Appendix F

Noise Impact Assessment

Noise Impact Assessment

Victoria Corporate Center Project

Ventura, California

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
ADT	Average Daily Trips
APN	Assessor's Parcel Number
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
City	City of Ventura
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FTA	Federal Transit Administration
Hz	Hertz
L_{dn}	Day-night average sound level
L_{eq}	Measure of ambient noise
L_{max}	The maximum A-weighted noise level during the measurement period.
L_{min}	The minimum A-weighted noise level during the measurement period.
NIOSH	National Institute for Occupational Safety and Health
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PPV	Peak particle velocity
Project	Victoria Corporate Center Project
RMS	Root mean square
SF	Square feet
STC	Sound Transmission Class
VdB	Vibration Velocity Level

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Victoria Corporate Center Project (Project), which proposes the construction of a mixed-use development comprised of two commercial buildings, five multi-family residential buildings, a parking lot, and recreational areas in Ventura, California. This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the City of Ventura General Plan Noise Element and the City of Ventura Municipal Code. The purpose of this report is to estimate Project-generated noise levels and to determine the level of impact the Project would have on the environment.

1.1 Project Location and Description

The Project Site is a 14.44-acre property located on the Northeast corner of S. Victoria Avenue and Olivas Park Drive in the City of Ventura, California (City). The Proposes the construction and operation of approximately 266,915 square feet (SF) of residential living area, consisting of 181 residential market rate units, 104 affordable housing units, and 12 live-work units. The 15,900 SF commercial space would consist of two buildings that would accommodate restaurants and small commercial retail shops (see Figure 1-1). The Proposed Project Area is bounded by S. Victoria Avenue, Seaborg Avenue, and Olivas Park Drive. Surrounding land uses include the commercial uses to the north and east, agricultural uses to the west and south, and sparse residential homes to the southwest. The Project would be accessible via three driveways, with one along Seaborg Avenue and two driveways along Olivas Park Drive. The Project Site is currently zoned as Mixed Use. The Proposed Project is expected to be operational by 2028.

Map Date: *2/7/2024*
Photo (or Base) Source: *Withee Malcolm Architects 2022*

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Figure 1-1. Overall Site Plan

2023-137 Victoria Corporate Center

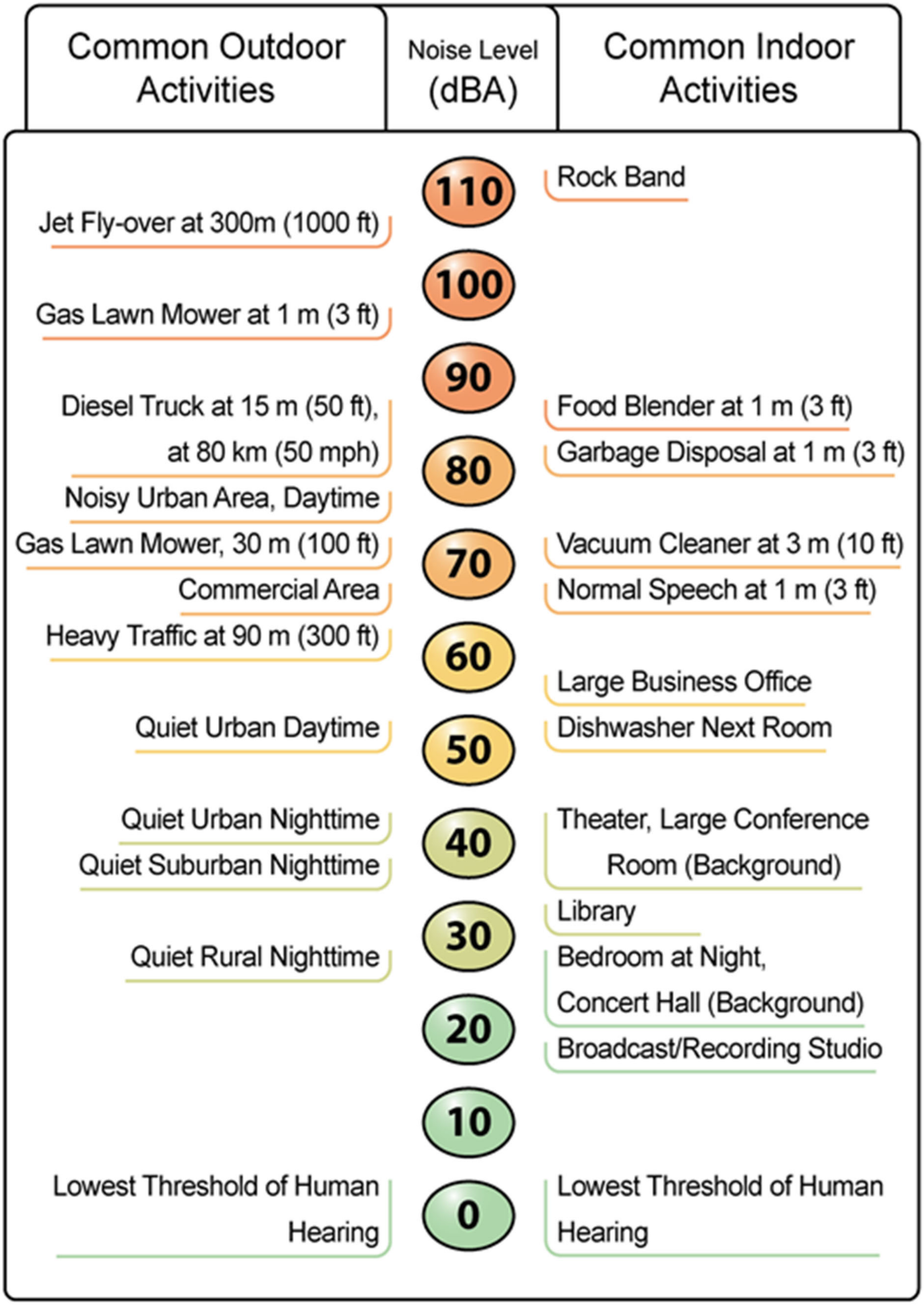
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 2-1.



Source: California Department of Transportation (Caltrans) 2020a

Figure 2-1. Common Noise Levels

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (FHWA 2017). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2017). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. 2021). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the “line of sight” between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (California Department of Transportation [Caltrans] 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Table 2-1 provides a list of other common acoustical descriptors.

Table 2-1. Common Acoustical Descriptors	
Descriptor	**Definition**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels is measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

2.1.5.1 Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

2.1.5.2 Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes of annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation between noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earthmoving which requires the use of heavy-duty earth moving equipment.

Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Threshold at which there is a risk of architectural damage to extremely fragile historic buildings, ruins, ancient monuments
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Threshold at which there is a risk of architectural damage to fragile buildings. Virtually no risk of architectural damage to normal buildings
0.25	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to historic and some old buildings
0.3	96	Vibrations may begin to feel severe to people in buildings	Threshold at which there is a risk of architectural damage to older residential structures
0.5	103	Vibrations considered unpleasant by people subjected to continuous vibrations	Threshold at which there is a risk of architectural damage to new residential structures and Modern industrial/commercial buildings

Source: Caltrans 2020b

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The nearest existing noise sensitive receptor to the Project Site is a single-family residence approximately 634 feet from the Project's southwestern boundary, fronting S. Victoria Avenue. Furthermore, there is a cemetery approximately 1,127 north of the Project Site, which also is categorized as sensitive noise receptor. Once constructed, the residential components of the Proposed Project would be considered noise-sensitive receptors.

3.1.1 Existing Ambient Noise Measurements

The Project Site is currently undeveloped land surrounded mainly by agricultural lands, a golf course, and commercial/industrial land uses. In order to quantify existing ambient noise levels in the Project Area, ECORP Consulting, Inc. conducted three short-term noise measurements (15-minutes) in the surrounding areas and one long-term noise measurement (24 hours) on the Project Site on August 28th and 29th, 2023. The 15-minute measurements were taken between 11:57 a.m. and 1:03 p.m. on August 29th and are representative of typical existing noise exposure within and immediately adjacent to the Project Site during the daytime. The long-term measurement was taken from 11:34 a.m. on August 28th to 11:34 a.m. on August 29th. This 24-hour noise measurement is representative of typical existing noise exposure on the Project Site during a typical 24-hour day. The average noise levels of noise measured at each location are listed in Table 3-1.

Table 3-1. Existing (Baseline) Noise Measurements						
Location Number	**Location**	**L_{eq}**	**CNEL**	**L_{min}**	**L_{max}**	**Time**
Short Term Measurements						
1	Adjacent to the intersection of Orr Road and McGrath Road, in the Ivy Lawn Cemetery	**53.3**	N/A	45.7	69.7	11:57 a.m. – 12:12 p.m.
2	On Parkway, south of Olivas Park Drive.	**68.1**	N/A	51.5	85.9	12:24 p.m. – 12:39 p.m.
3	Along Monarch Lane, south of Santa Clara River and east of N. Victoria Avenue	**61.7**	N/A	51.1	72.5	12:48 p.m. – 1:03 p.m.
4	Approximately 15 feet east of S. Victoria Avenue.	68.5	**73.6**	39.2	93.3	11:34 a.m. – 11:34 a.m.

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Notes: L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. L_{min} is the minimum noise level during the measurement period and L_{max} is the maximum noise level during the measurement period. CNEL is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

As shown in Table 3-1, the ambient recorded noise levels range from 53.3 to 68.1 dBA L_{eq} over the course of the three short-term noise measurements taken in the Project vicinity. The ambient noise levels recorded by the long-term measurement indicate that the Project Site currently experiences a noise level of 73.6 dBA CNEL. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on adjacent roads, such as vehicles traveling on S. Victoria Avenue.

3.1.2 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Traffic Impact Assessment (Kimley Horn 2023). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 3-2.

Table 3-2. Existing Roadway Noise Levels		
Roadway Segment	**Surrounding Uses**	**CNEL at 100 feet from Centerline of Roadway**
S. Victoria Avenue		
North of US-101 offramp	Residential and Commercial	**67.9**
Between US-101 offramp and Valentine Road	Commercial	**67.7**
Between Valentine Road and Olivas Park Drive	Commercial/Cemetery/Transient Lodging/Project Site	**68.7**
South of Olivas Park Drive	Agriculture	**69.2**
Valentine Road		
West of US-101 on/offramp	Cemetery and Commercial	**62.4**
Between US-101 on/offramp and S. Victoria Avenue	Commercial	**64.8**
East of S. Victoria Avenue	Commercial	**54.0**
Olivas Park Drive		
West of S. Victoria Avenue	Residential and Agriculture	**62.7**
East of S. Victoria Avenue	Agriculture and Commercial	**61.4**
Johnson Road		
North of US-101 offramp	Residential and Commercial	**63.4**
South of US-101 offramp	Commercial and Industrial	**60.3**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Kimley Horn (2023). The most relevant roadway segments were chosen by Kimley Horn. Refer to Attachment B for traffic noise modeling assumptions and results.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 54.0 to 69.2 dBA CNEL at a distance of 100 feet from the centerline. As previously described, CNEL is A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in Table 3-2 may differ from measured levels in Table 3-1 because the measurements represent noise levels at different locations around the Project Area and are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an eight-hour work shift (29 Code of Regulations 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

4.1.2 National Institute of Occupational Safety and Health

A division of the US Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

4.1.3 Federal Interagency Committee on Noise (FICON)

The FICON thresholds of significance assist in the evaluation of increased traffic noise. The 2000 FICON findings provide guidance as to the significance of changes in ambient noise levels due to transportation noise sources. FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA L_{dn} and the project creates a readily perceptible 5 dBA L_{dn} or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards;
  or
- If the existing noise levels range from 60 to 65 dBA L_{dn} and the project creates a barely perceptible 3 dBA L_{dn} or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards;
  or
- If the existing noise levels already exceed 65 dBA L_{dn} and the project creates a community noise level increase of greater than 1.5 dBA L_{dn}.

4.2 State

4.2.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

4.2.2 State Office of Planning and Research Noise Element Guidelines

The State OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.2.3 California Department of Transportation

In 2020, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2020b). The manual provides general guidance on vibration issues associated with the construction and operation of projects concerning human perception and structural damage. Table 2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

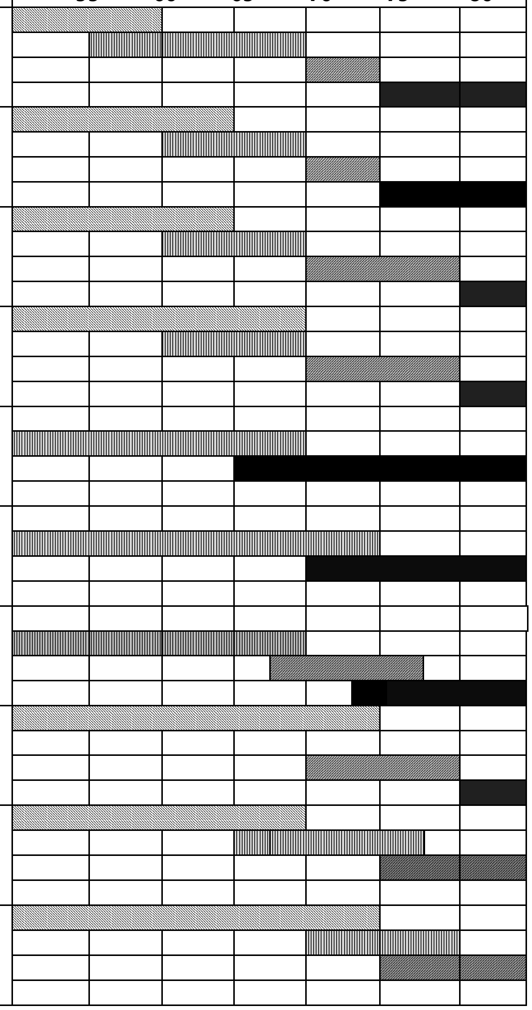
4.3 Local

4.3.1 City of Ventura General Plan Noise Element

The Noise Element of the General Plan provides policy direction to protect its citizens and community from noise disturbances. By quantifying existing roadway noise sources and identifying noise policies and actions, the City minimizes the harmful effects of noise throughout the community. The main goals of the document are to improve the noise environment for its residents, employees, visitors, and other persons. The City's existing noise policies establish allowable exterior noise levels based on the land use type, shown in Table 4-1 below.

Table 4-1. City of Ventura Acceptable Noise Levels

Land Uses	Community Noise Exposure CNEL or Ldn (dBA): 55 60 65 70 75 80
Residential-Low Density Single Family, Duplex, Mobile Homes	
Residential - Multiple Family	
Transient Lodging: Hotels and Motels	
Schools, Libraries, Churches, Hospitals, Nursing Homes	
Auditoriums, Concert Halls, Amphitheaters	
Sports Arena, Outdoor Spectator Sports	
Playground, Neighborhood Parks	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	
Office Buildings, Commercial, and Professional Centers	
Industrial, Manufacturing, Utilities, Agricultural	



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: City of Ventura General Plan 2005

4.3.2 City of Ventura Municipal Code

The City's Municipal Code outlines the general noise regulations for the City. More specifically, Section *10.650.150 Special Noise Sources* restricts construction noise and construction activities to the hours of 7:00 a.m. and 8:00 p.m.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce:

1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) For a project located within the vicinity of a private airstrip or 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 purposes of this analysis, Project construction noise is compared to the allowable hours of construction mandated by the City as well as the NIOSH standard of 85 dBA for more than 8 hours per day, since construction work for the Proposed Project is anticipated to span a typical workday of 8 hours daily. The City does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, Project groundborne vibration is evaluated against the Caltrans (2020b) recommended standard of 0.3 inches per second PPV.

The noise/land use compatibility associated with locating the proposed residences on the Project Site is determined by a comparison of existing noise levels against the City's noise/land use compatibility standards for multifamily land uses (shown in Table 4-1). Furthermore, noise generated by the Project's offsite transportation noise is compared to the FICON thresholds of significance in the evaluation of increased traffic noise, and the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013) that notes that a doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). Onsite noise generated by Project operations is compared against the City's protective standard of Normally Acceptable noise levels for single family residential land uses of up to 60 dBA and the Normally Acceptable noise levels for Office Buildings, Commercial, and Professional Centers of up to 70 dBA promulgated by the City's General Plan.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise-prediction modeling. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Noise Model (2006). Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Transportation-source noise levels associated with the Project were calculated using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) with trip generation rates from the Traffic Impact Assessment (Kimley Horn 2023). Onsite stationary source noise levels associated with the Project have been calculated with the SoundPLAN 3D noise model, which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings and barriers.

5.3 Impact Analysis

5.3.1 Would the Project Result in Short-Term Construction-Generated Noise in Excess of Standards?

Onsite Construction Noise

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, building construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The nearest existing noise sensitive receptors to the Project Site is a single-family residence approximately 634 feet from the Project's southwestern boundary, fronting S. Victoria Avenue. As previously mentioned, construction is not subject to any noise standards, but is restricted by the Municipal Code's Section 10.650.150, which limits construction activities to the daytime hours of 7:00 a.m. to 8:00 p.m. The Project would be required to limit construction to the daytime hours as specified in the City Municipal Code.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptor and in order to evaluate the potential health-related effects (physical damage to the ear, psychological effects) from construction noise, the construction equipment noise levels were calculated using the Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

The closest sensitive receptor is a residence approximately 634 feet southwest of the Project's boundary. The anticipated short-term construction noise levels generated for the necessary equipment for each phase of construction are presented in Table 5-1.

Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptors

Construction Phase	Estimated Exterior Construction Noise Level at Nearest Sensitive Receptor (dBA L_{eq})	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Site Preparation	65.6	*85*	**No**
Grading	66.2	*85*	**No**
Building Construction, Paving and Painting	68.4	*85*	**No**

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment C for Model Data Outputs.

Notes: Construction equipment used during construction derived from the California Emissions Estimator Model (CalEEMod) version 2022.1. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters. The construction noise was modeled at the closest sensitive receptor, which is a residence that is approximately 634 feet southwest of the Project's boundary. Construction, paving and painting are assumed to occur simultaneously.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 5-1, construction activities would not exceed the 85 dBA NIOSH construction noise threshold during any phase of construction at the nearby noise-sensitive receptors. It is noted that construction noise was modeled on a worst-case basis. It is very unlikely that all pieces of construction equipment would be operating at the same time for the various phases of Project construction as well as at the point closest to residences.

Offsite Construction Worker Traffic Noise

Project construction would result in additional traffic on adjacent roadways over the period that construction occurs. According to the California Emissions Estimator Model, which is used to predict the maximum number of construction-related vehicle trips traveling to and from the Project Site, the maximum number of construction related trips traveling to and from the Project Site during a single construction phase would not be expected to exceed 130 trips in total. According to Caltrans' *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). During construction, the Project Site would be accessible from S. Victoria Avenue. According to the Project's Traffic Impact Assessment from Kimley Horn (2023), the portion of S. Victoria Avenue between Valentine

Road and Olivas Park Drive, which includes the Project Site, currently accommodates approximately 27,720 average daily trips (ADT). Thus, the Project construction would not result in a doubling of traffic, and therefore its contribution to existing traffic noise would not be perceptible. Additionally, it is noted that construction is temporary, and these trips would cease upon completion of the Project.

5.3.2 Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The closest sensitive receptor is a residence approximately 634 feet southwest of the Project's boundary.

The Project proposes the construction and operation of approximately 266,915 SF of residential living area, consisting of 181 residential market rate units, 104 affordable housing units, and 12 live-work units. The 15,900 SF commercial space would consist of two buildings that would accommodate restaurants and small commercial retail shops. Operational noise sources associated with the Proposed Project include mobile and stationary (i.e., people talking, car door opening and closing, parking garage noise, park activities, the unloading of trucks, typical neighborhood noise, and internal circulation) sources.

Project Land Use Compatibility

The City's General Plan establishes the use of compatibility exterior noise level standards as seen in Table 4-1 above. The City's noise level standards are applicable to new projects and act as a tool to gauge the compatibility of new land uses relative to existing noise levels. Table 4-1 identifies the exterior noise levels standards for various land uses, including multi-family residential and commercial uses such as those proposed by the Project. There are several categories of noise levels for the various uses, including Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable. In the case that the noise levels identified at the Proposed Project Site are within the acceptable noise limits presented in the General Plan, the Project is considered compatible with the existing noise environment. As previously stated, the Project proposes the construction of multi-family residences and commercial buildings that would accommodate restaurants and small commercial retail shops.

The predominant noise source in the Project vicinity is generated by traffic on S. Victoria Avenue. As shown in Table 3-2, the existing noise levels associated with S. Victoria Avenue traffic have been calculated using traffic data provided by Kimley Horn (2023). Because the Project Site is adjacent to S. Victoria Avenue, the noise levels calculated by traffic data can generally predict the general noise within the Project area at ground level. More specifically, the segment of S. Victoria Avenue, between Valentine Road and Olivas Park Drive, that traverses parallel to the Project Site generates noise levels of approximately 68.7 dBA CNEL, which is considered a Conditionally Acceptable noise level for multi-family residential such as that proposed by the Project. However, this calculation is specific to ground level receptors and the multi-family building at the western boundary of the Project Site is proposed to be four (4) stories in height. Vicinity noise sources, such as S. Victoria Avenue traffic, could affect each of the higher floors of the multi-family building differently. In order to estimate the potential sound that would be experienced at the façade of each of the four floors of the proposed multi-family building, the propagation of noise emanating from S. Victoria Avenue is calculated using the SoundPLAN 3D noise model. SoundPLAN 3D noise model generates computer simulations of noise situations based on the site's features. Further, SoundPLAN creates noise contours using reference noise levels, topography, point and area noise sources, mobile noise sources, and intervening structures. The sound power reference noise level of 68.7 dBA CNEL, as calculated using the FHWA Highway Traffic Noise Prediction Model (see Table 3-2 above), is inputted into the SoundPLAN 3D noise model. As previously described, the FHWA model is two dimensional and calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. According to the SoundPLAN 3D noise model (see Attachment D), the exterior façade of the proposed multi-family building along the western boundary of the Project Site would be exposed to noise levels of 67.6 – 69.3 dBA CNEL at the second floor, 68.8 – 69.7 dBA CNEL at the third floor and 69.0 – 69.7 dBA CNEL at the fourth floor. This range of noise is considered Conditionally Acceptable for multi-family residential such as that proposed by the Project.

However, a long-term noise measurement was conducted by ECORP Consulting Inc. on August 28th to August 29th, 2023, to record existing ambient noise levels from all noise sources in the Project Area, not just traffic noise. The noise measurement was taken on the western portion of the Project Site along S. Victoria Avenue, approximately where the multi-family building is proposed. The ambient noise levels recorded by the long-term measurement indicate that the Project Site currently experiences a noise level of 73.6 dBA CNEL (see Table 3-1 above). According to the City's noise level standards table, presented in Table 4-1, this noise level recorded by the long-term noise measurement on the Project Site falls within the Normally Unacceptable noise level for multifamily residential uses (70-75 dBA). As noted in the General Plan, if new construction or development does proceed in areas experiencing Normally Unacceptable noise levels, a detailed analysis of noise reduction requirements must be made, and Project buildings require noise insulation features included in the design.

In terms of the proposed commercial buildings on the southwestern portion of the Site, the long-term noise measurement of 73.6 dBA CNEL indicates that these buildings would be subjected to Conditionally Acceptable noise levels for commercial land uses, per the General Plan. The General Plan notes that new land uses experiencing Conditionally Acceptable noise levels is typically remedied by closed windows and fresh air supply systems or air conditioning.

Because the western portion of Project Site is already experiencing a noise level of 73.6 dBA CNEL at ground level, and projected noise levels at the facades of the second, third, and fourth floors of the proposed multi-family building along the western boundary of the Project Site could reach 69.3 – 69.7 dBA CNEL, noise-reducing mitigation is required before locating noise-sensitive multi-family residential units at the Project Site location. As previously described, noise levels can be reduced by intervening structures. For instance, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, to achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces.

Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. The multi-family building at the western boundary of the Project Site is proposed to be four stories in height and therefore a noise barrier that completely breaks the "line of sight" between S. Victoria Avenue and the Project Site is infeasible. However, while it is infeasible to effectively reduce the identified exterior noise level range of 69.3 – 73.6 dBA CNEL at the façade of the proposed multi-family building along the western boundary of the Project Site, it is noted that this portion of the Project Site is not proposed as 'living space' where noise-sensitive receptors would spend time. As previously described in Section 2.1.2, *Sound Propagation and Attenuation*, the manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002) and the exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. 2006). Thus, noise levels ranging from 69.3 – 73.6 dBA CNEL at the façade of the proposed multi-family building along the western boundary of the Project Site could be expected to attenuate to 39.3 – 43.6 dBA CNEL within the interior living spaces of the building.

The General Plan directs any new construction or development within noise levels considered Normally Unacceptable to implement noise insulation features included in the design of the Project. Installation features that usually reduce noise are standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 35. STC is an integer rating of how well a building partition attenuates airborne sound. STC measures a material's ability to reduce airborne sound transmission through a partition. Higher STC ratings indicate better sound insulation. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations. Sound insulation for residences can improve the outdoor-to-indoor noise reduction and can provide from 5 to 7 dB of noise reduction (High Speed Rail Authority 2022). Although this approach has no effect on noise in exterior areas, it can be useful for land uses where indoor sensitivity is of most concern, such as multi-family residential units in a four-story building. Substantial improvements in building sound insulation (on the order of 5 to 10 dB) can often be achieved by adding an extra layer of glazing to windows, by sealing holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air conditioning so that windows do not need to be opened. It is also noted that the Project would be constructed in California and all residential construction in California is required to adhere to the California Building Code (CBC), which includes provisions aimed at attenuating noise to ensure that buildings provide a comfortable and peaceful environment for occupants. For instance, the CBC establishes minimum STC ratings for walls, floors, and ceilings. The CBC mandates certain STC ratings for different types of building elements to minimize sound transmission between spaces. In addition to STC, the CBC often requires a minimum Impact Insulation Class (IIC) rating for floor-ceiling assemblies. IIC measures a material's ability to reduce impact sound transmission through a floor-ceiling assembly. Like STC, higher IIC ratings indicate better sound insulation. These aspects of the CBC contribute to the 30 dBA or more exterior-to-interior reduction of newer residential units previously described (Harris Miller, Miller & Hanson Inc. 2006).

Additionally, the remainder of the Project Site would be designed in a manner in which to reduce noise from offsite sources as experienced by onsite noise sensitive receptors. For instance, the four-story multi-family building on the western boundary of the Site, along with the commercial buildings on the southwestern portion of the Site (see Figure 1-1) would shield/buffer the remainder of the multi-family residential buildings on the Site from the traffic noise generated on S. Victoria Avenue and provide some reduction of noise as experienced at the central portion of the Site. According to the FHWA (2006), when a receiver is shielded from a noise source with a barrier (such as a building) containing some gaps it experiences a 5 dBA noise reduction from the source. Thus, the residential units located on the eastern and southern portion of the Project Site would have an approximate 5 dBA reduction from the traffic noise on S. Victoria Avenue due to the multifamily residential and commercial/retail buildings proposed to be on the Project Site between the residences and S. Victoria Avenue.

In summary, the Project Site's unmitigated noise levels are within the General Plan's designated Normally Unacceptable noise levels for multi-family residential land uses and Conditionally Acceptable noise levels for commercial land uses. As such, the Project is required to implement noise reduction design measures and insulation in order to reduce noise to acceptable levels.

The following mitigation, involving the implementation of insulation design features for the Project's buildings, is necessary to reduce noise exposure on the Project Site:

<u>Recommended Mitigation</u>

NOI-1: Noise Reductions for Land Use Compatibility

The Project improvement and building plans shall include the following requirements for operational activities:

- The multi-family building (Building 1) along the western boundary of the Site shall be designed and built with the installation of standard thermal-pane residential windows and doors with a minimum rating of STC 35.
- At a minimum, all buildings located on the western boundary of the Project Site (Buildings 1, 8, and 9), which includes the multi-family residential building and commercial/retail buildings along S. Victoria Avenue, shall have air conditioning units installed. This would allow occupants and business owners to close doors and windows as desired for additional acoustical isolation.

Timing/Implementation: *Prior to the issuance of occupancy permits*

Monitoring/Enforcement: *City of Ventura Planning Division*

Implementation of mitigation measure NOI-1 would require the use of noise reducing insulation windows and doors and require the installation of air conditioning units in the multi-family building at the western boundary of the Project Site, resulting in compliance with the General Plan's direction for mitigating Normally Unacceptable noise environments. As such, the installation of thermal-pane residential windows/doors with a minimum rating of STC 35 would provide 5 to 7 dB of noise reduction. With the implementation of the above design features and insulation strategies, the interior noise level range of 39.3 – 43.6 dBA CNEL within the multi-family building at the western boundary of the Project Site would be further reduced to at least 34.3 – 38.6 dBA CNEL (Exterior façade noise range of 69.3 – 73.6 dBA – 30 dBA exterior-to-interior noise reduction – 5 dBA thermal-pane residential windows/doors reduction = interior noise range of 34.3 – 38.6 dBA). Thus, with imposition of mitigation measure NOI-1, the placement of the multi-family building at the western boundary of the Project Site would be considered acceptable.

The insulation requirements of mitigation measure NOI-1 would reduce indoor noise levels at the commercial/retail buildings on the southwestern corner of the Project Site and comply with the General Plan's direction for mitigating Conditionally Acceptable noise environments with closed windows and fresh air supply systems or air conditioning. Thus, with imposition of mitigation measure NOI-1, the placement of the Project commercial/retail buildings at their proposed locations would be considered acceptable. Lastly, the multi-family residential buildings proposed throughout the central portion of the Project Site would benefit from the noise reduction provided by the additional buffering of traffic noise from the surrounding Project buildings (a reduction of 5 dBA), and the increased distance between these buildings and S. Victoria Avenue. These features would result in the noise levels experienced at buildings falling within the acceptable range. In summary, the implementation of mitigation measure NOI-1 would ensure that the General Plan's compatibility standards and requirements are achieved.

Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity as a result of the Proposed Project were modeled based on the traffic volumes identified by Kimley Horn (2023). Table 5-2 shows the calculated offsite roadway noise levels with traffic levels during existing levels and the projected levels of project buildout. The City of Ventura does not regulate noise from transportation sources and does not have noise standards for such sources. As such, the thresholds recommended by FICON will be used in this analysis.

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the project creates a readily perceptible 5 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels range from 60 to 65 dBA CNEL and the project creates a barely perceptible 3 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards;
  or
- If the existing noise levels already exceed 65 dBA CNEL and the project creates a community noise level increase of greater than 1.5 dBA CNEL.

Table 5-2. Proposed Project Predicted Traffic Noise Levels							
Roadway Segment	**Surrounding Uses**	**CNEL at 100 feet from Centerline of Roadway**		**Change**	**FICON Standard**	**Applicable Exterior Noise Standard**	**Exceed Both Standards?**
		Existing	**Existing + Project**				
Victoria Avenue							
North of US-101 offramp	Single Family Residential & Commercial	67.9	68.3	+0.4	*>1.5*	60 dBA	**No**
Between US-101 offramp and Valentine Road	Commercial	67.7	67.9	+0.2	*>1.5*	*70 dBA*	**No**
Between Valentine Road and Olivas Park Drive	Commercial & Cemetery & Transient Lodging	68.7	68.9	+0.2	*>1.5*	*65 dBA*	**No**
South of Olivas Park Drive	Agriculture	69.2	69.3	+0.1	*>1.5*	*75 dBA*	**No**
Valentine Road							
West of US-101 on/offramp	Cemetery & Commercial	62.4	62.4	+0.0	*>3*	70 dBA	**No**
Between US-101 on/offramp and Victoria Avenue	Commercial	64.8	64.8	+0.0	*>3*	*70 dBA*	**No**
East of Victoria Avenue	Commercial	54.0	54.0	+0.0	*>5*	*70 dBA*	**No**
Olivas Park Drive							
West of Victoria Avenue	Single Family Residential & Agriculture	62.7	62.9	+0.2	*>3*	*60 dBA*	**No**
East of Victoria Avenue	Agriculture & Commercial	61.4	62.9	+1.5	*>3*	*70 dBA*	**No**
Johnson Drive							
North of US-101 offramp	Single Family Residential & Commercial	63.4	63.4	+0.0	*>3*	60 dBA	**No**
South of US-101 offramp	Commercial & Industrial	60.3	60.4	+0.1	*>3*	*70 dBA*	**No**

Table 5-2. Proposed Project Predicted Traffic Noise Levels

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Kimley Horn (2023). The most relevant roadway segments were identified by Kimley Horn. Refer to Attachment B for traffic noise modeling assumptions and results.

As shown in Table 5-2, none of the Project vicinity roadway segments would experience both an incremental increase of traffic noise in excess of the FICON standards and a resultant noise level over the applicable exterior noise standard.

Operational Onsite Stationary Noise

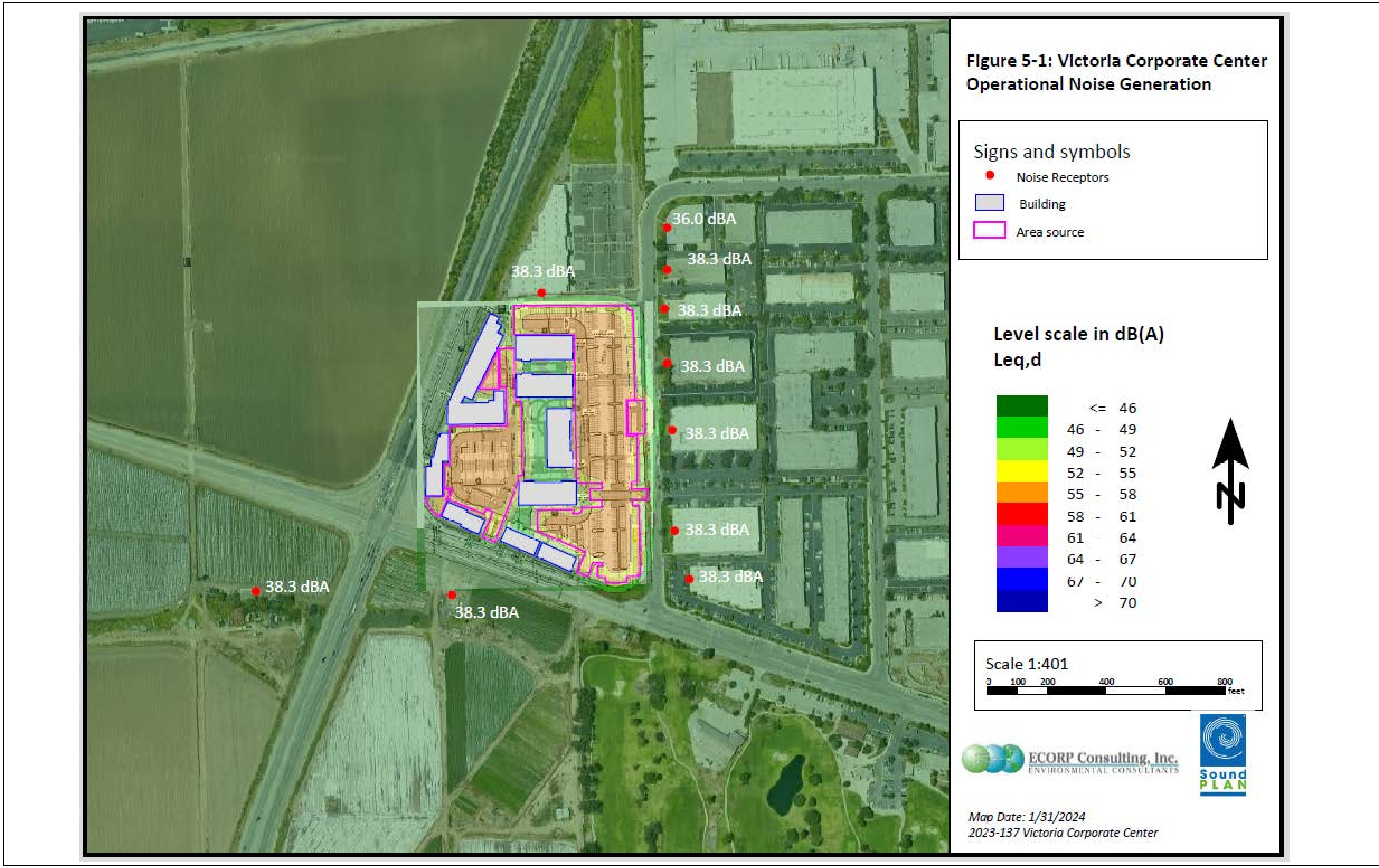
The Project is proposing the construction of a residential living area, consisting of 181 residential market rate units, 104 affordable housing units, and 12 live-work units. Furthermore, the Project proposes the construction of commercial space consisting of two buildings that would accommodate restaurants and small commercial retail shops. The main stationary operational noise associated with the Project would include parking lot activity (i.e., people talking, car door opening and closing, and car stereos) and noise associated with mixed use land uses surrounding the commercial/retail buildings. Onsite Project operations have been calculated using the SoundPLAN 3D noise model. The modeling scenario includes the features of the Proposed Project, namely the residential buildings, parking lots, commercial/retail buildings, and recreational park areas. Reference sound power measurements used to inform the 3D noise model representing the parking areas, mixed used developments, and residential outdoor activity areas were previously recorded by ECORP Consulting. The results of the SoundPLAN model can be found in Attachment D.

The City has established noise exterior standards for various land uses, shown in Table 4-1 above. The Normally Acceptable standard for commercial receptors is under 70 dBA, while the Normally Acceptable standard for residential receptors is under 60 dBA. Table 5-3 shows the predicted Project noise levels at ten locations in the Project vicinity, as predicted by SoundPLAN. These locations represent the closest residential and commercial land uses to the Project Site. Additionally, a noise contour graphic (see Figure 5-1) has been prepared to provide a visual depiction of the predicted noise levels in the Project vicinity from Project operations.

Table 5-3. Operational Noise Levels			
Location	**Operational Noise Attributed to Project (dBA)**	**City's Normally Acceptable Noise Standard (dBA)**	**Exceed Standard?**
#1 Commercial building directly north of Project Site	44.1 dBA	*70*	**No**
#2 Commercial building east of Project Site	36.0 dBA	*70*	**No**
#3 Commercial building east of Project Site	38.3 dBA	*70*	**No**
#4 Commercial building east of Project Site	40.9 dBA	*70*	**No**
#5 Commercial building east of Project Site	42.5 dBA	*70*	**No**
#6 Commercial building east of Project Site	43.3 dBA	*70*	**No**
#7 Commercial building east of Project Site	41.7 dBA	*70*	**No**
#8 Commercial building east of Project Site	38.8 dBA	*70*	**No**
#9 Commercial flower shop south of Project Site	35.8 dBA	*70*	**No**
#10 Residence southwest of Project Site	21.4 dBA	*60*	**No**

Source: Stationary source noise levels were modeled by ECORP Consulting using SoundPLAN 3D noise model. Refer to Attachment D for noise modeling assumptions and results.

As shown in Table 5-3, the operational noise levels as a result of operational activities on the Project Site would not exceed the City's Normally Acceptable noise level standards (shown in Table 4-1) for the existing residence southwest of the Project Site or the commercial uses to the north, east, and south of the Project Site. Furthermore, it is noted that the modeled noise levels identified are a worst-case scenario. All noise producing sources on the Project Site were modeled for noise as if occurring at the same time and at the highest activity level to produce noise levels at the level as those predicted. Not all activities taking place on the Project Site would generate as much noise as predicted.



Map Date: *2/7/2023*
Photo (or Base) Source: *SoundPLAN 2024*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 5-1. Project Onsite Noise Propagation

2024-137 Victoria Corporate Center

5.3.3 *Would the Project Expose Structures to Substantial Groundborne Vibration?*

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with standard construction equipment at 25 feet distant are summarized in Table 5-4.

Table 5-4. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Vibratory Roller	0.210
Pile Driver	0.170
Large Bulldozer	0.089
Caisson Drilling	0.089
Hoe Ram	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer/Tractor	0.003

Source: FTA 2018; Caltrans 2020b

The City does not have a numeric threshold associated with construction vibrations. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.3 inches per second PPV with respect to the prevention of structural damage for commercial buildings is used as a threshold. This is also the level at which vibrations may begin to feel severe to people in buildings. It is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Therefore, consistent with FTA recommendations for calculating vibration generated from construction equipment, construction vibration was measured from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site is the commercial building located 481 feet from the center of the Site.

Based on the representative vibration levels presented for various construction equipment types in Table 5-4 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential Project construction vibration levels. The FTA provides the following equation:

$$[PPVequip = PPVref \times (25/D)^{1.5}]$$

Table 5-5 presents the expected Project related vibration levels at a distance of 481 feet.

Table 5-5. Onsite Construction Vibration Levels at 481 Feet

Receiver PPV Levels (in/sec)[1]						Peak Vibration	Threshold	Exceed Threshold
Impact Pile Driver	**Vibratory Roller**	**Large Bulldozer, Caisson Drilling, & Hoe Ram**	**Loaded Trucks**	**Jack-hammer**	**Small Bulldozer**			
0.0020	0.0025	0.0011	0.001	0.0004	0.00004	**0.0025**	0.3	**No**

Notes: [1]Based on the Vibration Source Levels of Construction Equipment included on Table 5-4 (FTA 2018). Distance to the nearest structure of concern is approximately 481 feet measured from Project Site center.

As shown in Table 5-5, vibration as a result of onsite construction activities on the Project Site would not exceed 0.3 PPV at the nearest structure. Thus, onsite Project construction would not exceed the recommended threshold.

Project operations would not include the use of any stationary equipment that would result in excessive vibration levels. Therefore, the Project would not result in groundborne vibration impacts during operations.

5.3.4 Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?

The Project Site is located approximately 2.95 miles north of Oxnard Airport. According to the County of Ventura Department of Airports, the Oxnard Airport undergoes voluntary noise abatement procedures to reduce the noise that may result from the airport. Furthermore, according to the Airport Comprehensive Land Use Plan for Ventura County (2000), the Project Site lays beyond the Oxnard Airport noise contours. Thus, it is not expected for the Project Site to experience substantial airport noise. Thus, the Proposed Project would not expose people residing or working on the Project Site to excess airport noise levels.

5.3.5 Cumulative Noise

Cumulatively Considerable Construction Noise

Construction activities associated with the Proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the Proposed Project was determined to be less than significant following compliance with City noise standards. Cumulative development in the vicinity of the Project Site could result in elevated construction noise levels at sensitive receptors in the Project Area. However, each project would be required to comply with the applicable noise limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Cumulatively Considerable Traffic Noise

Cumulative traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise-sensitive land uses) were modeled based on the traffic volumes identified by Kimley Horn (2023) to determine the noise levels along project vicinity roadways. Table 5-6 shows the calculated offsite roadway noise levels under cumulative conditions without the Project (Cumulative No Project) compared to cumulative conditions plus future buildout of the Project (Cumulative Plus Project). The calculated noise levels as a result of Cumulative Plus Project conditions at affected sensitive land uses are compared to the FICON significance standards.

FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the project creates a readily perceptible 5 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels range from 60 to 65 dBA CNEL and the project creates a barely perceptible 3 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels already exceed 65 dBA CNEL and the project creates a community noise level increase of greater than 1.5 dBA CNEL.

Table 5-6. Proposed Project Predicted Cumulative Traffic Noise Levels							
Roadway Segment	**Surrounding Uses**	**CNEL at 100 feet from Centerline of Roadway**		**Change**	**FICON Standard**	**Applicable Exterior Noise Standard**	**Exceed Both Standards?**
		Cumulative	**Cumulative + Project**				
Victoria Avenue							
North of US-101 offramp	Single Family Residential & Commercial	69.3	69.3	0.0	*>1.5*	60 dBA	**No**
Between US-101 offramp and Valentine Road	Commercial	68.6	68.7	+0.1	*>1.5*	*70 dBA*	**No**
Between Valentine Road and Olivas Park Drive	Commercial & Cemetery & Transient Lodging	69.9	70.1	+0.2	*>1.5*	*65 dBA*	**No**
South of Olivas Park Drive	Agriculture	71.4	71.4	0.0	*>1.5*	*75 dBA*	**No**
Valentine Road							
West of US-101 on/offramp	Cemetery & Commercial	63.2	63.3	+0.1	*>3*	70 dBA	**No**
Between US-101 on/offramp and Victoria Avenue	Commercial	65.3	67.1	+1.8	*>1.5*	*70 dBA*	**No**
East of Victoria Avenue	Commercial	55.7	55.7	0.0	*>5*	*70 dBA*	**No**
Olivas Park Drive							
West of Victoria Avenue	Single Family Residential & Agriculture	66.4	66.5	+0.1	*>1.5*	*60 dBA*	**No**
East of Victoria Avenue	Agriculture & Commercial	64.9	65.7	+0.8	*>3*	*70 dBA*	**No**
Johnson Drive							

Table 5-6. Proposed Project Predicted Cumulative Traffic Noise Levels							
North of US-101 offramp	Single Family Residential & Commercial	65.6	65.6	+0.1	>*3*	60 dBA	**No**
South of US-101 offramp	Commercial & Industrial	63.3	63.4	+0.1	>*3*	*70 dBA*	**No**

Source: Cumulative traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Kimley Horn (2023). The most relevant roadway segments were chosen by Kimley Horn. Refer to Attachment B for traffic noise modeling assumptions and results.

As shown in Table 5-6, none of the Project vicinity roadway segments would experience both an incremental increase of traffic noise in excess of the FICON standards and a resultant noise level over the applicable exterior noise standard. Therefore, the Project would not contribute to cumulative traffic impacts.

Cumulatively Considerable Stationary Source Noise

Long-term stationary noise sources associated with the development of the Project, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and related cumulative projects together could result in higher noise levels than considered separately. As previously described, onsite noise sources associated with the Proposed Project were found to be acceptable as they do not exceed the City noise standards. Therefore, the Project would not contribute to cumulative impacts during operations.

6.0 REFERENCES

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LIST OF ATTACHMENTS

ATTACHMENT A

Baseline (Existing) Noise Measurements –Project Vicinity

Location: W:\Projects\2023\2023-137 FPA Ventura Olivas, LLC - Ventura\Model Files\Mapping\Baseline Noise Map.aprx - Portrait Template (agne - 2/2/2024)

Map Date: 2/2/2024
Sources: Esri 2024

Noise Measurement Locations Map

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2023-137

Site Number: 1			
Recorded By: Lindsay Liegler			
Job Number: 2023-137			
Date: 8/29/2023			
Time: 11:57 a.m. – 12:12 p.m.			
Location: Adjacent to the intersection of Orr Road and McGrath Road, in the Ivy Lawn Cemetery			
Source of Peak Noise: Ambient noise from S. Victoria Avenue			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
53.3	45.7	69.7	91.2

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**12/14/2022**	
	Microphone	**Larson Davis**	**377B02**	**334361**	**12/14/2022**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**12/14/2022**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**12/14/2022**	

Weather Data			
Est.	**Duration:** 15 min.	**Sky:** Clear	
	Note: dBA Offset = 0.10	**Sensor Height (ft):** 3.5	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	80	29.85

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.495.s	Computer's File Name	LxTse_-20230829 115733-LxT_Data.495.ldbin
Meter	LxT SE 0005120	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-29 11:57:33	Duration	0:15:00.1		
End Time	2023-08-29 12:12:33	Run Time	0:15:00.1	Pause Time	0:00:00.0
Pre-Calibration	2023-08-28 11:24:30	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	53.3 dB		
LAE	82.8 dB	SEA	--- dB
EA	21.4 µPa²h		
LZ_{peak}	91.2 dB	2023-08-29 12:09:30	
LAS_{max}	69.7 dB	2023-08-29 12:09:37	
LAS_{min}	45.7 dB	2023-08-29 12:05:56	
LA_{eq}	53.3 dB		
LC_{eq}	67.3 dB	LC_{eq} - LA_{eq}	14.0 dB
LAI_{eq}	54.5 dB	LAI_{eq} - LA_{eq}	1.2 dB

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

Community Noise	LDN	LDay	LNight	
	53.3 dB	53.3 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	53.3 dB	53.3 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	53.3 dB		67.3 dB		--- dB	
$L_{S(max)}$	69.7 dB	2023-08-29 12:09:37	--- dB	None	--- dB	None
$L_{S(min)}$	45.7 dB	2023-08-29 12:05:56	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	91.2 dB	2023-08-29 12:09:30

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	55.8 dB
LAS 10.0	52.9 dB
LAS 33.3	50.0 dB
LAS 50.0	49.0 dB
LAS 66.6	48.1 dB
LAS 90.0	47.1 dB

Site Number: 2			
Recorded By: Lindsay Liegler			
Job Number: 2023-137			
Date: 8/29/2023			
Time: 12:24 p.m. – 12:39 p.m.			
Location: On Parkway, south of Olivas Park Drive.			
Source of Peak Noise: Vehicles and trucks on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
68.1	51.5	85.9	102.1

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**12/14/2022**	
	Microphone	**Larson Davis**	**377B02**	**334361**	**12/14/2022**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**12/14/2022**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**12/14/2022**	

Weather Data			
Est.	**Duration:** 15 min.		**Sky:** Clear
	Note: dBA Offset = 0.10		**Sensor Height (ft):** 3.5
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	80	29.85

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.496.s	Computer's File Name	LxTse_-20230829 122400-LxT_Data.496.ldbin
Meter	LxT SE 0005120	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-29 12:24:00	Duration	0:15:48.4		
End Time	2023-08-29 12:39:49	Run Time	0:15:48.4	Pause Time	0:00:00.0
Pre-Calibration	2023-08-28 11:24:30	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	68.1 dB		
LAE	97.9 dB	SEA	--- dB
EA	680.4 µPa²h		
LZ_{peak}	102.1 dB	2023-08-29 12:35:44	
LAS_{max}	85.9 dB	2023-08-29 12:28:08	
LAS_{min}	51.5 dB	2023-08-29 12:25:29	
LA_{eq}	68.1 dB		
LC_{eq}	74.0 dB	LC_{eq} - LA_{eq}	5.9 dB
LAI_{eq}	71.2 dB	LAI_{eq} - LA_{eq}	3.1 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	1	0:00:02.2
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
68.1 dB	68.1 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
68.1 dB	68.1 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	68.1 dB		74.0 dB		--- dB	
$Ls_{(max)}$	85.9 dB	2023-08-29 12:28:08	--- dB	None	--- dB	None
$LS_{(min)}$	51.5 dB	2023-08-29 12:25:29	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	102.1 dB	2023-08-29 12:35:44

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	34	0:01:42.6

Statistics

LAS 5.0	74.3 dB
LAS 10.0	71.6 dB
LAS 33.3	64.5 dB
LAS 50.0	60.3 dB
LAS 66.6	57.2 dB
LAS 90.0	53.4 dB

Site Number: 3			
Recorded By: Lindsay Liegler			
Job Number: 2023-137			
Date: 8/29/2023			
Time: 12:48 p.m. – 1:03 p.m.			
Location: Along Monarch Lane, south of Santa Clara River and east of N. Victoria Avenue.			
Source of Peak Noise: Vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
61.7	51.1	72.5	101.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**12/14/2022**	
	Microphone	**Larson Davis**	**377B02**	**334361**	**12/14/2022**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**12/14/2022**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**12/14/2022**	

Weather Data			
Est.	**Duration:** 15 min.	**Sky:** Clear	
	Note: dBA Offset = 0.10	**Sensor Height (ft):** 3.5	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	80	29.85

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.497.s	Computer's File Name	LxTse_-20230829 124850-LxT_Data.497.ldbin
Meter	LxT SE 0005120	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-29 12:48:50	Duration	0:15:00.1		
End Time	2023-08-29 13:03:50	Run Time	0:15:00.1	Pause Time	0:00:00.0
Pre-Calibration	2023-08-28 11:24:30	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	61.7 dB		
LAE	91.2 dB	SEA	--- dB
EA	147.9 µPa²h		
LZ_{peak}	101.9 dB	2023-08-29 12:49:56	
LAS_{max}	72.5 dB	2023-08-29 12:58:31	
LAS_{min}	51.1 dB	2023-08-29 12:50:36	
LA_{eq}	61.7 dB		
LC_{eq}	70.1 dB	LC_{eq} - LA_{eq}	8.4 dB
LAI_{eq}	63.3 dB	LAI_{eq} - LA_{eq}	1.6 dB

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

Community Noise	LDN	LDay	LNight	
	61.7 dB	61.7 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	61.7 dB	61.7 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.7 dB		70.1 dB		--- dB	
$LS_{(max)}$	72.5 dB	2023-08-29 12:58:31	--- dB	None	--- dB	None
$LS_{(min)}$	51.1 dB	2023-08-29 12:50:36	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	101.9 dB	2023-08-29 12:49:56

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	24	0:00:57.9

Statistics

LAS 5.0	65.4 dB
LAS 10.0	64.4 dB
LAS 33.3	61.6 dB
LAS 50.0	60.4 dB
LAS 66.6	59.2 dB
LAS 90.0	55.9 dB

Site Number: 4 - Long Term
Recorded By: Lindsay Liegler
Job Number: 2023-137
Date: 8/28/2023 - 8/29/2023
Time: 11:34 a.m. – 11:34 a.m.
Location: Approximately 15 feet east of S. Victoria Avenue.
Source of Peak Noise: Vehicles on adjacent roadways, occasional train noise.

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**CNEL (dB)**
68.5	39.2	93.3	73.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**12/14/2022**	
	Microphone	**Larson Davis**	**377B02**	**334361**	**12/14/2022**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**12/14/2022**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**12/14/2022**	

Weather Data			
Est.	**Duration:** 24 hour		**Sky:** Clear
	Note: dBA Offset = 0.10		**Sensor Height (ft):** 3.5
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	6	80	29.85

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.494.s	Computer's File Name	LxTse_-20230828 113402-LxT_Data.494.ldbin
Meter	LxT SE 0005120	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-08-28 11:34:02	Duration	24:00:00.0		
End Time	2023-08-29 11:34:02	Run Time	24:00:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-08-28 11:24:32	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	68.5 dB		
LAE	117.9 dB	SEA	133.8 dB
EA	68.0 mPa²h		
LZ_{peak}	120.9 dB	2023-08-28 11:35:29	
LAS_{max}	93.3 dB	2023-08-29 06:42:07	
LAS_{min}	39.2 dB	2023-08-29 01:35:39	
LA_{eq}	68.5 dB		
LC_{eq}	77.6 dB	LC_{eq} - LA_{eq}	9.1 dB
LAI_{eq}	70.6 dB	LAI_{eq} - LA_{eq}	2.1 dB

Exceedances	Count	Duration
LAS > 85.0 dB	37	0:01:19.7
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	73.3 dB	69.4 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	73.6 dB	69.8 dB	67.4 dB	66.3 dB

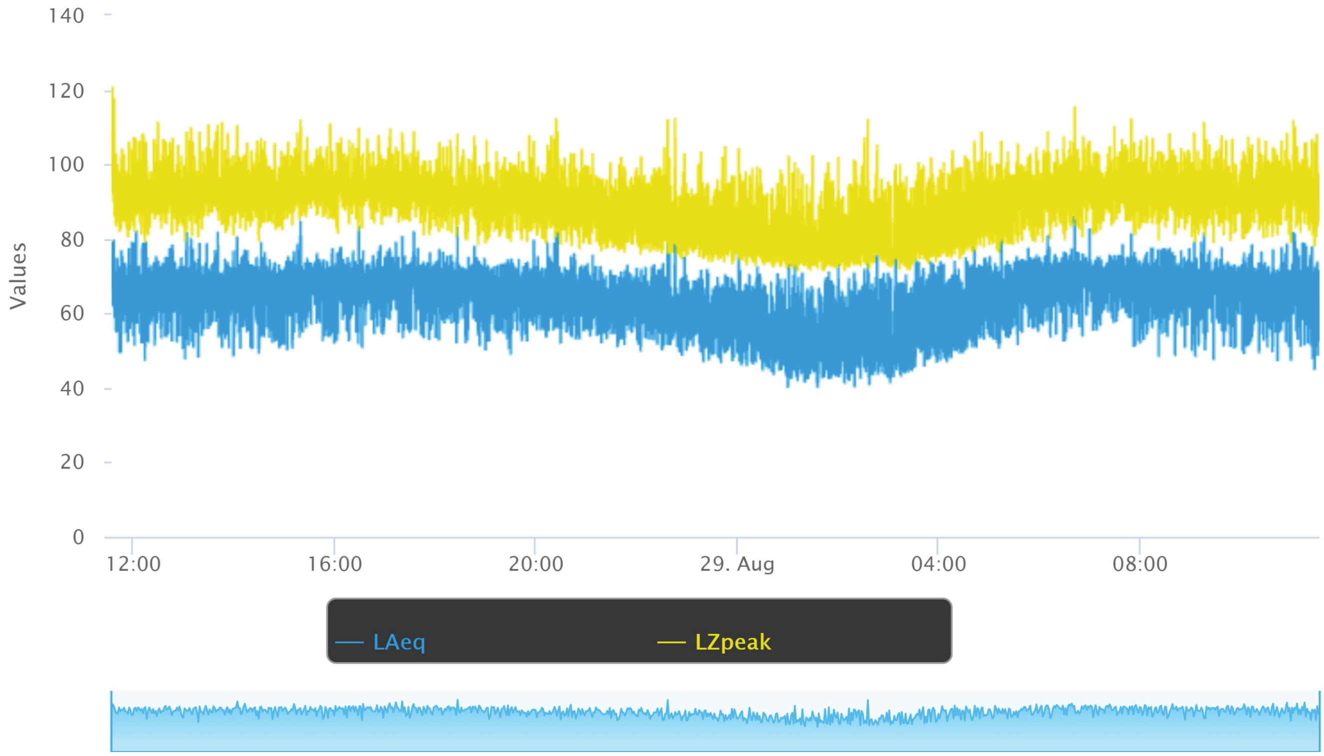
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	68.5 dB		77.6 dB		--- dB	
$Ls_{(max)}$	93.3 dB	2023-08-29 06:42:07	--- dB	None	--- dB	None
$LS_{(min)}$	39.2 dB	2023-08-29 01:35:39	--- dB	None	--- dB	None
$L_{Peak(max)}$	--- dB	None	--- dB	None	120.9 dB	2023-08-28 11:35:29

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	3760	4:27:24.8

Statistics

LAS 5.0	73.7 dB
LAS 10.0	72.2 dB
LAS 33.3	67.6 dB
LAS 50.0	63.6 dB
LAS 66.6	59.3 dB
LAS 90.0	50.7 dB

Time History



ATTACHMENT B

Federal Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS

Project Number: 2023-137
Project Name: Victoria Corporate Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s): **Existing**
Source of Traffic Volumes: Kimley Horn 2023
Community Noise Descriptor: L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Victoria Avenue													
North of US-101 offramp	Residential and Commercial	8	0	4030	36,270	40	100	0.5	0	1.8%	0.7%	69.1	67.9
Between US-101 offramp and Valentine Road	Commercial	4	0	4425	39,825	40	100	0.5	0	1.8%	0.7%	69.0	67.7
Between Valentine Road and Olivas Park Drive	Commercial/Cemetary/Transient	4	0	3080	27,720	50	100	0.5	0	1.8%	0.7%	69.9	68.7
South of Olivas Park Drive	Agriculture	4	0	3470	31,230	50	100	0.5	0	1.8%	0.7%	70.4	69.2
Valentine Road													
West of US-101 on/offramp	Cemetary and Commercial	2	0	1310	11,790	40	100	0.5	0	1.8%	0.7%	63.6	62.4
Between US-101 on/offramp and Victoria Avenue	Commercial	4	0	2230	20,070	40	100	0.5	0	1.8%	0.7%	66.0	64.8
East of Victoria Avenue	Commercial	2	0	190	1,710	40	100	0.5	0	1.8%	0.7%	55.2	54.0
Olivas Park Drive													
West of Victoria Avenue	Residential and Agriculture	2	0	1050	9,450	45	100	0.5	0	1.8%	0.7%	63.9	62.7
East of Victoria Avenue	Agriculture and Commercial	2	0	770	6,930	45	100	0.5	0	1.8%	0.7%	62.6	61.4
Johnson Road													
North of US-101 offramp	Residential and Commercial	4	0	1630	14,670	40	100	0.5	0	1.8%	0.7%	64.6	63.4
South of US-101 offramp	Commercial and Industrial	2	0	820	7,380	40	100	0.5	0	1.8%	0.7%	61.5	60.3

TRAFFIC NOISE LEVELS

Project Number: 2023-137
Project Name: Victoria Corporate Center

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	**Existing + Project**
Source of Traffic Volumes:	Kimley Horn 2023
Community Noise Descriptor:	L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Victoria Avenue													
North of US-101 offramp	Residential and Commercial	8	0	4450	40,050	40	100	0.5	0	1.8%	0.7%	69.5	68.3
Between US-101 offramp and Valentine Road	Commercial	4	0	4570	41,130	40	100	0.5	0	1.8%	0.7%	69.1	67.9
Between Valentine Road and Olivas Park Drive	Commercial/Cemetery/Transient	4	0	3250	29,250	50	100	0.5	0	1.8%	0.7%	70.1	68.9
South of Olivas Park Drive	Agriculture	4	0	3570	32,130	50	100	0.5	0	1.8%	0.7%	70.5	69.3
Valentine Road													
West of US-101 on/offramp	Cemetery and Commercial	2	0	1320	11,880	40	100	0.5	0	1.8%	0.7%	63.6	62.4
Between US-101 on/offramp and Victoria Avenue	Commercial	4	0	2250	20,250	40	100	0.5	0	1.8%	0.7%	66.0	64.8
East of Victoria Avenue	Commercial	2	0	190	1,710	40	100	0.5	0	1.8%	0.7%	55.2	54.0
Olivas Park Drive													
West of Victoria Avenue	Residential and Agriculture	2	0	1110	9,990	45	100	0.5	0	1.8%	0.7%	64.2	62.9
East of Victoria Avenue	Agriculture and Commercial	2	0	1100	9,900	45	100	0.5	0	1.8%	0.7%	64.1	62.9
Johnson Road													
North of US-101 offramp	Residential and Commercial	4	0	1630	14,670	40	100	0.5	0	1.8%	0.7%	64.6	63.4
South of US-101 offramp	Commercial and Industrial	2	0	830	7,470	40	100	0.5	0	1.8%	0.7%	61.6	60.4

TRAFFIC NOISE LEVELS

Project Number: 2023-137
Project Name: Victoria Corporate Center

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	**Cumulative**
Source of Traffic Volumes:	Kimley Horn 2023
Community Noise Descriptor:	L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Victoria Avenue													
North of US-101 offramp	Residential and Commercial	8	0	5630	50,670	40	100	0.5	0	1.8%	0.7%	70.5	69.3
Between US-101 offramp and Valentine Road	Commercial	4	0	5345	48,105	40	100	0.5	0	1.8%	0.7%	69.8	68.6
Between Valentine Road and Olivas Park Drive	Commercial/Cemetary/Transient	4	0	4135	37,215	50	100	0.5	0	1.8%	0.7%	71.1	69.9
South of Olivas Park Drive	Agriculture	4	0	5730	51,570	50	100	0.5	0	1.8%	0.7%	72.6	71.4
Valentine Road													
West of US-101 on/offramp	Cemetary and Commercial	2	0	1600	14,400	40	100	0.5	0	1.8%	0.7%	64.4	63.2
Between US-101 on/offramp and Victoria Avenue	Commercial	4	0	2535	22,815	40	100	0.5	0	1.8%	0.7%	66.5	65.3
East of Victoria Avenue	Commercial	2	0	280	2,520	40	100	0.5	0	1.8%	0.7%	56.9	55.7
Olivas Park Drive													
West of Victoria Avenue	Residential and Agriculture	2	0	2440	21,960	45	100	0.5	0	1.8%	0.7%	67.6	66.4
East of Victoria Avenue	Agriculture and Commercial	2	0	1760	15,840	45	100	0.5	0	1.8%	0.7%	66.2	64.9
Johnson Road													
North of US-101 offramp	Residential and Commercial	4	0	2730	24,570	40	100	0.5	0	1.8%	0.7%	66.9	65.6
South of US-101 offramp	Commercial and Industrial	2	0	1640	14,760	40	100	0.5	0	1.8%	0.7%	64.5	63.3

TRAFFIC NOISE LEVELS

Project Number: 2023-137
Project Name: Victoria Corporate Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s): Cumulative + Project
Source of Traffic Volumes: Kimley Horn 2023
Community Noise Descriptor: L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Victoria Avenue													
North of US-101 offramp	Residential and Commercial	8	0	5680	51,120	40	100	0.5	0	1.8%	0.7%	70.6	69.3
Between US-101 offramp and Valentine Road	Commercial	4	0	5490	49,410	40	100	0.5	0	1.8%	0.7%	69.9	68.7
Between Valentine Road and Olivas Park Drive	Commercial/Cemetary/Transient	4	0	4305	38,745	50	100	0.5	0	1.8%	0.7%	71.3	70.1
South of Olivas Park Drive	Agriculture	4	0	5830	52,470	50	100	0.5	0	1.8%	0.7%	72.6	71.4
Valentine Road													
West of US-101 on/offramp	Cemetary and Commercial	2	0	1620	14,580	40	100	0.5	0	1.8%	0.7%	64.5	63.3
Between US-101 on/offramp and Victoria Avenue	Commercial	4	0	3805	34,245	40	100	0.5	0	1.8%	0.7%	68.3	67.1
East of Victoria Avenue	Commercial	2	0	280	2,520	40	100	0.5	0	1.8%	0.7%	56.9	55.7
Olivas Park Drive													
West of Victoria Avenue	Residential and Agriculture	2	0	2500	22,500	45	100	0.5	0	1.8%	0.7%	67.7	66.5
East of Victoria Avenue	Agriculture and Commercial	2	0	2090	18,810	45	100	0.5	0	1.8%	0.7%	66.9	65.7
Johnson Road													
North of US-101 offramp	Residential and Commercial	4	0	2730	24,570	40	100	0.5	0	1.8%	0.7%	66.9	65.6
South of US-101 offramp	Commercial and Industrial	2	0	1650	14,850	40	100	0.5	0	1.8%	0.7%	64.6	63.4

ATTACHMENT C

Federal Highway Administration Roadway Construction Noise Model Outputs – Project Construction

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/30/2024
Case Description: Site Preparation

Description	**Land Use**
Site Preparation	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Dozer	No	40		81.7	634
Dozer	No	40		81.7	634
Dozer	No	40		81.7	634
Tractor	No	40	84		634
Tractor	No	40	84		634
Tractor	No	40	84		634
Tractor	No	40	84		634

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Dozer		59.6	55.6
Dozer		59.6	55.6
Dozer		59.6	55.6
Tractor		61.9	58
Tractor		61.9	58
Tractor		61.9	58
Tractor		61.9	58
	Total	**61.9**	**65.6**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/30/2024
Case Description: Grading

Description	**Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Excavator	No	40		80.7	634
Excavator	No	40		80.7	634
Grader	No	40	85		634
Dozer	No	40		81.7	634
Scraper	No	40		83.6	634
Scraper	No	40		83.6	634
Tractor	No	40	84		634
Tractor	No	40	84		634

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Excavator		58.6	54.7
Excavator		58.6	54.7
Grader		62.9	59
Dozer		59.6	55.6
Scraper		61.5	57.5
Scraper		61.5	57.5
Tractor		61.9	58
Tractor		61.9	58
	Total	**62.9**	**66.2**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/30/2024
Case Description: Building Construction, Paving, and Painting

Description	**Land Use**
Building Construction, Paving, and Painting	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Crane	No	16		80.6	634
Gradall	No	40		83.4	634
Gradall	No	40		83.4	634
Gradall	No	40		83.4	634
Generator	No	50		80.6	634
Tractor	No	40	84		634
Tractor	No	40	84		634
Tractor	No	40	84		634
Paver	No	50		77.2	634
Paver	No	50		77.2	634
Pavement Scarafier	No	20		89.5	634
Pavement Scarafier	No	20		89.5	634
Roller	No	20		80	634
Roller	No	20		80	634
Compressor (air)	No	40		77.7	634

Equipment		***Lmax**	**Leq**	
Crane		58.5	50.5	
Gradall		61.3	57.4	
Gradall		61.3	57.4	
Gradall		61.3	57.4	
Generator		58.6	55.6	
Tractor		61.9	58	
Tractor		61.9	58	
Tractor		61.9	58	
Paver		55.2	52.1	
Paver		55.2	52.1	
Pavement Scarafier		67.4	60.4	
Pavement Scarafier		67.4	60.4	
Roller		57.9	50.9	
Roller		57.9	50.9	
Compressor (air)		55.6	51.6	
	Total	**67.4**	**68.4**	*Calculated Lmax is the Loudest value.

ATTACHMENT D

SoundPLAN 3-D Noise Model Outputs – Project Onsite Noise Propagation

SoundPLAN
Output Source Information

Number	Reciever Name	Floor	Level at Receiver (dBA)
1	Location east of muti-family building A	Ground Floor	54.7
2	Location east of muti-family building B	Ground Floor	50.9
3	Location east of muti-family building C	Ground Floor	49.3
4	Multi-family building location 1	Ground Floor	63.9
5		Floor Two	68.3
6		Floor Three	68.9
7		Floor Four	69.0
8	Multi-family building point 2	Ground Floor	65.1
9		Floor Two	68.9
10		Floor Three	69.2
11		Floor Four	69.3
12	Multi-family building point 3	Ground Floor	64.9
13		Floor Two	69.3
14		Floor Three	69.7
15		Floor Four	69.7
16	Multi-family building point 4	Ground Floor	64.7
17		Floor Two	69.2
18		Floor Three	69.6
19		Floor Four	69.7
20	Multi-family building point 5	Ground Floor	66.2
21		Floor Two	68.9
22		Floor Three	69.4
23		Floor Four	69.5
24	Multi-family building point 6	Ground Floor	66.1
25		Floor Two	68.5
26		Floor Three	69.2
27		Floor Four	69.3
28	Multi-family building point 7	Ground Floor	65.4
29		Floor Two	68.1
30		Floor Three	69.0
31		Floor Four	69.2
32	Multi-family building point 8	Ground Floor	65.1
33		Floor Two	67.6
34		Floor Three	68.8
35		Floor Four	69.0

Number	Noise Source Information	Citation	Level at Source
1	Exisitng + Project Traffic Noise	Kimley Horn Data in combination with FHWA Noise Prediction Model	85.9 dBA

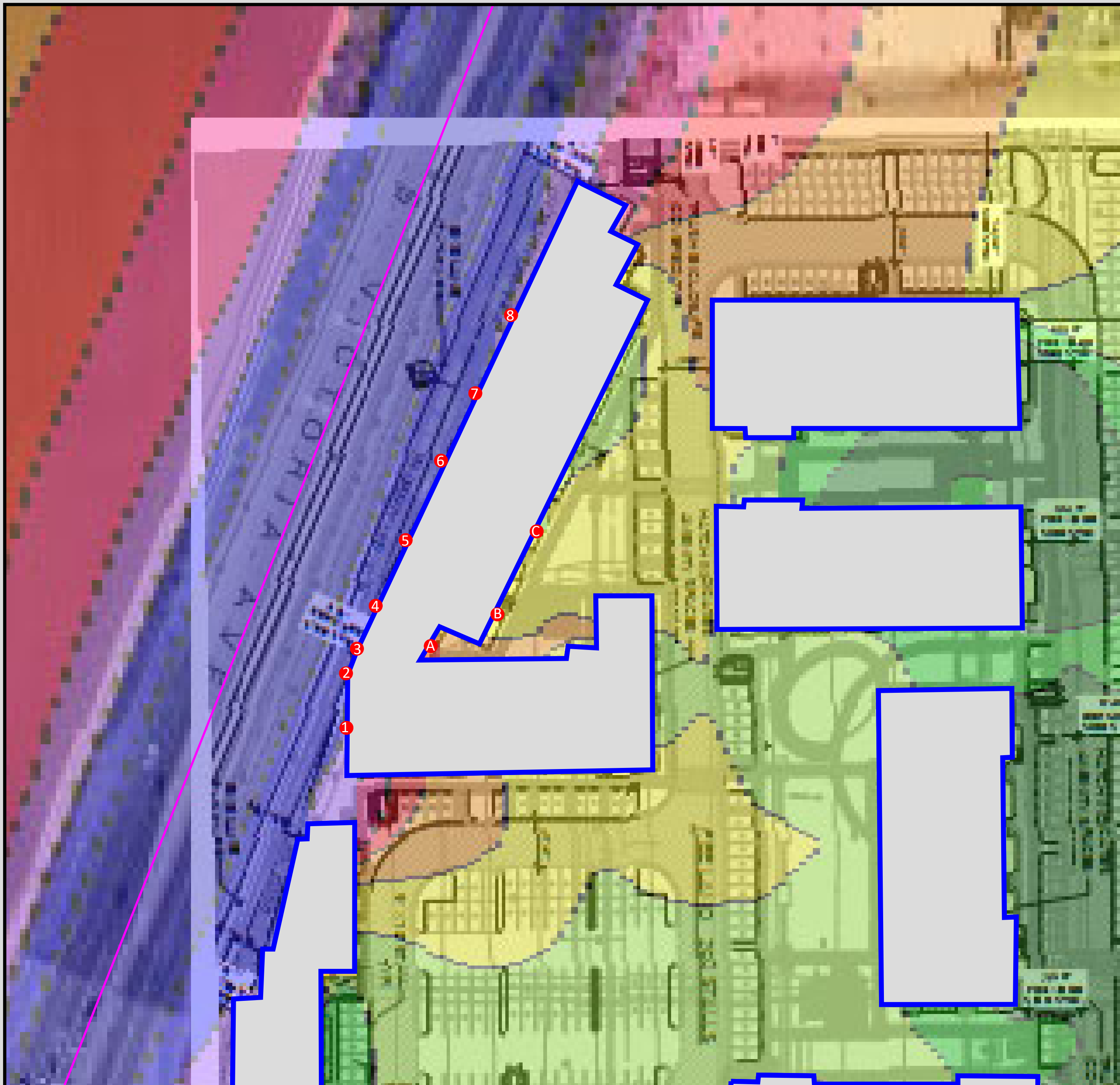


Figure 5-1: Victoria Corporate Center Operational Noise Generation

Signs and symbols

- Noise Receptors
- Main building
- Roadway Noise

Level scale in dB(A)
Leq,d

	<= 46
46	- 49
49	- 52
52	- 55
55	- 58
58	- 61
61	- 64
64	- 67
67	- 70
	> 70

N

Scale 1:86

0 15 30 60 90 120 feet

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Sound PLAN

Map Date: 4/22/2024
2023-137 Victoria Corporate Center

SoundPLAN
Output Source Information

Number	Reciever Name	Floor	Level at Receiver
1	Commercial building directly north of Project Site	Ground Floor	44.1 dBA
2	Commercial building east of Project Site	Ground Floor	36.0 dBA
3	Commercial building east of Project Site	Ground Floor	38.3 dBA
4	Commercial building east of Project Site	Ground Floor	40.9 dBA
5	Commercial building east of Project Site	Ground Floor	42.5 dBA
6	Commercial building east of Project Site	Ground Floor	43.3 dBA
7	Commercial building east of Project Site	Ground Floor	41.7 dBA
8	Commercial building east of Project Site	Ground Floor	38.8 dBA
9	Commercial flower shop south of Project Site	Ground Floor	35.8 dBA
10	Residence southwest of Project Site	Ground Floor	21.4 dBA

Number	Noise Source Information	Citation	Level at Source
1	Residential Park	ECORP Noise Measurements	54.0 dBA
2	Mixed Use Land Use	ECORP Noise Measurements	61.1 dBA
3	Non-busy parking lot	ECORP Noise Measurements	51.0 dBA

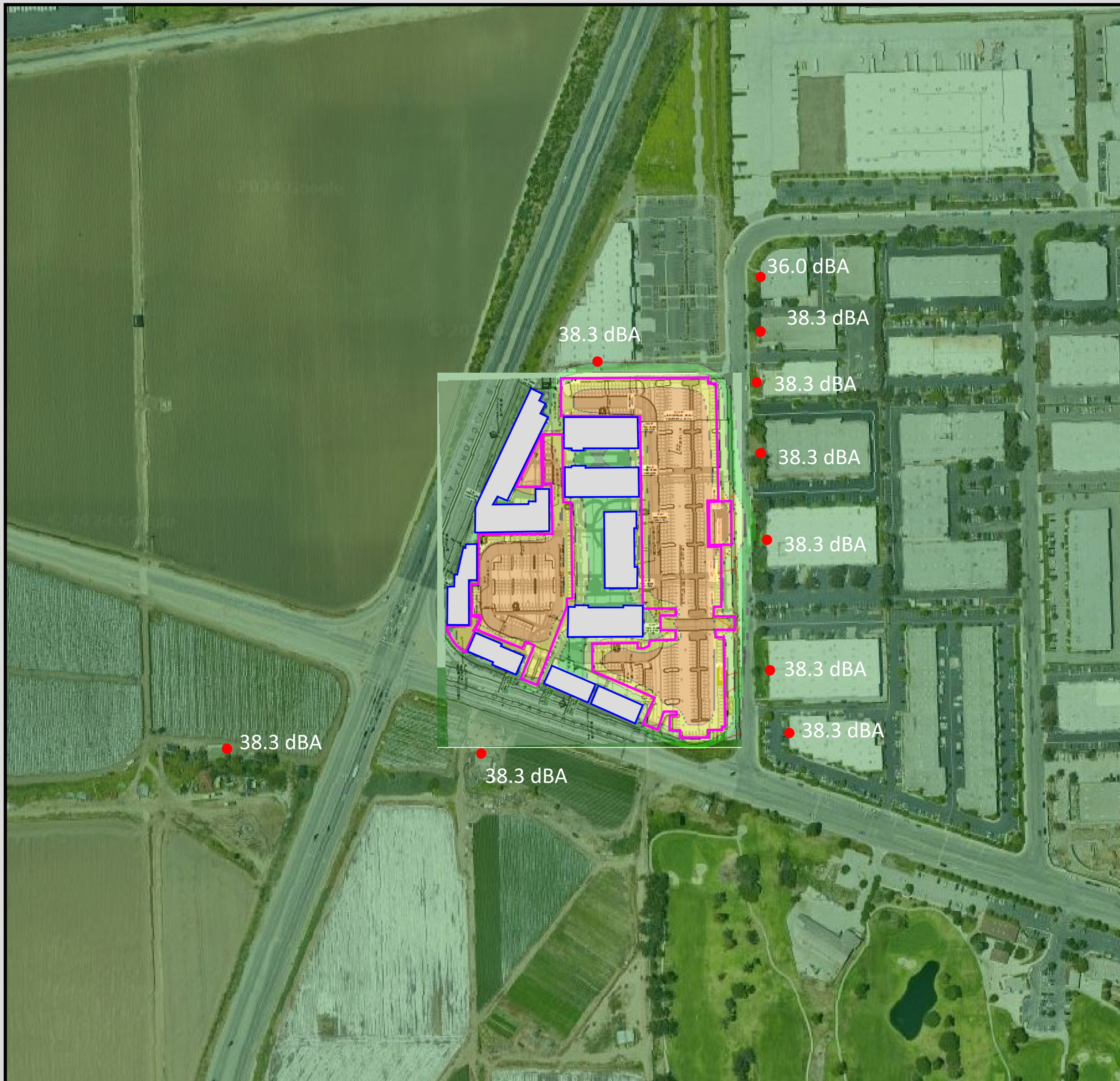


Figure 5-1: Victoria Corporate Center Operational Noise Generation

Signs and symbols

- Noise Receptors
- Building
- Area source

Level scale in dB(A) Leq,d

<=	46
46 -	49
49 -	52
52 -	55
55 -	58
58 -	61
61 -	64
64 -	67
67 -	70
>	70

N

Scale 1:401

0 100 200 400 600 800 feet

ECORP Consulting, Inc.
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SoundPLAN

Map Date: 1/31/2024
2023-137 Victoria Corporate Center