ord. No. 16-0020, § 3, eff. November 19, 2016 repealed § 5.48.310. Former § 5.48.310 pertained to penalties for violations of noise regulations and derived from Ord. 1957, eff. December 5, 1996.

5.48.320 - Additional remedy.

The operation or maintenance of any device, instrument, vehicle, or machinery in violation of any provision of this chapter which causes or creates noise levels exceeding the allowable limits as specified, shall be deemed a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction. Additionally, no provision of this chapter shall be construed to impair any common law or statutory cause of action, or legal remedy therefrom, of any person from injury or damage arising from any violation of this chapter or from other law.

(§ 6, Ord. 1957, eff. December 5, 1996)

5.48.330 - Mechanical blowers.

A. **Defined.** Whenever used in this Code, the words "mechanical blower" shall refer to a portable device which is used, designed or operated to produce a current of air by mechanical, electrical or other means to push, propel or blow dirt, dust, leaves, grass clippings, trimmings, cuttings, refuse or debris.

B. **Prohibited.** Use of mechanical blowers for any purpose shall be prohibited.

C. **Enforcement.** Violation of this section shall be punishable as described in Chapter 1.04 of this Code.

(§ 6, Ord. 1957, eff. December 5, 1996, as amended by § 2, Ord. 1986, eff. October 15, 1998, and § 1, Ord. 2153, eff. October 20, 2011)

5.48.340 - Prohibition of parties for which admission is charged or attendance solicited.

It shall be unlawful to conduct or hold in any residence any party, dance or other social gathering at which live or recorded music is provided, which is open to the general public and: (1) for which admission is charged, or (2) for which brochures, posters, or handbills are posted or distributed in any way or any other type of advertising is published or broadcast, or (3) for which a charge is made for refreshments. This section shall not apply to functions organized by an

organization qualified as tax exempt under 26 USC Section 501 or a Political Action Committee ("PAC") or Campaign Committee as defined in State or federal law for a charitable, religious or political purpose. Violation of this section shall be punishable as a misdemeanor.

(§ 2, Ord. 2092, eff. November 3, 2006)

9.44.030 - Construction hours and prohibited days.

A. Construction activity shall occur only between 7:30 a.m. and 6:00 p.m. on weekdays, and between 9:00 a.m. to 6:00 p.m. on Saturdays.

B. There shall be no construction activity on Sundays or on City-recognized holidays, including the following:

1. New Year's Day.
2. Martin Luther King Jr's Day.
3. Presidents' Day.
4. Memorial Day.
5. Independence Day.
6. Labor Day.
7. Columbus Day.
8. Veterans Day.
9. Thanksgiving Day..
10. Friday after Thanksgiving.
11. Christmas Day.

C. The presence of workers or delivery trucks at the site of construction, even if no actual work or unloading is being done, constitutes construction activity for purposes of this section.

D. The presence of equipment, tools or supplies, vehicles being started, idled or unloaded and loud talking at the site of construction activity constitutes construction activity for purposes of this section.

E. In connection with any project that requires a discretionary permit, the Planning Commission or City Council may impose more restrictive hours of construction.

F. The City Council or Director may modify construction hours as follows:

1. Director authorization. Upon request, the Director may modify the hours for interior construction activity on commercial property under limited circumstances. The Director shall consider the noise disturbance criteria listed in Section 5.48.140 in determining whether to modify the hours. The Director may impose conditions to mitigate or eliminate any potential adverse impacts arising from the activities and shall provide prior notice to persons and businesses in the vicinity, at the owner's expense. The Director shall notify the Council of the decision at the next City Council meeting. The Director may forward a request to the City Council for its consideration.
2. Council authorization. Upon request, the City Council may modify the hours for construction activity under limited circumstances. The Council shall consider the noise disturbance criteria listed in Section 5.48.140 in determining whether to modify the

hours. The Council may impose conditions to mitigate or eliminate any potential adverse impacts arising from the activities and shall provide prior notice to persons and businesses in the vicinity, at the owner's expense.

G. Exceptions.

1. An owner-builder who resides on the property while that property is under construction may perform construction activity between the hours of 9:00 a.m. and 6:00 p.m. on Sundays and City-recognized holidays; provided, however, that no subcontractors perform any work on Sundays or City-recognized holidays.
2. In the case of an emergency, the Building Official may authorize construction activity at times other than the hours specified in subsection A and on Sundays and City recognized holidays. For the purpose of this subsection 2, an emergency is defined as substantial property damage or a threat to the public health or safety. Such authority shall lapse once the site and structure(s) are safe. The Building Official may require the permitee to notify affected residents.

(§ 1, Ord. 16-0020, eff. November 19, 2016)

CONSTRUCTION MODELING DATA

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/16/2019
Case Description: MBUS-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Asphalt Demo	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	200.0	0.0
Excavator	No	40		80.7	200.0	0.0
Excavator	No	40		80.7	200.0	0.0
Dozer	No	40		81.7	200.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	77.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	68.7	64.7	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	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.6	65.6	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	77.5	73.2	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: 05/16/2019
Case Description: MBUS-03

**** 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)
Excavator	No	40		80.7	200.0	0.0
Grader	No	40	85.0		200.0	0.0
Dozer	No	40		81.7	200.0	0.0
Tractor	No	40	84.0		200.0	0.0
Front End Loader	No	40		79.1	200.0	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
Excavator	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	73.0	69.0	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	69.6	65.6	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	72.0	68.0	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	67.1	63.1	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	73.0	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

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/16/2019
Case Description: MBUS-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Utility Trenching	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Excavator	No	40	80.7	200.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	68.7	64.7	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	68.7	64.7	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: 05/16/2019
Case Description: MBUS-03

**** 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)
Crane	No	16		80.6	200.0	0.0
Man Lift	No	20		74.7	200.0	0.0
Man Lift	No	20		74.7	200.0	0.0
Generator	No	50		80.6	200.0	0.0
Tractor	No	40	84.0		200.0	0.0
Front End Loader	No	40		79.1	200.0	0.0
Welder / Torch	No	40		74.0	200.0	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
Crane	68.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	62.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	62.7	55.7	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	68.6	65.6	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	72.0	68.0	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	67.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	62.0	58.0	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	72.0	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/16/2019
Case Description: MBUS-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Portable Removal	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20	89.6	200.0		0.0
Excavator	No	40	80.7	200.0		0.0
Excavator	No	40	80.7	200.0		0.0
Dozer	No	40	81.7	200.0		0.0
Dozer	No	40	81.7	200.0		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
Concrete Saw	77.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	68.7	64.7	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	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.6	65.6	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	69.6	65.6	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	77.5	73.9	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: 05/16/2019
Case Description: MBUS-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Asphalt Paving/Hardcourts	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	200.0	0.0
Paver	No	50		77.2	200.0	0.0
Pavement Scarafier	No	20		89.5	200.0	0.0
Pavement Scarafier	No	20		89.5	200.0	0.0
Roller	No	20		80.0	200.0	0.0
Roller	No	20		80.0	200.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Noise Limits (dBA) Day Leq	Noise Limits (dBA) Evening Lmax	Noise Limits (dBA) Evening Leq	Noise Limits (dBA) Night Lmax	Noise Limits (dBA) Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Noise Limit Exceedance (dBA) Day Leq	Noise Limit Exceedance (dBA) Evening Lmax	Noise Limit Exceedance (dBA) Evening Leq	Noise Limit Exceedance (dBA) Night Lmax	Noise Limit Exceedance (dBA) Night Leq
Paver	65.2	62.2	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	65.2	62.2	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	77.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	77.5	70.5	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	68.0	61.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	68.0	61.0	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	77.5	74.5	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: 05/16/2019
Case Description: MBUS-03

**** 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	200.0	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
Compressor (air)	65.6	61.6	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	65.6	61.6	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: 05/16/2019
Case Description: MBUS-03

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Portable Removal	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	40.0	0.0
Excavator	No	40		80.7	40.0	0.0
Excavator	No	40		80.7	40.0	0.0
Dozer	No	40		81.7	40.0	0.0
Dozer	No	40		81.7	40.0	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
Concrete Saw	91.5	84.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	82.6	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
Excavator	82.6	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
Dozer	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	91.5	87.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TRAFFIC DATA

Traffic Noise Increase Table - AM Peak Hour Volumes

Segment	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase
Highland Ave - North of 24th St	1181	1197	1228	1244	0.06	0.23
Highland Ave - South of 24th St	1126	1126	1192	1192	0.00	0.25
24th St - East of Highland Ave	95	111	78	94	0.68	-0.05
24th St - West of Highland Ave	0	0	0	0	0.00	0.00
Highland Ave - North of Marine Ave	1119	1119	1185	1185	0.00	0.25
Highland Ave - South of Marine Ave	1336	1344	1397	1405	0.03	0.22
Marine Ave - East of Highland Ave	254	262	252	260	0.13	0.10
Marine Ave - West of Highland Ave	273	273	282	282	0.00	0.14
Vista Dr - North of 24th Ave	53	57	50	54	0.32	0.08
Vista Dr - South of 24th Ave NA	43	55	29	41	1.07	-0.21
24th St - East of Vista Dr	229	261	195	227	0.57	-0.04
24th St - West of Vista Dr	197	213	182	198	0.34	0.02
Manor Dr - North of 24t St	175	175	181	181	0.00	0.15
Manor Dr - South of 24th St	47	47	48	48	0.00	0.09
24th St - East of Manor Dr	198	230	163	195	0.65	-0.07
24th St - West of Manor Dr	174	206	138	170	0.73	-0.10
Bell Ave - North of 27th St	10	18	0	8	2.55	-0.97
Bell Ave - South of 27th St	175	246	66	137	1.48	-1.06
27th St - East of Bell Ave	144	207	66	129	1.58	-0.48
27th St - West of Bell Ave	21	21	0	0	0.00	0.00
Bell Ave - North of 26th St	257	345	0	88	1.28	-4.65
Bell Ave - South of 26th St	231	319	5	93	1.40	-3.95
26th St - East of Bell Ave	36	36	5	5	0.00	-8.57
26th St - West of Bell Ave	0	0	0	0	0.00	0.00
Blanche Rd - North of Rosecrans Ave	0	0	0	0	0.00	0.00
Blanche Rd - South of Rosecrans Ave	457	491	425	459	0.31	0.02
Rosecrance Ave - East of Blanche Rd	1563	1579	1703	1719	0.04	0.41
Rosecrance Ave - West of Blanche Rd	1620	1638	1758	1776	0.05	0.40
Blanche Rd - North of 27th Ave	501	556	445	500	0.45	-0.01
Blanche Rd - South of 27th St	387	387	399	399	0.00	0.13
27th St - East of Blanche Rd	55	63	45	53	0.59	-0.16
27th St - West of Blanche Rd	151	214	73	136	1.51	-0.45

Traffic Noise Increase Table - AM Peak Hour Volumes

Blanche Rd - North of Bell Ave	233	321	126	214	1.39	-0.37
Blanche Rd - South of Bell Ave	574	662	478	566	0.62	-0.06
Bell Ave - East of Blanche Rd	356	356	367	367	0.00	0.13
Blanche Rd - North of 25th St	574	662	478	566	0.62	-0.06
Blanche Rd - South of 25th St	565	645	479	559	0.58	-0.05
25th St - East of Blanche Rd	67	75	59	67	0.49	0.00
Blanche Rd - North of 24th St	558	638	472	552	0.58	-0.05
Blanche Rd - South of 24th St	491	539	444	492	0.41	0.01
24th St - East of Blanche Rd	0	0	0	0	0.00	0.00
24th St - West of Blanche Rd	203	235	0	200	0.64	-0.06
Blanche Rd - North of Marine Ave	484	532	437	485	0.41	0.01
Blanche Rd - South of Marine Ave	591	607	588	604	0.12	0.09
Marine Ave - East of Blanche Rd	98	106	91	99	0.34	0.04
Marine Ave - West of Blanche Rd	357	381	338	362	0.28	0.06