2.4 Noise

This noise section identifies, describes, and evaluates noise sources and potential noise conflicts associated with the project. This section analyzes the noise impacts generated by the project, including short-term construction impacts, ground vibration and long-term operational impacts, and determines whether the project would result in perceptible or significant increases in noise levels. Additionally, this section analyzes the noise compatibility of the project site with surrounding land uses for any potential impacts.

The noise section is based on the *Lake Jennings Market Place Acoustical and Ground Vibration Site Assessment*, prepared by Investigative Science and Engineering, Inc. (ISE) (2015a). The complete study is included as Appendix H of the Draft EIR.

2.4.1 Existing Conditions

Ambient noise in the vicinity of the project site is generated by traffic on Interstate 8 (I-8) to the north of the project site and on local roadways.

2.4.1.1 Regulatory Setting

Traffic-Generated Noise

Noise standards applicable to traffic-generated noise are expressed in terms of the community noise equivalent level (CNEL). The CNEL is a 24-hour A-weighted average sound level [dB(A) L_{eq}] from midnight to midnight obtained after the addition of 5 decibels (dB) to sound levels occurring between 7:00 AM and 10:00 PM and of 10 dB to the sound levels occurring between 10:00 PM and 7:00 AM. A-weighting is a frequency correction that often correlates well with the subjective response of humans to noise. Adding 5 dBs and 10 dBs to the evening and nighttime hours, respectively, accounts for the added sensitivity of humans to noise during these time periods.

The General Plan Update (GPU) was adopted by the County on August 3, 2011. Revisions to the General Plan Noise Element have not been updated in the County's Noise Guidelines at this time; however, the new GPU noise compatibility guidelines and standards as contained in the GPU are applicable to the project.

Table 2.4-1 provides the County's current noise compatibility guidelines and Table 2.4-2 provides the County's noise standards, both of which are from the Noise Element of the General Plan.

Construction Noise

The County has a well-defined Noise Ordinance that covers construction noise. Section 36.409 states:

> Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dB(A) L_{eq} for an eight-hour period, between 7:00 AM

> and 7:00 PM, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Emergency work is defined as follows in the County's Noise Ordinance:

> Emergency Work shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from imminent exposure to danger or damage or work by public or private utilities when restoring utility service (Section 36.402).

2.4.1.2 Acoustical Definitions and Theory

Sound waves are linear mechanical waves. They can be propagated in solids, liquids, and gases. The material transmitting such a wave oscillates in the direction of propagation of the wave itself. Sound waves originate from some sort of vibrating surface which alternatively compress the surrounding air on a forward movement, and expand it on a backward movement.

There is a large range of frequencies within which linear waves can be generated, sound waves being confined to the frequency range that can stimulate the auditory organs to the sensation of hearing. For humans, this range is from about 20 Hertz (Hz or cycles per second) to about 20,000 Hz. The air transmits these frequency disturbances outward from the source of the wave.

Noise can be represented as a superposition of periodic waves with a large number of random components, and is generally defined as unwanted or annoying sound which interferes with, or disrupts human activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human physiological response to environmental noise is annoyance.

The loudest sounds that the human ear can hear comfortably are approximately one trillion (or $1x10^{12}$) times the acoustic energy that the ear can barely detect. Because of this vast range, any attempt to represent the acoustic intensity of a particular sound on a linear scale becomes unwieldy. As a result, a logarithmic ratio, originally conceived for radio work, known as the decibel (dB), is commonly employed.

A sound level of zero "0" dB is scaled such that it is defined as the threshold of human hearing, and would be barely audible to a human of normal hearing under extremely quiet listening conditions. Sound levels above 120 dB roughly correspond to the threshold of pain. The minimum change in sound level that the human ear can detect is approximately 3.0 dBA. A change in sound level of 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness. A change in sound level of 10 dB actually represents an approximate 90 percent change in the sound intensity, but only about a 50 percent change in the perceived loudness. This is due to the nonlinear response of the human ear to sound.

The decibel level of sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a single point source such as a piece of mechanical equipment, the sound level normally attenuates by about 6 dB(A) for each doubling from the source. Other factors that typically affect sound propagation in an outdoor environment are structural barriers and atmospheric conditions.

As mentioned above, most of the sounds we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies differing in sound level. The intensities of each frequency add to generate the sound we hear. The method commonly used to quantify environmental sounds, consists of determining all of the frequencies of a sound according to a weighting system that reflects the nonlinear response characteristics of the human ear. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level (or dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

L_{eq} is the 'equivalent' constant sound level that would have to be produced by a given source to equal the average of the fluctuating level measured. For most acoustical studies, the study interval is generally taken as one hour and the abbreviation used is L_{eq-h} or $L_{eq(h)}$; however, other time intervals are utilized depending on the jurisdictional preference.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10} and L_{90} are commonly used. They are the noise levels equaled or exceeded during 10 percent and 90 percent of a stated time. Sound levels associated with the L_{10} typically describe transient or short-term events, while levels associated with the L_{90} describe the steady state (or most prevalent) noise conditions. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum and minimum measured sound level (L_{max} and L_{min}) indicators. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

The aggregate of all community noise events are typically averaged into a single value known as the Community Noise Equivalent Level (CNEL). This descriptor is calculated by averaging all events over a specified time interval and applying a 5-dBA penalty to any sounds occurring between 7:00 PM and 10:00 PM, and a 10-dBA penalty to sounds that occur during nighttime hours (i.e., 10 PM to 7 AM). This penalty is applied to compensate for the increased sensitivity to noise during the quieter nighttime hours.

Ground Vibration

Vibration is generally defined as any oscillatory motion induced in a structure or mechanical device as a direct result of some type of input excitation. Damping is a type of drag force or resistance that is always present to some degree in an object and serves to remove energy from the vibrating system as it moves. In structures or soils/rock, damping is generally present within the material itself and hence is called material damping. Damping of surface (Rayleigh) waves in soils typically occurs as a combination of distance attenuation and material damping. The latter is commonly approximated using a linear damping model that assumes the overall material damping to increase as a function of distance between the source and receiver (i.e., the more soil between the source and receiver, the greater the material damping level).

The final inherent property of a vibrating system is its stiffness. The stiffness of a system is what allows an object to store the energy imparted to it through an excitation and redistribute it in the form of a vibration. Without some form of stiffness, an object simply will not vibrate. Mechanical forms of stiffness take the forms of springs while in structural and soil system the stiffness is inherent in the material.

In a manner similar to the measurement of environmental noise, groundborne vibration varies as a function of time (t) and/or frequency. Thus, ground motion is described in terms of single number descriptors such as the maximum and/or peak particle velocities ($Lmax_{vrms}$ or $Lmax_{vpeak}$).

2.4.1.3 Existing Noise Measurements

Ambient Baseline Community Noise Levels

Two independent monitoring locations were selected within the proposed project site for the purpose of determining the ambient baseline community noise levels during normal free-flow weekday traffic conditions. The instrumentation locations, denoted as Monitoring Locations ML1 (near the proposed gas station) and ML2 (near the proposed southern corner of Market Building A), are shown in Figure 2.4-1.

The results of the field reconnaissance sound level monitoring are shown in Table 2.4-3. The values for the equivalent sound level (L_{eq-h}), the maximum and minimum measured sound levels (L_{max} and L_{min}), and the statistical indicators L_{10} and L_{90}, are given for the monitoring location examined.

Measurements collected reflect the ambient daytime community sound levels in the vicinity of the proposed project site. As shown in Table 2.4-3, the hourly average sound level (or L_{eq-h}) recorded over the monitoring periods ranged between 51 to 63 dBA and was observed to be entirely due to an aggregation of community traffic noise from afar. These levels were found to be in compliance with the County's compatibility standards and consistent with the observed community setting.

Ambient Ground Vibration

Two vibration-monitoring locations were selected for the purpose of determining the representative of the ground motion conditions adjacent to the dominant traffic vibration generation area and the closest receptor point radius to the proposed blasting activities. The instrumentation locations, denoted as Vibration Monitoring Locations VL1 (north of the proposed gas station) and VL2 (at the intersection of Pecan Park Lane and Rios Canyon Road), are shown in Figure 2.4-2.

The results of the field reconnaissance vibration level monitoring indicated that there is no excessive ambient ground motion.

2.4.2 Analysis of Project Effects and Determination as to Significance

Issue Areas Requiring No Further Analysis in EIR

The following environmental issue areas where determined in the Notice of Preparation (NOP) and Initial Study (see Appendix A) to result in no impact or less than significant impact and will not require further review in the EIR. Please refer to Appendix A of this EIR for a copy of the NOP and Initial Study and additional information regarding these issue areas:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Issue Areas Requiring Further Analysis in EIR

For the purposes of this EIR, the basis for the determination of significance is the County's Guidelines for Determining Significance, Noise, adopted January 27, 2009. The project would result in a significant impact if:

1. *Traffic*: The project results in the exposure of sensitive land uses to exterior or interior noise in excess of standards established in the General Plan.
2. *Stationary and Construction Noise:* The project generates excessive airborne noise.
3. *Vibration:* The project exposes persons to or generates excessive ground borne noise vibration.

2.4.2.1 Issue 1: Traffic Generated Noise

Guidelines for Determination of Significance

Based on the County's Guidelines for Determining Significance, Noise (County of San Diego 2009a), a noise sensitive land use (NSLU) is defined by an residence, school, hotel, resort, library, or similar facility where quiet is an important attribute of the environment. A significant impact would occur if project implementation would result in the exposure of any on- or off-site, existing or reasonably foreseeable future NSLU to exterior or interior noise (including noise generated from the project, together with noise from roads [existing and planned Circulation Element roadways], railroads, airports, heliports and all other noise sources) in excess of any of the following:

a. Exterior Locations:
    i. 60 dB CNEL; or
    ii. An increase of 10 decibels over pre-existing noise.
b. Interior Locations:

    45 dB CNEL for the following cases:

    i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 dB(A) L_{eq}.
    ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

Additionally, the County's Report and Content Requirements for Noise include a statement that a "doubling of sound energy" is considered a significant impact at a "documented noise site." A doubling of sound energy is equivalent to a 3 dB(A) increase. A documented noisy site is a location with NSLU that currently exceeds 60 dB(A) CNEL.

Impact Analysis

The ISE RoadNoise v2.4 traffic noise prediction model, which is based upon the Federal Highway Administration's RD-77-108 Noise Prediction Model, was used to calculate the increase in vehicular traffic noise levels, due to the proposed project, along all identified major servicing roadways.

The results showing the effect of traffic noise increases on the various servicing roadway segments associated with the project site are presented in Tables 2.4-4 through 2.4-9. The scenarios examined consisted of: Existing Conditions, Existing + Project Conditions, Cumulative Conditions, Cumulative + Project Conditions, General Plan Buildout Conditions, and General Plan Buildout + Project Conditions. A comparison matrix of these various scenarios is shown in Table 2.4-10.

For each roadway segment examined, the worst case average daily traffic volume (ADT) and observed/predicted speeds are shown, along with the corresponding reference noise level at 50 feet (dB(A)). Additionally, the line-of-sight distance from the roadway centerline to the 60, 65, and 75 dB(A) CNEL contours are provided as an indication of the worst-case unobstructed theoretical traffic noise contour placement.

Existing Plus Project Conditions

Table 2.4-4 provides existing traffic noise levels for each roadway segment. Table 2.4-5 provides existing traffic noise levels with project conditions. As shown in Table 2.4-10, the largest project-related noise increase would occur along Lake Jennings Park Road between Olde Highway 80 and Project Driveway 4. The worst-case increase would be 2.5 dB(A), which is below the normally accepted impact threshold of 3 dB(A). The increase would be imperceptible to human beings. Therefore, under the existing plus project conditions scenario, no long-term noise impacts related to project traffic are anticipated.

Cumulative Plus Project Conditions

Table 2.4-6 provides cumulative traffic noise levels for each roadway segment. Table 2.4-7 provides cumulative traffic noise levels with project conditions. As shown in Table 2.4-10, the largest project-related noise increase would occur along Lake Jennings Park Road between Olde Highway 80 and Project Driveway 4. The worst-case increase would be 2.4 dB(A), which is below the normally accepted impact threshold of 3 dB(A). The increase would be imperceptible to human beings. Therefore, under the cumulative plus project conditions scenario, no long-term noise impacts related to project traffic is anticipated.

General Plan Buildout Conditions

Table 2.4-8 provides General Plan Buildout traffic noise levels for each roadway segment. Table 2.4-9 provides General Plan Buildout traffic noise levels with project conditions. As shown in Table 2.4-10, the largest project-related noise increase would occur along Lake Jennings Park Road between Olde Highway 80 and Project Driveway 4. The worst-case increase would be 2.0 dB(A), which is below the normally accepted impact threshold of 3 dB(A). The increase would be imperceptible to human beings. Therefore, under the General Plan Buildout plus project conditions scenario, no long-term noise impacts related to project traffic are anticipated.

2.4.2.2 Issue 2: Stationary and Construction Noise

Guidelines for Determination of Significance

Based on the County's Guidelines for Determining Significance, Noise (County of San Diego 2009a), a significant noise impact would occur if project implementation would generate airborne noise which, together with noise from all sources, would exceed the non-construction noise, construction noise, or impulsive noise standards in the County Noise Ordinance which are set forth below:

a. Non-Construction Noise: The limit specified in San Diego County Code Section 36.404, Sound Level Limits, at or beyond the property line. Section 36.404 provides the relevant limits (Table 2.4-11).

b. Construction Noise: Noise generated by construction activities related to the project would exceed the standards listed in San Diego County Code Section 36.409, Sound Level Limitations on Construction Equipment. Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dB(A) L_{eq} for an eight-hour period, between 7:00 AM and 7:00 PM, when measured at the boundary line of the property where the noise source is located on any occupied property where the noise is being received.

c. Impulsive Noise: Noise generated by the project would exceed the standards listed in San Diego Code Section 36.410, Sound Level Limitations on Impulsive Noise. Section 36.410 states that in addition to the general limitations on sound levels in Section 36.404 and the limitations on construction equipment in Section 36.409, the following additional sound level limitations shall apply:

    (i) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 2.4-12, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (iii) below. The maximum sound level depends on the use being made of the occupied property (Table 2.4-12).

    (ii) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 2.4-13, when measured at the boundary line of the property where the noise sources is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property (Table 2.4-13).

    (iii) The minimum measurement period for any measurements conducted under this section shall be 1 hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

Impact Analysis

Construction Noise Emission Levels

In accordance with the County's construction noise ordinance, construction at the project site would typically occur between the hours of 7 AM and 3 PM Monday through Friday. Construction activities would include site clearing, remedial grading, rock drilling, and infrastructure work inclusive of any powered haulage. Table 2.4-14 identifies the typical equipment (e.g., bulldozer, compactor, paver, and scraper) to be utilized during construction of the project. A significant impact would occur if noise from construction equipment exceeds an average sound level of 75 dB(A) L_{eq} for an eight-hour period ($L_{eq\text{-}8h}$), between 7:00 AM and 7:00 PM, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received. As shown in Table 2.4-14, rock drilling would result in noise levels above 75 dB(A) $L_{eq\text{-}8h}$.

Blasting is proposed at one location within the project site (Figure 2.4-3). Blasting is necessitated due to the presence of large granitic rock masses. Blasting of this rock would be accomplished using traditional drill and shoot methods. There are two dominant sources of noise associated with blasting operations of this type. Namely, the sound of the rock drill (a total of two would be used) and the actual blasting itself. As shown in Table 2.4-14, noise from rock drilling would be 85 dB(A) $L_{eq\text{-}8h}$ at 50 feet.

Noise emissions from blasting are based upon values given in the DuPont Blaster's Handbook (Source: *International Society of Explosives Engineers (ISEE) Blaster's Handbook, 17 Edition, 1998*). Typical extractive ratios (commonly called Powder Factors) average about 0.5 pounds per ton of rock being blasted. For the purposes of construction noise analysis, a conventional (excavative) shot pattern with a minimum eight millisecond (ms) delay with six pounds of ammonium nitrate/fuel oil (ANFO) at an average blasting depth of 10 feet each was examined. The resultant levels can be scaled up or down depending on the actual blasting requirements and measured ground response levels. These requirements are consistent with the San Diego County Consolidated Fire Code Section 3301 et. seq.

Source noise levels produced by a six pound shot of ANFO was found by the Army CERL computer model to be as high as 113.9 dB at 100 meters (130.2 dB at 50 feet) from the source based upon a standard atmospheric model (base conditions) and an assumed average overburden depth of 10 feet. Applying a 26 dB correction for sounds below 100 Hz gives a corrected 'A' weighted blast level of 104.2 dBA sound exposure level (SEL) at 50 feet.

Assuming that there are a maximum of 500 holes shot per blast (with a minimum of 8 ms delay per hole) and a blast SEL given above, yields an hourly noise level of 95.6 dBA. Since the closest residence would be approximately 200 feet distant from any blasting activities, the resultant hourly level would be (95.6 – 12.0) dB(A) or 83.6 dB(A) $L_{eq\text{-}(h)}$ for the shot, which is consistent with typical construction levels and would not be considered a significant impact with implementation of proper blasting control measures required by Division 5 of Title 3 of the San Diego County Code of Regulatory Ordinances Relating to Blasting Operations, as amended (Ordinance 7821, September 1990). A Sheriff's approved blaster would be required to conduct any blasting on the project site. A Sheriff's approved blaster must be issued a permit annually and be responsible for compliance with

requirements regarding notification, hours of blasting, and monitoring. Notification for blasting includes advance notification of business and residents within 600 feet of a major blasting site, Sheriff's Department, and the fire department with jurisdiction over the project site. Blasting is permitted Monday through Saturday between the hours of 6:00 AM and 7:00 PM or one-half hour before sunset, whichever occurs first. All blasting shall be monitored daily and pre-blasting surveys of nearby residences shall be conducted unless waived or refused by the resident.

As shown in Table 2.4-14, the predicted worst-case aggregate construction noise levels could be as high as 86.7 dB(A) L_{eq-8h} at 50 feet. The decibel level of sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a single point source such as a piece of mechanical equipment, the sound level normally attenuates by about 6 dB(A) for each doubling from the source. The closest residential receptor to any grading operation would be 150 feet (measured at the closest boundary of the property upon which the receptor is located). The expected construction noise level from the nearest residential receptor would be 74.8 dB(A) L_{eq-8h}. This level is below the County of San Diego construction noise abatement of 75 dB(A) L_{eq-8h}. However, without mitigation, the expected construction noise level at the nearest residential receptor property line could exceed the County of San Diego construction noise abatement of 75 dB(A) L_{eq-8h} (**Impact NOI-1**), and is considered a potentially significant impact.

Based upon biological surveys conducted on the project site, no least Bell's vireo were identified in the riparian area. A mitigation measure, M-BIO-2, has been identified in the biological resources section of the EIR which calls for preconstruction surveys to confirm the riparian area is still unoccupied by least Bell's vireo. In the event that vireos are found in the riparian area, construction activities would be monitored to ensure they do not exceed the 60 dB(A) L_{eq} at the limits of the riparian habitat. This measure will ensure that construction-related noise will not impact biological resources.

Operational Noise Emission Levels

The project is a commercial project that would be zoned General Commercial (C36) and would be required to meet the standards (60 dB(A) $L_{eq-(h)}$ during the hours of 7 AM to 10 PM and 55 dB(A) $L_{eq-(h)}$ during the hours of 10 PM to 7 AM) for fixed source and/or operational noise of the San Diego County Noise Ordinance Section 36.404. As shown in Figure 2.4-4, all sound emissions above 55 dB(A) $L_{eq-(h)}$ remain confined to the exterior project boundaries. Southerly residential areas behind the project site are exposed to non-impactive noise levels of 50 dB(A) $L_{eq-(h)}$ or less. Given this, no offsite impacts are expected due to operation of the proposed project.

Since the proposed project would be physically subdivided into several building pads, each with their own APN, internal property compliance with the applicable commercial noise standard is also required. Daytime operation within a commercial zone requires compliance with an hourly noise standard of 60 dB(A) $L_{eq-(h)}$. Potential impacts from the operation of the proposed car wash facility, heating, ventilation, and air conditioning (HVAC) equipment, and trash compactor are analyzed below.

Car Wash

The proposed car wash equipment, chosen as a Coleman Hanna Micro 40 system, indicates a worst-case instantaneous level of 89 dBA at 15 feet from the source. This source is due entirely to the final stage of the car washing process, notably the air drying phase, which is roughly 10 dBA greater than any other process cycle, and thus dominates the acoustical environment. The maximum throughput of any automated car wash system is roughly one car every six minutes. This equates to a worst-case scenario of 10 cars per hour, with a maximum drying cycle time of one minute per car, or 10 minutes during each hour of continuous operation. This equates to a noise level of 81.2 dBA per-hour from the car wash tunnel as measured at 15 feet. This noise level would exceed the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404.

A detailed analysis specific to Lot 1 (car wash facility) was conducted to determine if an extended car wash tunnel and clockwise movement of automobiles into the facility would minimize internal property line noise exposure. As shown in Figure 2.4-5, all sound emissions from the car wash above 60 dBA $L_{eq-(h)}$ remain confined to the Lot 1 project boundaries for which it is contained. Without the inclusion of an extended car wash tunnel and clockwise movement of automobiles into the facility, noise levels would exceed the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404 and a potentially significant impact would occur (**Impact NOI-2**).

Mechanical HVAC Equipment

HVAC equipment could be a primary noise source associated with commercial uses. The proposed project would install rooftop HVAC units. The noise sources could take the form of fans, pumps, air compressors, chillers, or cooling towers.

Rooftop HVAC units were assumed to consist of hemi-spherical acoustical radiators having a mean emissive spectra of 800-Hz, and a reference sound pressure level of 75 dBA at 15 feet (a conservative assumption given that final HVAC product selection is unknown at this time). Based on a maximum noise level of 75 dBA at 15 feet, noise levels attributed to unshielded HVAC mechanical systems could exceed the County noise limit of 60 dB(A) $L_{eq-(h)}$. As a result, the impact of noise from HVAC equipment under the project could be significant (**Impact NOI-3**).

Trash Compactor

A trash compactor unit is proposed immediately north of Market Building A. The trash compactor unit was modeled at 80 dBA at 15 feet based upon conservative measures. Based on a maximum noise level of 80 dBA at 15 feet, noise levels attributed to an unshielded trash compactor could exceed the County noise limit of 60 dB(A) $L_{eq-(h)}$. As a result, the impact of noise from the operation of the proposed trash compactor could be significant (**Impact NOI-4**).

2.4.2.3 Issue 3: Vibration

Guidelines for Determination of Significance

Based on the County's Guidelines for Determining Significance, Noise, a significant noise impact would occur if the project would expose the uses to groundborne vibration or noise levels equal to or in excess of the levels shown on Table 2.4-15.

Impact Analysis

Construction

The estimated blast excitation is predicted for a worst-case assumed reference vibration level of 1 inch per second as measured at 50 feet from the detonation point. Based on the *Lake Jennings Market Place Acoustical and Ground Vibration Site Assessment*, prepared by ISE (Appendix H), worst-case ground motion levels would decay (due to material damping alone) to a level of insignificance (i.e., ambient levels due to traffic and community activities) at distances of approximately 400 feet and below the Bureau of Mines standard at distances approaching 200 feet for a one-second total energy release. Waves of higher frequency content would decay even faster as necessitated by the underlying physics. Since typical imparted ground frequencies from blasting range between 10- to 30 Hz, no ground vibration impacts are anticipated.

Finally, the ground motion produced by any surface excitation (such as impactive construction loads) is in-fact a surface wave and would be classified as a Rayleigh-type wave. Wave generation of this type is common during earthquakes (although of a much higher amplitude). Using ISE's R-Wage 2.6 Program, a prediction of the "through the ground response" of the construction activity is obtained. Most of the energy occurs along the surface at low frequencies (which is to be expected during typical construction blasting activities). The energy decays rapidly as a function of depth and even faster as a function of frequency content. Overall excitation was found to produce surface only worst-case Root Mean Square (RMS) vibration levels of slightly over 0.1458 inches per second at the 400-foot point of insignificance. Therefore, no significant ground motion impacts are expected.

Human (ISO) Vibration Findings

Based on the *Lake Jennings Market Place Acoustical and Ground Vibration Site Assessment*, prepared by ISE (Appendix H), the predicted ground motion levels would fall into the category of being noticeable by humans but not a significant source of impact due to the infrequent nature of blasting operations. Therefore, less than significant impacts would result to human vibration standards.

Operation

There would be no ground motion or vibration impacts during the operational phase of the project. The proposed commercial uses are not considered to be ground motion or vibrating inducing uses.

2.4.3 Cumulative Impact Analysis

The existing noise condition in the cumulative analysis area is a combination of residential development and commercial land uses. Additionally, I-8 is a substantial noise generator.

Noise levels tend to diminish quickly with distance from a source; therefore, the geographic scope for the analysis of cumulative impacts related to noise would be limited to projects within approximately 0.25 mile of the proposed project. This area is defined as the geographic extent of the cumulative impact area because noise impacts would generally be localized, mainly within approximately 500 feet from any noise source; however, it is possible that noise from different sources within 0.25 mile of each other could combine to create a significant impact to receptors at any point between the projects. At distances greater than 0.25 mile, construction noise would be briefly audible and steady construction noise from the proposed project would generally dissipate into quiet background noise levels. The baseline for assessing cumulative noise impacts includes the noise sources associated with other projects within 0.25 mile of the proposed that could be constructed and/or operated at the same time as the proposed project.

Based on the foregoing criteria, all of the following cumulative projects are included in this cumulative analysis: 1) PDMWD's Eastern Service Area Secondary Connection Project, 2) Lakeside Tractor Supply Project, 3) Lake Jennings Park Road Subdivision Project, and 4) Peter Rios Estates Apartment Complex Project. The Lakeside Tractor Supply Project is located on the north side of Olde Highway 80, the Lake Jennings Park Road Subdivision Project is located approximately 0.25 miles north of the project site, a portion of PDMWD's Eastern Service Area Secondary Connection Project's pipeline improvement runs through Pecan Park Lane within the project site (between the intersections of Ridge Hill Road/Cordial Road and Pecan Park Lane/Rios Canyon Road), and the Peter Rios Estates Apartment Complex Project is located less than 0.25 miles south of the project site. All of the cumulative projects considered in this analysis are within the jurisdiction of the County of San Diego and would be required to comply with the requirements of the County Noise Element and the Noise Ordinance. When all cumulative projects are considered together, noise impacts are determined to be less than significant, with implementation of mitigation measures.

2.4.3.1 Issue 1: Traffic Generated Noise

Table 2.4-6 provides cumulative traffic noise levels for each roadway segment. Table 2.4-7 provides cumulative traffic noise levels with project conditions. As shown in Table 2.4-10, the largest project-related noise increase would occur along Lake Jennings Park Road between Olde Highway 80 and Project Driveway 4. The worst-case increase would be 2.5 dB(A), which is below the normally accepted impact threshold of 3 dB(A). The increase would be imperceptible to human beings. Therefore, under the cumulative plus project conditions scenario, no long-term noise impacts related to project traffic is anticipated.

2.4.3.2 Issue 2: Stationary and Construction Noise

As shown in Table 2.4-14, the predicted worst-case aggregate construction noise levels could be as high as 86.7 dB(A) L_{eq-8h} at 50 feet. The expected construction noise level from the nearest residential receptor would be 74.8 dB(A) L_{eq-8h}. This level is below the County of San Diego construction noise abatement of 75 dB(A) L_{eq-8h}. However, without mitigation, the expected

construction noise level at the nearest residential receptor property line could exceed the County of San Diego construction noise abatement of 75 dB(A) $L_{eq\text{-}8h.}$ With implementation of Mitigation Measure M-NOI-1, the project applicant and contractor(s) will be required to set back construction activities from the nearest sensitive receptor property line to minimize noise to sensitive receptors and comply with County noise standards pursuant to County Noise Ordinance, Section 36.409.

If construction activities occurred simultaneously with other cumulative projects, a significant cumulative noise impact could occur. For example, the Peter Rios Estates Apartment Complex Project is located less than 0.25 miles south of the project site and could potentially result in a cumulative noise impact if constructed simultaneously with the proposed project. However, construction noise levels for the Peter Rios Estates Apartment Complex Project are not anticipated to exceed the 75 dBA eight hour average at any occupied property line. Similar to the proposed project, other cumulative projects would be required to comply with the County noise standards pursuant to County Noise Ordinance, Section 36.409 to minimize noise to sensitive receptors. Other cumulative projects would also be required to implement mitigation measures to reduce potentially significant noise impacts.

Blasting would be needed with the presence of large granitic rock masses and may be required within the project site (Figure 2.4-3). Blasting of this rock would be accomplished using traditional drill and shoot methods. There are two dominant sources of noise associated with blasting operations of this type. Namely, the sound of the rock drill (a total of two would be used) and the actual blasting itself. As shown in Table 2.4-14, noise from rock drilling would be 85 dB(A) $L_{eq\text{-}8h}$ at 50 feet. With implementation of Mitigation Measures M-NOI-1 and M-NOI-2, the project applicant and contractor(s) will be required to set back drilling operations and to require a Noise Blasting Plan submittal. These measures would specify methods (e.g. increase setbacks, limit equipment operations, temporary barriers) demonstrating compliance with the County noise standards pursuant to County Noise Ordinance, Section 36.409 and 36.410. The Lakeside Tractor Supply Project, Lake Jennings Park Road Subdivision Project, and Peter Rios Estates Apartment Complex Project do not propose any blasting.

The PDMWD's Eastern Service Area Secondary Connection Project would require trenched pipeline construction for the discharge pipeline, which runs through Pecan Park Lane within the project site (between the intersections of Ridge Hill Road/Cordial Road and Pecan Park Lane/Rios Canyon Road). According to the Eastern Service Area Secondary Connection Project MND, the loudest construction noise activity is associated with the Eastern Service Area Secondary Connection Project is the operation of an excavator during the pipeline trenching activity. If operated within 50 feet of the nearest sensitive receptor, construction noise would exceed the County of San Diego's (County's) 75 dBA Leq (average sound level of 75 A-weighted decibels for an 8-hour period) noise limit and impacts would be potentially significant. Mitigation in the MND requires that the contractor shall erect a temporary 12-foot high noise control wall between the pipeline work boundary and the residential property line. Alternative methods (including, but not limited to the use of alternative sound walls/barriers, noise attenuation devices/modifications to construction equipment, limiting hours of operation, or a combination of these measures) may be employed to reduce noise impacts below the 75 dBA Leq (8-hour) limit. The Eastern Service Area Secondary Connection Project MND concluded that with implementation of the noise control wall mitigation, construction noise impacts associated with the discharge pipeline would be reduced to a less than significant level and would ensure that the project would not result in cumulatively significant noise impacts for receivers along

the pipeline alignment. Therefore, construction of the proposed project concurrently with the Eastern Service Area Secondary Connection Project would not result in cumulatively significant noise impacts with implementation of mitigation.

As previously indicated, the proposed project would result in potential impacts from the operation of the proposed car wash facility, HVAC equipment, and trash compactor. Noise levels would exceed the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404. However, mitigation measures (Mitigation Measures M-NOI-3 through M-NOI-5) are proposed to attenuate noise levels to meet the County's standard of 60 dB(A) $L_{eq\text{-}(h)}$. A nearby cumulative project is the Lakeside Tractor Supply Project, located on the north side of Olde Highway 80. Permanent project related noise sources consists of the use of a loading area for delivery trucks, a forklift, a bailer, and five HVAC rooftop units are subject the one-hour average sound level limits specified within Section 36.404. The noise report prepared for the Lakeside Tractor Supply Project indicated that worst-case noise impacts to residential property boundaries would be 44.3 dBA Leq at the residential property lines south of Olde Highway 80, 42.4 dBA Leq at the commercial property lines, and 27.4 at the industrial property line to the east. Noise impacts from the proposed project operations are not expected to exceed the arithmetic mean daytime noise threshold limit of 55 dBA Leq at adjacent residential property lines, 60 dBA Leq at adjacent commercial property lines, or 75 dBA Leq at adjacent industrial property lines. Operational noise sources associated with the project would result in noise levels that are less than significant. Therefore, with implementation of Mitigation Measures M-NOI-3 through M-NOI-5, the proposed project would not result in a cumulatively significant noise impact during operation.

Noise associated with stationary sources is a localized occurrence and attenuates rapidly with distance, thus only future on-site development or projects adjacent to the project site would add to stationary source noise generated by the project and result in a cumulative noise impact. Because the Eastern Service Area Secondary Connection Project's pipeline improvement would be placed underground, operation of the discharge pipeline (portion of which runs through Pecan Park Lane within the project site) is not anticipated to generate noise and therefore would not result in exposure of nearby uses to excessive noise levels. Therefore, it is concluded that noise impacts from stationary sources would have a less than significant impact.

2.4.3.3 Issue 3: Vibration

The project includes blasting to remove a granitic rock outcrop for roadway construction. Due to the granitic nature of the cumulative project area, blasting may be required for other cumulative projects. The Lakeside Tractor Supply Project, Lake Jennings Park Road Subdivision Project, and Peter Rios Estates Apartment Complex Project do not propose any blasting. The Eastern Service Area Secondary Connection Project may require blasting if rock encountered within the reservoir site (approximately 0.79 miles east of the project site) is too large for removal by an excavator. A significant cumulative impact could occur if blasting occurred at the same time as the proposed project. However, the proposed reservoir site is located some distance, approximately 0.79 miles, east of the project site. At distances greater than 0.25 mile, construction noise would be briefly audible and steady construction noise from the proposed project would generally dissipate into quiet background noise levels. Similar to the proposed project, the Eastern Service Area Secondary Connection Project will be required to submit a Construction Noise Blasting Plan prior to issuance of a blasting permit. The blasting plan will include identification of planned blasting locations, a

description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and calculations to determine the area affected by the planned blasting. Furthermore, none of the proposed uses (commercial, residential, and underground pipeline) associated with the cumulative projects would be a source of constant vibration or ground shaking. Therefore, cumulative impacts related to ground-borne vibration are less than significant.

2.4.4 Significance of Impacts Prior to Mitigation

Impact NOI-1: Without mitigation, the expected construction noise level at the nearest residential receptor property line could exceed the County of San Diego construction noise abatement of 75 dB(A) $L_{eq\text{-}8h}$, and is considered a potentially significant impact.

Impact NOI-2: Without the inclusion of an extended car wash tunnel and clockwise movement of automobiles into the facility, noise levels would exceed the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404 and a potentially significant impact would occur.

Impact NOI-3: Based on a maximum noise level of 75 dBA at 15 feet, noise levels attributed to unshielded HVAC mechanical systems could exceed the County noise limit of 60 dB(A) $L_{eq\text{-}(h)}$. As a result, the impact of noise from HVAC equipment under the project could be significant.

Impact NOI-4: Based on a maximum noise level of 80 dBA at 15 feet, noise levels attributed to an unshielded trash compactor could exceed the County noise limit of 60 dB(A) $L_{eq\text{-}(h)}$. As a result, the impact of noise from the operation of the proposed trash compactor could be significant.

2.4.5 Mitigation

M-NOI-1 Prior to and during construction, the project applicant and primary contractor(s) shall ensure that the following equipment set back distances are provided to minimize noise to sensitive receptors and comply with County noise standards pursuant to County Noise Ordinance, Section 36.409:

1. Rock drilling will require a minimum set back distance of 125 feet from any sensitive receptor property line.
2. Aggregate construction grading operations shall occur no closer than 150 feet from any boundary of a sensitive receptor area. If grading operations occur for an extended amount of time within 150 feet of any boundary of an occupied receptor, then information must be provided to prove and certify that the equipment being used is in compliance with the County Noise Ordinance. Then a new construction noise analysis maybe reviewed to the satisfaction of the [PDS, PCC]. The supplemental noise analysis shall be prepared by a County Approved Noise Consultant and the report shall comply with the Noise Report Format and Content Requirements. Any proposed alternative methods, and/or the implementation of noise reducing measures maybe approved if the construction activities are reduced to 75 dB at the boundary line.

M-NOI-2 Prior to issuance of a Blasting Permit, the project applicant or its contractor shall submit a Construction Noise Blasting Plan to Planning and Development Services for review and approval. The blasting plan will include identification of planned blasting locations, a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and calculations to determine the area affected by the planned blasting. The plan shall also demonstrate County Noise Ordinance Compliance with Section 36.409 & 36.410.

M-NOI-3 Prior to the approval of any plan, issuance of any permit, and/or prior to occupancy or use of the premises in reliance of this permit, the project applicant shall implement the following measures to mitigate the operational noise impact related to the proposed car wash:

a) The car wash facility shall be designed with an extended car wash tunnel as shown in the architectural site plans prepared by Smith Consulting Architects (January 2015). This is considered a noise design measure to comply with the property line noise level limits established by County Noise Ordinance Section 36.404.

b) The car wash facility shall be designed to provide a clockwise movement of automobiles into the facility for proper equipment placement to minimize property line noise exposure. The final design plan shall be submitted to the County for review and approval.

Upon establishment of use, the following conditions shall apply during the term of this permit).

c) The car wash operations shall be limited to the daytime hours of 7 a.m. to 10 p.m. consistent with the time specified within the County Noise Ordnance, Table 36.404.

M-NOI-4 Best engineering practices shall be used and considered in the placement of noise generating equipment and screening when installing stationary noise sources associated with HVAC systems. All rooftop mounted HVAC mechanical systems shall be screened by a minimum three-foot-high parapet screen, or similar noise screening design, subject to the approval of County staff prior to the issuance of building permits.

M-NOI-5 Best engineering practices shall be used and considered in the placement of noise generating equipment and screening when installing stationary noise sources associated with trash compactors. The trash compactor shall be designed with a 12-foot high noise screen wall design to meet the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404. The noise screen wall design will be subject to the approval of County staff prior to the issuance of building permits.

2.4.6 Conclusion

Without mitigation, the expected rock drill and construction noise level at the nearest residential receptor property line could exceed the County of San Diego construction noise abatement of 75 dB(A) $L_{eq\text{-}8h}$, and is considered a potentially significant impact. However, with implementation of Mitigation Measure M-NOI-1, the project applicant and contractor(s) will be required to set back construction activities from the nearest sensitive receptor property line to minimize noise to sensitive receptors and comply with County noise standards pursuant to County Noise Ordinance, Section 36.409. Mitigation Measure M-NOI-2 would require the project applicant to submit a Construction Noise Blasting Plan for approval prior to issuance of a blasting permit. The blasting plan would identify planned blasting locations, potential receptors affected by planned blasting, and calculations to determine the area affected by the planned blasting. Depending on the results of the blasting plan, mitigation measures may include coordination with building occupants. With implementation of Mitigation Measures M-NOI-1 and M-NOI-2, impacts would be reduced to a less than significant level.

Noise levels associated with operation of the car wash could potentially exceed the noise standards for fixed noise and/or operational noise of the San Diego County Noise Ordinance Section 36.404, and is considered a potentially significant impact. Mitigation Measure M-NOI-3 would require the inclusion of an extended car wash tunnel and clockwise movement of automobiles into the facility to attenuate noise levels to meet the County's standard of 60 dB(A) $L_{eq\text{-}(h)}$. With implementation of Mitigation Measure M-NOI-3, this impact would be reduced to a less than significant level.

Based on a maximum noise level of 75 dBA at 15 feet, noise levels attributed to unshielded HVAC mechanical systems could exceed the County noise limit of 60 dB(A) $L_{eq\text{-}(h)}$. However, Mitigation Measure M-NOI-4 would require that all rooftop mounted HVAC mechanical systems be screened by a minimum three-foot-high parapet screen, or similar noise screening design, subject to the approval of County staff prior to the issuance of building permits. With implementation of Mitigation Measure M-NOI-4, this impact would be reduced to a level less than significant.

Based on a maximum noise level of 80 dBA at 15 feet, noise levels attributed to an unshielded trash compactor could exceed the County noise limit of 60 dB(A) $L_{eq\text{-}(h)}$. As a result, the impact of noise from the proposed trash compactor could be significant. However, Mitigation Measure M-NOI-5 would require the trash compactor be designed with a 12-foot high noise screen wall design to meet the noise standards for fixed noise/and or operational noise of the San Diego County Noise Ordinance Section 36.404. With implementation of Mitigation Measure M-NOI-5, this impact would be reduced to a level less than significant.

Figure 2.4-1
Ambient Noise Monitoring Locations

Figure 2.4-2
Ambient Vibration Monitoring Locations

Figure 2.4-3
Construction Blasting Location

Representative Property Line Sound Levels

Property Line Point	Sound Level (in dBA)
1	56.0
2	51.5
3	52.1
4	52.2
5	49.6
6	48.5
7	51.7
8	52.6

Figure 2.4-4
50, 55 and 60 dB(A) $L_{eq-(h)}$ Contour Placement

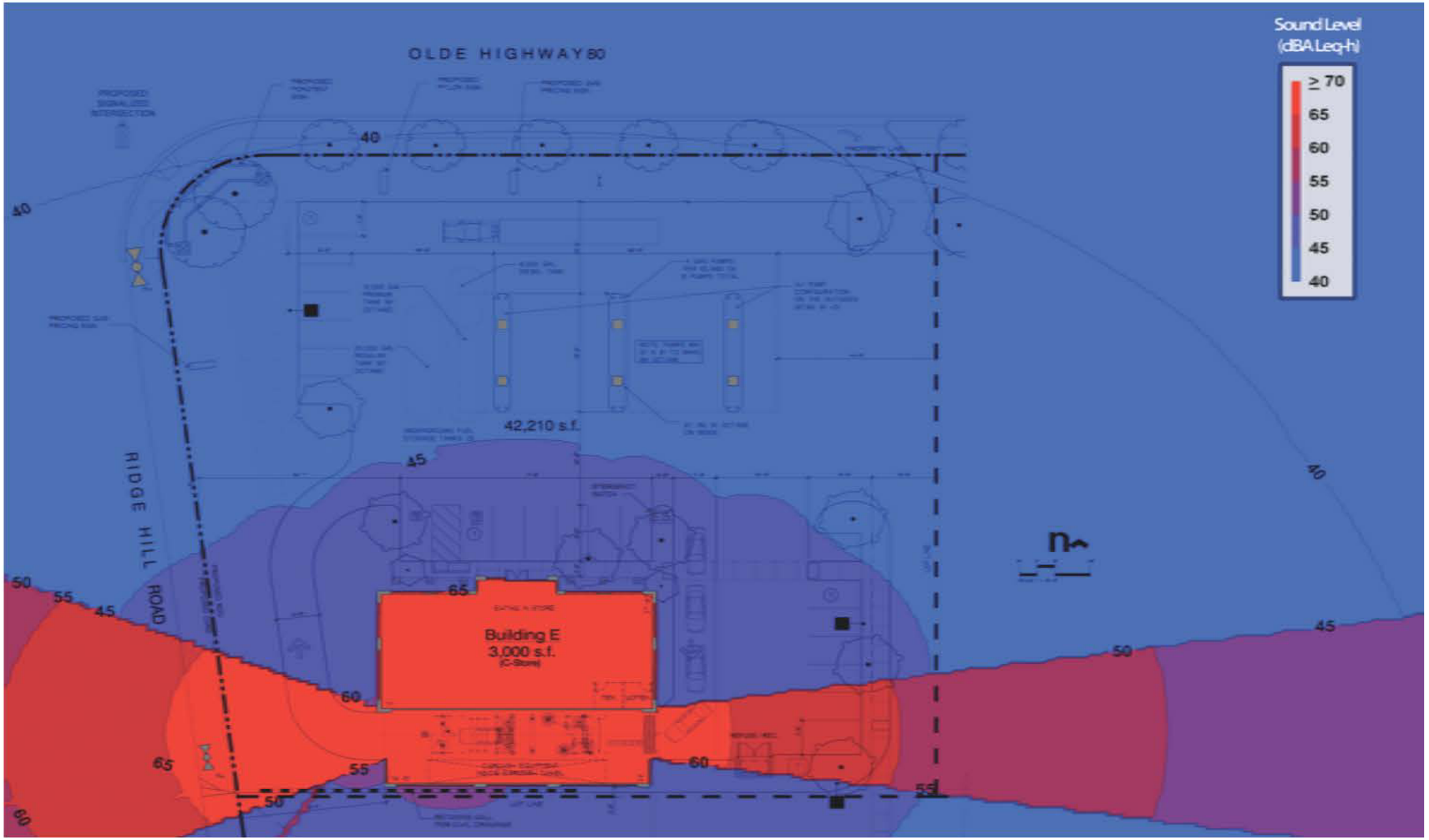

Figure 2.4-5
Lot 1 Contour Placement

Table 2.4-1
Noise Compatibility Guidelines

Table N-1 Noise Compatibility Guidelines

	Land Use Category	Exterior Noise Level (CNEL)						
			55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical\dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Table 2.4-2
Noise Standards

Table N-2 Noise Standards[Note]
1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: *(i)* for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, *(ii)* for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; *(iii)* for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

Table 2.4-3
Measured Ambient Sound Levels

Location	Start Time	One-Hour Noise Level Descriptors in dBA				
		L_{eq-h}	L_{max}	L_{min}	L_{10}	L_{90}
ML1	10:20 a.m.	63.4	76.3	56.1	66.0	59.2
ML2	11:53 a.m.	51.4	57.4	46.5	53.5	47.8

Notes: ML = Monitoring Location
dBA = A-weighted decibel
Source: ISE 2015a

Table 2.4-4
Predicted Traffic Noise Levels Existing Without Project Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	14,350	45	71.0	20	199	629
	Project Driveway 1 to Driveway 2	14,350	45	71.0	20	199	629
	Project Driveway 2 to Driveway 3	14,350	45	71.0	20	199	629
	Project Driveway 3 to Rios Canyon Road	14,350	45	71.0	20	199	629
	Rios Canyon Road to Pecan Park Lane	10,150	45	69.5	14	141	446
	Pecan Park Lane to Chimney Rock Lane	10,050	45	69.4	14	138	435
Mapleview Street	Ashwood Street to Pino Drive	12,000	35	67.9	10	97	308
Lake Jennings Park Road	Pino Drive to El Monte Road	10,400	45	69.6	14	144	456
	El Monte Road to Jack Oak Road	11,260	45	69.9	15	155	489
	Jack Oak Road to Harritt Road	11,520	45	70.0	16	158	500
	Harritt Road to Blossom Valley Road	13,550	45	70.7	19	186	587
	Blossom Valley Road to I-8 Westbound Off-Ramp	18,510	45	72.1	26	256	811
	I-8 Westbound Off-Ramp to Olde Highway 80	17,130	45	71.7	23	234	740
	Olde Highway 80 to Project Driveway 4	1,670	45	61.6	2	23	72
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	1,670	35	59.3	1	13	43
Rios Canyon Road	South of Olde Highway 80	3,506	35	62.5	3	28	89

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level
Source: ISE 2015a

Table 2.4-5
Predicted Traffic Noise Levels Existing With Project Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	21,934	45	72.8	30	301	953
	Project Driveway 1 to Driveway 2	21,363	45	72.7	29	294	931
	Project Driveway 2 to Driveway 3	15,911	45	71.4	22	218	690
	Project Driveway 3 to Rios Canyon Road	15,746	45	71.4	22	218	690
	Rios Canyon Road to Pecan Park Lane	11,081	45	69.8	15	151	477
	Pecan Park Lane to Chimney Rock Lane	10,972	45	69.8	15	151	477
Mapleview Street	Ashwood Street to Pino Drive	12,721	35	68.1	10	102	323
Lake Jennings Park Road	Pino Drive to El Monte Road	11,149	45	69.9	15	155	489
	El Monte Road to Jack Oak Road	12,225	45	70.3	17	169	536
	Jack Oak Road to Harritt Road	13,289	45	70.6	18	182	574
	Harritt Road to Blossom Valley Road	15,776	45	71.4	22	218	690
	Blossom Valley Road to I-8 Westbound Off-Ramp	21,827	45	72.8	30	301	953
	I-8 Westbound Off-Ramp to Olde Highway 80	22,258	45	72.9	31	308	975
	Olde Highway 80 to Project Driveway 4	2,934	45	64.1	4	41	129
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	2,102	35	60.3	2	17	54
Rios Canyon Road	South of Olde Highway 80	3,794	35	62.9	3	31	97

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level

Source: ISE 2015a

Table 2.4-6
Predicted Traffic Noise Levels – Cumulative Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	15,072	45	71.2	21	208	659
	Project Driveway 1 to Driveway 2	15,072	45	71.2	21	208	659
	Project Driveway 2 to Driveway 3	15,072	45	71.2	21	208	659
	Project Driveway 3 to Rios Canyon Road	15,072	45	71.2	21	208	659
	Rios Canyon Road to Pecan Park Lane	10,661	45	69.7	15	148	467
	Pecan Park Lane to Chimney Rock Lane	10,556	45	69.6	14	144	456
Mapleview Street	Ashwood Street to Pino Drive	12,604	35	68.1	10	102	323
Lake Jennings Park Road	Pino Drive to El Monte Road	10,923	45	69.8	15	151	477
	El Monte Road to Jack Oak Road	11,827	45	70.1	16	162	512
	Jack Oak Road to Harritt Road	12,100	45	70.2	17	166	524
	Harritt Road to Blossom Valley Road	14,232	45	70.9	19	195	615
	Blossom Valley Road to I-8 Westbound Off-Ramp	19,442	45	72.3	27	269	849
	I-8 Westbound Off-Ramp to Olde Highway 80	17,992	45	72.0	25	251	792
	Olde Highway 80 to Project Driveway 4	1,754	45	61.8	2	24	76
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	1,754	35	59.5	1	14	45
Rios Canyon Road	South of Olde Highway 80	3,682	35	62.7	3	29	93

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level
Source: ISE 2015a

Table 2.4-7
Predicted Traffic Noise Levels – Cumulative Plus Project Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	23,428	45	73.1	32	323	1,021
	Project Driveway 1 to Driveway 2	22,856	45	73.0	32	315	998
	Project Driveway 2 to Driveway 3	16,720	45	71.6	23	229	723
	Project Driveway 3 to Rios Canyon Road	16,555	45	71.6	23	229	723
	Rios Canyon Road to Pecan Park Lane	11,679	45	70.1	16	162	512
	Pecan Park Lane to Chimney Rock Lane	11,565	45	70.0	16	158	500
Mapleview Street	Ashwood Street to Pino Drive	13,325	35	68.3	11	107	338
Lake Jennings Park Road	Pino Drive to El Monte Road	11,673	45	70.1	16	162	512
	El Monte Road to Jack Oak Road	12,791	45	70.5	18	177	561
	Jack Oak Road to Harritt Road	13,954	45	70.8	19	190	601
	Harritt Road to Blossom Valley Road	16,657	45	71.6	23	229	723
	Blossom Valley Road to I-8 Westbound Off-Ramp	22,931	45	73.0	32	315	998
	I-8 Westbound Off-Ramp to Olde Highway 80	23,703	45	73.2	33	330	1,045
	Olde Highway 80 to Project Driveway 4	3,018	45	64.2	4	42	132
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	2,186	35	60.5	2	18	56
Rios Canyon Road	South of Olde Highway 80	3,970	35	63.1	3	32	102

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level

Source: ISE 2015a

Table 2.4-8
Predicted Traffic Noise Levels – General Plan Buildout Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	19,406	45	72.3	27	269	849
	Project Driveway 1 to Driveway 2	19,406	45	72.3	27	269	849
	Project Driveway 2 to Driveway 3	19,406	45	72.3	27	269	849
	Project Driveway 3 to Rios Canyon Road	19,406	45	72.3	27	269	849
	Rios Canyon Road to Pecan Park Lane	13,726	45	70.8	19	190	601
	Pecan Park Lane to Chimney Rock Lane	13,591	45	70.7	19	186	587
Mapleview Street	Ashwood Street to Pino Drive	16,228	35	69.2	13	132	416
Lake Jennings Park Road	Pino Drive to El Monte Road	14,064	45	70.9	19	195	615
	El Monte Road to Jack Oak Road	15,227	45	71.2	21	208	659
	Jack Oak Road to Harritt Road	15,579	45	71.3	21	213	674
	Harritt Road to Blossom Valley Road	18,324	45	72.0	25	251	792
	Blossom Valley Road to I-8 Westbound Off-Ramp	25,032	45	73.4	35	346	1,094
	I-8 Westbound Off-Ramp to Olde Highway 80	23,165	45	73.1	32	323	1,021
	Olde Highway 80 to Project Driveway 4	2,258	45	62.9	3	31	97
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	2,258	35	60.6	2	18	57
Rios Canyon Road	South of Olde Highway 80	4,741	35	63.8	4	38	120

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level

Source: ISE 2015a

Table 2.4-9
Predicted Traffic Noise Levels – General Plan Buildout Plus Conditions

Roadway Segment		ADT	Vehicle Speed (mph)	SPL at 50 feet	75 dB(A) CNEL Contour Distance in feet	65 dB(A) CNEL Contour Distance in feet	60 dB(A) CNEL Contour Distance in feet
Olde Highway 80	Lake Jennings Park Road to Driveway 1	26,990	45	73.7	37	371	1,172
	Project Driveway 1 to Driveway 2	26,419	45	73.6	36	362	1,145
	Project Driveway 2 to Driveway 3	20,967	45	72.6	29	288	910
	Project Driveway 3 to Rios Canyon Road	20,802	45	72.6	29	288	910
	Rios Canyon Road to Pecan Park Lane	14,657	45	71.1	20	204	644
	Pecan Park Lane to Chimney Rock Lane	14,513	45	71.0	20	199	629
Mapleview Street	Ashwood Street to Pino Drive	16,949	35	69.4	14	138	435
Lake Jennings Park Road	Pino Drive to El Monte Road	14,814	45	71.1	20	204	644
	El Monte Road to Jack Oak Road	16,192	45	71.5	22	223	706
	Jack Oak Road to Harritt Road	17,347	45	71.8	24	239	757
	Harritt Road to Blossom Valley Road	20,550	45	72.5	28	281	889
	Blossom Valley Road to I-8 Westbound Off-Ramp	28,349	45	73.9	39	388	1,227
	I-8 Westbound Off-Ramp to Olde Highway 80	28,293	45	73.9	39	388	1,227
	Olde Highway 80 to Project Driveway 4	3,522	45	64.9	5	49	155
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	2,690	35	61.4	2	22	69
Rios Canyon Road	South of Olde Highway 80	5,029	35	64.1	4	41	129

Notes: ADT = average daily trip
mph = miles per hour
SPL = sound pressure level
dBA = A-weighted decibel
CNEL = community noise equivalent level
Source: ISE 2015a

Table 2.4-10
Project Traffic Noise Comparison (All Scenarios)

Roadway Segment		Existing + Project *minus* Existing Conditions (dB(A))	Cumulative + Project *minus* Cumulative Conditions (dB(A))	General Plan + Project *minus* General Plan Conditions (dB(A))
Olde Highway 80	Lake Jennings Park Road to Driveway 1	1.8	1.9	1.4
	Project Driveway 1 to Driveway 2	1.7	1.8	1.3
	Project Driveway 2 to Driveway 3	0.4	0.4	0.3
	Project Driveway 3 to Rios Canyon Road	0.4	0.4	0.3
	Rios Canyon Road to Pecan Park Lane	0.3	0.4	0.3
	Pecan Park Lane to Chimney Rock Lane	0.4	0.4	0.3
Mapleview Street	Ashwood Street to Pino Drive	0.2	0.2	0.2
Lake Jennings Park Road	Pino Drive to El Monte Road	0.3	0.3	0.2
	El Monte Road to Jack Oak Road	0.4	0.4	0.3
	Jack Oak Road to Harritt Road	0.6	0.6	0.5
	Harritt Road to Blossom Valley Road	0.7	0.7	0.5
	Blossom Valley Road to I-8 Westbound Off-Ramp	0.7	0.7	0.5
	I-8 Westbound Off-Ramp to Olde Highway 80	1.2	1.2	0.8
	Olde Highway 80 to Project Driveway 4	2.5	2.4	2.0
Ridge Hill Road	Lake Jennings Park Road to Cordial Road	1.0	1.0	0.8
Rios Canyon Road	South of Olde Highway 80	0.4	0.4	0.3

Note: dBA = A-weighted decibel
Source: ISE 2015a

Table 2.4-11
County of San Diego Noise Ordinance Limits

Zone	Time	One-Hour Average Sound Level Limits (dB(A))
Single Family Residential (R-S), Duplex/Two Family Residential (R-D), Rural Residential (R-R), Mobilehome Residential (R-MH), Limited Agricultural (A-70), General Agricultural (A-72), Open Space (S-80), Ecological Resources Area (S-81), Limited Control (S-87), Holding Area (S-90), General Rural (S-92), and Variable Family Residential (R-V), and Urban Residential (R-U) with a density of less than 11 dwelling units per acre.	7 AM to 10 PM 10 PM to 7 AM	50 45
Recreation Oriented Residential (R-RO), Residential/Commercial (R-C), Multi-family Residential (R-M), Parking (S-86), Village 5 (V5) and Variable Family Residential (R-V) and (Urban Residential) R-U with a density of 11 or more dwelling units per acre.	7 AM to 10 PM 10 PM to 7 AM	55 50
Transportation and Utility Corridor (S-94), Village 4 (V4) and all other commercial zones	7 AM to 10 PM 10 PM to 7 AM	60 55
Village 1 (V1), Village 2 (V2) V1, V2 V1 V2	7 AM to 7 PM 7 PM to 10 PM 10 PM to 7 AM 10 PM to 7 AM	60 55 55 50
Village 3 (V3)	7 AM to 10 PM 10 PM to 7 AM	70 65
Basic Industrial (M-50), Limited Impact Industrial (M-52) and General Impact Industrial (M-54)	Anytime	70
Extractive Use (S-82), Mixed Industrial (M-56) and High Impact Industrial (M-58)	Anytime	75
Specific Planning Area (S88)	S88 zones are Specific Planning Areas. Refer to the Specific Plan for the site for applicable standards.	

Source: County of San Diego Noise Ordinance Section 36.404

Table 2.4-12
County of San Diego Code Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels

Occupied Property Use	Decibels [dB(A)]
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

Table 2.4-13
County of San Diego Code Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels for Public Road Projects

Occupied Property Use	Decibels [dB(A)]
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

Table 2.4-14
Aggregate Construction Noise Levels

Equipment Type Model	Selected EPA Tier Level	Quantity Used	Source Level at 50 Feet at Full Load (dB(A))	Average Load Factor (%)	Duty Cycle (hrs/day)	Cumulative Effect at 50 feet (dB(A) Leq8h)
Push Dozer D11T w/ Breaker	3	1	80	60	8	77.8
Push Dozer D10T	3	1	75	40	8	71.0
Dozer D9R	3	1	70	50	8	67.0
Dozer D6T LGP	3	1	75	40	8	71.0
Scraper – 657G Tractor	3	1	80	30	8	74.8
Motor Grader 120K	3	2	70	50	8	70.0
Water Truck	3	1	70	40	8	66.0
Hydraulic Excavator 349EL	3	1	75	60	8	72.8
ECM 590 Rock Drill	3	2	85	50	8	85.0
Worst-Case Aggregate Sum at 50 ft.						86.7
$L_{eq\text{-}8h}$ at Receptor Area 150 Feet Distant						74.8

Note: dBA = A-weighted decibel
Source: ISE 2015a

Table 2.4-15
U.S. Bureau of Mines RI 8507 Ground Vibration Standards

Vibration Frequency Component (*f*) (Hz)	Maximum Allowable Peak Particle Velocity($Lmax_{VPEAK}$) (inches per second)
2.5 to 10.0	0.05
11.0 to 40.0	0.05 x *f*
> 40.0	2.0

Note: It is noted for clarification that the maximum allowable peak particle velocity for the range of frequencies between 11.0 and 40.0 Hz. is limited to the value of 0.05 times the dominant frequency (*f*). Thus, if the frequency were 30.0 Hz, the maximum allowable particle velocity at the monitoring point would be 1.5 inches per second.

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