Noise Impact Assessment

Stoneridge Commerce Center Specific Plan

Riverside County, California

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CONTENTS

1.0 INTRODUCTION 1
1.1 Project Location and Description 1
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS 5
2.1 Fundamentals of Noise and Environmental Sound 5
2.1.1 Addition of Decibels 5
2.1.2 Sound Propagation and Attenuation 7
2.1.3 Noise Descriptors 8
2.1.4 Human Response to Noise 10
2.1.5 Effects of Noise on People 10
2.2 Fundamentals of Environmental Groundborne Vibration 11
2.2.1 Vibration Sources and Characteristics 11
2.2.2 Vibration Sources and Characteristics 11
3.0 EXISTING ENVIRONMENTAL NOISE SETTING 12
3.1 Noise Sensitive Land Uses 12
3.2 Existing Ambient Noise Environment 13
3.2.1 Existing Ambient Noise Measurements 13
3.2.2 Existing Roadway Noise Levels 14
4.0 REGULATORY FRAMEWORK 20
4.1 Federal 20
4.1.1 Occupational Safety and Health Act of 1970 20
4.2 State 20
4.2.1 State of California General Plan Guidelines 20
4.2.2 State Office of Planning and Research Noise Element Guidelines 20
4.3 Local 20
4.3.1 County of Riverside General Plan Noise Element 20
4.3.2 County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses 26
4.3.3 Stoneridge Commerce Center Specific Plan 27
4.3.4 County of Riverside Municipal Code 28
4.3.5 Federal Interagency Committee on Noise (FICON) 28
4.3.6 City of Moreno Valley Municipal Code 29
4.3.7 City of Perris Municipal Code 29
4.3.8 City of Menifee 29
4.3.9 City of San Jacinto Municipal Code 29

5.0 IMPACT ASSESSMENT 30
5.1 Thresholds of Significance 30
5.2 Methodology 30
5.3 Impact Analysis 31
5.3.1 Project Construction Noise 31
5.3.2 Project Operational Noise 37
5.3.3 Project Construction Groundborne Vibration 58
5.3.4 Project Operational Groundborne Vibration 63
5.3.5 Excess Airport Noise 63
5.3.6 Cumulative Noise 63
6.0 REFERENCES 77

LIST OF TABLES

Table 1. Land Use Plan Statistical Summary 2
Table 2. Common Acoustical Descriptors 9
Table 3. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels 12
Table 4. Existing (Baseline) Noise Measurements 14
Table 5. Existing (Baseline) Traffic Noise Levels 15
Table 6. Land Use Compatibility for Community Noise Environments 22
Table 7. Stationary Source Land Use Noise Standards[1] (Residential) 23
Table 8. Typical Construction Equipment Noise Levels 32
Table 9. Onsite Construction Average (dBA) Noise Levels by Receptor Distance and Construction Equipment – Unmitigated 34
Table 10. Offsite Construction Average (dBA) Noise Levels by Receptor Distance and Construction Equipment – Unmitigated 36
Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels 39
Table 12. Modeled Operational Noise Levels 46
Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels 52
Table 14. Representative Vibration Source Levels for Construction Equipment 59
Table 15. Specific Plan Construction Vibration Levels at 65 Feet 60
Table 16. Blast Variable 62
Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan 65
Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan 71

LIST OF FIGURES

Figure 1. Project Vicinity 3
Figure 2. Project Location 4
Figure 3. Common Noise Levels 6
Figure 4. Project Onsite Source Noise Generation 47

ATTACHMENTS

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B - Federal Highway Administration Highway Roadway Construction Noise Outputs – Project Construction Noise

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

Attachment D - SoundPLAN Outputs – Onsite Project Noise

LIST OF ACRONYMS AND ABBREVIATIONS

CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Leq	Measure of ambient noise
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PPV	Peak particle velocity
Project	Stoneridge Commerce Center Project
RMS	Root mean square
WEAL	Western Electro-Acoustic Laboratory, Inc.

1.0 INTRODUCTION

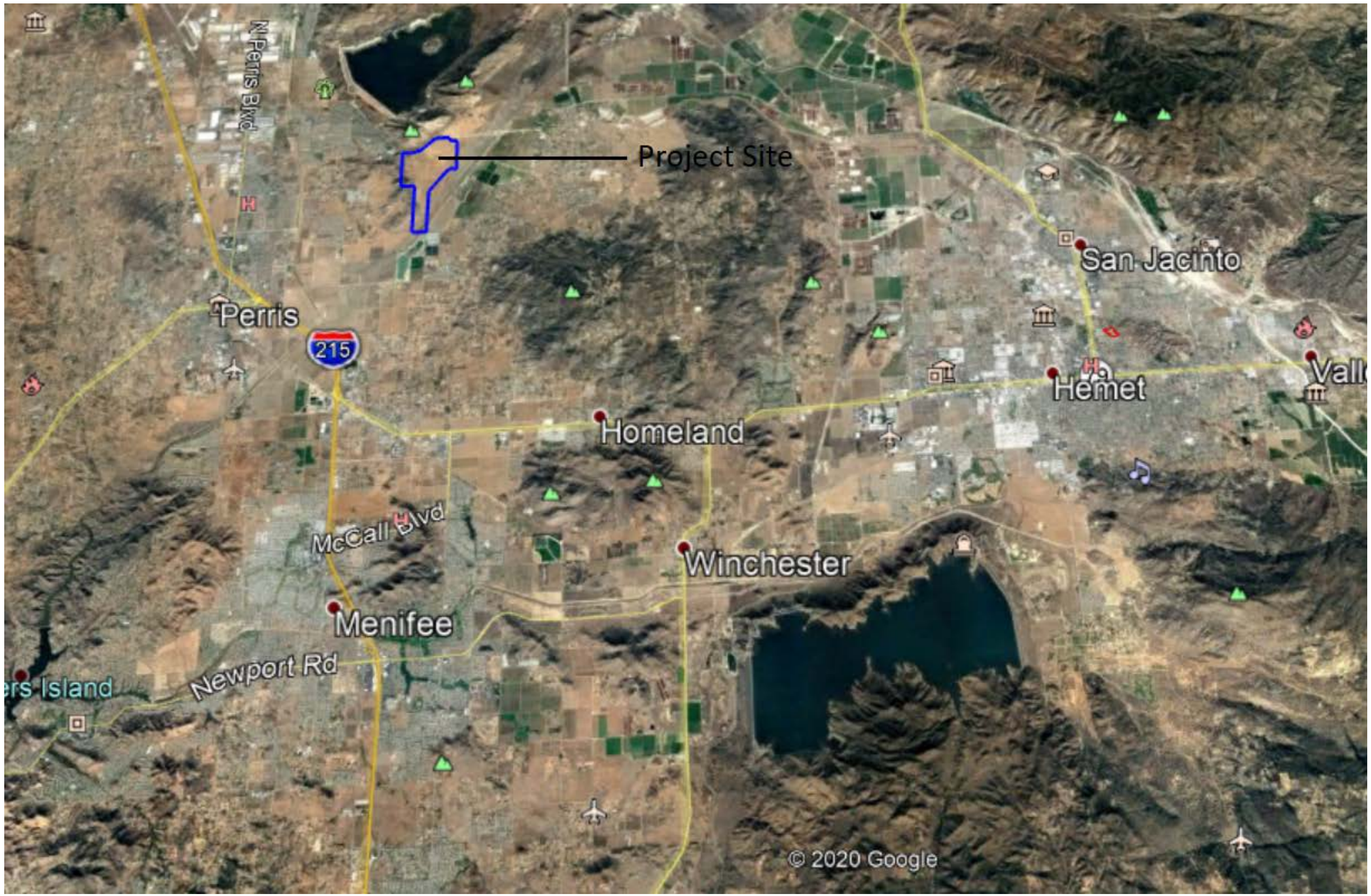
This report documents the results of a Noise Impact Assessment completed for the Stoneridge Commerce Center Specific Plan Project (Project), which includes the development of a 582.6-acre site in the western portion of unincorporated Riverside County (County), California. This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the County of Riverside General Plan Noise Element and Municipal Code, the City of Moreno Valley Municipal Code, the City of Perris Municipal Code, City of San Jacinto Municipal Code, and the City of Menifee 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 located in the western portion of unincorporated Riverside County (see Figure 1. *Project Vicinity*), more specifically within the Lakeview/ Nuevo community. The Project site is a 582.6-acre property located south of the Ramona Expressway, north of Nuevo Road, east of Foothill Drive, and west of the future extension of Menifee Road (see Figure 2. *Project Location*). Under existing conditions, the Project site is vacant and undeveloped but has been disturbed in the past by agricultural activities and on-going discing for fire abatement purposes. Additionally, there are hillforms onsite and directly west of the Project site. The site is generally bound by Ramona Expressway with undeveloped land to the north, undeveloped/ agricultural land with residents beyond to the east, Nuevo Road and undeveloped/ agricultural land to the south, and undeveloped/ agricultural land to the west with Lakeside Middle School, Sierra Vista Elementary School and residents beyond.

The Project is proposing two separate land use plans for the Project site. The "Primary Land Use Plan" anticipates that the Project would be constructed with Ramona Expressway providing primary access from the north and Nuevo Road providing access from the south and would include a mix of light industrial, business park, commercial retail, open space conservation, open space conservation habitat, and major roadways. The "Alternative Land Use Plan" would accommodate the same land uses but anticipates the construction of a regional transportation facility, the "Mid-County Parkway (MCP)," a segment of which, along with an interchange, are planned to traverse the northwestern portions of the Project site. The Riverside County Transportation Commission has not secured or identified funding for the segment of the MCP which traverses the Project area, and therefore the timing of this segment of the MCP and the associated interchange is unknown at this time. As such, both land use plans are evaluated in this analysis. Table 1 provides a statistical summary of each land use plan for the various land uses proposed by the Project.

Table 1. Land Use Plan Statistical Summary	
Land Use Designation	**Acres**
Primary Land Use Plan	
Light Industrial	389.2
Business Park	49.1
Commercial Retail	8.0
Open Space-Conservation	17.4
Open Space- Conservation Habitat	81.6
Circulation	37.3
Total:	**582.6**
Alternative Land Use Plan	
Light Industrial	389.2
Business Park	51.5
Commercial Retail	8.5
Open Space-Conservation	17.4
Open Space- Conservation Habitat	81.6
Circulation	34.4
Total:	**582.6**



Map Date: *6/29/2020*
Photo (or Base) Source: *Google Earth*

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Figure 1. Project Vicinity

2019-075

Map Date: *6/29/2020*
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Figure 2. Project Location

2019-075

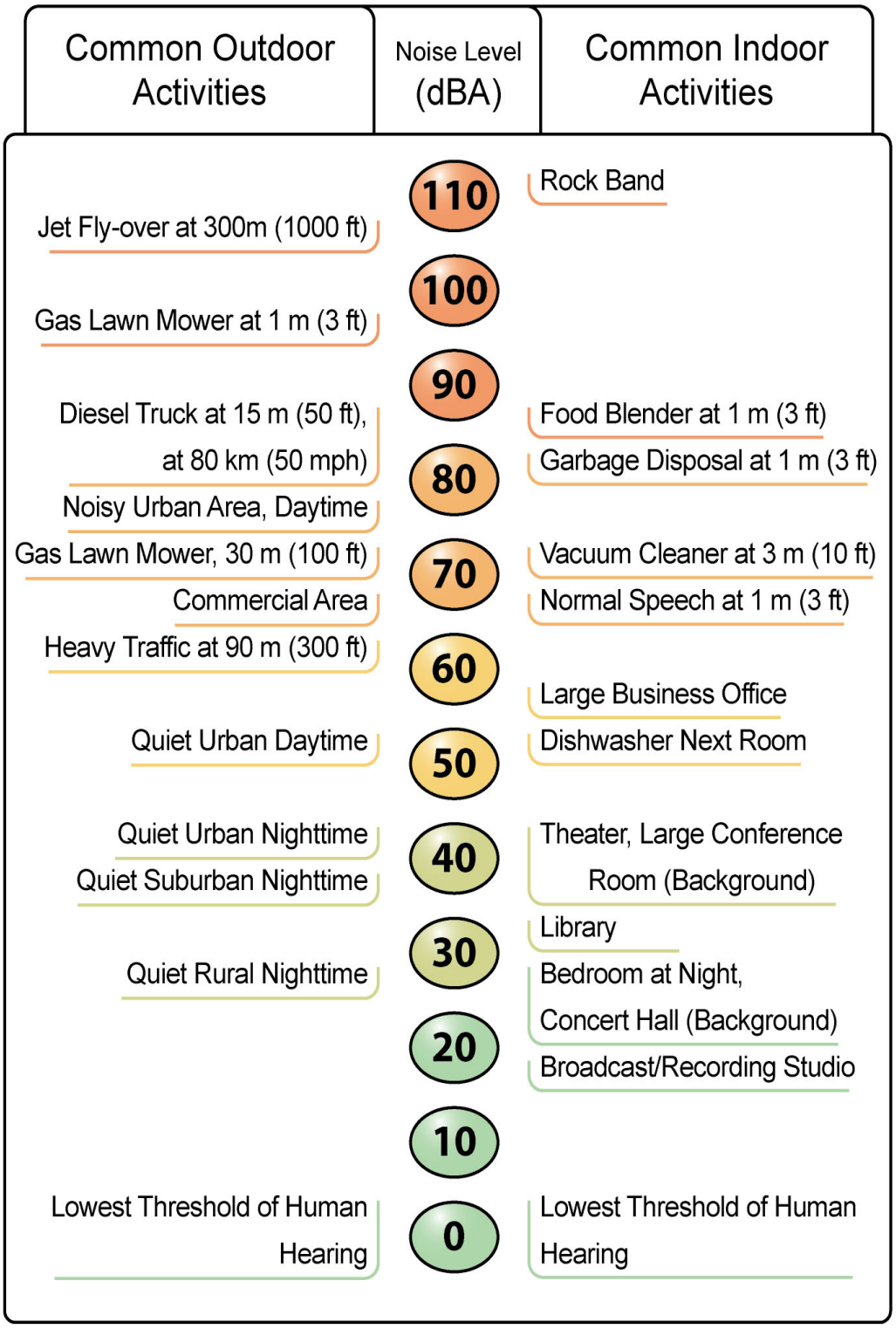
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

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 3. *Common Noise Levels*



Source: California Department of Transportation (Caltrans) 2012

Figure 3. 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 six dB for each doubling of distance from a stationary or point source. 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] 2011). 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 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). 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 (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 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 L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined in Table 2.

Table 2. 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 as 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 Leq 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 Leq 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 Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq 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 Leq 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.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
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

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.

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 for 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 of 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. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

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).

2.2.2 Vibration Sources and Characteristics

Table 3 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 3 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 earth-moving which requires the use of heavy-duty earth moving equipment.

Table 3. 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	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2020

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 Project is proposing onsite and offsite improvements. Due to the close proximity of offsite improvements to the Project site and the fact that said improvements involve the installation of water and sewer lines which are not a source of operational noise, on and offsite improvements are discussed collectively. The nearest existing noise-sensitive land uses to the Project site are Lakeside Middle School and Sierra Vista Elementary School, with a residential development beyond, located adjacent to the northwestern corner of the Project site traversing the Ramona Expressway. Lakeside Middle School is located closest to the Project site boundary approximately 2,000 feet (0.4 miles) to the west. The installation of the proposed offsite water line would occur directly adjacent to these land uses.

It is also noted that while not currently constructed, the approved McCanna Hills development is located directly adjacent to the Project's western boundary. Once built-out, commercial and residential land uses would exist on what is currently vacant land adjacent to the Project's western boundary.

3.2 Existing Ambient Noise Environment

The most common and significant source of noise in Riverside County is mobile noise generated by transportation-related sources. Other sources of noise are the various land uses (i.e., residential, commercial and institutional) that generate stationary-source noise. The Project site is bound by Ramona Expressway to the north and Nuevo Road to the south. Both of these are major roadways within the County that serve a wide variety of residential, industrial, agricultural and commercial land uses. As shown in Table 4 below, the ambient recorded noise level on the Project site is 41.4 dBA.

3.2.1 Existing Ambient Noise Measurements

The Project site can be characterized by undeveloped land that is largely flat, though containing a substantial hillforms at the south-center portion of the site. There are also hillforms directly west of the Project site. It is surrounded mainly by a mix of undeveloped and agricultural land. In order to quantify existing ambient noise levels in the Project area, ECORP Consulting, Inc. conducted four short-term noise measurements on August 26, 2019. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site (see Attachment A). The 10-minute measurements were taken between 2:50 p.m. and 4:17 p.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the daytime. The average noise levels and sources of noise measured at each location are listed in Table 4.

Table 4. Existing (Baseline) Noise Measurements

Location Number	Location	Leq dBA	Lmin dBA	Lmax dBA	Time
1	At the end of Walnut Avenue and adjacent to schools.	45.0	39.9	58.5	4:07 p.m.-4:17 p.m.
2	At the end of the cul-de-sac at Hawthorne Road.	55.2	36.7	74.2	3:30 p.m.-3:40 p.m.
3	On the Project site (located near the northwest corner) adjacent to Ramona Expressway.	41.4	34.5	51.8	3:28 p.m.-3:38 p.m.
4	At the corner of Nuevo Road and Menifee Road.	70.6	52.7	85.2	2:50 p.m.-3:00 p.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.

As shown in Table 4, the ambient recorded noise levels range from 45.0 to 70.6 dBA near the Project site and 41.4 dBA on the Project site. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles). Traffic moving along the Ramona Expressway and Nuevo Road produces a sound level that remains relatively constant and is part of the Project Area's minimum ambient noise level. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

3.2.2 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 Project's Traffic Impact Analysis (Urban Crossroads 2020). 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 5. Vicinity roadways span several jurisdictions, which are noted in Table 5. Where no jurisdiction is noted, the roadway segment lies within unincorporated Riverside County. It is noted that the existing roadway traffic volumes were conducted at the time of a statewide 'shelter-in-place' mandate. Thus, the noise levels identified in Table 5 are likely much reduced from that experienced under normal conditions and represent a conservative baseline against which to measure the Specific Plan's contribution to noise levels over existing conditions.

Table 5. Existing (Baseline) Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway
Sanderson Avenue (State Route 79)		
North of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.8
South of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.2
Contour Avenue		
East of Hansen Avenue	Residential and Educational	47.4
West of Hansen Avenue	Residential and Agricultural	41.4
Hansen Avenue		
North of Contour Avenue	Residential	52.5
Between Contour Avenue and Montgomery Avenue	Residential	52.0
Nuevo Road		
East of Montgomery Avenue	Residential and Agricultural	54.5
Between Montgomery Avenue and Lakeview Avenue	Residential and Agricultural	54.5
Between Lakeview Avenue and Reservoir Avenue	Residential and Agricultural	58.7
Between Reservoir Avenue and the Project site	Residential and Agricultural	57.2
Between the Project site and Dunlap Drive	Residential and Agricultural	60.0
Between Dunlap Drive and Evans Road (City of Perris)	Residential	59.0
Between Murrieta Road and Redlands Avenue (City of Perris)	Residential	58.2
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential, Commercial and Educational	58.2
Orange Avenue		
Between Dunlap Drive and Evans Road (City of Perris)	Residential	54.9
Between Evans Road and Murrieta Road (City of Perris)	Residential	57.1
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential	58.2

Table 5. Existing (Baseline) Traffic Noise Levels		
West of Perris Boulevard (City of Perris)	Residential and Agricultural	57.4
Placentia Avenue		
East of Redlands Avenue (City of Perris)	Residential and Agricultural	49.0
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	51.6
Rider Street		
Between Ramona Expressway and Bradley Road (City of Perris)	Residential and Educational	54.5
Between Bradley Road and Evans Road (City of Perris)	Residential	55.8
Between Evans Road and Redlands Avenue (City of Perris)	Residential	58.6
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	57.8
Ramona Expressway		
South of Rider Street	Residential	61.3
Between Rider Street and Bradley Road (City of Perris)	Residential	60.0
Between Bradley Road and Evans Road (City of Perris)	Residential	60.6
Between Evans Road and Redlands Avenue (City of Perris)	Residential	62.5
West of Redlands Avenue (City of Perris)	Residential and Agricultural	61.0
East of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	62.0
West of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	60.6
Krameria Avenue		
West of Perris Boulevard (City of Moreno Valley)	Residential and Industrial	49.1
Between Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	54.0
East of Lasselle Street (City of Moreno Valley)	Residential	56.1
Iris Avenue		

Table 5. Existing (Baseline) Traffic Noise Levels		
West of Perris Boulevard (City of Moreno Valley)	Residential and Educational	58.9
West of Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	61.2
East of Lasselle Street (City of Moreno Valley)	Residential and Commercial	62.0
San Jacinto Avenue		
East of Menifee Road	Residential and Agricultural	42.0
West of Menifee Road	Residential and Agricultural	51.5
Ellis Road		
West of Menifee Road	Residential	42.0
Mapes Road		
East of Menifee Road	Residential	51.0
West of Menifee Road	Residential	47.5
Watson Road		
East of Menifee Road (City of Menifee)	Residential	53.3
West of Menifee Road (City of Menifee)	Residential	47.4
State Route 74		
East of Menifee Road (City of Menifee)	Residential	60.5
West of Menifee Road (City of Menifee)	Residential	60.4
Lakeview Avenue		
North of Nuevo Road	Residential and Agricultural	55.7
Reservoir Avenue/ Menifee Road		
Between Nuevo Road and San Jacinto Avenue	Residential	54.0
Between San Jacinto Avenue and Ellis Avenue	Residential	53.3
Between Ellis Avenue and Mapes Road	Residential	53.4
Between Mapes Road and Watson Road (City of Menifee)	Residential	52.0
Between Watson Road and SR 74 (City of Menifee)	Residential	52.3
South of SR 74 (City of Menifee)	Residential	54.5

Table 5. Existing (Baseline) Traffic Noise Levels		
Dunlap Drive		
Between Nuevo Road and Orland Avenue	Residential	53.7
South of Nuevo Road (City of Perris)	Residential	45.8
Bradley Road		
Between Ramona Expressway and Rider Street (City of Perris)	Residential	50.4
South of Rider Street (City of Perris)	Residential	42.5
Evans Road		
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7
Between Orange Avenue and Rider Street (City of Perris)	Residential	56.1
Between Rider Street and Ramona Expressway (City of Perris)	Residential	58.4
Between Ramona Expressway and Krameria Avenue (City of Moreno Valley/ City of Perris)	Residential	58.9
Between Krameria Avenue and Iris Avenue (City of Moreno Valley)	Residential	61.0
Murrieta Road		
North of Nuevo Road (City of Perris)	Residential	47.5
South of Nuevo Road (City of Perris)	Residential and Educational	47.5
Redlands Avenue		
South of Nuevo Road (City of Perris)	Residential	57.3
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7
Between Orange Avenue and Placentia Avenue (City of Perris)	Residential	55.2
Perris Boulevard		
North of Iris Avenue (City of Moreno Valley)	Residential and Industrial	58.6
Between Iris Avenue and Krameria Avenue (City of Moreno Valley)	Residential and Industrial	59.2

Table 5. Existing (Baseline) Traffic Noise Levels		
Between Krameria Avenue and San Michele Road (City of Moreno Valley)	Residential and Industrial	60.0
Between Ramona Expressway and Morgan Street (City of Perris)	Residential and Industrial	58.9
Between Placentia Avenue and Rider Street (City of Perris)	Residential and Industrial	59.1
Between Placentia Avenue and Orange Avenue (City of Perris)	Residential and Industrial	59.0
Between Orange Avenue and Nuevo Road (City of Perris)	Residential and Industrial	60.4
Indian Avenue		
South of Placentia Avenue (City of Perris)	Residential and Industrial	51.9
Between Placentia Avenue and Ramona Expressway (City of Perris)	Residential and Industrial	51.5
Webster Avenue		
South of Ramona Expressway (City of Perris)	Residential and Industrial	47.9
Between Ramona Expressway and Harley Knox Avenue (City of Perris)	Residential and Industrial	49.7
Interstate 215		
North of Ramona Expressway (City of Perris)	Residential and Industrial	64.2
Between Ramona Expressway and Placentia Avenue (City of Perris)	Educational, Residential and Industrial	63.4
Between Placentia Avenue and Nuevo Road (City of Perris)	Educational, Residential, and Industrial	61.2
South of Nuevo Road (City of Perris)	Educational, Residential, and Industrial	64.1

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Urban Crossroads Traffic Engineers (2020). Refer to Attachment B for traffic noise modeling assumptions and results.

Note: A total of 67 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 41.4 to 64.8 dBA CNEL at a distance of 100 feet from the centerline. As previously described, CNEL is 24-hour average noise level 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 5 may differ from measured levels in Table 4 because the measurements represent noise levels at different locations around the Project site 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.

4.2 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.

4.3 Local

4.3.1 County of Riverside General Plan Noise Element

The Project site is located in unincorporated Riverside County and therefore would potentially affect receptors within the county from onsite and offsite sources. The County Noise Element of the General Plan is a comprehensive program for including noise management in the planning process, providing a

tool for planners to use in achieving and maintaining land uses that are compatible with existing and future environmental noise levels. The Noise Element identifies noise-sensitive land uses and noise sources and defines areas of noise impact for the purpose of developing programs to ensure that residents, and other noise sensitive land uses, in Riverside County will be protected from excessive noise intrusion.

As development proposals are submitted to the County, each is evaluated with respect to the policy provisions in the Noise Element to ensure that noise impacts are reduced through planning and project design. Through implementation of the policies of the Noise Element, the County of Riverside seeks to reduce or avoid adverse noise impacts for the purposes of protecting the general health, safety, and welfare of the community.

The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within the County that would negatively affect noise sensitive land uses. Uses such as schools, hospitals, child care, senior care, congregate care, churches, and all types of residential use should be located outside of any area anticipated to exceed acceptable noise levels as defined by the Noise and Land Use Compatibility Guidelines, or should be protected from noise through sound attenuation measures such as site and architectural design and sound walls. The County has adopted these guidelines in a modified form as a basis for planning decisions based on noise considerations. These guidelines are shown in Table 6. In the case that the noise levels identified at a proposed project site fall within levels considered normally acceptable, the project is considered compatible with the existing noise environment.

Table 6. Land Use Compatibility for Community Noise Environments				
Land Use Category	**Community Noise Exposure (CNEL)**			
	Normally Acceptable	**Conditionally Acceptable**	**Normally Unacceptable**	**Clearly Unacceptable**
Residential – Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	75 – 85
Transient Lodging – Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	65 – 85	NA
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	70 – 85	NA
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	NA	70 – 80	80 – 85
Office Buildings, Business, Commercial & Professional	50 – 70	67.5 – 77.5	NA	75 – 85
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	NA	75 – 85

Source: County of Riverside 2015

Notes:

NA: Not Applicable; CNEL: Community Noise Equivalent Level

Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved 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 the noise reduction requirements is made and needed noise insulation features included in the 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 be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

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

The Noise Element also contains policies that must be used to guide decisions concerning land uses that are common sources of excessive noise levels. The following relevant and applicable policies from the County's Noise Element have been identified for the Project:

N 1.1: Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.

N 1.2: Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors or within the projected noise contours of any adjacent airports.

N 1.3: Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:

- Schools
- Hospitals

- Rest Homes
- Long Term Care Facilities
- Mental Care Facilities
- Residential Uses
- Libraries
- Passive Recreation Uses
- Places of Worship

According to the State of California Office of Planning and Research General Plan Guidelines, an acoustical study may be required in cases where these noise-sensitive land uses are located in an area of 60 CNEL or greater. Any land use that is exposed to levels higher than 65 CNEL will require noise attenuation measures.

Areas around airports may have different noise standards than those cited above. Each Area Plan affected by a public-use airport includes one or more Airport Influence Areas, one for each airport. The applicable noise compatibility criteria are fully set forth in Appendix L-1 [of the General Plan] and summarized in the Policy Area section of the affected Area Plan.

N 1.4: Determine if existing land uses will present noise compatibility issues with proposed projects by undertaking site surveys.

N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

N 1.7: Require proposed land uses, affected by unacceptably high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.

N 2.3: Mitigate exterior and interior noises to the levels listed in Table N-2 [Table 7 below] below to the extent feasible, for stationary sources:

Table 7. Stationary Source Land Use Noise Standards[1] (Residential)

Time	Interior Standards	Exterior Standards
10:00 p.m. to 7:00 a.m.	40 L_{eq} (10 minute)	45 L_{eq} (10 minute)
7:00 a.m. to 10:00 p.m.	55 L_{eq} (10 minute)	65 L_{eq} (10 minute)

Source: County of Riverside 2015

Notes: [1]These are only preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

N 3.3: Ensure compatibility between industrial development and adjacent land uses. To achieve compatibility, industrial development projects may be required to include noise mitigation measures to avoid or minimize project impacts on adjacent uses.

N 4.1: Prohibit facility-related noise received by any sensitive use from exceeding the following worst-case noise levels:

a. 45 dBA-10-minute L_{eq} between 10:00 p.m. and 7:00 a.m.

b. 65 dBA-10-minute L_{eq} between 7:00 a.m. and 10:00 p.m.

N 4.2: Develop measures to control non-transportation noise impacts.

N 4.3: Ensure any use determined to be a potential generator of significant stationary noise impacts be properly analyzed and ensure that the recommended mitigation measures are implemented.

N 4.5: Encourage major stationary noise-generating sources throughout the County of Riverside to install additional noise buffering or reduction mechanisms within their facilities to reduce noise generation levels to the lowest extent practicable prior to the renewal of conditional use permits or business license or prior to the approval and/or issuance of new conditional use permits for said facilities.

N 4.8: Require that the parking structures, terminals, and loading docks of commercial or industrial land uses be designed to minimize the potential noise impacts of vehicles on the site as well as on adjacent land uses.

N 6.3: Require commercial or industrial truck delivery hours be limited when adjacent to noise sensitive land uses unless there is no feasible alternative or there are overriding transportation benefits.

N 12.1: Utilize natural barrier such as hills, berms, boulders, and dense vegetation to assist in noise reduction.

N 13.1: Minimize the impacts of construction noise on adjacent uses within acceptable practices.

N 13.2: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

N 13.4: Require that all construction equipment utilizes noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

N 14.1: Enforce the California Building Standards that sets standards for building construction to mitigate interior noise levels to the tolerable 45 CNEL limit. These standards are utilized in conjunction with the Uniform Building Code by the County's Building Department to ensure that noise protection is provided to the public. Some design features may include extra-dense insulation, double-paned windows, and dense construction materials.

N 14.3: Incorporate acoustic site planning into the design of new development, particularly large scale, mixed-use, or master planned development, through measures which may include:

- Separation of noise sensitive building from noise generating sources.
- Use of natural topography and intervening structures to shield noise sensitive land uses.
- Adequate sound proofing within the receiving structure.

N 14.4: Consider and, when necessary, to lower noise to acceptable limits, require noise barriers and landscaped berms.

N 14.5: Consider the issue of adjacent residential land uses when designing and configuring all new, nonresidential development. Design and configure on site ingress and egress points that divert traffic away from nearby noise sensitive land uses to the greatest degree practicable.

N 14.8: Review all development applications for consistency with the standards and policies of the Noise Element of the General Plan.

N 16.2: Consider the following land uses sensitive to vibration:

- Hospitals
- Residential areas
- Concert halls
- Libraries
- Sensitive research operations
- Schools
- Offices

N 16.3: Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

N 19.5: Require new developments that have the potential to generate significant noise impacts to inform impacted users on the effects of these impacts during the environmental review process.

4.3.2 County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses

The logistics industry is a well-established sector of the Riverside County economy that has contributed to local job growth, fueled by societal growth trends in e-commerce and coupled with our strategic location along a major trade corridor that connects to the Ports of Los Angeles and Long Beach. It is expected that Riverside County will continue to see strong demand for growth in the logistics industry. However, it is also recognized that the construction and operations of logistics and warehouse projects in close proximity to residences or other sensitive land uses may negatively affect the quality of life of those existing communities. The County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses provides a framework through which large-scale logistics and warehouse projects, such as that proposed by the Project, can be designed and operated in a way that lessens their impact on surrounding communities and the environment. It is meant to apply Best Management Practices to help minimize potential impacts to sensitive receptors and is intended to be used in conjunction with the County's Land Use Ordinance, which provides development requirements for said projects, and the California Environmental Quality Act (CEQA). This policy provides a series of development and operational criteria applicable to logistics and warehouse projects that include any building larger than 250,000 square feet in size that are implemented to supplement project-level mitigation measures in order to further reduce impacts related to logistics and warehousing development and operations. The specific policy provisions germane to the Project include the following:

> 2.4 Construction contractors shall utilize construction equipment, with properly operating and maintained mufflers, consistent with manufacturers' standards.
>
> 2.5 Construction contractors shall locate or park all stationary construction equipment so that the emitted noise is directed away from sensitive receptors nearest the project site, to the extent practicable.
>
> 2.9 Construction Contractors shall prohibit truck drivers from idling more than five (5) minutes and require operators to turn off engines when not in use, in compliance with the California Air Resources Board regulations.
>
> 3.2 Warehouse/distribution facilities should be generally designed so that truck bays and loading docks are a minimum of 300 feet away from the property line of sensitive receptors, measured from the dock building door. This distance may be reduced if the site design include berms or other similar features to appropriately shield and buffer the sensitive receptors from the active truck operations areas. Other setbacks appropriate to the site's zoning classification shall be incorporated in the design.
>
> 3.4 Driveways shall be placed, to the maximum extent practicable, on streets that do not have fronting sensitive receptors adjacent.
>
> 3.6 Sites shall be densely screened with landscaping along all bordering streets and adjacent sensitive receptors, with trees spaced at no less than 50 feet on center. Fifty percent of the

landscape screening shall include a minimum of 36-inch box trees. Facility operators will be responsible to establish a long-term maintenance mechanism to assure that the landscaping remains in place and functional in accordance with the approved landscaping plan.

3.7 On-site speed bumps shall not be allowed. Truck loading bays and drive aisles shall be designed to minimize truck noise.

3.8 Dock doors shall be located where they are not readily visible from sensitive receptors or major roads. If it is necessary to site dock doors where they may be visible, a method to screen the dock doors shall be implemented. A combination of landscaping, berms, walls, and similar features shall be considered.

3.9 An additional "wing-wall" shall be installed perpendicular to the loading dock areas to further attenuate noise related to truck activities and also address aesthetics by screening the loading area when adjacent to sensitive receptors.

4.3.3 Stoneridge Commerce Center Specific Plan

Proposed Amendment No. 1 to the Stoneridge Commerce Center Specific Plan contains planning standards to ensure that development of the light industrial, business park, commercial retail, and open space areas are consistent with the quality and vision of Riverside County, and to ensure that the design of the Commerce Center accommodates the surrounding offsite land uses. The following standards in the Specific Plan are proposed to reduce noise-related impacts.

(1) Loading docks and truck parking areas shall be visually screened from Ramona Expressway, Antelope Road, Orange Avenue, Nuevo Road, and Street "A" by walls, landscaping, and/or other screening features or barriers (such as berms).

(2) The outdoor storage of materials and equipment shall be permitted ancillary to the land uses allowed pursuant to Table 3-1. Within outdoor storage areas, materials or equipment shall be stored to a height no greater than eight feet (8'). Outdoor loading and storage areas and loading doors shall be screened from view from public streets by concrete or masonry walls, tubular steel fencing, and/or landscaping. Any gates shall be lockable. Such walls, fencing, and/or landscaping used as screening shall be a minimum eight feet (8') in height and shall be of sufficient height to screen all outdoor materials and equipment, tractors and trailers, and loading doors from view of public streets and shall not exceed eight feet (8') in height.

(3) Ground- and roof-mounted exterior mechanical equipment, heating and ventilating, air conditioning, tanks, and other mechanical devices shall be screened and treated with a neutral color when visible from Ramona Expressway, Antelope Road, Orange Avenue, Nuevo Road, and Street "A".

(5) All manufacturing and processing activities shall be conducted within a wholly-enclosed building.

4.3.4 County of Riverside Municipal Code

Riverside County's regulations with respect to noise are included in Chapter 9.52, *Noise Regulation*, of the County's Municipal Code. Section 9.52.020, *Exemptions*, exempts construction noise provided that private construction projects located within one-quarter of a mile from an inhibited dwelling adhere to the following:

- Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and
- Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May.

The County does not establish numeric maximum acceptable construction source noise levels at potentially affected receptors, which would allow for a quantified determination of what CEQA constitutes a substantial temporary or periodic noise increase. To evaluate whether a project would generate potentially significant construction noise levels at offsite sensitive receptor locations, the County relies on a construction-related noise level threshold from the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3-dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day.

4.3.5 Federal Interagency Committee on Noise (FICON)

The County of Riverside relies on the FICON thresholds of significance for evaluating the impact 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 CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater Project-related 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 Project-related 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.

4.3.6 City of Moreno Valley Municipal Code

The City of Moreno Valley is located north of Harley Knox Avenue, northwest of the Project site and could potentially be affected by Project-related traffic noise. The City of Moreno Valley's regulations with respect to noise are included in Title 11 Chapter 11.80 of the Municipal Code, also known as the *Noise Regulations*. The City of Moreno Valley does not currently have regulations specific to transportation noise yet seeks to protect sensitive residential receptors from stationary noise sources with a numeric threshold of 60 dBA during the daytime and 55 dBA during the nighttime. Project onsite stationary noise sources would not affect receptors in the City of Moreno Valley.

4.3.7 City of Perris Municipal Code

The City of Perris is located west of the Project site and is adjacent to the City of Moreno Valley, and could potentially be affected by Project-related traffic noise. City regulations with respect to noise can be found in Chapter 7.34 of the City of Perris Municipal Code, *Noise Control*. The City of Perris does not currently have regulations specific to transportation noise, though does seek to protect sensitive residential receptors with a land use compatibility standard of 60 dBA CNEL.

4.3.8 City of Menifee

Receptors in the City of Menifee could potentially be affected by Project-related traffic noise When the City of Menifee incorporated in 2008, the City adopted the County of Riverside noise standards. The City has since implemented and adopted its own stationary noise standards presented in the City of Menifee General Plan but has yet to establish standards specific to transportation noise sources.

4.3.9 City of San Jacinto Municipal Code

The City of San Jacinto is located east of the Project site across Bridge Street and could potentially be affected by Project-related traffic noise. The City of San Jacinto's does not have noise standards specific to transportation related noise, though does seek to protect sensitive residential receptors with a land use compatibility standard of 65 dBA CNEL.

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 NIOSH standard of 85 dBA for more than 8 hours per day, since construction work under both the Primary Land Use Plan and Alternative Land Use Plan is anticipated to span a typical workday of 8 hours daily. The increase in transportation-related noise is compared against the FICON recommendation for evaluating the impact of increased traffic noise, as described in section 4.3.5 above. Noise generated onsite are compared against the County Stationary Source Land Use Noise Standards identified in Table 7 above.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. Predicted construction noise levels for the Primary Land Use Plan and Alternative Land Use Plan were calculated utilizing the FHWA's Roadway Construction Model (2006) and discussed collectively. Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) and each land use plan, the Primary Land Use Plan and Alternative Land Use Plan, was analyzed individually. Onsite stationary source noise levels 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. In the analysis below the size, location and noise producing level of each source is discussed in detail.

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.

5.3 Impact Analysis

5.3.1 Project Construction Noise

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

Construction noise associated with both the Primary Land Use Plan and Alternative Land Use Plan 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, 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

Noise levels associated with individual construction equipment are summarized in Table 8.

Table 8. Typical Construction Equipment Noise Levels

Type of Equipment	Maximum Noise (L_{max}) at 50 Feet (dBA)	Maximum 8-Hour Noise (L_{eq}) at 50 Feet (dBA)
Air Compressor	77.7	73.7
Backhoe	77.6	73.6
Blasting	94.0	73.0
Boring Jack (Power Unit)	83.0	80.0
Boring Jack (Horizontal)	82.0	76.0
Concrete Mixer Truck	78.8	74.8
Concrete Saw	89.9	82.6
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Gradall (Forklift)	83.4	79.4
Grader	85.0	81.0
Jackhammer	88.9	81.9
Other Equipment	85.0	82.0
Pavement Scarifier	89.5	82.5
Paver	77.2	74.2
Roller	80.0	73.0
Scraper	83.6	79.6
Tractor	84.0	80.0
Welder	74.0	70.0

Source: *FHWA, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2006.*
Note: *L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eg} 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 night, L_{max} is the maximum A-weighted noise level during the measurement period.*

The nearest noise-sensitive existing land use to the Project site is Lakeside Middle School located approximately 2,000 feet distance and in unincorporated Riverside County. However, as previously described the installation of the proposed offsite water line would occur adjacent Lakeside Middle School and residential land uses. This activity would be expected to include excavators, backhoes, boring equipment, jackhammers, pavers, and other equipment. It is noted that the installation of this proposed water line would not endure the same time span as onsite construction. Additionally, the approved McCanna Hills development is located directly adjacent to the Project's western boundary. Once built-out,

commercial and residential land uses would exist on what is currently vacant land adjacent to the Project's western boundary.

As previously described, the County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses contains several policy provisions to limit construction noise. For instance, Provision 2.4 requires that all construction contractors of warehouse projects that include any building larger than 250,000 square feet in size to utilize construction equipment, with properly operating and maintained mufflers, consistent with manufacturers' standards. Provision 2.5 states that construction contractors must locate or park all stationary construction equipment so that the emitted noise is directed away from sensitive receptors nearest the project site, to the extent practicable. Lastly, Provision 2.9 requires construction contractors to prohibit truck drivers from idling more than five minutes and require operators to turn off engines when not in use.

Project construction would require blasting in order to remove non-ripple materials at an area off the Project site, between the northwest corner of the Project site and Lakeside Middle School, approximately 620 feet from the Middle School. (Blasting impacts are discussed further in the analysis of potential groundborne vibration below.)

The County prohibits construction noise between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May (Municipal Code Chapter 9.52). Additionally, construction would occur throughout the Project site and would not be concentrated at one point, and all construction would be required to adhere to the best management practices established in the County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses.

Both onsite and offsite Project construction noise is compared against the construction-related noise level threshold established in the *Criteria for a Recommended Standard: Occupational Noise Exposure* prepared in 1998 by 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. As previously described, 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 existing and future planned sensitive receptors. (As previously stated, the approved McCanna Hills development is located directly adjacent to the Project's western boundary. Once built-out, commercial and residential land uses would exist on what is currently vacant land adjacent to the Project's western boundary.) Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, the noise level is expressed in L_{eq}.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, the construction equipment noise levels were calculated using the Roadway Noise Construction Model for the site preparation, grading, building construction, paving and painting. Onsite building construction, paving and painting are modeled to occur simultaneously. The

anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 9**.** Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project site (FTA 2018). The nearest sensitive receptors are the future approved residences in McCanna Hills to the west.

Table 9. Onsite Construction Average (dBA) Noise Levels by Receptor Distance and Construction Equipment – Unmitigated

Equipment	Estimated Exterior Construction Noise Level @ Future Approved Residences	Construction Noise Standards (dBA Leq)	Exceeds Standards?
Site Preparation			
Front Loader (8)	41.9 (each)	*85*	**No**
Dozer (6)	51.7 (each)	*85*	**No**
Combined Site Preparation Equipment	**61.9**	*85*	**No**
Grading			
Scraper (4)	53.6 (each)	*85*	**No**
Front Loader (4)	41.9 (each)	*85*	**No**
Dozer (2)	51.7 (each)	*85*	**No**
Excavator (4)	50.7 (each)	*85*	**No**
Combined Grading Equipment	**63.0**	*85*	**No**
Building Construction, Paving & Painting			
Air Compressor (2)	47.7 (each)	*85*	**No**
Crane (2)	46.6 (each)	*85*	**No**
Forklift (6)	53.4 (each)	*85*	**No**
Generator (2)	51.6 (each)	*85*	**No**
Welder (2)	44.0 (each)	*85*	**No**
Backhoe (6)	47.6 (each)	*85*	**No**
Paver (4)	48.2 (each)	*85*	**No**
Roller (4)	47.0 (each)	*85*	**No**
Paving Equipment (4)	56.5 (each)	*85*	**No**
Combined Building Construction, Paving & Paining Equipment	**66.5**	*85*	**No**

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

Notes: Construction equipment used during construction derived from CalEEMod 2016.3.2.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the Leq 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 9, during onsite construction activities no individual or cumulative piece of construction equipment would exceed the NIOSHA threshold of 85 dBA L_{eq} at the nearest potential receptors to onsite construction, which include future residents located in McCanna Hills west of the Project site.

As previously described the installation of the proposed offsite water line would occur adjacent Lakeside Middle School and residential land uses. This activity would be expected to include excavators, backhoes, boring equipment, jackhammers, pavers, and other equipment. Additionally, blasting would occur approximately 620 feet from Lakeside Middle School and could potentially occur when future approved residences are built to the south. The anticipated short-term offsite construction noise levels generated for the necessary equipment is presented in Table 10**.**

Table 10. Offsite Construction Average (dBA) Noise Levels by Receptor Distance and Construction Equipment – Unmitigated

Equipment	Estimated Exterior Construction Noise Level @ Existing School and Residences	Construction Noise Standards (dBA Leq)	Exceeds Standards?
Blasting			
Blasting	71.7 (per blast)	85	**No**
Road Demolition			
Dozer (2)	75.4 (each)	*85*	**No**
Excavator (3)	74.5 (each)	*85*	**No**
Concrete Saw (1)	80.3	*85*	**No**
Bore/Drill Rig (1)	77.7	*85*	**No**
Combined Site Preparation Equipment	**85.0**	*85*	**No**
Site Preparation			
Bore/Drill Rig (1)	77.7	*85*	**No**
Dozer (3)	74.5 (each)	*85*	**No**
Front End Loader (2)	72.9 (each)	*85*	**No**
Tractor (1)	77.7	*85*	**No**
Backhoe (1)	71.3	*85*	**No**
Combined Site Preparation Equipment	**84.4**	*85*	**No**
Paving			
Paver (2)	71.9 (each)	*85*	**No**
Roller (2)	70.7 (each)	*85*	**No**
Paving Equipment (2)	80.2 (each)	*85*	**No**
Combined Building Construction, Paving & Paining Equipment	**84.2**	*85*	**No**

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

Notes: Construction equipment used during construction derived from CalEEMod 2016.3.2.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the Leq 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, construction noise levels are predicted to reach a level of 85.0 dBA L_{eq} during the roadway demolition phase, which is necessary in order to install a water main line. While this would not exceed the NIOSH standard, methods to reduce construction noise are fairly standard. Therefore, the following mitigation is recommended.

Recommended Mitigation Measure

NOI-1: In order to reduce construction noise during the installation of offsite infrastructure on Walnut Street, all stationary construction equipment shall be surrounded by a temporary noise barrier such as a flexible sound curtain, an 18-ounce tarp, or a two-inch-thick fiberglass blanket. The height of noise control barrier shrouds shall be adequate to assure proper acoustical performance.

Per the noise modeling conduction, Mitigation Measure NOI-1 would reduce noise during roadway demolition activities from 85.0 dBA to 82.5 dBA L_{eq}. Additionally, site preparation/facility installation activities would be reduced from 84.4 dBA to 83.5 dBA.

Construction noise would not exceed the NIOSH standard. It is noted that onsite construction would occur at a distance great enough from each other as not to cumulatively increase noise above 85.0 dBA.

5.3.2 Project Operational Noise

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of County or 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 existing nearest noise-sensitive land use to the Project site is Lakeside Middle School located approximately 0.4 miles west. While not currently constructed, the approved McCanna Hills development is located directly adjacent to the Project's western boundary. Once built-out, commercial and residential land uses would exist on what is currently vacant land adjacent to the Project's western boundary.

The operational noise sources associated with the various land use plans are discussed below. Operational noise sources associated with the Proposed Project include mobile and stationary (i.e., mechanical equipment, warehouse operations) sources.

Primary Land Use Plan

Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise sensitive land uses) under the Primary Land Use Plan were modeled based on the traffic volumes identified by Urban Crossroads (2020) to determine the noise levels along Project vicinity roadways. Table 11 shows the calculated offsite roadway noise levels under existing traffic levels compared to future build-out of the Project under the Primary Land Use Plan. The calculated noise levels as a result of the Project at affected sensitive land uses are compared to the noise standards promulgated in the County of Riverside, and significance thresholds recommended by FICON with consideration of the City of Moreno Valley, City of San Jacinto, City of Perris and City of Menifee various protective limits to exterior noise at residences,

where applicable. The location of roadway segments are noted in Table 11. Where no jurisdiction is noted, the roadway segment lies within unincorporated Riverside County.

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 Project-related 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 Project-related 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 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard AND result in Noise Levels Exceeding Acceptable Exterior Noise Standards
		Existing Conditions	Existing + Project Conditions		
Sanderson Avenue (State Route 79)					
North of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.8	64.9	>3	**No**
South of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.2	64.3	>3	**No**
Contour Avenue					
East of Hansen Avenue	Residential and Educational	47.4	49.6	>5	**No**
West of Hansen Avenue	Residential and Agricultural	41.4	44.7	>5	**No**
Hansen Avenue					
North of Contour Avenue	Residential	52.5	52.9	>5	**No**
Between Contour Avenue and Montgomery Avenue	Residential	52.0	52.4	>5	**No**
Nuevo Road					
East of Montgomery Avenue	Residential and Agricultural	54.5	55.2	>5	**No**
Between Montgomery Avenue and Lakeview Avenue	Residential and Agricultural	54.5	55.2	>5	**No**
Between Lakeview Avenue and Reservoir Avenue	Residential and Agricultural	58.7	59.0	>5	**No**
Between Reservoir Avenue and the Project site	Residential and Agricultural	57.2	58.9	>5	**No**
Between the Project site and Dunlap Drive	Residential and Agricultural	60.0	61.4	>3	**No**
Between Dunlap Drive and Evans Road (City of Perris)	Residential	59.0	59.7	>5	**No**
Between Murrieta Road and Redlands Avenue (City of Perris)	Residential	58.2	58.9	>5	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels					
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential, Commercial and Educational	58.2	58.8	>5	**No**
Orange Avenue					
Between Dunlap Drive and Evans Road (City of Perris)	Residential	54.9	58.2	>5	**No**
Between Evans Road and Murrieta Road (City of Perris)	Residential	57.1	59.1	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential	58.2	58.5	>5	**No**
West of Perris Boulevard (City of Perris)	Residential and Agricultural	57.4	57.6	>5	**No**
Placentia Avenue					
East of Redlands Avenue (City of Perris)	Residential and Agricultural	49.0	51.4	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	51.6	53.8	>5	**No**
Rider Street					
Between Ramona Expressway and Bradley Road (City of Perris)	Residential and Educational	54.5	54.5	>5	**No**
Between Bradley Road and Evans Road (City of Perris)	Residential	55.8	55.8	>5	**No**
Between Evans Road and Redlands Avenue (City of Perris)	Residential	58.6	58.6	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	57.8	57.8	>5	**No**
Ramona Expressway					
South of Rider Street	Residential	61.3	62.0	>3	**No**
Between Rider Street and Bradley Road (City of Perris)	Residential	60.0	61.5	>3	**No**
Between Bradley Road and Evans Road (City of Perris)	Residential	60.6	61.8	>3	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels					
Between Evans Road and Redlands Avenue (City of Perris)	Residential	62.5	63.1	>3	**No**
West of Redlands Avenue (City of Perris)	Residential and Agricultural	61.0	61.6	>3	**No**
East of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	62.0	62.1	>3	**No**
West of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	60.6	60.7	>3	**No**
Krameria Avenue					
West of Perris Boulevard (City of Moreno Valley)	Residential and Industrial	49.1	49.1	>5	**No**
Between Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	54.0	54.2	>5	**No**
East of Lasselle Street (City of Moreno Valley)	Residential	56.1	56.1	>5	**No**
Iris Avenue					
West of Perris Boulevard (City of Moreno Valley)	Residential and Educational	58.9	58.9	>5	**No**
West of Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	61.2	61.2	>3	**No**
East of Lasselle Street (City of Moreno Valley)	Residential and Commercial	62.0	62.1	>3	**No**
San Jacinto Avenue					
East of Menifee Road	Residential and Agricultural	42.0	44.0	>5	**No**
West of Menifee Road	Residential and Agricultural	51.5	51.8	>5	**No**
Ellis Road					
West of Menifee Road	Residential	42.0	47.1	>5	**No***
Mapes Road					
East of Menifee Road	Residential	51.0	51.0	>5	**No**
West of Menifee Road	Residential	47.5	48.2	>5	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels					
Watson Road					
East of Menifee Road (City of Menifee)	Residential	53.3	53.5	>5	**No**
West of Menifee Road (City of Menifee)	Residential	47.4	47.4	>5	**No**
State Route 74					
East of Menifee Road (City of Menifee)	Residential	60.5	60.7	>3	**No**
West of Menifee Road (City of Menifee)	Residential	60.4	60.5	>3	**No**
Lakeview Avenue					
North of Nuevo Road	Residential and Agricultural	55.7	55.9	>5	**No**
Reservoir Avenue/ Menifee Road					
Between Nuevo Road and San Jacinto Avenue	Residential	54.0	55.0	>5	**No**
Between San Jacinto Avenue and Ellis Avenue	Residential	53.3	54.2	>5	**No**
Between Ellis Avenue and Mapes Road	Residential	53.4	54.2	>5	**No**
Between Mapes Road and Watson Road (City of Menifee)	Residential	52.0	52.9	>5	**No**
Between Watson Road and SR 74 (City of Menifee)	Residential	52.3	52.6	>5	**No**
South of SR 74 (City of Menifee)	Residential	54.5	54.7	>5	**No**
Dunlap Drive					
Between Nuevo Road and Orland Avenue	Residential	53.7	54.2	>5	**No**
South of Nuevo Road (City of Perris)	Residential	45.8	47.5	>5	**No**
Bradley Road					
Between Ramona Expressway and Rider Street (City of Perris)	Residential	50.4	51.4	>5	**No**
South of Rider Street (City of Perris)	Residential	42.5	42.5	>5	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels					
Evans Road					
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7	56.0	>5	**No**
Between Orange Avenue and Rider Street (City of Perris)	Residential	56.1	56.4	>5	**No**
Between Rider Street and Ramona Expressway (City of Perris)	Residential	58.4	58.5	>5	**No**
Between Ramona Expressway and Krameria Avenue (City of Moreno Valley/ City of Perris)	Residential	58.9	59.2	>5	**No**
Between Krameria Avenue and Iris Avenue (City of Moreno Valley)	Residential	61.0	61.1	>3	**No**
Murrieta Road					
North of Nuevo Road (City of Perris)	Residential	47.5	47.5	>5	**No**
South of Nuevo Road (City of Perris)	Residential and Educational	47.5	48.2	>5	**No**
Redlands Avenue					
South of Nuevo Road (City of Perris)	Residential	57.3	57.6	>5	**No**
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7	56.1	60>5	**No**
Between Orange Avenue and Placentia Avenue (City of Perris)	Residential	55.2	57.1	>5	**No**
Perris Boulevard					
North of Iris Avenue (City of Moreno Valley)	Residential and Industrial	58.6	58.7	>5	**No**
Between Iris Avenue and Krameria Avenue (City of Moreno Valley)	Residential and Industrial	59.2	59.3	>5	**No**
Between Krameria Avenue and San Michele Road	Residential and Industrial	60.0	60.1	>3	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels					
(City of Moreno Valley)					
Between Ramona Expressway and Morgan Street (City of Perris)	Residential and Industrial	58.9	58.9	>5	**No**
Between Placentia Avenue and Rider Street (City of Perris)	Residential and Industrial	59.1	59.4	>5	**No**
Between Placentia Avenue and Orange Avenue (City of Perris)	Residential and Industrial	59.0	59.0	>5	**No**
Between Orange Avenue and Nuevo Road (City of Perris)	Residential and Industrial	60.4	60.5	>3	**No**
Indian Avenue					
South of Placentia Avenue (City of Perris)	Residential and Industrial	51.9	51.9	>5	**No**
Between Placentia Avenue and Ramona Expressway (City of Perris)	Residential and Industrial	51.5	51.5	>5	**No**
Webster Avenue					
South of Ramona Expressway (City of Perris)	Residential and Industrial	47.9	47.9	>5	**No**
Between Ramona Expressway and Harley Knox Avenue (City of Perris)	Residential and Industrial	49.7	49.7	>5	**No**
Interstate 215					
North of Ramona Expressway (City of Perris)	Residential and Industrial	64.2	64.2	>3	**No**
Between Ramona Expressway and Placentia Avenue (City of Perris)	Educational, Residential and Industrial	63.4	64.0	>3	**No**
Between Placentia Avenue and Nuevo Road (City of Perris)	Educational, Residential, and Industrial	61.2	61.8	>3	**No**
South of Nuevo Road (City of Perris)	Educational, Residential, and Industrial	64.1	64.8	>3	**No**

Table 11. Existing Plus Primary Land Use Plan Conditions - Predicted Traffic Noise Levels

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Urban Crossroads 2020. Refer to Attachment C for traffic noise modeling assumptions and results.

Notes: A total of 67 intersections were analyzed in the Traffic Impact Analysis; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

Roadway segments that do not specify a specific city are located in unincorporated Riverside County.

*While this segment would experience an increase of more than 5 dBA CNEL compared with Project conditions without the Project, the resultant noise level would not be in excess of the County residential noise threshold of 60 dBA.

As shown in Table 11, the Ellis Road segment west of Menifee Road, located in unincorporated Riverside County would experience an increase of more than 5.0 dBA CNEL over existing conditions; however, the resultant noise level would not be in excess of the County residential noise threshold of 60 dBA. Similarly, no other roadway segments would generate an increase of noise beyond significance standards.

Operational Onsite Stationary Noise

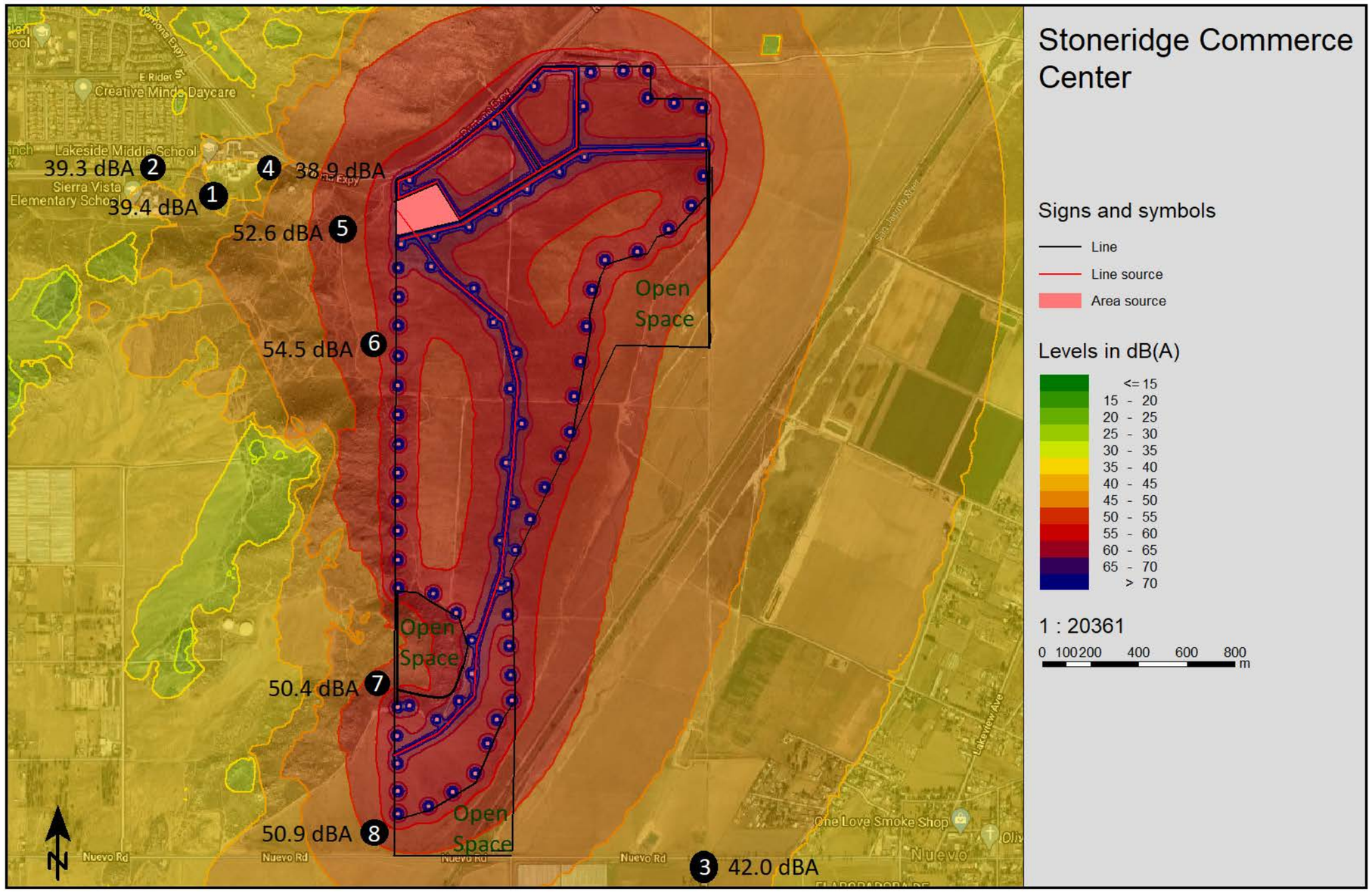
The main stationary operational noise associated with the Primary Land Use Plan would be warehouse-related activity, such as trucks idling and maneuvering the site. Onsite Project operations have been calculated using the SoundPLAN 3D noise model. The results of this model can be found in Attachment D. Table 12 shows the predicted Project noise levels at eight locations in the Project vicinity, as predicted by SoundPLAN. Three of these locations (1 – 3) are where the existing baseline noise measurements were taken (see Table 4), while the additional five locations (4 - 8) are located along the western boundary of the Project site, adjacent to Lakeside Middle School, and in the approved McCanna Hills Land Use Plan area, where numerous future residents are yet to be constructed. Additionally, a noise contour graphic (Figure 4. *Project Onsite Source Noise Generation*) has been prepared to depict the predicted noise levels in the Project vicinity from Project operations.

Table 12. Modeled Operational Noise Levels

Site Location	Location	Existing Baseline Noise Measurements (L_{eq} dBA)	Modeled Operational Noise Attributable to Project (L_{eq} dBA)	County Exterior Standards (dBA) (Day/Night)	Exceed Standard? (Day /Night)
1	At the end of Walnut Avenue and adjacent to schools.	45.0	**39.4**	65 / 45	**No / No**
2	At the end of the cul-de-sac at Hawthorne Road.	55.2	**39.3**	65 / 45	**No / No**
3	At the corner of Nuevo Road and Menifee Road.	70.6	**42.0**	65 / 45	**No / No**
4	Adjacent to Lakeside Middle School.	N/A	**38.9**	65 / 45	**No / No**
5	West of the Project site in the Approved McCanna Hills Land Use Plan area.	N/A	**52.6**	65 / 45	**No / Yes**
6	West of the Project site in the Approved McCanna Hills Land Use Plan area.	N/A	**54.5**	65 / 45	**No / Yes**
7	West of the Project site in the Approved McCanna Hills Land Use Plan area.	N/A	**50.4**	65 / 45	**No / Yes**
8	West of the Project site in the Approved McCanna Hills Land Use Plan area.	N/A	**50.9**	65 / 45	**No / Yes**

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

Notes: Source noise measurements identify 79.0 dBA for heavy-duty truck maneuvering per the San Jose Loading Dock Noise Study (2014), 61.1 dBA for parking lot activity per reference measurements 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., and 83.4 dBA for internal circulation as calculated by the FHWA Highway Noise Prediction Model. These reference measurements informed the SoundPLAN model to predict Project noise propagation. See Attachment D.



Map Date: *6/29/2020*
Photo (or Base) Source: *SoundPLAN*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4. SoundPLAN

2019-075

As shown in Table 12 and Figure 4, the Project would not surpass the daytime noise standard at any existing or planned receptor. Additionally, the Project would not surpass the nighttime noise standard at any existing receptor under the Primary Land Use Plan. However, in the case that the Project operates any time from10:00 p.m. to 7:00 a.m. (nighttime), operations would potentially exceed the County nighttime noise standard at planned and approved future sensitive receptors within the McCanna Hills development. The County of Riverside's regulations with respect to noise are included in the Noise Element of the County's General Plan. As depicted in the Stationary Source Land Use Noise Standards (Table 7), the maximum exterior noise standards are 65 dBA from 7:00 a.m. to 10: 00 p.m. (daytime) and 45 dBA from 10:00 p.m. to 7:00 a.m. (nighttime). As previously described, stationary source noise levels have been calculated with the SoundPLAN 3D noise model, which predicts noise propagation 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. Due to the conceptual nature of the Stoneridge Commerce Center Specific Plan, a detailed site plan containing building size, orientation and location of truck loading docks is currently unknown. As such, a worst-case analysis was preformed, placing noise producing sources such as loading docks and the internal circulation network as close to existing and future sensitive receptors as possible, and is represented in the noise model prediction. Below each land use is described and its stationary noise sources are discussed.

Light Industrial

Light Industrial uses typically attract both passenger car and trailer-truck traffic and accommodate uses such as industrial incubators, light manufacturing, parcel hub, warehouse/storage, fulfillment center, and e-commerce operations. The light industrial land uses, that account for a majority of the Project site, would be the primary operational noise source associated with the Proposed Project. These stationary source noises would mainly be attributed to warehouse-related activity, such as trucks idling and maneuvering the site. To represent this in SoundPLAN, an area source measuring 33 feet by 33 feet (10 meters by 10 meters) every 100 feet (30 meters) with a noise level of 79.0 dBA was used to represent potential truck loading dock noise and placed on the perimeter of the Project site closest to existing and future noise sensitive land uses. 79.0 dBA represents the loudest function of heavy-duty truck maneuvering according to the City of San Jose Loading Dock Noise Study (2014). Additionally, area sources of the same size were added along Antelope Road.

Business Park

Business Park uses primarily provide small-scale light industrial, incubator industrial, merchant wholesalers, professional services, hospitality, professional office, small-scale warehousing/ storage, and research and development uses. Similar to the light industrial uses, the main operation noise would be attributed to warehouse activity. Because not all business park land uses would accommodate heavy-duty trucks or require a loading dock, such as light industrial land uses, only three area sources measuring 33 feet by 33 feet (10 meters by 10 meters) with a noise level of 79.0 dBA were used to represent potential truck loading dock noise. 79.0 dBA represents the loudest function of heavy-duty truck maneuvering according to the City of San Jose Loading Dock Noise Study (2014). These noise sources were placed on the perimeter of the Project site for the purposes of Project onsite noise modeling. Additionally, a line source was used, with a noise level of 79.0 dBA, and placed around the perimeter of the land use as well.

Commercial Retail

Commercial Retail uses are located in the northwestern corner of the Project site, closest to the existing sensitive land uses. Anticipated businesses include restaurants, financial institutions, commercial retailers, and personal service shops, as well as small retail businesses and offices. The main stationary source noise associated with this land use would be that of parking lot activity. To represent this in SoundPLAN an area source measuring the total land use area with a noise level of 61.1 dBA was used. The noise level of 61.1 dBA is referenced from noise measurements conducted by ECORP Consulting, Inc. on a weekday within a parking lot serving a large grocery store and multiple restaurants.

Onsite Internal Circulation Noise

Internal circulation, on Antelope Road, was calculated using the FHWA Highway Noise Prediction Model. For Project operations the model was updated to reflect the anticipated amount of medium-duty and heavy-duty trucks generated by the Project, as supplied by Urban Crossroads (2020), since these vehicles produce more noise than the average vehicle. A line source with a noise level of 84.2 dBA was used to represent internal circulation on the Project site.

As previously described, the noise levels as a result of Project operations would meet the exterior daytime noise standards for all locations but would exceed the exterior nighttime noise standards for locations 5-8. All *existing* noise sensitive land uses meet the County's daytime and nighttime noise standards. As previously stated, the Project was modeled using a worst-case analysis since a detailed site plan is not available and the hours of operations are unknown at this time. Additionally, no mitigation or noise reduction measures were added into the SoundPLAN noise modeling prediction. Locations 5-8 are located in the McCanna Hills Land Use Plan. This area is currently undeveloped but will accommodate numerous noise sensitive land uses with residents being the nearest one to the Project site.

All future operations on the Project site would be required to adhere to the best management practices established in the County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses. For instance, warehouse/distribution facilities would be generally designed so that truck bays and loading docks are a minimum of 300 feet away from the property line of sensitive receptors, measured from the dock building door, unless noise-reducing berms or other similar features were implemented to appropriately shield and buffer the sensitive receptors from the active truck operations areas. Dock doors shall would be located where they are not readily visible from sensitive receptors or major roads. An additional "wing-wall" must be installed perpendicular to the loading dock areas to further attenuate noise related to truck activities when adjacent to sensitive receptors.

Additionally, the Stoneridge Commerce Center Specific Plan planning document contains planning standards to ensure that development of the light industrial, business park, commercial retail, and open space areas are consistent with the quality and vision of Riverside County, and to ensure that the design of the Commerce Center accommodates the surrounding offsite land uses. For instance, the Specific Plan mandates that all future loading docks and truck parking areas must be visually screened from Ramona Expressway, Antelope Road, Orange Avenue, Nuevo Road, and Street "A" by walls, landscaping, and/or other screening features or barriers (such as berms). Outdoor loading and storage areas and loading doors must be screened from view from public streets by concrete or masonry walls, tubular steel fencing,

and/or landscaping. Such walls, fencing, and/or landscaping used as screening shall be a minimum eight feet in height and shall be of sufficient height to screen all equipment, tractors and trailers, and loading doors from view. Further, all manufacturing and processing activities must be conducted within a wholly-enclosed building.

As previously stated, SoundPLAN was used to model operational noise on a worst-case basis and no mitigation or noise reduction measures were added due to the conceptual nature of the Project. The placement and position of all future buildings and loading docks are not yet proposed. All noise producing sources were placed as close to existing and future sensitive receptors as possible, though accounting for the 300-foot buffer required by the best management practices established in the County of Riverside Board of Supervisors Good Neighbor Policy for Logistics and Warehouse/Distribution Uses. While the orientation of the buildings is currently unknown, noise could further be reduced by intervening structures (i.e. buildings or structures between noise producing sources and sensitive receptors). Generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006). Additionally, as stated in the Stoneridge Commerce Center Specific Plan, loading dock and truck parking areas must be visually screened from Ramona Expressway, Antelope Road, Orange Avenue, Nuevo Road, and Street A by walls, landscaping, and/or other screening features or barriers (such as berms). The Specific Plan also mandates that outdoor loading and storage areas and loading doors be screened from view from public streets by concrete or masonry walls, tubular steel fencing, and/or landscaping. While these requirements would not protect the future residents to the west the Good Neighbor Policy for Logistics and Warehouse/Distribution Uses requires an additional "wing-wall" be installed perpendicular to the loading dock areas to further attenuate noise related to truck activities when adjacent to sensitive receptors. As previously mentioned, a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, the noise reduction provided by the required wing-walls would only occur during the final maneuvers of the delivery truck.

As such, it is recommended that the provisions in the Stoneridge Commerce Center Specific Plan to visually screen all loading dock and truck parking areas with the employment of walls and/or other solid screening features or barriers (such as berms but not just landscaping) be extended along the western boundary of the Project site to protect future residents in the McCanna Hills Land Use Plan in the cases where loading docks are proposed within the line-of-site of these receptors to the west. Therefore, the following mitigation is recommended for the Primary Land Use Plan. A reduction of 10 dBA would be robust enough to reduce operational noise levels below the exterior nighttime noise standard (54.5 dBA– 10 dBA = 44.5 dBA), which would be achieved through implementation of the following mitigation.

NOI-2 All loading dock and truck parking areas in the Stoneridge Commerce Center must be visually screened from sensitive residential receptors to the west by walls and/or other solid screening features or barriers (such as berms). The barriers must be constructed with no visible gaps between construction materials or at the base of the barrier.

Mitigation measure NOI-2 would reduce operational noise levels below the exterior nighttime noise standard at the future sensitive noise receptors to the west of the Project site. Additionally, 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). The exterior-to-interior reduction

of newer residential units is generally 30 dBA or more (HMMH 2006). As such, the Project would not exceed the County's interior noise standards.

As such, noise levels as a result of Project under the Primary Land Use Plan operations would fall below the County's exterior and interior daytime and nighttime noise standards with implementation of the recommended measures above.

Alternative Land Use Plan

Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity for the Alternative Land Use Plan was assessed using the same methodology and standards as the Primary Land Use Plan discussed above.

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard AND result in Noise Levels Exceeding Acceptable Exterior Noise Standards
		Existing Conditions	Existing + Project Conditions		
Sanderson Avenue (State Route 79)					
North of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.8	64.9	>3	**No**
South of Ramona Expressway (City of San Jacinto)	Residential and Agricultural	64.2	64.3	>3	**No**
Contour Avenue					
East of Hansen Avenue	Residential and Educational	47.4	49.8	>5	**No**
West of Hansen Avenue	Residential and Agricultural	41.4	44.4	>5	**No**
Hansen Avenue					
North of Contour Avenue	Residential	52.5	53.2	>5	**No**
Between Contour Avenue and Montgomery Avenue	Residential	52.0	52.9	>5	**No**
Nuevo Road					
East of Montgomery Avenue	Residential and Agricultural	54.5	55.9	>5	**No**
Between Montgomery Avenue and Lakeview Avenue	Residential and Agricultural	54.5	55.7	>5	**No**
Between Lakeview Avenue and Reservoir Avenue	Residential and Agricultural	58.7	59.3	>5	**No**
Between Reservoir Avenue and the Project site	Residential and Agriculture	57.2	57.3	>5	**No**
Between the Project site and Dunlap Drive	Residential and Agricultural	60.0	61.9	>3	**No**
Between Dunlap Drive and Evans Road (City of Perris)	Residential	59.0	61.1	>5	**No**
Between Murrieta Road and Redlands Avenue (City of Perris)	Residential	58.2	59.1	>5	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels					
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential, Commercial and Educational	58.2	58.9	>5	**No**
Orange Avenue					
Between Dunlap Drive and Evans Road (City of Perris)	Residential	54.9	59.3	>5	**No**
Between Evans Road and Murrieta Road (City of Perris)	Residential	57.1	59.7	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential	58.2	58.8	>5	**No**
West of Perris Boulevard (City of Perris)	Residential and Agricultural	57.4	57.8	>5	**No**
Placentia Avenue					
East of Redlands Avenue (City of Perris)	Residential and Agricultural	49.0	51.4	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	51.6	53.8	>5	**No**
Rider Street					
Between Ramona Expressway and Bradley Road (City of Perris)	Residential and Educational	54.5	54.5	>5	**No**
Between Bradley Road and Evans Road (City of Perris)	Residential	55.8	55.8	>5	**No**
Between Evans Road and Redlands Avenue (City of Perris)	Residential	58.6	58.6	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	Residential and Industrial	57.8	57.8	>5	**No**
Ramona Expressway					
South of Rider Street	Residential	61.3	62.5	>3	**No**
Between Rider Street and Bradley Road (City of Perris)	Residential	60.0	62.2	>3	**No**
Between Bradley Road and Evans Road (City of Perris)	Residential	60.6	62.4	>3	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels					
Between Evans Road and Redlands Avenue (City of Perris)	Residential	62.5	63.4	>3	**No**
West of Redlands Avenue (City of Perris)	Residential and Agricultural	61.0	62.0	>3	**No**
East of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	62.0	62.2	>3	**No**
West of Sanderson Avenue (City of San Jacinto)	Residential and Agricultural	60.6	60.7	>3	**No**
Krameria Avenue					
West of Perris Boulevard (City of Moreno Valley)	Residential and Industrial	49.1	49.1	>5	**No**
Between Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	54.0	54.3	>5	**No**
East of Lasselle Street (City of Moreno Valley)	Residential	56.1	56.1	>5	**No**
Iris Avenue					
West of Perris Boulevard (City of Moreno Valley)	Residential and Educational	58.9	58.9	>5	**No**
West of Perris Boulevard and Lasselle Street (City of Moreno Valley)	Residential	61.2	61.2	>3	**No**
East of Lasselle Street (City of Moreno Valley)	Residential and Commercial	62.0	62.3	>3	**No**
San Jacinto Avenue					
East of Menifee Road	Residential and Agricultural	42.0	45.3	>5	**No**
West of Menifee Road	Residential and Agricultural	51.5	52.0	>5	**No**
Ellis Road					
West of Menifee Road	Residential	42.0	44.9	>5	**No**
Mapes Road					
East of Menifee Road	Residential	51.0	51.0	>5	**No**
West of Menifee Road	Residential	47.5	48.7	>5	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels					
Watson Road					
East of Menifee Road (City of Menifee)	Residential	53.3	53.6	>5	**No**
West of Menifee Road (City of Menifee)	Residential	47.4	47.4	>5	**No**
State Route 74					
East of Menifee Road (City of Menifee)	Residential	60.5	60.8	>3	**No**
West of Menifee Road (City of Menifee)	Residential	60.4	60.6	>3	**No**
Lakeview Avenue					
North of Nuevo Road	Residential and Agricultural	55.7	56.0	>5	**No**
Reservoir Avenue/ Menifee Road					
Between Nuevo Road and San Jacinto Avenue	Residential	54.0	55.7	>5	**No**
Between San Jacinto Avenue and Ellis Avenue	Residential	53.3	55.0	>5	**No**
Between Ellis Avenue and Mapes Road	Residential	53.4	54.9	>5	**No**
Between Mapes Road and Watson Road (City of Menifee)	Residential	52.0	53.7	>5	**No**
Between Watson Road and SR 74 (City of Menifee)	Residential	52.3	53.1	>5	**No**
South of SR 74 (City of Menifee)	Residential	54.5	55.0	>5	**No**
Dunlap Drive					
Between Nuevo Road and Orland Avenue	Residential	53.7	54.7	>5	**No**
South of Nuevo Road (City of Perris)	Residential	45.8	48.5	>5	**No**
Bradley Road					
Between Ramona Expressway and Rider Street (City of Perris)	Residential	50.4	51.4	>5	**No**
South of Rider Street (City of Perris)	Residential	42.5	42.5	>5	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels					
Evans Road					
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7	56.2	>5	**No**
Between Orange Avenue and Rider Street (City of Perris)	Residential	56.1	56.6	>5	**No**
Between Rider Street and Ramona Expressway (City of Perris)	Residential	58.4	58.6	>5	**No**
Between Ramona Expressway and Krameria Avenue (City of Moreno Valley/ City of Perris)	Residential	58.9	59.6	>5	**No**
Between Krameria Avenue and Iris Avenue (City of Moreno Valley)	Residential	61.0	61.2	>3	**No**
Murrieta Road					
North of Nuevo Road (City of Perris)	Residential	47.5	47.5	>5	**No**
South of Nuevo Road (City of Perris)	Residential and Educational	47.5	48.8	>5	**No**
Redlands Avenue					
South of Nuevo Road (City of Perris)	Residential	57.3	57.8	>5	**No**
Between Nuevo Road and Orange Avenue (City of Perris)	Residential	55.7	56.4	>5	**No**
Between Orange Avenue and Placentia Avenue (City of Perris)	Residential	55.2	57.4	>5	**No**
Perris Boulevard					
North of Iris Avenue (City of Moreno Valley)	Residential and Industrial	58.6	58.8	>5	**No**
Between Iris Avenue and Krameria Avenue (City of Moreno Valley)	Residential and Industrial	59.2	59.4	>5	**No**
Between Krameria Avenue and San Michele Road	Residential and Industrial	60.0	60.1	>3	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels					
(City of Moreno Valley)					
Between Ramona Expressway and Morgan Street (City of Perris)	Residential and Industrial	58.9	58.9	>5	**No**
Between Placentia Avenue and Rider Street (City of Perris)	Residential and Industrial	59.1	59.4	>5	**No**
Between Placentia Avenue and Orange Avenue (City of Perris)	Residential and Industrial	59.0	59.0	>5	**No**
Between Orange Avenue and Nuevo Road (City of Perris)	Residential and Industrial	60.4	60.5	>3	**No**
Indian Avenue					
South of Placentia Avenue (City of Perris)	Residential and Industrial	51.9	51.9	>5	**No**
Between Placentia Avenue and Ramona Expressway (City of Perris)	Residential and Industrial	51.5	51.7	>5	**No**
Webster Avenue					
South of Ramona Expressway (City of Perris)	Residential and Industrial	47.9	47.9	>5	**No**
Between Ramona Expressway and Harley Knox Avenue (City of Perris)	Residential and Industrial	49.7	49.7	>5	**No**
Interstate 215					
North of Ramona Expressway (City of Perris)	Residential and Industrial	64.2	64.2	>3	**No**
Between Ramona Expressway and Placentia Avenue (City of Perris)	Educational, Residential and Industrial	63.4	64.0	>3	**No**
Between Placentia Avenue and Nuevo Road (City of Perris)	Educational, Residential, and Industrial	61.2	61.8	>3	**No**
South of Nuevo Road (City of Perris)	Educational, Residential, and Industrial	64.1	64.8	>3	**No**

Table 13. Existing Plus Alternative Land Use Plan Conditions - Predicted Traffic Noise Levels

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Urban Crossroads 2020. Refer to Attachment C for traffic noise modeling assumptions and results.
Notes: A total of 67 intersections were analyzed in the Traffic Impact Analysis; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.
Roadway segments that do not specify a specific city are located in unincorporated Riverside County.

As shown in Table 13, no roadway segments would generate an increase of noise beyond significance standards.

Operational Onsite Stationary Noise

Operational stationary noise as a result of the Alternative Land Use Plan would be the same as the operational stationary noise generated by the Primary Land Use Plan discussed above. The Alternative Land Use Plan accounts for the construction of the MCP which would reduce the business park land use by 8.5 acres and the commercial retail land use by 0.2 acres. It would not result in an increase in any noise source that could impact future and existing sensitive receptors beyond what has previously been analyzed in the Primary Land Use Plan. With implementation of mitigation measure MM NOI-1, noise levels as a result of the Project under the Alternative Land Use Plan operations would fall below the County's daytime and nighttime noise standards at all nearby sensitive receptors.

5.3.3 Project Construction Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to both the Primary Land Use Plan and Alternative Land Use Plan 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. It is noted that pile drivers would not be necessary during Project construction. 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 construction equipment are summarized in Table 14.

Table 14. Representative Vibration Source Levels for Construction Equipment

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

Source: FTA 2018; Caltrans 2020

The County does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the County of Riverside standard of 0.01 inch per second RMS for assessing groundborne vibration from rail-related activities, promulgated by County General Plan Policy N 16.3, is used as a threshold. As identified in Table 3 above, this level of ground vibration equates to the range of human perception and is unlikely to cause damage to any type of building.

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The nearest existing land use of concern to onsite construction on the Project site is Lakeside Middle School located approximately 2,000 feet distant. However, there is a potential that approved residential land uses could be built adjacent to the site's western boundary by the time of Project construction. Additionally, as previously described, the installation of the proposed offsite water line would occur adjacent Lakeside Middle School and residential land uses on Walnut Street. This activity, which would be expected to include excavators, backhoes, boring equipment, jackhammers, pavers, and other equipment that would be a source of groundborne vibration at these receptors. The proposed water line would be implemented south of the Middle School, largely within the Walnut Avenue right-of-way. It is noted that the installation of this proposed water line would not endure the same time span as onsite construction.

Based on the representative vibration levels presented for various construction equipment types in Table 14 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: [$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$]. Table 15 presents the expected Project related vibration levels at a distance of 65 feet, which is anticipated to occur during the installation of the proposed water main line below Walnut Street.

Table 15. Specific Plan Construction Vibration Levels at 65 Feet

Receiver PPV Levels (in/sec)[1]					Peak Vibration	RMS Velocity Levels[2]	Threshold	Exceed Threshold
Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Drilling				
0.00006	0.00805	0.01748	0.02047	0.02047	0.02047	**0.014**	0.01	**Yes**

[1]Based on the Vibration Source Levels of Construction Equipment included on Table 14 (FTA 2018).
[2]Vibration levels in PPV are converted to RMS velocity using a 0.70 conversion factor identified by Caltrans (2020),

Based on the Project vibration levels presented in Table 15, ground vibration generated by heavy-duty equipment would be anticipated to exceed the 0.01 inch per second PPV RMS threshold at 65 feet. Thus, the Middle School and residences located along Walnut Street could potentially be negatively affected by typical construction equipment. The following mitigation would the types of construction equipment used for the installation of the proposed water main line underneath Walnut Street.

NOI-3 Installation of the proposed water main line underneath Walnut Street shall be implemented without the use of drilling equipment, large bulldozers, or loaded heavy duty trucks within 65 feet of any structure.

Mitigation measure NOI-3 would prohibit the types of equipment that result in the most intense vibration levels within 65 feet of any structure fronting Walnut Street. Implementation of mitigation measure NOI-3 would result in vibration at levels below the threshold of 0.01 inch per second PPV RMS threshold.

Project construction under both the Primary Land Use Plan and Alternative Land Use Plan would also require blasting in order to remove non-ripple materials at an area off the Project site, between the northwest corner of the Project site and Lakeside Middle School (approximately 620 feet from the Middle School). When a blast is detonated, only a portion of the energy is consumed in breaking up and moving the rock. The remaining energy is dissipated in the form of seismic waves expanding rapidly outward from the blast, either through the ground (as vibration) or through the air (as air overpressure or airblast). While a blaster can quite easily design blasts to stay well below any vibration or air overpressure levels that could cause damage, it is virtually impossible to design blasts that are not perceptible by people in the vicinity (Caltrans 2020). As seismic waves travel outward from a blast, they excite the particles of rock and soil through which they pass, causing them to oscillate. Spherical spreading, imperfect coupling, and other factors cause seismic waves to dissipate rapidly with distance, normally by two-thirds for each doubling of distance from the source. The motion of particles at a given point in the earth is measured when blast vibration is recorded.

Although residential structures may not be as strongly constructed as engineered structures, it is unusual to find damage to them from blast vibration (Caltrans 2020). In numerous instances, vibration levels far greater than the maximum levels recommended by the US Bureau of Mines or the Office of Surface Mining and Reclamation Enforcement failed to cause damage (Caltrans 2020). With regard to residences, the main issue with blast vibration is the perception of some residents that, because they could hear and feel the blast vibration, the vibration must have caused some damage to their residence. It is not unusual

for a homeowner to be unaware of cracks or other defects in his or her residence that have developed slowly because of settlement or thermal strains. When a nearby blast is detonated and the homeowner examines his or her structure more closely, it is not surprising that defects are attributed to the event (Caltrans 2020).

While it is virtually impossible to design blasts that are not perceptible by people in the vicinity, a blasting technician can design blasts to stay well below a vibration level of 0.01 in/sec PPV RMS (Caltrans 2020). Most of the factors involved in blast design are interrelated or interactive; correcting one problem may prompt others. Blast vibration is affected by the list of variables identified in Table 16. These variables are in turn affected by blast design factors as indicated.

Table 16. Blast Variable

Distance	As the distance from the blast increases, the vibration decreases. However, the blasting must be conducted where it is needed, and smaller charge weights may be necessary if blasting is needed in close proximity to structures.
Site Geology	As the distance between the blast and the recording point increases, geology plays a more dominant role in determining the frequency of the blast vibration and the speed at which the vibration dissipates.
Quantity of Explosive per Delay	The quantity of explosive per delay is one of the major variables in blast design for mitigating vibration. Blast design factors that can affect this include hole diameter and depth, the number of explosive decks, and the method of initiation. Generally, reducing this quantity will reduce the vibration generated, but the powder factor must remain high enough to adequately fracture the material.
Confinement of the Explosive Energy	Confinement is affected by burden and spacing, the quantity (and quality) of stemming, amount of subdrilling, and the location of the initiating device. Highly confined blasts, such as presplitting, generate higher vibration levels per unit weight of explosive. If a certain amount of throw or heave is acceptable or if means are employed to prevent excessive throw, reducing burdens can lower vibration levels appreciably. Bottom initiation will generally result in slightly more vibration than top initiation. However, any vibration benefit that might be gained from shooting from the top down or from reducing the amount of subdrilling can be offset by any additional blasts that may be required if the primary blast does not fracture rock to the full depth.
Powder Factor	The powder factor is affected by almost all blast design factors. The keys are to use as close to the optimum amount of explosive as possible and to distribute it through the material to be blasted in such a way that it will adequately fracture and shift the mass. If the powder factor is too low, it will not adequately fragment the material and a large portion of the available energy will be lost as seismic energy, resulting in excessive blast vibration. If the powder factor is too high, it can result in increased vibration intensities.
Explosive / Borehole Coupling	Although explosive/borehole coupling can affect vibration, the effect is minimal. For example, presplitting uses decoupled charges (there is an annular space between the charge and the wall of the borehole), but results in high vibration levels because the increased burden has a greater impact than the decoupling. Decoupling of explosive charges normally is not used to reduce vibration.
Spatial Distribution of the Energy Source	The spatial distribution of the energy source can affect vibration in terms of intensity and frequency. There are two examples of this. In the first example, two holes separated by a reasonable distance and detonated simultaneously will generate less vibration than one hole containing as much explosive as the two holes combined. The extent of this effect depends largely on the separation distance between the two holes. In a second example, a long column of explosive will generate less vibration than a spherical charge of the same weight.
Timing of Detonating Charges	Extending the delay time between blasts can reduce the amount of energy released per unit of time, reducing vibration to some extent.
Blast Orientation	Blast orientation is usually mandated by terrain and the physical layout of the rock. As a general rule, the highest vibration amplitudes will usually be in a direction opposite of that in which the rock is being heaved or thrown, although local geology may affect the actual direction of maximum intensity.

Caltrans 2020

In the absence of a Project blasting plan, showing specific blast locations, frequency, and duration, it is possible that certain activities could exceed the 0.01 in/sec PPV RMS threshold. Therefore, the following mitigation is recommended under either the Primary Land Use Plan or Alternative Land Use Plan.

NOI-4 The Project applicant shall submit to the County of Riverside Planning Department for approval a blasting plan prior to construction-related blasting demonstrating that

groundborne vibration generated by blasting is at or below a vibration level of 0.01 inches per second peak particle velocity RMS at any residential or educational land use.

With the implementation of mitigation measure MM NOI-4, impacts from blasting-generated groundborne vibration would not exceed the threshold.

5.3.4 Project Operational Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any stationary equipment that would result in excessive vibration levels. While the Project would accommodate heavy-duty trucks, these vehicles can only generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances. Therefore, the Project would result in negligible groundborne vibration impacts during operations.

5.3.5 Excess Airport Noise

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

The Project site is located approximately four miles southwest of the Perris Valley Aviation Airport. According to Figure 4.15.15 in the County's General Plan EIR, the Project site is located outside of the 65 dBA CNEL noise contours for the Perris Valley Airport and all other airports in the region. The Proposed Project would not expose people working on the Project site to excess airport noise levels.

5.3.6 Cumulative Noise

Would the Project Contribute to Cumulatively Considerable Noise During Construction?

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 the County of Riverside Municipal Code. 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 Municipal Code limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Would the Project Contribute to Cumulatively Considerable Noise from Traffic?

Year 2040 cumulative traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise sensitive land uses) under the Primary Land Use Plan were modeled based on the traffic volumes identified by Urban Crossroads (2020) to determine the noise levels along Project vicinity roadways under Year 2040 conditions. Table 17 shows the calculated offsite roadway noise levels under Year 2040 traffic levels without the Project compared to future build-out of the Project under the Primary

Land Use Plan in the Year 2040. The calculated noise levels as a result of the Project at affected sensitive land uses are compared to the noise standards promulgated in the County of Riverside, and significance thresholds recommended by FICON with consideration of the City of Moreno Valley, City of San Jacinto, City of Perris and City of Menifee various protective limits to exterior noise at residences, where applicable. The location of roadway segments are noted in Table 17. Where no jurisdiction is noted, the roadway segment lies within unincorporated Riverside County.

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 Project-related 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 Project-related 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

Primary Land Use Plan

Table 17 lists the traffic noise effects along roadway segments in the Project vicinity for Year 2040 Cumulative without Project and Year 2040 Cumulative Plus Project conditions for the Primary Land Use Plan.

Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan

Roadway Segment	Cumulative No Project	Cumulative Plus Project	Noise Standard (dBA CNEL)	Exceed Standard AND result in Noise Levels Exceeding Acceptable Exterior Noise Standards?
	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline		
Sanderson Avenue (State Route 79)				
North of Ramona Expressway (City of San Jacinto)	66.9	66.9	>1.5	**No**
South of Ramona Expressway (City of San Jacinto)	66.0	66.0	>1.5	**No**
Contour Avenue				
East of Hansen Avenue	50.2	50.4	>5	**No**
West of Hansen Avenue	45.6	45.6	>5	**No**
Hansen Avenue				
North of Contour Avenue	55.2	55.4	>5	**No**
Between Contour Avenue and Montgomery Avenue	53.9	54.5	>5	**No**
Nuevo Road				
East of Montgomery Avenue	56.8	57.2	>5	**No**
Between Montgomery Avenue and Lakeview Avenue	56.6	56.9	>5	**No**
Between Lakeview Avenue and Reservoir Avenue	61.2	61.4	>3	**No**
Between Reservoir Avenue and the Project site	63.0	64.4	>3	**No**
Between the Project site and Dunlap Drive	63.5	63.5	>3	**No**
Between Dunlap Drive and Evans Road (City of Perris)	63.4	65.9	>3	**No**
Between Murrieta Road and Redlands Avenue (City of Perris)	61.5	61.5	>3	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	59.0	61.6	>5	**No**
Orange Avenue				
Between Dunlap Drive and Evans Road (City of Perris)	59.0	59.5	>5	**No**
Between Evans Road and Murrieta Road (City of Perris)	59.5	60.2	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	59.8	60.0	>5	**No**

Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan				
West of Perris Boulevard (City of Perris)	59.0	59.2	>5	**No**
Placentia Avenue				
East of Redlands Avenue (City of Perris)	53.7	53.7	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	55.0	55.7	>5	**No**
Rider Street				
Between Ramona Expressway and Bradley Road (City of Perris)	58.3	58.3	>5	**No**
Between Bradley Road and Evans Road (City of Perris)	58.7	58.9	>5	**No**
Between Evans Road and Redlands Avenue (City of Perris)	60.5	60.7	>3	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	60.2	60.2	>3	**No**
Ramona Expressway				
South of Rider Street	65.0	66.6	>1.5	**Yes**
Between Rider Street and Bradley Road (City of Perris)	63.3	65.9	>3	**No**
Between Bradley Road and Evans Road (City of Perris)	64.2	66.4	>3	**No**
Between Evans Road and Redlands Avenue (City of Perris)	66.7	66.9	>1.5	**No**
West of Redlands Avenue (City of Perris)	65.6	65.8	>1.5	**No**
East of Sanderson Avenue (City of San Jacinto)	63.5	64.0	>3	**No**
West of Sanderson Avenue (City of San Jacinto)	63.9	64.0	>3	**No**
Krameria Avenue				
West of Perris Boulevard (City of Moreno Valley)	51.0	51.0	>5	**No**
Between Perris Boulevard and Lasselle Street (City of Moreno Valley)	56.1	56.1	>5	**No**
East of Lasselle Street (City of Moreno Valley)	58.2	58.2	>5	**No**
Iris Avenue				
West of Perris Boulevard (City of Moreno Valley)	64.8	65.0	>3	**No**

Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan				
West of Perris Boulevard and Lasselle Street (City of Moreno Valley)	63.4	63.4	>3	**No**
East of Lasselle Street (City of Moreno Valley)	64.4	64.5	>3	**No**
San Jacinto Avenue				
East of Menifee Road	46.3	47.2	>5	**No**
West of Menifee Road	53.8	54.3	>5	**No**
Ellis Road				
West of Menifee Road	48.0	48.6	>5	**No**
Mapes Road				
East of Menifee Road	51.3	52.7	>5	**No**
West of Menifee Road	49.1	49.6	>5	**No**
Watson Road				
East of Menifee Road (City of Menifee)	55.1	55.2	>5	**No**
West of Menifee Road (City of Menifee)	49.9	49.9	>5	**No**
State Route 74				
East of Menifee Road (City of Menifee)	63.7	63.7	>3	**No**
West of Menifee Road (City of Menifee)	63.3	63.3	>3	**No**
Lakeview Avenue				
North of Nuevo Road	57.5	57.6	>5	**No**
Reservoir Avenue/ Menifee Road				
Between Nuevo Road and San Jacinto Avenue	57.8	58.8	>5	**No**
Between San Jacinto Avenue and Ellis Avenue	57.7	58.2	>5	**No**
Between Ellis Avenue and Mapes Road	57.7	58.0	>5	**No**
Between Mapes Road and Watson Road (City of Menifee)	57.0	57.3	>5	**No**
Between Watson Road and SR 74 (City of Menifee)	57.3	57.7	>5	**No**
South of SR 74 (City of Menifee)	58.7	58.8	>5	**No**
Dunlap Drive				
Between Nuevo Road and Orland Avenue	57.0	57.3	>5	**No**

Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan				
South of Nuevo Road (City of Perris)	47.5	48.6	>5	**No**
Bradley Road				
Between Ramona Expressway and Rider Street (City of Perris)	52.6	52.8	>5	**No**
South of Rider Street (City of Perris)	44.1	44.1	>5	**No**
Evans Road				
Between Nuevo Road and Orange Avenue (City of Perris)	59.6	60.0	>5	**No**
Between Orange Avenue and Rider Street (City of Perris)	58.6	58.6	>5	**No**
Between Rider Street and Ramona Expressway (City of Perris)	60.3	60.3	>3	**No**
Between Ramona Expressway and Krameria Avenue (City of Moreno Valley/ City of Perris)	61.1	61.3	>3	**No**
Between Krameria Avenue and Iris Avenue (City of Moreno Valley)	62.8	62.9	>3	**No**
Murrieta Road				
North of Nuevo Road (City of Perris)	47.9	47.9	>5	**No**
South of Nuevo Road (City of Perris)	49.5	50.5	>5	**No**
Redlands Avenue				
South of Nuevo Road (City of Perris)	59.2	59.5	>5	**No**
Between Nuevo Road and Orange Avenue (City of Perris)	57.5	57.6	>5	**No**
Between Orange Avenue and Placentia Avenue (City of Perris)	57.9	57.9	>5	**No**
Perris Boulevard				
North of Iris Avenue (City of Moreno Valley)	60.7	60.7	>3	**No**
Between Iris Avenue and Krameria Avenue (City of Moreno Valley)	60.4	61.9	>3	**No**
Between Krameria Avenue and San Michele Road (City of Moreno Valley)	62.2	62.3	>3	**No**
Between Ramona Expressway and Morgan Street (City of Perris)	60.6	61.3	>3	**No**

Table 17. Cumulative Traffic Noise Scenario- Primary Land Use Plan				
Between Placentia Avenue and Rider Street (City of Perris)	61.8	62.0	>3	**No**
Between Placentia Avenue and Orange Avenue (City of Perris)	61.2	61.2	>3	**No**
Between Orange Avenue and Nuevo Road (City of Perris)	62.0	62.1	>3	**No**
Indian Avenue				
South of Placentia Avenue (City of Perris)	54.9	54.9	>5	**No**
Between Placentia Avenue and Ramona Expressway (City of Perris)	53.4	54.4	>5	**No**
Webster Avenue				
South of Ramona Expressway (City of Perris)	51.5	51.5	>5	**No**
Between Ramona Expressway and Harley Knox Avenue (City of Perris)	53.0	56.1	>5	**No**
Interstate 215				
North of Ramona Expressway (City of Perris)	66.0	66.1	>1.5	**No**
Between Ramona Expressway and Placentia Avenue (City of Perris)	64.8	66.1	>3	**No**
Between Placentia Avenue and Nuevo Road (City of Perris)	64.4	64.6	>3	**No**
South of Nuevo Road (City of Perris)	66.6	67.0	>1.5	**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Urban Crossroads 2020. Refer to Attachment C for traffic noise modeling assumptions and results.

Notes: A total of 67 intersections were analyzed in the Traffic Impact Analysis; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.
Roadway segments that do not specify a specific city are located in unincorporated Riverside County.

As shown in Table 17, the roadway segment of Ramona Expressway south of Rider Street, located in unincorporated Riverside County, would experience an increase of more than 1.5 dBA CNEL as a result of the Project compared with cumulative conditions in the Year 2040 without the Project. Since this roadway segment is predicted to be generating noise levels above 65 dBA CNEL without the Project, a Project contribution of more than 1.5 dBA CNEL would be considered significant. Therefore, the Primary Land Use Plan would result in cumulatively significant impacts related to traffic noise at this roadway segment without mitigation. The following mitigation is required to reduce this impact to an acceptable level.

NOI-5 A permanent noise barrier spanning 1,600 feet along the southern side of the segment of Ramona Expressway southeast of Rider Street and spanning the length of Lakeside Middle School shall be constructed to a height that breaks the "line of sight" between the ground level of the Ramona Expressway and Lakeside Middle School. The barrier shall be constructed of CMU block, or material of similar density and use, with no visible gaps between construction materials or at the base of the wall.

As previously described, noise levels are reduced by intervening structures. A solid wall generally reduces noise levels by 10 to 20 dBA (FHWA 2011). Therefore, mitigation measure NOI-5 would reduce traffic-related noise levels south of this segment of the Ramona Expressway (at Lakeside Middle School) below noise levels projected under cumulative conditions without the Project. As a result, the traffic instigated by the Project Primary Land Use Plan in the year 2040 would not generate an increase of more than 1.5 dBA CNEL with implementation of mitigation measure NOI-5.

Alternative Land Use Plan

Table 18 lists the traffic noise effects along roadway segments in the Project vicinity for Year 2040 Cumulative without Project and Year 2040 Cumulative Plus Project conditions for the Alternative Land Use Plan. It is noted that the Year 2040 Cumulative without Project conditions considered for comparison to the Alternative Land Use Plan differs from the Primary Land Use Plan due to the assumption of an operational Mid-County Parkway.

Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan

Roadway Segment	Cumulative No Project	Cumulative Plus Project	Noise Standard (dBA CNEL)	Exceed Standard AND result in Noise Levels Exceeding Acceptable Exterior Noise Standards?
	CNEL @ 100 Feet from Roadway Centerline	CNEL @ 100 Feet from Roadway Centerline		
Sanderson Avenue (State Route 79)				
North of Ramona Expressway (City of San Jacinto)	65.4	65.8	>1.5	**No**
South of Ramona Expressway (City of San Jacinto)	65.0	65.5	>1.5	**No**
Contour Avenue				
East of Hansen Avenue	50.3	51.1	>5	**No**
West of Hansen Avenue	45.5	45.8	>5	**No**
Hansen Avenue				
North of Contour Avenue	53.3	53.6	>5	**No**
Between Contour Avenue and Montgomery Avenue	53.9	56.2	>5	**No**
Nuevo Road				
East of Montgomery Avenue	56.1	57.8	>5	**No**
Between Montgomery Avenue and Lakeview Avenue	56.0	56.8	>5	**No**
Between Lakeview Avenue and Reservoir Avenue	60.5	61.6	>3	**No**
Between Reservoir Avenue and the Project site	58.0	61.6	>5	**No**
Between the Project site and Dunlap Drive	62.2	62.4	>3	**No**
Between Dunlap Drive and Evans Road (City of Perris)	61.4	61.8	>3	**No**
Between Murrieta Road and Redlands Avenue (City of Perris)	59.9	60.3	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	59.4	59.7	>5	**No**
Orange Avenue				
Between Dunlap Drive and Evans Road (City of Perris)	59.5	60.0	>5	**No**
Between Evans Road and Murrieta Road (City of Perris)	60.1	60.8	>3	**No**

Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan				
Between Redlands Avenue and Perris Boulevard (City of Perris)	59.2	59.5	>5	**No**
West of Perris Boulevard (City of Perris)	58.1	58.8	>5	**No**
Placentia Avenue				
East of Redlands Avenue (City of Perris)	54.5	54.5	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	54.6	55.6	>5	**No**
Rider Street				
Between Ramona Expressway and Bradley Road (City of Perris)	55.3	59.8	>5	**No**
Between Bradley Road and Evans Road (City of Perris)	56.5	56.7	>5	**No**
Between Evans Road and Redlands Avenue (City of Perris)	59.3	59.3	>5	**No**
Between Redlands Avenue and Perris Boulevard (City of Perris)	58.6	58.6	>5	**No**
Ramona Expressway				
South of Rider Street	64.0	64.7	>3	**No**
Between Rider Street and Bradley Road (City of Perris)	63.1	63.7	>3	**No**
Between Bradley Road and Evans Road (City of Perris)	62.9	63.4	>3	**No**
Between Evans Road and Redlands Avenue (City of Perris)	63.5	63.7	>3	**No**
West of Redlands Avenue (City of Perris)	62.4	62.9	>3	**No**
East of Sanderson Avenue (City of San Jacinto)	63.0	63.2	>3	**No**
West of Sanderson Avenue (City of San Jacinto)	61.4	61.4	>3	**No**
Krameria Avenue				
West of Perris Boulevard (City of Moreno Valley)	51.8	51.8	>5	**No**
Between Perris Boulevard and Lasselle Street (City of Moreno Valley)	55.1	55.2	>5	**No**

Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan				
East of Lasselle Street (City of Moreno Valley)	56.8	56.8	>5	**No**
Iris Avenue				
West of Perris Boulevard (City of Moreno Valley)	60.3	60.4	>3	**No**
West of Perris Boulevard and Lasselle Street (City of Moreno Valley)	62.2	62.3	>3	**No**
East of Lasselle Street (City of Moreno Valley)	62.6	63.8	>3	**No**
San Jacinto Avenue				
East of Menifee Road	48.0	48.6	>5	**No**
West of Menifee Road	53.7	53.8	>5	**No**
Ellis Road				
West of Menifee Road	48.1	48.8	>5	**No**
Mapes Road				
East of Menifee Road	52.2	52.2	>5	**No**
West of Menifee Road	50.4	50.7	>5	**No**
Watson Road				
East of Menifee Road (City of Menifee)	54.4	54.5	>5	**No**
West of Menifee Road (City of Menifee)	49.1	50.1	>5	**No**
State Route 74				
East of Menifee Road (City of Menifee)	62.7	62.8	>3	**No**
West of Menifee Road (City of Menifee)	62.4	63.2	>3	**No**
Lakeview Avenue				
North of Nuevo Road	56.5	56.6	>5	**No**
Reservoir Avenue/ Menifee Road				
Between Nuevo Road and San Jacinto Avenue	58.6	59.0	>5	**No**
Between San Jacinto Avenue and Ellis Avenue	57.6	58.0	>5	**No**
Between Ellis Avenue and Mapes Road	57.4	57.8	>5	**No**
Between Mapes Road and Watson Road (City of Menifee)	57.3	57.6	>5	**No**
Between Watson Road and SR 74 (City of Menifee)	57.3	57.5	>5	**No**

Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan				
South of SR 74 (City of Menifee)	58.7	58.7	>5	**No**
Dunlap Drive				
Between Nuevo Road and Orland Avenue	56.2	57.3	>5	**No**
South of Nuevo Road (City of Perris)	50.5	56.4	>5	**No***
Bradley Road				
Between Ramona Expressway and Rider Street (City of Perris)	51.5	51.5	>5	**No**
South of Rider Street (City of Perris)	45.9	45.9	>5	**No**
Evans Road				
Between Nuevo Road and Orange Avenue (City of Perris)	58.3	60.9	>5	**No**
Between Orange Avenue and Rider Street (City of Perris)	60.2	60.2	>3	**No**
Between Rider Street and Ramona Expressway (City of Perris)	61.4	61.4	>3	**No**
Between Ramona Expressway and Krameria Avenue (City of Moreno Valley/ City of Perris)	61.3	61.4	>3	**No**
Between Krameria Avenue and Iris Avenue (City of Moreno Valley)	62.0	62.4	>3	**No**
Murrieta Road				
North of Nuevo Road (City of Perris)	48.3	48.3	>5	**No**
South of Nuevo Road (City of Perris)	49.2	49.6	>5	**No**
Redlands Avenue				
South of Nuevo Road (City of Perris)	58.9	59.1	>5	**No**
Between Nuevo Road and Orange Avenue (City of Perris)	58.8	61.1	>5	**No**
Between Orange Avenue and Placentia Avenue (City of Perris)	60.5	60.5	>3	**No**
Perris Boulevard				
North of Iris Avenue (City of Moreno Valley)	60.6	60.6	>3	**No**
Between Iris Avenue and Krameria Avenue (City of Moreno Valley)	61.4	61.4	>3	**No**

Table 18. Cumulative Traffic Noise Scenario- Alternative Land Use Plan				
Between Krameria Avenue and San Michele Road (City of Moreno Valley)	61.2	61.3	>3	**No**
Between Ramona Expressway and Morgan Street (City of Perris)	60.7	60.7	>3	**No**
Between Placentia Avenue and Rider Street (City of Perris)	61.1	61.1	>3	**No**
Between Placentia Avenue and Orange Avenue (City of Perris)	62.0	62.1	>3	**No**
Between Orange Avenue and Nuevo Road (City of Perris)	62.1	62.3	>3	**No**
Indian Avenue				
South of Placentia Avenue (City of Perris)	55.2	55.2	>5	**No**
Between Placentia Avenue and Ramona Expressway (City of Perris)	54.9	54.9	>5	**No**
Webster Avenue				
South of Ramona Expressway (City of Perris)	49.1	49.1	>5	**No**
Between Ramona Expressway and Harley Knox Avenue (City of Perris)	54.6	57.1	>5	**No**
Interstate 215				
North of Ramona Expressway (City of Perris)	65.7	65.7	>1.5	**No**
Between Ramona Expressway and Placentia Avenue (City of Perris)	64.8	65.3	>3	**No**
Between Placentia Avenue and Nuevo Road (City of Perris)	62.8	63.7	>3	**No**
South of Nuevo Road (City of Perris)	64.9	64.9	>3	**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by Urban Crossroads 2020. Refer to Attachment C for traffic noise modeling assumptions and results.

Notes: A total of 67 intersections were analyzed in the Traffic Impact Analysis; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

Roadway segments that do not specify a specific city are located in unincorporated Riverside County.

*While this segment would experience an increase of more than 5 dBA CNEL compared with cumulative conditions in the Year 2040 without the Project, the resultant noise level would not be in excess of the County residential noise threshold of 60 dBA.

As shown in Table 18, the roadway segment of Dunlap Drive south of Nuevo Road, located in the City of Perris, would experience an increase of more than 5 dBA CNEL as a result of the Alternative Land Use Plan compared with cumulative conditions in the Year 2040 without the Project. However, the resultant noise level would not be in excess of the County residential noise threshold of 60 dBA. Similarly, no other roadway segments would generate an increase of noise beyond significance standards.

Cumulative Stationary Source Noise Impacts

Long-term stationary noise sources associated with the development at the Project (the Primary Land Use Plan and Alternative Land Use Plan), 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 was found to be acceptable as the surrounding land uses are already experiencing levels above the County noise standards. Therefore, the Project would not contribute to cumulative impacts during operations.

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LIST OF ATTACHMENTS

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B - Federal Highway Administration Roadway Construction Noise Model Outputs – Project Construction

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

Attachment D - SoundPLAN Outputs – Onsite Project Noise

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

Site Number: 1			
Recorded By: Jerry Agure			
Job Number: 2019-075			
Date: 8/26/2019			
Time: 4:07 p.m.			
Location: At the end of Walnut Avenue and adjacent to schools.			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
45.0	39.9	58.5	95.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes	**Sky:** Clear	
	Note: dBA Offset = 0.03	**Sensor Height (ft): 4** ft	
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-5	100	29.78

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.139
File Name on PC	SLM_0005120_LxT_Data_139.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Perris
Job Description	2019-075 Stoneridge
Note	

Measurement

Description	
Start	2019-08-26 16:06:48
Stop	2019-08-26 16:16:48
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-08-26 14:47:09
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**
Under Range Peak	79.1	76.1	**81.1** dB
Under Range Limit	**27.1**	26.5	31.8 dB
Noise Floor	17.0	17.4	22.7 dB

Results

L_{Aeq}	45.0 dB	
LAE	72.8 dB	
EA	2.118 µPa²h	
$LZ_{peak\ (max)}$	2019-08-26 16:12:23	95.5 dB
LAS_{max}	2019-08-26 16:16:05	58.5 dB
LAS_{min}	2019-08-26 16:11:53	39.9 dB
SEA	-99.9 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	45.0	45.0	-99.9	45.0	45.0	-99.9

LC_{eq}	59.0 dB
LA_{eq}	45.0 dB
LC_{eq} - LA_{eq}	14.0 dB
LAI_{eq}	49.5 dB
LA_{eq}	45.0 dB
LAI_{eq} - LA_{eq}	4.5 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	45.0		59.0			
$L_{S(max)}$	58.5	2019/08/26 16:16:05				
$L_{S(min)}$	39.9	2019/08/26 16:11:53				
$L_{Peak(max)}$					95.5	2019/08/26 16:12:23

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	3.0
OBA Overload Duration	6.2 s

Statistics

LAS5.00	48.1 dB
LAS10.00	46.9 dB
LAS33.30	44.9 dB
LAS50.00	43.6 dB
LAS66.60	42.6 dB
LAS90.00	41.3 dB

Site Number: 2			
Recorded By: Jerry Agure			
Job Number: 2019-075			
Date: 8/26/2019			
Time: 3:30 p.m.			
Location: At the end of the cul-de-sac at Hawthorne Road.			
Source of Peak Noise: Vehicles on adjacent roadways and neighborhood activity (barking dogs).			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
55.2	36.7	74.2	96.0

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.03		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-5	100	29.78

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.138
File Name on PC	SLM_0005120_LxT_Data_138.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Perris
Job Description	2019-075 Stoneridge
Note	

Measurement

Description	
Start	2019-08-26 15:50:39
Stop	2019-08-26 16:00:39
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-08-26 14:47:09
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**
Under Range Peak	79.1	76.1	**81.1** dB
Under Range Limit	**27.1**	26.5	31.8 dB
Noise Floor	17.0	17.4	22.7 dB

Results

L_{Aeq}	55.2 dB		
LAE	83.0 dB		
EA	22.055 µPa²h		
$LZ_{peak\ (max)}$	2019-08-26 15:59:09	96.0 dB	
LAS_{max}	2019-08-26 15:59:10	74.2 dB	
LAS_{min}	2019-08-26 16:00:28	36.7 dB	
SEA	-99.9 dB		
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	55.2	55.2	-99.9	55.2	55.2	-99.9

LC_{eq}	60.1 dB
LA_{eq}	55.2 dB
LC_{eq} - LA_{eq}	4.9 dB
LAI_{eq}	64.5 dB
LA_{eq}	55.2 dB
LAI_{eq} - LA_{eq}	9.3 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	55.2		60.1			
$L_{S(max)}$	74.2	2019/08/26 15:59:10				
$L_{S(min)}$	36.7	2019/08/26 16:00:28				
$L_{Peak(max)}$					96.0	2019/08/26 15:59:09

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	3.0
OBA Overload Duration	10.9 s

Statistics

LAS5.00	62.3 dB
LAS10.00	55.2 dB
LAS33.30	42.7 dB
LAS50.00	41.2 dB
LAS66.60	40.1 dB
LAS90.00	38.5 dB

Site Number: 3			
Recorded By: Jerry Agure			
Job Number: 2019-075			
Date: 8/26/2019			
Time: 3:28 p.m.			
Location: On the Project site (located near the northwest corner) adjacent to Ramona Expressway.			
Source of Peak Noise: Vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
41.4	34.5	51.8	104.7

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.03		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-5	100	29.78

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.137
File Name on PC	SLM_0005120_LxT_Data_137.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Perris
Job Description	2019-075 Stoneridge
Note	

Measurement

Description	
Start	2019-08-26 15:27:43
Stop	2019-08-26 15:37:43
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-08-26 14:47:09
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**
Under Range Peak	79.1	76.1	**81.1** dB
Under Range Limit	**27.1**	26.5	31.8 dB
Noise Floor	17.0	17.4	22.7 dB

Results

L_{Aeq}	41.4 dB	
LAE	69.2 dB	
EA	0.915 µPa²h	
$LZ_{peak\ (max)}$	2019-08-26 15:36:12	104.7 dB
LAS_{max}	2019-08-26 15:35:35	51.8 dB
LAS_{min}	2019-08-26 15:37:33	34.5 dB
SEA	-99.9 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	41.4	41.4	-99.9	41.4	41.4	-99.9

LC_{eq}	63.5 dB
LA_{eq}	41.4 dB
LC_{eq} - LA_{eq}	22.1 dB
LAI_{eq}	46.0 dB
LA_{eq}	41.4 dB
LAI_{eq} - LA_{eq}	4.6 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	41.4		63.5			
$L_{S(max)}$	51.8	2019/08/26 15:35:35				
$L_{S(min)}$	34.5	2019/08/26 15:37:33				
$L_{Peak(max)}$					104.7	2019/08/26 15:36:12

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	18.0
OBA Overload Duration	75.8 s

Statistics

LAS5.00	46.0 dB
LAS10.00	44.7 dB
LAS33.30	40.9 dB
LAS50.00	39.7 dB
LAS66.60	38.5 dB
LAS90.00	36.8 dB

Site Number: 4			
Recorded By: Jerry Agure			
Job Number: 2019-075			
Date: 8/26/2019			
Time: 2:50 p.m.			
Location: At the corner of Nuevo Road and Menifee Road.			
Source of Peak Noise: Vehicles on adjacent roadways.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
70.6	52.7	85.2	109.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear
	Note: dBA Offset = 0.03		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	2-5	100	29.78

Photo of Measurement Location

Summary

File Name on Meter	LxT_Data.136
File Name on PC	SLM_0005120_LxT_Data_136.00.ldbin
Serial Number	0005120
Model	SoundExpert® LxT
Firmware Version	2.302
User	Jerry Aguirre
Location	Perris
Job Description	2019-075 Stoneridge
Note	

Measurement

Description	
Start	2019-08-26 14:50:01
Stop	2019-08-26 15:00:01
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-08-26 14:47:14
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**
Under Range Peak	79.1	76.1	**81.1** dB
Under Range Limit	**27.1**	26.5	31.8 dB
Noise Floor	17.0	17.4	22.7 dB

Results

LAeq	70.6 dB	
LAE	98.4 dB	
EA	761.995 µPa²h	
LZpeak (max)	2019-08-26 14:58:01	109.6 dB
LASmax	2019-08-26 14:58:02	85.2 dB
LASmin	2019-08-26 14:51:33	52.7 dB
SEA	-99.9 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	1	1.5 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**
	70.6	70.6	-99.9	70.6	70.6	-99.9

LCeq	81.7 dB
LAeq	70.6 dB
LCeq - LAeq	11.1 dB
LAleq	72.2 dB
LAeq	70.6 dB
LAleq - LAeq	1.6 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	70.6		81.7			
LS(max)	85.2	2019/08/26 14:58:02				
LS(min)	52.7	2019/08/26 14:51:33				
LPeak(max)					109.6	2019/08/26 14:58:01

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	41.0
OBA Overload Duration	210.7 s

Statistics

LAS5.00	76.7 dB
LAS10.00	73.3 dB
LAS33.30	67.3 dB
LAS50.00	65.3 dB
LAS66.60	63.9 dB
LAS90.00	60.8 dB

ATTACHMENT B

Federal Highway Administration Highway Roadway Construction Noise Model Outputs – Project Construction

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/14/2020
Case Description: Onsite Site Preparation

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Front End Loader	53.1	49.1
Front End Loader	53.1	49.1

Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Dozer		55.6	51.7
Dozer		55.6	51.7
Dozer		55.6	51.7
Dozer		55.6	51.7
Dozer		55.6	51.7
Dozer		55.6	51.7
	Total	**55.6**	**61.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/14/2020
Case Description: Onsite Grading

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Scraper	No	40		83.6	1000
Scraper	No	40		83.6	1000
Scraper	No	40		83.6	1000
Scraper	No	40		83.6	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Front End Loader	No	40		79.1	1000
Dozer	No	40		81.7	1000
Dozer	No	40		81.7	1000
Excavator	No	40		80.7	1000
Excavator	No	40		80.7	1000
Excavator	No	40		80.7	1000
Excavator	No	40		80.7	1000

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Scraper	57.6	53.6
Scraper	57.6	53.6

Scraper		57.6	53.6
Scraper		57.6	53.6
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Front End Loader		53.1	49.1
Dozer		55.6	51.7
Dozer		55.6	51.7
Excavator		54.7	50.7
Excavator		54.7	50.7
Excavator		54.7	50.7
Excavator		54.7	50.7
	Total	**57.6**	**63**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/14/2020
Case Description: Onsite Building Construction

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Compressor (air)	No	40		77.7	1000
Compressor (air)	No	40		77.7	1000
Crane	No	16		80.6	1000
Crane	No	16		80.6	1000
Gradall	No	40		83.4	1000
Gradall	No	40		83.4	1000
Gradall	No	40		83.4	1000
Gradall	No	40		83.4	1000
Gradall	No	40		83.4	1000
Gradall	No	40		83.4	1000
Generator	No	50		80.6	1000
Generator	No	50		80.6	1000
Welder / Torch	No	40		74	1000
Welder / Torch	No	40		74	1000
Backhoe	No	40		77.6	1000
Backhoe	No	40		77.6	1000
Backhoe	No	40		77.6	1000
Backhoe	No	40		77.6	1000
Backhoe	No	40		77.6	1000
Backhoe	No	40		77.6	1000

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Compressor (air)	51.6	47.7
Compressor (air)	51.6	47.7
Crane	54.5	46.6
Crane	54.5	46.6
Gradall	57.4	53.4
Gradall	57.4	53.4
Gradall	57.4	53.4
Gradall	57.4	53.4
Gradall	57.4	53.4
Gradall	57.4	53.4
Generator	54.6	51.6
Generator	54.6	51.6
Welder / Torch	48	44
Welder / Torch	48	44
Backhoe	51.5	47.6
Backhoe	51.5	47.6
Backhoe	51.5	47.6
Backhoe	51.5	47.6
Backhoe	51.5	47.6
Backhoe	51.5	47.6
Total	**57.4**	**63.4**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/14/2020
Case Description: Onsite Painting and Paving

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Paver	No	50		77.2	1000
Paver	No	50		77.2	1000
Paver	No	50		77.2	1000
Paver	No	50		77.2	1000
Roller	No	20		80	1000
Roller	No	20		80	1000
Roller	No	20		80	1000
Roller	No	20		80	1000
Pavement Scarafier	No	20		89.5	1000
Pavement Scarafier	No	20		89.5	1000
Pavement Scarafier	No	20		89.5	1000
Pavement Scarafier	No	20		89.5	1000

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Paver	51.2	48.2
Paver	51.2	48.2
Paver	51.2	48.2
Paver	51.2	48.2

Roller		54	47
Roller		54	47
Roller		54	47
Roller		54	47
Pavement Scarafier		63.5	56.5
Pavement Scarafier		63.5	56.5
Pavement Scarafier		63.5	56.5
Pavement Scarafier		63.5	56.5
	Total	**63.5**	**63.5**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/15/2020
Case Description: Offsite Infrastructure - Blasting

Description	**Land Use**
Residences and School	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Blasting	Yes	1	94		65	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Blasting		91.7	71.7
	Total	**91.7**	**71.7**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/15/2020
Case Description: Offsite Infrastructure - Road Demolition

Description	**Land Use**
Residences and School	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Boring Jack Power Unit	No	50		83	65	8
Concrete Saw	No	20		89.6	65	8
Excavator	No	40		80.7	65	0
Excavator	No	40		80.7	65	0
Excavator	No	40		80.7	65	0
Dozer	No	40		81.7	65	0
Dozer	No	40		81.7	65	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Boring Jack Power Unit		72.7	69.7
Concrete Saw		79.3	72.3
Excavator		78.4	74.5
Excavator		78.4	74.5
Excavator		78.4	74.5
Dozer		79.4	75.4
Dozer		79.4	75.4
	Total	**79.4**	**82.5**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/15/2020
Case Description: Offsite Infrastructure - Site Preparation

Description	**Land Use**
Residences and School	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Boring Jack Power Unit	No	50		83	65	8
Dozer	No	40		81.7	65	0
Dozer	No	40		81.7	65	0
Dozer	No	40		81.7	65	0
Front End Loader	No	40		79.1	65	0
Backhoe	No	40		77.6	65	0
Front End Loader	No	40		79.1	65	0
Tractor	No	40	84		65	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Boring Jack Power Unit		72.7	69.7
Dozer		79.4	75.4
Dozer		79.4	75.4
Dozer		79.4	75.4
Front End Loader		76.8	72.9
Backhoe		75.3	71.3
Front End Loader		76.8	72.9
Tractor		81.7	77.7
	Total	**81.7**	**83.5**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/15/2020
Case Description: Offsite Infrastructure - Paving

Description	**Land Use**
Residences and School	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Roller	No	20		80	65	0
Roller	No	20		80	65	0
Pavement Scarafier	No	20		89.5	65	0
Pavement Scarafier	No	20		89.5	65	0
Paver	No	50		77.2	65	0
Paver	No	50		77.2	65	0

Results

Calculated (dBA)

Equipment		***Lmax**	**Leq**
Roller		77.7	70.7
Roller		77.7	70.7
Pavement Scarafier		87.2	80.2
Pavement Scarafier		87.2	80.2
Paver		74.9	71.9
Paver		74.9	71.9
	Total	**87.2**	**84.2**

*Calculated Lmax is the Loudest value.

ATTACHMENT C

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

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
Existing																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	13,599	55	0.5	1.8%	0.7%	**64.8**	45	97	210	452	100	10,566	1,727	1,306
South of Ramona Expressway	4	0	11,844	55	0.5	1.8%	0.7%	**64.2**	-	89	191	412	100	9,203	1,504	1,137
Contour Avenue																
East of Hansen Avenue	2	0	1,377	25	0.5	1.8%	0.7%	**47.4**	-	-	-	-	100	1,070	175	132
West of Hansen Avenue	2	0	342	25	0.5	1.8%	0.7%	**41.4**	-	-	-	-	100	266	43	33
Hansen Avenue																
North of Contour Avenue	2	0	1,332	45	0.5	1.8%	0.7%	**52.5**	-	-	-	68	100	1,035	169	128
Between Contour Avenue and Montgomery Avenue	2	0	1,206	45	0.5	1.8%	0.7%	**52.0**	-	-	-	64	100	937	153	116
Nuevo Road																
East of Montgomery Avenue	2	0	1,287	55	0.5	1.8%	0.7%	**54.5**	-	-	43	92	100	1,000	163	124
Between Montgomery Avenue and Lakeview Avenue	2	0	1,287	55	0.5	1.8%	0.7%	**54.5**	-	-	43	92	100	1,000	163	124
Between Lakeview Avenue and Reservoir Avenue	2	0	3,402	55	0.5	1.8%	0.7%	**58.7**	-	38	82	177	100	2,643	432	327
Between Reservoir Avenue and the Project site	2	0	2,376	55	0.5	1.8%	0.7%	**57.2**	-	-	65	139	100	1,846	302	228
Between the Project site and Dunlap Drive	2	0	4,608	55	0.5	1.8%	0.7%	**60.0**	-	47	100	216	100	3,580	585	442
Between Dunlap Drive and Evans Road	2	0	3,645	55	0.5	1.8%	0.7%	**59.0**	-	40	86	185	100	2,832	463	350
Between Murrieta Road and Redlands Avenue	4	0	6,412	40	0.5	1.8%	0.7%	**58.2**	-	-	76	163	100	4,982	814	616
Between Redlands Avenue and Perris Boulevard	4	0	6,390	40	0.5	1.8%	0.7%	**58.2**	-	-	75	162	100	4,965	812	613
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	2,353	45	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	1,828	299	226
Between Evans Road and Murrieta Road	2	0	3,874	45	0.5	1.8%	0.7%	**57.1**	-	-	64	138	100	3,010	492	372
Between Redlands Avenue and Perris Boulevard	2	0	4,981	45	0.5	1.8%	0.7%	**58.2**	-	35	76	164	100	3,870	633	478

West of Perris Boulevard	2	0	4,104	45	0.5	1.8%	0.7%	**57.4**	-	-	67	144	100	3,189	521	394
Placentia Avenue																
East of Redlands Avenue	2	0	1,089	35	0.5	1.8%	0.7%	**49.0**	-	-	-	40	100	846	138	105
Between Redlands Avenue and Perris Boulevard	2	0	1,984	35	0.5	1.8%	0.7%	**51.6**	-	-	-	60	100	1,542	252	190
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	2,079	45	0.5	1.8%	0.7%	**54.5**	-	-	-	93	100	1,615	264	200
Between Bradley Road and Evans Road	4	0	2,772	45	0.5	1.8%	0.7%	**55.8**	-	-	52	112	100	2,154	352	266
Between Evans Road and Redlands Avenue	4	0	5,296	45	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	4,115	673	508
Between Redlands Avenue and Perris Boulevard	4	0	4,423	45	0.5	1.8%	0.7%	**57.8**	-	-	71	153	100	3,437	562	425
Ramona Expressway																
South of Rider Street	4	0	9,999	45	0.5	1.8%	0.7%	**61.3**	-	57	123	264	100	7,769	1,270	960
Between Rider Street and Bradley Road	4	0	7,303	45	0.5	1.8%	0.7%	**60.0**	-	46	99	214	100	5,674	927	701
Between Bradley Road and Evans Road	4	0	8,491	45	0.5	1.8%	0.7%	**60.6**	-	51	110	237	100	6,598	1,078	815
Between Evans Road and Redlands Avenue	4	0	13,189	45	0.5	1.8%	0.7%	**62.5**	-	68	147	318	100	10,248	1,675	1,266
West of Redlands Avenue	4	0	9,360	45	0.5	1.8%	0.7%	**61.0**	-	54	117	253	100	7,273	1,189	899
East of Sanderson Avenue	4	0	11,619	45	0.5	1.8%	0.7%	**62.0**	-	63	135	292	100	9,028	1,476	1,115
West of Sanderson Avenue	4	0	8,496	45	0.5	1.8%	0.7%	**60.6**	-	51	110	237	100	6,601	1,079	816
Krameria Avenue																
West of Perris Boulevard	4	0	1,089	35	0.5	1.8%	0.7%	**49.1**	-	-	-	-	100	846	138	105
Between Perris Boulevard and Lasselle Street	4	0	3,352	35	0.5	1.8%	0.7%	**54.0**	-	-	-	86	100	2,605	426	322
East of Laselle Street	4	0	5,391	35	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	4,189	685	518
Iris Avenue																
West of Perris Boulevard	4	0	4,401	50	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	3,420	559	422
West of Perris Boulevard and Lasselle Street	4	0	7,546	50	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	5,863	958	724
East of Laselle Street	4	0	9,117	50	0.5	1.8%	0.7%	**62.0**	-	64	137	295	100	7,084	1,158	875
San Jacinto Avenue																
East of Menifee Road	2	0	216	35	0.5	1.8%	0.7%	**42.0**	-	-	-	-	100	168	27	21
West of Menifee Road	4	0	1,890	35	0.5	1.8%	0.7%	**51.5**	-	-	-	59	100	1,469	240	181
Ellis Road																
West of Menifee Road	2	0	216	35	0.5	1.8%	0.7%	**42.0**	-	-	-	-	100	168	27	21
Mapes Road																
East of Menifee Road	2	0	1,728	35	0.5	1.8%	0.7%	**51.0**	-	-	-	54	100	1,343	219	166
West of Menifee Road	2	0	765	35	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	594	97	73
Watson Road																
East of Menifee Road	2	0	2,934	35	0.5	1.8%	0.7%	**53.3**	-	-	36	77	100	2,280	373	282
West of Menifee Road	2	0	747	35	0.5	1.8%	0.7%	**47.4**	-	-	-	-	100	580	95	72
State Route 74																
East of Menifee Road	4	0	6,399	50	0.5	1.8%	0.7%	**60.5**	-	50	108	233	100	4,972	813	614
West of Menifee Road	4	0	6,246	50	0.5	1.8%	0.7%	**60.4**	-	49	106	229	100	4,853	793	600

Existing Conditions

Lakeview Avenue																
North of Nuevo Road	2	0	2,790	45	0.5	1.8%	0.7%	**55.7**	-	-	52	111	100	2,168	354	268
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	3,424	35	0.5	1.8%	0.7%	**54.0**	-	-	40	86	100	2,660	435	329
Between San Jacinto Avenue and Ellis Avenue	2	0	2,902	35	0.5	1.8%	0.7%	**53.3**	-	-	36	77	100	2,255	369	279
Between Ellis Avenue and Mapes Road	2	0	2,988	35	0.5	1.8%	0.7%	**53.4**	-	-	36	78	100	2,322	379	287
Between Mapes Road and Watson Road	2	0	2,151	35	0.5	1.8%	0.7%	**52.0**	-	-	-	63	100	1,671	273	206
Between Watson Road and SR 74	2	0	2,286	35	0.5	1.8%	0.7%	**52.3**	-	-	-	66	100	1,776	290	219
South of SR 74	2	0	3,798	35	0.5	1.8%	0.7%	**54.5**	-	-	43	92	100	2,951	482	365
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	1,755	45	0.5	1.8%	0.7%	**53.7**	-	-	38	82	100	1,364	223	168
South of Nuevo Road	2	0	288	45	0.5	1.8%	0.7%	**45.8**	-	-	-	-	100	224	37	28
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	1,494	35	0.5	1.8%	0.7%	**50.4**	-	-	-	49	100	1,161	190	143
South of Rider Street	2	0	243	35	0.5	1.8%	0.7%	**42.5**	-	-	-	-	100	189	31	23
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	3,712	40	0.5	1.8%	0.7%	**55.7**	-	-	52	111	100	2,884	471	356
Between Orange Avenue and Rider Street	2	0	4,072	40	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	3,164	517	391
Between Rider Street and Ramona Expressway	4	0	6,768	40	0.5	1.8%	0.7%	**58.4**	-	-	78	169	100	5,259	860	650
Between Ramona Expressway and Krameria Avenue	4	0	7,605	40	0.5	1.8%	0.7%	**58.9**	-	-	85	182	100	5,909	966	730
Between Krameira Avenue and Iris Avenue	4	0	12,420	40	0.5	1.8%	0.7%	**61.0**	-	54	117	253	100	9,650	1,577	1,192
Murrieta Road																
North of Nuevo Road	2	0	1,395	25	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	1,084	177	134
South of Nuevo Road	2	0	1,413	25	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	1,098	179	136
Redlands Avenue																
South of Nuevo Road	2	0	4,059	45	0.5	1.8%	0.7%	**57.3**	-	-	66	143	100	3,154	515	390
Between Nuevo Road and Orange avenue	2	0	2,808	45	0.5	1.8%	0.7%	**55.7**	-	-	52	112	100	2,182	357	270
Between Orange Avenue and Placentia Avenue	2	0	2,484	45	0.5	1.8%	0.7%	**55.2**	-	-	48	103	100	1,930	315	238
Perris Boulevard																
North of Iris Avenue	4	0	7,029	40	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	5,462	893	675
Between Iris Avenue and Krameria Avenue	4	0	8,180	40	0.5	1.8%	0.7%	**59.2**	-	-	89	191	100	6,356	1,039	785
Between Krameria Avenue and San Michele Road	4	0	9,774	40	0.5	1.8%	0.7%	**60.0**	-	46	100	215	100	7,594	1,241	938
Between Ramona Expressway and Morgan Street	4	0	7,582	40	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	5,891	963	728
Between Placentia Avenue and Rider Street	4	0	8,014	40	0.5	1.8%	0.7%	**59.1**	-	-	88	189	100	6,227	1,018	769
Between Placentia Avenue and Orange Avenue	4	0	7,821	40	0.5	1.8%	0.7%	**59.0**	-	-	86	186	100	6,077	993	751
Between Orange Avenue and Nuevo Road	4	0	10,597	40	0.5	1.8%	0.7%	**60.4**	-	49	106	227	100	8,234	1,346	1,017
Indian Avenue																
South of Placentia Avenue	2	0	2,106	35	0.5	1.8%	0.7%	**51.9**	-	-	-	62	100	1,636	267	202
Between Placentia Avenue and Ramona Expressway	2	0	1,912	35	0.5	1.8%	0.7%	**51.5**	-	-	-	58	100	1,486	243	184

Existing Conditions

Webster Avenue															
South of Ramona Expressway	2	0	837	35	0.5	1.8%	0.7%	**47.9**	-	-	-	34	100	650	106	80
Between Ramona Expressway and Harley Knox Avenue	2	0	1,282	35	0.5	1.8%	0.7%	**49.7**	-	-	-	45	100	996	163	123
I-215																
North of Ramona Expressway	6	0	7,542	64	0.5	1.8%	0.7%	**64.2**	-	88	189	408	100	5,860	958	724
Between Ramona Expressway and Placentia Avenue	6	0	6,282	64	0.5	1.8%	0.7%	**63.4**	-	78	168	361	100	4,881	798	603
Between Placentia Avenue and Nuevo Road	6	0	3,816	64	0.5	1.8%	0.7%	**61.2**	-	-	120	259	100	2,965	485	366
South of Nuevo Road	6	0	7,506	64	0.5	1.8%	0.7%	**64.1**	-	88	189	406	100	5,832	953	721

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
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Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
Existing + Project																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	13,752	55	0.5	1.8%	0.7%	**64.9**	46	98	211	455	100	10,685	1,747	1,320
South of Ramona Expressway	4	0	11,970	55	0.5	1.8%	0.7%	**64.3**	-	89	193	415	100	9,301	1,520	1,149
Contour Avenue																
East of Hansen Avenue	2	0	2,268	25	0.5	1.8%	0.7%	**49.6**	-	-	-	44	100	1,762	288	218
West of Hansen Avenue	2	0	738	25	0.5	1.8%	0.7%	**44.7**	-	-	-	-	100	573	94	71
Hansen Avenue																
North of Contour Avenue	2	0	1,458	45	0.5	1.8%	0.7%	**52.9**	-	-	33	72	100	1,133	185	140
Between Contour Avenue and Montgomery Avenue	2	0	1,324	45	0.5	1.8%	0.7%	**52.4**	-	-	-	68	100	1,029	168	127
Nuevo Road																
East of Montgomery Avenue	2	0	1,530	55	0.5	1.8%	0.7%	**55.2**	-	-	48	104	100	1,189	194	147
Between Montgomery Avenue and Lakeview Avenue	2	0	1,530	55	0.5	1.8%	0.7%	**55.2**	-	-	48	104	100	1,189	194	147
Between Lakeview Avenue and Reservoir Avenue	2	0	3,667	55	0.5	1.8%	0.7%	**59.0**	-	40	86	186	100	2,849	466	352
Between Reservoir Avenue and the Project site	2	0	3,532	55	0.5	1.8%	0.7%	**58.9**	-	39	84	181	100	2,744	449	339
Between the Project site and Dunlap Drive	2	0	6,300	55	0.5	1.8%	0.7%	**61.4**	-	57	124	267	100	4,895	800	605
Between Dunlap Drive and Evans Road	2	0	4,247	55	0.5	1.8%	0.7%	**59.7**	-	44	95	205	100	3,300	539	408
Between Murrieta Road and Redlands Avenue	4	0	7,658	40	0.5	1.8%	0.7%	**58.9**	-	-	85	183	100	5,950	973	735
Between Redlands Avenue and Perris Boulevard	4	0	7,454	40	0.5	1.8%	0.7%	**58.8**	-	-	83	180	100	5,792	947	716
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	5,021	45	0.5	1.8%	0.7%	**58.2**	-	35	76	164	100	3,901	638	482
Between Evans Road and Murrieta Road	2	0	6,079	45	0.5	1.8%	0.7%	**59.1**	-	40	87	187	100	4,723	772	584
Between Redlands Avenue and Perris Boulevard	2	0	5,332	45	0.5	1.8%	0.7%	**58.5**	-	37	79	171	100	4,143	677	512

Existing Plus Project
Primary Land Use Plan

West of Perris Boulevard	2	0	4,347	45	0.5	1.8%	0.7%	**57.6**	-	32	69	149	100	3,378	552	417
Placentia Avenue																
East of Redlands Avenue	2	0	1,863	35	0.5	1.8%	0.7%	**51.4**	-	-	-	57	100	1,448	237	179
Between Redlands Avenue and Perris Boulevard	2	0	3,230	35	0.5	1.8%	0.7%	**53.8**	-	-	38	83	100	2,510	410	310
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	2,079	45	0.5	1.8%	0.7%	**54.5**	-	-	-	93	100	1,615	264	200
Between Bradley Road and Evans Road	4	0	2,772	45	0.5	1.8%	0.7%	**55.8**	-	-	52	112	100	2,154	352	266
Between Evans Road and Redlands Avenue	4	0	5,296	45	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	4,115	673	508
Between Redlands Avenue and Perris Boulevard	4	0	4,423	45	0.5	1.8%	0.7%	**57.8**	-	-	71	153	100	3,437	562	425
Ramona Expressway																
South of Rider Street	4	0	11,781	45	0.5	1.8%	0.7%	**62.0**	-	63	137	295	100	9,154	1,496	1,131
Between Rider Street and Bradley Road	4	0	10,291	45	0.5	1.8%	0.7%	**61.5**	-	58	125	269	100	7,996	1,307	988
Between Bradley Road and Evans Road	4	0	11,209	45	0.5	1.8%	0.7%	**61.8**	-	61	132	285	100	8,709	1,424	1,076
Between Evans Road and Redlands Avenue	4	0	15,115	45	0.5	1.8%	0.7%	**63.1**	-	75	161	348	100	11,744	1,920	1,451
West of Redlands Avenue	4	0	10,584	45	0.5	1.8%	0.7%	**61.6**	-	59	127	274	100	8,224	1,344	1,016
East of Sanderson Avenue	4	0	11,862	45	0.5	1.8%	0.7%	**62.1**	-	64	137	296	100	9,217	1,506	1,139
West of Sanderson Avenue	4	0	8,667	45	0.5	1.8%	0.7%	**60.7**	-	52	111	240	100	6,734	1,101	832
Krameria Avenue																
West of Perris Boulevard	4	0	1,089	35	0.5	1.8%	0.7%	**49.1**	-	-	-	-	100	846	138	105
Between Perris Boulevard and Lasselle Street	4	0	3,478	35	0.5	1.8%	0.7%	**54.2**	-	-	-	88	100	2,702	442	334
East of Laselle Street	4	0	5,391	35	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	4,189	685	518
Iris Avenue																
West of Perris Boulevard	4	0	4,401	50	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	3,420	559	422
West of Perris Boulevard and Lasselle Street	4	0	7,546	50	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	5,863	958	724
East of Laselle Street	4	0	9,360	50	0.5	1.8%	0.7%	**62.2**	-	65	139	300	100	7,273	1,189	899
San Jacinto Avenue																
East of Menifee Road	2	0	342	35	0.5	1.8%	0.7%	**44.0**	-	-	-	-	100	266	43	33
West of Menifee Road	4	0	2,016	35	0.5	1.8%	0.7%	**51.8**	-	-	-	61	100	1,566	256	194
Ellis Road																
West of Menifee Road	2	0	702	35	0.5	1.8%	0.7%	**47.1**	-	-	-	-	100	545	89	67
Mapes Road																
East of Menifee Road	2	0	1,728	35	0.5	1.8%	0.7%	**51.0**	-	-	-	54	100	1,343	219	166
West of Menifee Road	2	0	891	35	0.5	1.8%	0.7%	**48.2**	-	-	-	35	100	692	113	86
Watson Road																
East of Menifee Road	2	0	3,060	35	0.5	1.8%	0.7%	**53.5**	-	-	37	80	100	2,378	389	294
West of Menifee Road	2	0	747	35	0.5	1.8%	0.7%	**47.4**	-	-	-	-	100	580	95	72
State Route 74																
East of Menifee Road	4	0	6,642	50	0.5	1.8%	0.7%	**60.7**	-	51	111	239	100	5,161	844	638
West of Menifee Road	4	0	6,372	50	0.5	1.8%	0.7%	**60.5**	-	50	108	232	100	4,951	809	612

Existing Plus Project
Primary Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	2,916	45	0.5	1.8%	0.7%	**55.9**	-	-	53	114	100	2,266	370	280
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	4,314	35	0.5	1.8%	0.7%	**55.0**	-	-	46	100	100	3,352	548	414
Between San Jacinto Avenue and Ellis Avenue	2	0	3,613	35	0.5	1.8%	0.7%	**54.2**	-	-	41	89	100	2,807	459	347
Between Ellis Avenue and Mapes Road	2	0	3,609	35	0.5	1.8%	0.7%	**54.2**	-	-	41	89	100	2,804	458	346
Between Mapes Road and Watson Road	2	0	2,682	35	0.5	1.8%	0.7%	**52.9**	-	-	34	73	100	2,084	341	257
Between Watson Road and SR 74	2	0	2,484	35	0.5	1.8%	0.7%	**52.6**	-	-	32	69	100	1,930	315	238
South of SR 74	2	0	4,041	35	0.5	1.8%	0.7%	**54.7**	-	-	45	96	100	3,140	513	388
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	1,998	45	0.5	1.8%	0.7%	**54.2**	-	-	41	89	100	1,552	254	192
South of Nuevo Road	2	0	414	45	0.5	1.8%	0.7%	**47.4**	-	-	-	-	100	322	53	40
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	1,863	35	0.5	1.8%	0.7%	**51.4**	-	-	-	57	100	1,448	237	179
South of Rider Street	2	0	243	35	0.5	1.8%	0.7%	**42.5**	-	-	-	-	100	189	31	23
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	3,955	40	0.5	1.8%	0.7%	**56.0**	-	-	54	116	100	3,073	502	380
Between Orange Avenue and Rider Street	2	0	4,315	40	0.5	1.8%	0.7%	**56.4**	-	-	57	123	100	3,353	548	414
Between Rider Street and Ramona Expressway	4	0	6,894	40	0.5	1.8%	0.7%	**58.5**	-	-	79	171	100	5,357	876	662
Between Ramona Expressway and Krameria Avenue	4	0	8,203	40	0.5	1.8%	0.7%	**59.2**	-	-	89	192	100	6,374	1,042	787
Between Krameira Avenue and Iris Avenue	4	0	12,730	40	0.5	1.8%	0.7%	**61.1**	-	55	119	257	100	9,891	1,617	1,222
Murrieta Road																
North of Nuevo Road	2	0	1,395	25	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	1,084	177	134
South of Nuevo Road	2	0	1,656	25	0.5	1.8%	0.7%	**48.2**	-	-	-	35	100	1,287	210	159
Redlands Avenue																
South of Nuevo Road	2	0	4,302	45	0.5	1.8%	0.7%	**57.6**	-	-	69	148	100	3,343	546	413
Between Nuevo Road and Orange avenue	2	0	3,051	45	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	2,371	387	293
Between Orange Avenue and Placentia Avenue	2	0	3,906	45	0.5	1.8%	0.7%	**57.1**	-	-	65	139	100	3,035	496	375
Perris Boulevard																
North of Iris Avenue	4	0	7,182	40	0.5	1.8%	0.7%	**58.7**	-	-	81	175	100	5,580	912	689
Between Iris Avenue and Krameria Avenue	4	0	8,378	40	0.5	1.8%	0.7%	**59.3**	-	-	90	194	100	6,510	1,064	804
Between Krameria Avenue and San Michele Road	4	0	9,954	40	0.5	1.8%	0.7%	**60.1**	-	47	101	218	100	7,734	1,264	956
Between Ramona Expressway and Morgan Street	4	0	7,582	40	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	5,891	963	728
Between Placentia Avenue and Rider Street	4	0	8,437	40	0.5	1.8%	0.7%	**59.4**	-	-	91	195	100	6,556	1,071	810
Between Placentia Avenue and Orange Avenue	4	0	7,821	40	0.5	1.8%	0.7%	**59.0**	-	-	86	186	100	6,077	993	751
Between Orange Avenue and Nuevo Road	4	0	10,840	40	0.5	1.8%	0.7%	**60.5**	-	50	107	231	100	8,423	1,377	1,041
Indian Avenue																
South of Placentia Avenue	2	0	2,106	35	0.5	1.8%	0.7%	**51.9**	-	-	-	62	100	1,636	267	202
Between Placentia Avenue and Ramona Expressway	2	0	1,912	35	0.5	1.8%	0.7%	**51.5**	-	-	-	58	100	1,486	243	184

Existing Plus Project
Primary Land Use Plan

Webster Avenue															
South of Ramona Expressway	2	0	837	35	0.5	1.8%	0.7%	**47.9**	-	-	-	34	100	650	106	80
Between Ramona Expressway and Harley Knox Avenue	2	0	1,282	35	0.5	1.8%	0.7%	**49.7**	-	-	-	45	100	996	163	123
I-215																
North of Ramona Expressway	6	0	7,542	64	0.5	1.8%	0.7%	**64.2**	-	88	189	408	100	5,860	958	724
Between Ramona Expressway and Placentia Avenue	6	0	7,282	64	0.5	1.8%	0.7%	**64.0**	-	86	185	398	100	5,658	925	699
Between Placentia Avenue and Nuevo Road	6	0	4,401	64	0.5	1.8%	0.7%	**61.8**	-	61	132	285	100	3,420	559	422
South of Nuevo Road	6	0	8,730	64	0.5	1.8%	0.7%	**64.8**	-	97	209	449	100	6,783	1,109	838

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2040 No Project																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	21,852	55	0.5	1.8%	0.7%	**66.9**	62	134	288	620	100	16,979	2,775	2,098
South of Ramona Expressway	4	0	17,856	55	0.5	1.8%	0.7%	**66.0**	54	117	252	542	100	13,874	2,268	1,714
Contour Avenue																
East of Hansen Avenue	2	0	2,601	25	0.5	1.8%	0.7%	**50.2**	-	-	-	48	100	2,021	330	250
West of Hansen Avenue	2	0	895	25	0.5	1.8%	0.7%	**45.6**	-	-	-	-	100	695	114	86
Hansen Avenue																
North of Contour Avenue	2	0	2,484	45	0.5	1.8%	0.7%	**55.2**	-	-	48	103	100	1,930	315	238
Between Contour Avenue and Montgomery Avenue	2	0	1,864	45	0.5	1.8%	0.7%	**53.9**	-	-	39	85	100	1,448	237	179
Nuevo Road																
East of Montgomery Avenue	2	0	2,169	55	0.5	1.8%	0.7%	**56.8**	-	-	61	131	100	1,685	275	208
Between Montgomery Avenue and Lakeview Avenue	2	0	2,088	55	0.5	1.8%	0.7%	**56.6**	-	-	59	128	100	1,622	265	200
Between Lakeview Avenue and Reservoir Avenue	2	0	6,061	55	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	4,709	770	582
Between Reservoir Avenue and the Project site	2	0	9,198	55	0.5	1.8%	0.7%	**63.0**	34	74	159	343	100	7,147	1,168	883
Between the Project site and Dunlap Drive	2	0	10,197	55	0.5	1.8%	0.7%	**63.5**	37	79	171	368	100	7,923	1,295	979
Between Dunlap Drive and Evans Road	2	0	10,123	55	0.5	1.8%	0.7%	**63.4**	37	79	170	366	100	7,866	1,286	972
Between Murrieta Road and Redlands Avenue	4	0	13,725	40	0.5	1.8%	0.7%	**61.5**	-	58	125	270	100	10,664	1,743	1,318
Between Redlands Avenue and Perris Boulevard	4	0	7,813	40	0.5	1.8%	0.7%	**59.0**	-	-	86	186	100	6,071	992	750
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	6,032	45	0.5	1.8%	0.7%	**59.0**	-	40	86	186	100	4,687	766	579
Between Evans Road and Murrieta Road	2	0	6,647	45	0.5	1.8%	0.7%	**59.5**	-	43	92	198	100	5,165	844	638
Between Redlands Avenue and Perris Boulevard	2	0	7,258	45	0.5	1.8%	0.7%	**59.8**	-	45	98	210	100	5,639	922	697

Cumulative No Project
Primary Land Use Plan

West of Perris Boulevard	2	0	5,985	45	0.5	1.8%	0.7%	**59.0**	-	40	86	185	100	4,650	760	575
Placentia Avenue																
East of Redlands Avenue	2	0	3,159	35	0.5	1.8%	0.7%	**53.7**	-	-	38	81	100	2,455	401	303
Between Redlands Avenue and Perris Boulevard	2	0	4,257	35	0.5	1.8%	0.7%	**55.0**	-	-	46	99	100	3,308	541	409
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	5,008	45	0.5	1.8%	0.7%	**58.3**	-	-	77	167	100	3,891	636	481
Between Bradley Road and Evans Road	4	0	5,463	45	0.5	1.8%	0.7%	**58.7**	-	-	82	176	100	4,245	694	524
Between Evans Road and Redlands Avenue	4	0	8,293	45	0.5	1.8%	0.7%	**60.5**	-	50	108	233	100	6,444	1,053	796
Between Redlands Avenue and Perris Boulevard	4	0	7,650	45	0.5	1.8%	0.7%	**60.2**	-	48	103	221	100	5,944	972	734
Ramona Expressway																
South of Rider Street	4	0	23,355	45	0.5	1.8%	0.7%	**65.0**	46	100	216	465	100	18,147	2,966	2,242
Between Rider Street and Bradley Road	4	0	15,845	45	0.5	1.8%	0.7%	**63.3**	-	77	167	359	100	12,312	2,012	1,521
Between Bradley Road and Evans Road	4	0	19,261	45	0.5	1.8%	0.7%	**64.2**	-	88	190	409	100	14,966	2,446	1,849
Between Evans Road and Redlands Avenue	4	0	34,623	45	0.5	1.8%	0.7%	**66.7**	60	130	281	604	100	26,902	4,397	3,324
West of Redlands Avenue	4	0	26,577	45	0.5	1.8%	0.7%	**65.6**	51	109	235	507	100	20,650	3,375	2,551
East of Sanderson Avenue	4	0	16,650	45	0.5	1.8%	0.7%	**63.5**	-	80	172	371	100	12,937	2,115	1,598
West of Sanderson Avenue	4	0	18,081	45	0.5	1.8%	0.7%	**63.9**	-	84	182	392	100	14,049	2,296	1,736
Krameria Avenue																
West of Perris Boulevard	4	0	1,692	35	0.5	1.8%	0.7%	**51.0**	-	-	-	54	100	1,315	215	162
Between Perris Boulevard and Lasselle Street	4	0	5,472	35	0.5	1.8%	0.7%	**56.1**	-	-	55	119	100	4,252	695	525
East of Laselle Street	4	0	8,703	35	0.5	1.8%	0.7%	**58.2**	-	-	75	162	100	6,762	1,105	835
Iris Avenue																
West of Perris Boulevard	4	0	17,307	50	0.5	1.8%	0.7%	**64.8**	45	97	210	452	100	13,448	2,198	1,661
West of Perris Boulevard and Lasselle Street	4	0	12,402	50	0.5	1.8%	0.7%	**63.4**	-	78	168	362	100	9,636	1,575	1,191
East of Laselle Street	4	0	15,750	50	0.5	1.8%	0.7%	**64.4**	-	92	197	425	100	12,238	2,000	1,512
San Jacinto Avenue																
East of Menifee Road	2	0	585	35	0.5	1.8%	0.7%	**46.3**	-	-	-	-	100	455	74	56
West of Menifee Road	4	0	3,195	35	0.5	1.8%	0.7%	**53.8**	-	-	-	83	100	2,483	406	307
Ellis Road																
West of Menifee Road	2	0	850	35	0.5	1.8%	0.7%	**48.0**	-	-	-	34	100	660	108	82
Mapes Road																
East of Menifee Road	2	0	1,820	35	0.5	1.8%	0.7%	**51.3**	-	-	-	56	100	1,414	231	175
West of Menifee Road	2	0	1,116	35	0.5	1.8%	0.7%	**49.1**	-	-	-	41	100	867	142	107
Watson Road																
East of Menifee Road	2	0	4,419	35	0.5	1.8%	0.7%	**55.1**	-	-	47	102	100	3,434	561	424
West of Menifee Road	2	0	1,332	35	0.5	1.8%	0.7%	**49.9**	-	-	-	46	100	1,035	169	128
State Route 74																
East of Menifee Road	4	0	13,194	50	0.5	1.8%	0.7%	**63.7**	-	81	175	378	100	10,252	1,676	1,267
West of Menifee Road	4	0	12,069	50	0.5	1.8%	0.7%	**63.3**	-	77	165	356	100	9,378	1,533	1,159

Cumulative No Project
Primary Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	4,203	45	0.5	1.8%	0.7%	**57.5**	-	-	68	146	100	3,266	534	403
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	8,140	35	0.5	1.8%	0.7%	**57.8**	-	33	71	153	100	6,325	1,034	781
Between San Jacinto Avenue and Ellis Avenue	2	0	7,992	35	0.5	1.8%	0.7%	**57.7**	-	33	70	151	100	6,210	1,015	767
Between Ellis Avenue and Mapes Road	2	0	8,019	35	0.5	1.8%	0.7%	**57.7**	-	33	70	151	100	6,231	1,018	770
Between Mapes Road and Watson Road	2	0	6,795	35	0.5	1.8%	0.7%	**57.0**	-	-	63	136	100	5,280	863	652
Between Watson Road and SR 74	2	0	7,227	35	0.5	1.8%	0.7%	**57.3**	-	-	66	141	100	5,615	918	694
South of SR 74	2	0	10,071	35	0.5	1.8%	0.7%	**58.7**	-	38	82	176	100	7,825	1,279	967
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	3,802	45	0.5	1.8%	0.7%	**57.0**	-	-	63	137	100	2,954	483	365
South of Nuevo Road	2	0	423	45	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	329	54	41
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	2,466	35	0.5	1.8%	0.7%	**52.6**	-	-	32	69	100	1,916	313	237
South of Rider Street	2	0	351	35	0.5	1.8%	0.7%	**44.1**	-	-	-	-	100	273	45	34
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	9,027	40	0.5	1.8%	0.7%	**59.6**	-	43	93	201	100	7,014	1,146	867
Between Orange Avenue and Rider Street	2	0	7,191	40	0.5	1.8%	0.7%	**58.6**	-	37	80	173	100	5,587	913	690
Between Rider Street and Ramona Expressway	4	0	10,435	40	0.5	1.8%	0.7%	**60.3**	-	48	104	225	100	8,108	1,325	1,002
Between Ramona Expressway and Krameria Avenue	4	0	12,699	40	0.5	1.8%	0.7%	**61.1**	-	55	119	257	100	9,867	1,613	1,219
Between Krameira Avenue and Iris Avenue	4	0	18,567	40	0.5	1.8%	0.7%	**62.8**	-	71	153	331	100	14,427	2,358	1,782
Murrieta Road																
North of Nuevo Road	2	0	1,544	25	0.5	1.8%	0.7%	**47.9**	-	-	-	34	100	1,200	196	148
South of Nuevo Road	2	0	2,232	25	0.5	1.8%	0.7%	**49.5**	-	-	-	43	100	1,734	283	214
Redlands Avenue																
South of Nuevo Road	2	0	6,201	45	0.5	1.8%	0.7%	**59.2**	-	41	88	189	100	4,818	788	595
Between Nuevo Road and Orange avenue	2	0	4,239	45	0.5	1.8%	0.7%	**57.5**	-	-	68	147	100	3,294	538	407
Between Orange Avenue and Placentia Avenue	2	0	4,658	45	0.5	1.8%	0.7%	**57.9**	-	34	73	156	100	3,619	592	447
Perris Boulevard																
North of Iris Avenue	4	0	11,430	40	0.5	1.8%	0.7%	**60.7**	-	52	111	239	100	8,881	1,452	1,097
Between Iris Avenue and Krameria Avenue	4	0	10,606	40	0.5	1.8%	0.7%	**60.4**	-	49	106	228	100	8,241	1,347	1,018
Between Krameria Avenue and San Michele Road	4	0	16,263	40	0.5	1.8%	0.7%	**62.2**	-	65	140	303	100	12,636	2,065	1,561
Between Ramona Expressway and Morgan Street	4	0	11,241	40	0.5	1.8%	0.7%	**60.6**	-	51	110	237	100	8,734	1,428	1,079
Between Placentia Avenue and Rider Street	4	0	14,751	40	0.5	1.8%	0.7%	**61.8**	-	61	132	284	100	11,462	1,873	1,416
Between Placentia Avenue and Orange Avenue	4	0	12,978	40	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	10,084	1,648	1,246
Between Orange Avenue and Nuevo Road	4	0	15,376	40	0.5	1.8%	0.7%	**62.0**	-	63	135	291	100	11,947	1,953	1,476
Indian Avenue																
South of Placentia Avenue	2	0	4,248	35	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	3,301	539	408
Between Placentia Avenue and Ramona Expressway	2	0	2,952	35	0.5	1.8%	0.7%	**53.4**	-	-	36	78	100	2,294	375	283

Cumulative No Project
Primary Land Use Plan

Webster Avenue															
South of Ramona Expressway	2	0	1,935	35	0.5	1.8%	0.7%	**51.5**	-	-	-	59	100	1,503	246	186
Between Ramona Expressway and Harley Knox Avenue	2	0	2,728	35	0.5	1.8%	0.7%	**53.0**	-	-	34	74	100	2,120	346	262
I-215																
North of Ramona Expressway	6	0	11,465	64	0.5	1.8%	0.7%	**66.0**	-	116	250	539	100	8,908	1,456	1,101
Between Ramona Expressway and Placentia Avenue	6	0	8,824	64	0.5	1.8%	0.7%	**64.8**	-	98	210	453	100	6,856	1,121	847
Between Placentia Avenue and Nuevo Road	6	0	7,996	64	0.5	1.8%	0.7%	**64.4**	-	91	197	424	100	6,213	1,015	768
South of Nuevo Road	6	0	13,239	64	0.5	1.8%	0.7%	**66.6**	59	128	275	593	100	10,287	1,681	1,271

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2040 With Project																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	22,005	55	0.5	1.8%	0.7%	**66.9**	62	134	289	623	100	17,098	2,795	2,112
South of Ramona Expressway	4	0	17,982	55	0.5	1.8%	0.7%	**66.0**	54	117	253	544	100	13,972	2,284	1,726
Contour Avenue																
East of Hansen Avenue	2	0	2,727	25	0.5	1.8%	0.7%	**50.4**	-	-	-	49	100	2,119	346	262
West of Hansen Avenue	2	0	895	25	0.5	1.8%	0.7%	**45.6**	-	-	-	-	100	695	114	86
Hansen Avenue																
North of Contour Avenue	2	0	2,610	45	0.5	1.8%	0.7%	**55.4**	-	-	49	106	100	2,028	331	251
Between Contour Avenue and Montgomery Avenue	2	0	2,142	45	0.5	1.8%	0.7%	**54.5**	-	-	43	93	100	1,664	272	206
Nuevo Road																
East of Montgomery Avenue	2	0	2,412	55	0.5	1.8%	0.7%	**57.2**	-	-	65	141	100	1,874	306	232
Between Montgomery Avenue and Lakeview Avenue	2	0	2,263	55	0.5	1.8%	0.7%	**56.9**	-	-	63	135	100	1,758	287	217
Between Lakeview Avenue and Reservoir Avenue	2	0	6,367	55	0.5	1.8%	0.7%	**61.4**	-	58	125	269	100	4,947	809	611
Between Reservoir Avenue and the Project site	2	0	13,351	55	0.5	1.8%	0.7%	**64.6**	44	95	204	440	100	10,374	1,696	1,282
Between the Project site and Dunlap Drive	2	0	10,329	55	0.5	1.8%	0.7%	**63.5**	37	80	172	371	100	8,026	1,312	992
Between Dunlap Drive and Evans Road	2	0	17,649	55	0.5	1.8%	0.7%	**65.9**	53	114	246	530	100	13,713	2,241	1,694
Between Murrieta Road and Redlands Avenue	4	0	8,795	40	0.5	1.8%	0.7%	**59.5**	-	-	93	201	100	6,834	1,117	844
Between Redlands Avenue and Perris Boulevard	4	0	14,278	40	0.5	1.8%	0.7%	**61.6**	-	60	129	277	100	11,094	1,813	1,371
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	6,700	45	0.5	1.8%	0.7%	**59.5**	-	43	92	199	100	5,206	851	643
Between Evans Road and Murrieta Road	2	0	7,852	45	0.5	1.8%	0.7%	**60.2**	-	48	103	221	100	6,101	997	754
Between Redlands Avenue and Perris Boulevard	2	0	7,609	45	0.5	1.8%	0.7%	**60.0**	-	47	101	217	100	5,912	966	730

Cumulative Plus Project
Primary Land Use Plan

West of Perris Boulevard	2	0	6,228	45	0.5	1.8%	0.7%	**59.2**	-	41	88	190	100	4,839	791	598
Placentia Avenue																
East of Redlands Avenue	2	0	3,159	35	0.5	1.8%	0.7%	**53.7**	-	-	38	81	100	2,455	401	303
Between Redlands Avenue and Perris Boulevard	2	0	5,040	35	0.5	1.8%	0.7%	**55.7**	-	-	52	111	100	3,916	640	484
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	5,008	45	0.5	1.8%	0.7%	**58.3**	-	-	77	167	100	3,891	636	481
Between Bradley Road and Evans Road	4	0	5,721	45	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	4,445	727	549
Between Evans Road and Redlands Avenue	4	0	8,617	45	0.5	1.8%	0.7%	**60.7**	-	52	111	239	100	6,695	1,094	827
Between Redlands Avenue and Perris Boulevard	4	0	7,650	45	0.5	1.8%	0.7%	**60.2**	-	48	103	221	100	5,944	972	734
Ramona Expressway																
South of Rider Street	4	0	33,867	45	0.5	1.8%	0.7%	**66.6**	60	128	276	596	100	26,315	4,301	3,251
Between Rider Street and Bradley Road	4	0	28,525	45	0.5	1.8%	0.7%	**65.9**	53	114	247	531	100	22,164	3,623	2,738
Between Bradley Road and Evans Road	4	0	31,959	45	0.5	1.8%	0.7%	**66.4**	57	123	266	573	100	24,832	4,059	3,068
Between Evans Road and Redlands Avenue	4	0	36,265	45	0.5	1.8%	0.7%	**66.9**	62	134	289	623	100	28,178	4,606	3,481
West of Redlands Avenue	4	0	27,801	45	0.5	1.8%	0.7%	**65.8**	52	112	242	522	100	21,601	3,531	2,669
East of Sanderson Avenue	4	0	18,540	45	0.5	1.8%	0.7%	**64.0**	-	86	185	399	100	14,406	2,355	1,780
West of Sanderson Avenue	4	0	18,306	45	0.5	1.8%	0.7%	**64.0**	-	85	183	395	100	14,224	2,325	1,757
Krameria Avenue																
West of Perris Boulevard	4	0	1,692	35	0.5	1.8%	0.7%	**51.0**	-	-	-	54	100	1,315	215	162
Between Perris Boulevard and Lasselle Street	4	0	5,472	35	0.5	1.8%	0.7%	**56.1**	-	-	55	119	100	4,252	695	525
East of Laselle Street	4	0	8,703	35	0.5	1.8%	0.7%	**58.2**	-	-	75	162	100	6,762	1,105	835
Iris Avenue																
West of Perris Boulevard	4	0	18,003	50	0.5	1.8%	0.7%	**65.0**	46	100	216	464	100	13,988	2,286	1,728
West of Perris Boulevard and Lasselle Street	4	0	12,402	50	0.5	1.8%	0.7%	**63.4**	-	78	168	362	100	9,636	1,575	1,191
East of Laselle Street	4	0	15,993	50	0.5	1.8%	0.7%	**64.5**	-	92	199	429	100	12,427	2,031	1,535
San Jacinto Avenue																
East of Menifee Road	2	0	711	35	0.5	1.8%	0.7%	**47.2**	-	-	-	-	100	552	90	68
West of Menifee Road	4	0	3,321	35	0.5	1.8%	0.7%	**54.0**	-	-	-	85	100	2,580	422	319
Ellis Road																
West of Menifee Road	2	0	976	35	0.5	1.8%	0.7%	**48.6**	-	-	-	37	100	758	124	94
Mapes Road																
East of Menifee Road	2	0	2,520	35	0.5	1.8%	0.7%	**52.7**	-	-	32	70	100	1,958	320	242
West of Menifee Road	2	0	1,242	35	0.5	1.8%	0.7%	**49.6**	-	-	-	44	100	965	158	119
Watson Road																
East of Menifee Road	2	0	4,545	35	0.5	1.8%	0.7%	**55.2**	-	-	48	104	100	3,531	577	436
West of Menifee Road	2	0	1,332	35	0.5	1.8%	0.7%	**49.9**	-	-	-	46	100	1,035	169	128
State Route 74																
East of Menifee Road	4	0	13,437	50	0.5	1.8%	0.7%	**63.7**	-	82	177	382	100	10,441	1,706	1,290
West of Menifee Road	4	0	12,195	50	0.5	1.8%	0.7%	**63.3**	-	77	166	358	100	9,476	1,549	1,171

Cumulative Plus Project
Primary Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	4,329	45	0.5	1.8%	0.7%	**57.6**	-	32	69	149	100	3,364	550	416
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	10,228	35	0.5	1.8%	0.7%	**58.8**	-	38	83	178	100	7,947	1,299	982
Between San Jacinto Avenue and Ellis Avenue	2	0	8,928	35	0.5	1.8%	0.7%	**58.2**	-	35	76	163	100	6,937	1,134	857
Between Ellis Avenue and Mapes Road	2	0	8,640	35	0.5	1.8%	0.7%	**58.0**	-	34	74	159	100	6,713	1,097	829
Between Mapes Road and Watson Road	2	0	7,330	35	0.5	1.8%	0.7%	**57.3**	-	-	66	143	100	5,695	931	704
Between Watson Road and SR 74	2	0	7,668	35	0.5	1.8%	0.7%	**57.5**	-	-	68	147	100	5,958	974	736
South of SR 74	2	0	10,314	35	0.5	1.8%	0.7%	**58.8**	-	39	83	179	100	8,014	1,310	990
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	4,077	45	0.5	1.8%	0.7%	**57.3**	-	-	66	143	100	3,168	518	391
South of Nuevo Road	2	0	549	45	0.5	1.8%	0.7%	**48.6**	-	-	-	38	100	427	70	53
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	2,579	35	0.5	1.8%	0.7%	**52.8**	-	-	33	71	100	2,004	328	248
South of Rider Street	2	0	351	35	0.5	1.8%	0.7%	**44.1**	-	-	-	-	100	273	45	34
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	9,925	40	0.5	1.8%	0.7%	**60.0**	-	46	100	215	100	7,712	1,260	953
Between Orange Avenue and Rider Street	2	0	7,312	40	0.5	1.8%	0.7%	**58.6**	-	38	81	175	100	5,681	929	702
Between Rider Street and Ramona Expressway	4	0	10,498	40	0.5	1.8%	0.7%	**60.3**	-	49	105	226	100	8,157	1,333	1,008
Between Ramona Expressway and Krameria Avenue	4	0	13,297	40	0.5	1.8%	0.7%	**61.3**	-	57	123	265	100	10,332	1,689	1,277
Between Krameira Avenue and Iris Avenue	4	0	18,855	40	0.5	1.8%	0.7%	**62.9**	-	72	155	334	100	14,650	2,395	1,810
Murrieta Road																
North of Nuevo Road	2	0	1,544	25	0.5	1.8%	0.7%	**47.9**	-	-	-	34	100	1,200	196	148
South of Nuevo Road	2	0	2,775	25	0.5	1.8%	0.7%	**50.5**	-	-	-	50	100	2,156	352	266
Redlands Avenue																
South of Nuevo Road	2	0	6,687	45	0.5	1.8%	0.7%	**59.5**	-	43	92	199	100	5,196	849	642
Between Nuevo Road and Orange avenue	2	0	4,360	45	0.5	1.8%	0.7%	**57.6**	-	32	69	150	100	3,388	554	419
Between Orange Avenue and Placentia Avenue	2	0	4,690	45	0.5	1.8%	0.7%	**57.9**	-	34	73	157	100	3,644	596	450
Perris Boulevard																
North of Iris Avenue	4	0	11,583	40	0.5	1.8%	0.7%	**60.7**	-	52	112	241	100	9,000	1,471	1,112
Between Iris Avenue and Krameria Avenue	4	0	15,304	40	0.5	1.8%	0.7%	**61.9**	-	63	135	291	100	11,891	1,944	1,469
Between Krameria Avenue and San Michele Road	4	0	16,443	40	0.5	1.8%	0.7%	**62.3**	-	66	141	305	100	12,776	2,088	1,579
Between Ramona Expressway and Morgan Street	4	0	13,054	40	0.5	1.8%	0.7%	**61.3**	-	56	121	261	100	10,143	1,658	1,253
Between Placentia Avenue and Rider Street	4	0	15,373	40	0.5	1.8%	0.7%	**62.0**	-	63	135	291	100	11,945	1,952	1,476
Between Placentia Avenue and Orange Avenue	4	0	12,982	40	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	10,087	1,649	1,246
Between Orange Avenue and Nuevo Road	4	0	15,709	40	0.5	1.8%	0.7%	**62.1**	-	64	137	296	100	12,206	1,995	1,508
Indian Avenue																
South of Placentia Avenue	2	0	4,248	35	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	3,301	539	408
Between Placentia Avenue and Ramona Expressway	2	0	3,712	35	0.5	1.8%	0.7%	**54.4**	-	-	42	91	100	2,884	471	356

Cumulative Plus Project
Primary Land Use Plan

Webster Avenue																
South of Ramona Expressway	2	0	1,935	35	0.5	1.8%	0.7%	**51.5**	-	-	-	59	100	1,503	246	186
Between Ramona Expressway and Harley Knox Avenue	2	0	5,548	35	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	4,311	705	533
I-215																
North of Ramona Expressway	6	0	11,897	64	0.5	1.8%	0.7%	**66.1**	-	119	256	553	100	9,244	1,511	1,142
Between Ramona Expressway and Placentia Avenue	6	0	11,907	64	0.5	1.8%	0.7%	**66.1**	-	119	257	553	100	9,252	1,512	1,143
Between Placentia Avenue and Nuevo Road	6	0	8,302	64	0.5	1.8%	0.7%	**64.6**	-	94	202	435	100	6,451	1,054	797
South of Nuevo Road	6	0	14,463	64	0.5	1.8%	0.7%	**67.0**	63	136	292	629	100	11,238	1,837	1,388

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
Existing + Project +MCP																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	13,905	55	0.5	1.8%	0.7%	**64.9**	46	99	213	459	100	10,804	1,766	1,335
South of Ramona Expressway	4	0	12,141	55	0.5	1.8%	0.7%	**64.3**	-	90	194	419	100	9,434	1,542	1,166
Contour Avenue																
East of Hansen Avenue	2	0	2,385	25	0.5	1.8%	0.7%	**49.8**	-	-	-	45	100	1,853	303	229
West of Hansen Avenue	2	0	692	25	0.5	1.8%	0.7%	**44.4**	-	-	-	-	100	538	88	66
Hansen Avenue																
North of Contour Avenue	2	0	1,575	45	0.5	1.8%	0.7%	**53.2**	-	-	35	76	100	1,224	200	151
Between Contour Avenue and Montgomery Avenue	2	0	1,472	45	0.5	1.8%	0.7%	**52.9**	-	-	34	73	100	1,144	187	141
Nuevo Road																
East of Montgomery Avenue	2	0	1,773	55	0.5	1.8%	0.7%	**55.9**	-	-	53	114	100	1,378	225	170
Between Montgomery Avenue and Lakeview Avenue	2	0	1,705	55	0.5	1.8%	0.7%	**55.7**	-	-	52	112	100	1,325	217	164
Between Lakeview Avenue and Reservoir Avenue	2	0	3,928	55	0.5	1.8%	0.7%	**59.3**	-	42	90	195	100	3,052	499	377
Between Reservoir Avenue and the Project site	2	0	2,477	55	0.5	1.8%	0.7%	**57.3**	-	-	66	143	100	1,925	315	238
Between the Project site and Dunlap Drive	2	0	7,092	55	0.5	1.8%	0.7%	**61.9**	-	62	134	289	100	5,510	901	681
Between Dunlap Drive and Evans Road	2	0	5,935	55	0.5	1.8%	0.7%	**61.1**	-	55	119	256	100	4,611	754	570
Between Murrieta Road and Redlands Avenue	4	0	8,009	40	0.5	1.8%	0.7%	**59.1**	-	-	88	189	100	6,223	1,017	769
Between Redlands Avenue and Perris Boulevard	4	0	7,629	40	0.5	1.8%	0.7%	**58.9**	-	-	85	183	100	5,928	969	732
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	6,420	45	0.5	1.8%	0.7%	**59.3**	-	42	90	194	100	4,988	815	616
Between Evans Road and Murrieta Road	2	0	7,019	45	0.5	1.8%	0.7%	**59.7**	-	44	95	206	100	5,454	891	674
Between Redlands Avenue and Perris Boulevard	2	0	5,683	45	0.5	1.8%	0.7%	**58.8**	-	38	83	179	100	4,416	722	546

Existing Plus Project
Alternative Land Use Plan

West of Perris Boulevard	2	0	4,590	45	0.5	1.8%	0.7%	**57.8**	-	33	72	155	100	3,566	583	441
Placentia Avenue																
East of Redlands Avenue	2	0	1,863	35	0.5	1.8%	0.7%	**51.4**	-	-	-	57	100	1,448	237	179
Between Redlands Avenue and Perris Boulevard	2	0	3,230	35	0.5	1.8%	0.7%	**53.8**	-	-	38	83	100	2,510	410	310
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	2,079	45	0.5	1.8%	0.7%	**54.5**	-	-	-	93	100	1,615	264	200
Between Bradley Road and Evans Road	4	0	2,772	45	0.5	1.8%	0.7%	**55.8**	-	-	52	112	100	2,154	352	266
Between Evans Road and Redlands Avenue	4	0	5,296	45	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	4,115	673	508
Between Redlands Avenue and Perris Boulevard	4	0	4,423	45	0.5	1.8%	0.7%	**57.8**	-	-	71	153	100	3,437	562	425
Ramona Expressway																
South of Rider Street	4	0	13,014	45	0.5	1.8%	0.7%	**62.5**	-	68	146	315	100	10,112	1,653	1,249
Between Rider Street and Bradley Road	4	0	12,262	45	0.5	1.8%	0.7%	**62.2**	-	65	140	303	100	9,528	1,557	1,177
Between Bradley Road and Evans Road	4	0	12,919	45	0.5	1.8%	0.7%	**62.4**	-	67	145	313	100	10,038	1,641	1,240
Between Evans Road and Redlands Avenue	4	0	16,037	45	0.5	1.8%	0.7%	**63.4**	-	78	168	362	100	12,461	2,037	1,540
West of Redlands Avenue	4	0	11,790	45	0.5	1.8%	0.7%	**62.0**	-	63	137	295	100	9,161	1,497	1,132
East of Sanderson Avenue	4	0	12,105	45	0.5	1.8%	0.7%	**62.2**	-	65	139	300	100	9,406	1,537	1,162
West of Sanderson Avenue	4	0	8,667	45	0.5	1.8%	0.7%	**60.7**	-	52	111	240	100	6,734	1,101	832
Krameria Avenue																
West of Perris Boulevard	4	0	1,089	35	0.5	1.8%	0.7%	**49.1**	-	-	-	-	100	846	138	105
Between Perris Boulevard and Lasselle Street	4	0	3,595	35	0.5	1.8%	0.7%	**54.3**	-	-	-	90	100	2,793	457	345
East of Laselle Street	4	0	5,391	35	0.5	1.8%	0.7%	**56.1**	-	-	55	118	100	4,189	685	518
Iris Avenue																
West of Perris Boulevard	4	0	4,401	50	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	3,420	559	422
West of Perris Boulevard and Lasselle Street	4	0	7,546	50	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	5,863	958	724
East of Laselle Street	4	0	9,630	50	0.5	1.8%	0.7%	**62.3**	-	66	142	306	100	7,483	1,223	924
San Jacinto Avenue																
East of Menifee Road	2	0	459	35	0.5	1.8%	0.7%	**45.3**	-	-	-	-	100	357	58	44
West of Menifee Road	4	0	2,133	35	0.5	1.8%	0.7%	**52.0**	-	-	-	64	100	1,657	271	205
Ellis Road																
West of Menifee Road	2	0	419	35	0.5	1.8%	0.7%	**44.9**	-	-	-	-	100	326	53	40
Mapes Road																
East of Menifee Road	2	0	1,728	35	0.5	1.8%	0.7%	**51.0**	-	-	-	54	100	1,343	219	166
West of Menifee Road	2	0	1,008	35	0.5	1.8%	0.7%	**48.7**	-	-	-	38	100	783	128	97
Watson Road																
East of Menifee Road	2	0	3,117	35	0.5	1.8%	0.7%	**53.6**	-	-	37	81	100	2,422	396	299
West of Menifee Road	2	0	747	35	0.5	1.8%	0.7%	**47.4**	-	-	-	-	100	580	95	72
State Route 74																
East of Menifee Road	4	0	6,885	50	0.5	1.8%	0.7%	**60.8**	-	53	114	245	100	5,350	874	661
West of Menifee Road	4	0	6,489	50	0.5	1.8%	0.7%	**60.6**	-	51	109	235	100	5,042	824	623

Existing Plus Project
Alternative Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	3,033	45	0.5	1.8%	0.7%	**56.0**	-	-	55	117	100	2,357	385	291
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	5,041	35	0.5	1.8%	0.7%	**55.7**	-	-	52	111	100	3,917	640	484
Between San Jacinto Avenue and Ellis Avenue	2	0	4,315	35	0.5	1.8%	0.7%	**55.0**	-	-	46	100	100	3,353	548	414
Between Ellis Avenue and Mapes Road	2	0	4,225	35	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	3,283	537	406
Between Mapes Road and Watson Road	2	0	3,208	35	0.5	1.8%	0.7%	**53.7**	-	-	38	82	100	2,493	407	308
Between Watson Road and SR 74	2	0	2,800	35	0.5	1.8%	0.7%	**53.1**	-	-	35	75	100	2,176	356	269
South of SR 74	2	0	4,257	35	0.5	1.8%	0.7%	**55.0**	-	-	46	99	100	3,308	541	409
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	2,241	45	0.5	1.8%	0.7%	**54.7**	-	-	45	96	100	1,741	285	215
South of Nuevo Road	2	0	531	45	0.5	1.8%	0.7%	**48.5**	-	-	-	37	100	413	67	51
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	1,863	35	0.5	1.8%	0.7%	**51.4**	-	-	-	57	100	1,448	237	179
South of Rider Street	2	0	243	35	0.5	1.8%	0.7%	**42.5**	-	-	-	-	100	189	31	23
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	4,198	40	0.5	1.8%	0.7%	**56.2**	-	-	56	121	100	3,262	533	403
Between Orange Avenue and Rider Street	2	0	4,558	40	0.5	1.8%	0.7%	**56.6**	-	-	59	128	100	3,542	579	438
Between Rider Street and Ramona Expressway	4	0	7,011	40	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	5,448	890	673
Between Ramona Expressway and Krameria Avenue	4	0	8,792	40	0.5	1.8%	0.7%	**59.5**	-	-	93	201	100	6,831	1,117	844
Between Krameira Avenue and Iris Avenue	4	0	12,991	40	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	10,094	1,650	1,247
Murrieta Road																
North of Nuevo Road	2	0	1,395	25	0.5	1.8%	0.7%	**47.5**	-	-	-	-	100	1,084	177	134
South of Nuevo Road	2	0	1,889	25	0.5	1.8%	0.7%	**48.8**	-	-	-	39	100	1,468	240	181
Redlands Avenue																
South of Nuevo Road	2	0	4,545	45	0.5	1.8%	0.7%	**57.8**	-	33	71	154	100	3,531	577	436
Between Nuevo Road and Orange avenue	2	0	3,294	45	0.5	1.8%	0.7%	**56.4**	-	-	58	124	100	2,559	418	316
Between Orange Avenue and Placentia Avenue	2	0	4,149	45	0.5	1.8%	0.7%	**57.4**	-	-	67	145	100	3,224	527	398
Perris Boulevard																
North of Iris Avenue	4	0	7,335	40	0.5	1.8%	0.7%	**58.8**	-	-	83	178	100	5,699	932	704
Between Iris Avenue and Krameria Avenue	4	0	8,495	40	0.5	1.8%	0.7%	**59.4**	-	-	91	196	100	6,601	1,079	816
Between Krameria Avenue and San Michele Road	4	0	10,035	40	0.5	1.8%	0.7%	**60.1**	-	47	102	219	100	7,797	1,274	963
Between Ramona Expressway and Morgan Street	4	0	7,582	40	0.5	1.8%	0.7%	**58.9**	-	-	84	182	100	5,891	963	728
Between Placentia Avenue and Rider Street	4	0	8,437	40	0.5	1.8%	0.7%	**59.4**	-	-	91	195	100	6,556	1,071	810
Between Placentia Avenue and Orange Avenue	4	0	7,821	40	0.5	1.8%	0.7%	**59.0**	-	-	86	186	100	6,077	993	751
Between Orange Avenue and Nuevo Road	4	0	11,083	40	0.5	1.8%	0.7%	**60.5**	-	50	109	234	100	8,611	1,408	1,064
Indian Avenue																
South of Placentia Avenue	2	0	2,106	35	0.5	1.8%	0.7%	**51.9**	-	-	-	62	100	1,636	267	202
Between Placentia Avenue and Ramona Expressway	2	0	2,029	35	0.5	1.8%	0.7%	**51.7**	-	-	-	61	100	1,577	258	195

Existing Plus Project
Alternative Land Use Plan

Webster Avenue															
South of Ramona Expressway	2	0	837	35	0.5	1.8%	0.7%	**47.9**	-	-	-	34	100	650	106	80
Between Ramona Expressway and Harley Knox Avenue	2	0	1,282	35	0.5	1.8%	0.7%	**49.7**	-	-	-	45	100	996	163	123
I-215																
North of Ramona Expressway	6	0	7,542	64	0.5	1.8%	0.7%	**64.2**	-	88	189	408	100	5,860	958	724
Between Ramona Expressway and Placentia Avenue	6	0	7,291	64	0.5	1.8%	0.7%	**64.0**	-	86	185	399	100	5,665	926	700
Between Placentia Avenue and Nuevo Road	6	0	4,401	64	0.5	1.8%	0.7%	**61.8**	-	61	132	285	100	3,420	559	422
South of Nuevo Road	6	0	8,730	64	0.5	1.8%	0.7%	**64.8**	-	97	209	449	100	6,783	1,109	838

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Vehicle Mix: Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2040 No Project with MCP																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	15,572	55	0.5	1.8%	0.7%	**65.4**	49	107	230	495	100	12,099	1,978	1,495
South of Ramona Expressway	4	0	14,280	55	0.5	1.8%	0.7%	**65.0**	47	101	217	467	100	11,096	1,814	1,371
Contour Avenue																
East of Hansen Avenue	2	0	2,647	25	0.5	1.8%	0.7%	**50.3**	-	-	-	48	100	2,057	336	254
West of Hansen Avenue	2	0	876	25	0.5	1.8%	0.7%	**45.5**	-	-	-	-	100	681	111	84
Hansen Avenue																
North of Contour Avenue	2	0	1,593	45	0.5	1.8%	0.7%	**53.3**	-	-	35	76	100	1,238	202	153
Between Contour Avenue and Montgomery Avenue	2	0	1,845	45	0.5	1.8%	0.7%	**53.9**	-	-	39	84	100	1,434	234	177
Nuevo Road																
East of Montgomery Avenue	2	0	1,873	55	0.5	1.8%	0.7%	**56.1**	-	-	55	119	100	1,455	238	180
Between Montgomery Avenue and Lakeview Avenue	2	0	1,805	55	0.5	1.8%	0.7%	**56.0**	-	-	54	116	100	1,402	229	173
Between Lakeview Avenue and Reservoir Avenue	2	0	5,170	55	0.5	1.8%	0.7%	**60.5**	-	50	108	234	100	4,017	657	496
Between Reservoir Avenue and the Project site	2	0	2,877	55	0.5	1.8%	0.7%	**58.0**	-	34	73	158	100	2,235	365	276
Between the Project site and Dunlap Drive	2	0	7,553	55	0.5	1.8%	0.7%	**62.2**	-	65	140	301	100	5,869	959	725
Between Dunlap Drive and Evans Road	2	0	6,246	55	0.5	1.8%	0.7%	**61.4**	-	57	123	265	100	4,853	793	600
Between Murrieta Road and Redlands Avenue	4	0	9,544	40	0.5	1.8%	0.7%	**59.9**	-	46	98	212	100	7,416	1,212	916
Between Redlands Avenue and Perris Boulevard	4	0	8,523	40	0.5	1.8%	0.7%	**59.4**	-	-	91	197	100	6,622	1,082	818
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	6,681	45	0.5	1.8%	0.7%	**59.5**	-	43	92	199	100	5,191	848	641
Between Evans Road and Murrieta Road	2	0	7,630	45	0.5	1.8%	0.7%	**60.1**	-	47	101	217	100	5,929	969	732
Between Redlands Avenue and Perris Boulevard	2	0	6,327	45	0.5	1.8%	0.7%	**59.2**	-	41	89	192	100	4,916	804	607

Cumulative No Project Alternative Land Use Plan

West of Perris Boulevard	2	0	4,905	45	0.5	1.8%	0.7%	**58.1**	-	35	75	162	100	3,811	623	471
Placentia Avenue																
East of Redlands Avenue	2	0	3,861	35	0.5	1.8%	0.7%	**54.5**	-	-	43	93	100	3,000	490	371
Between Redlands Avenue and Perris Boulevard	2	0	3,942	35	0.5	1.8%	0.7%	**54.6**	-	-	44	94	100	3,063	501	378
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	2,488	45	0.5	1.8%	0.7%	**55.3**	-	-	48	104	100	1,933	316	239
Between Bradley Road and Evans Road	4	0	3,276	45	0.5	1.8%	0.7%	**56.5**	-	-	58	125	100	2,545	416	314
Between Evans Road and Redlands Avenue	4	0	6,327	45	0.5	1.8%	0.7%	**59.3**	-	-	90	195	100	4,916	804	607
Between Redlands Avenue and Perris Boulevard	4	0	5,292	45	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	4,112	672	508
Ramona Expressway																
South of Rider Street	4	0	18,447	45	0.5	1.8%	0.7%	**64.0**	-	86	184	397	100	14,333	2,343	1,771
Between Rider Street and Bradley Road	4	0	15,178	45	0.5	1.8%	0.7%	**63.1**	-	75	162	349	100	11,793	1,928	1,457
Between Bradley Road and Evans Road	4	0	14,256	45	0.5	1.8%	0.7%	**62.9**	-	72	155	334	100	11,077	1,811	1,369
Between Evans Road and Redlands Avenue	4	0	16,501	45	0.5	1.8%	0.7%	**63.5**	-	79	171	369	100	12,821	2,096	1,584
West of Redlands Avenue	4	0	12,780	45	0.5	1.8%	0.7%	**62.4**	-	67	144	311	100	9,930	1,623	1,227
East of Sanderson Avenue	4	0	14,832	45	0.5	1.8%	0.7%	**63.0**	-	74	159	343	100	11,524	1,884	1,424
West of Sanderson Avenue	4	0	10,152	45	0.5	1.8%	0.7%	**61.4**	-	57	124	267	100	7,888	1,289	975
Krameria Avenue																
West of Perris Boulevard	4	0	2,007	35	0.5	1.8%	0.7%	**51.8**	-	-	-	61	100	1,559	255	193
Between Perris Boulevard and Lasselle Street	4	0	4,279	35	0.5	1.8%	0.7%	**55.1**	-	-	47	101	100	3,325	543	411
East of Laselle Street	4	0	6,444	35	0.5	1.8%	0.7%	**56.8**	-	-	62	133	100	5,007	818	619
Iris Avenue																
West of Perris Boulevard	4	0	6,120	50	0.5	1.8%	0.7%	**60.3**	-	49	105	226	100	4,755	777	588
West of Perris Boulevard and Lasselle Street	4	0	9,526	50	0.5	1.8%	0.7%	**62.2**	-	65	141	304	100	7,402	1,210	914
East of Laselle Street	4	0	10,311	50	0.5	1.8%	0.7%	**62.6**	-	69	149	320	100	8,012	1,309	990
San Jacinto Avenue																
East of Menifee Road	2	0	852	35	0.5	1.8%	0.7%	**48.0**	-	-	-	34	100	662	108	82
West of Menifee Road	4	0	3,105	35	0.5	1.8%	0.7%	**53.7**	-	-	-	82	100	2,413	394	298
Ellis Road																
West of Menifee Road	2	0	879	35	0.5	1.8%	0.7%	**48.1**	-	-	-	35	100	683	112	84
Mapes Road																
East of Menifee Road	2	0	2,250	35	0.5	1.8%	0.7%	**52.2**	-	-	-	65	100	1,748	286	216
West of Menifee Road	2	0	1,494	35	0.5	1.8%	0.7%	**50.4**	-	-	-	49	100	1,161	190	143
Watson Road																
East of Menifee Road	2	0	3,717	35	0.5	1.8%	0.7%	**54.4**	-	-	42	91	100	2,888	472	357
West of Menifee Road	2	0	1,094	35	0.5	1.8%	0.7%	**49.1**	-	-	-	40	100	850	139	105
State Route 74																
East of Menifee Road	4	0	10,602	50	0.5	1.8%	0.7%	**62.7**	-	70	151	326	100	8,238	1,346	1,018
West of Menifee Road	4	0	9,881	50	0.5	1.8%	0.7%	**62.4**	-	67	145	311	100	7,678	1,255	949

Cumulative No Project
Alternative Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	3,339	45	0.5	1.8%	0.7%	**56.5**	-	-	58	125	100	2,594	424	321
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	9,895	35	0.5	1.8%	0.7%	**58.6**	-	38	81	174	100	7,688	1,257	950
Between San Jacinto Avenue and Ellis Avenue	2	0	7,821	35	0.5	1.8%	0.7%	**57.6**	-	32	69	149	100	6,077	993	751
Between Ellis Avenue and Mapes Road	2	0	7,506	35	0.5	1.8%	0.7%	**57.4**	-	-	67	145	100	5,832	953	721
Between Mapes Road and Watson Road	2	0	7,227	35	0.5	1.8%	0.7%	**57.3**	-	-	66	141	100	5,615	918	694
Between Watson Road and SR 74	2	0	7,240	35	0.5	1.8%	0.7%	**57.3**	-	-	66	141	100	5,625	919	695
South of SR 74	2	0	10,044	35	0.5	1.8%	0.7%	**58.7**	-	38	82	176	100	7,804	1,276	964
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	3,114	45	0.5	1.8%	0.7%	**56.2**	-	-	55	120	100	2,420	395	299
South of Nuevo Road	2	0	850	45	0.5	1.8%	0.7%	**50.5**	-	-	-	50	100	660	108	82
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	1,935	35	0.5	1.8%	0.7%	**51.5**	-	-	-	59	100	1,503	246	186
South of Rider Street	2	0	531	35	0.5	1.8%	0.7%	**45.9**	-	-	-	-	100	413	67	51
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	6,690	40	0.5	1.8%	0.7%	**58.3**	-	36	77	165	100	5,198	850	642
Between Orange Avenue and Rider Street	2	0	10,440	40	0.5	1.8%	0.7%	**60.2**	-	48	103	222	100	8,112	1,326	1,002
Between Rider Street and Ramona Expressway	4	0	13,446	40	0.5	1.8%	0.7%	**61.4**	-	57	124	267	100	10,448	1,708	1,291
Between Ramona Expressway and Krameria Avenue	4	0	13,045	40	0.5	1.8%	0.7%	**61.3**	-	56	121	261	100	10,136	1,657	1,252
Between Krameira Avenue and Iris Avenue	4	0	15,517	40	0.5	1.8%	0.7%	**62.0**	-	63	136	293	100	12,057	1,971	1,490
Murrieta Road																
North of Nuevo Road	2	0	1,674	25	0.5	1.8%	0.7%	**48.3**	-	-	-	36	100	1,301	213	161
South of Nuevo Road	2	0	2,075	25	0.5	1.8%	0.7%	**49.2**	-	-	-	41	100	1,612	264	199
Redlands Avenue																
South of Nuevo Road	2	0	5,895	45	0.5	1.8%	0.7%	**58.9**	-	39	85	183	100	4,580	749	566
Between Nuevo Road and Orange avenue	2	0	5,666	45	0.5	1.8%	0.7%	**58.8**	-	38	83	178	100	4,402	720	544
Between Orange Avenue and Placentia Avenue	2	0	8,370	45	0.5	1.8%	0.7%	**60.5**	-	50	107	231	100	6,503	1,063	804
Perris Boulevard																
North of Iris Avenue	4	0	11,169	40	0.5	1.8%	0.7%	**60.6**	-	51	109	236	100	8,678	1,418	1,072
Between Iris Avenue and Krameria Avenue	4	0	13,342	40	0.5	1.8%	0.7%	**61.4**	-	57	123	265	100	10,367	1,694	1,281
Between Krameria Avenue and San Michele Road	4	0	12,969	40	0.5	1.8%	0.7%	**61.2**	-	56	121	260	100	10,077	1,647	1,245
Between Ramona Expressway and Morgan Street	4	0	11,380	40	0.5	1.8%	0.7%	**60.7**	-	51	111	238	100	8,842	1,445	1,092
Between Placentia Avenue and Rider Street	4	0	12,612	40	0.5	1.8%	0.7%	**61.1**	-	55	119	255	100	9,800	1,602	1,211
Between Placentia Avenue and Orange Avenue	4	0	15,345	40	0.5	1.8%	0.7%	**62.0**	-	63	135	291	100	11,923	1,949	1,473
Between Orange Avenue and Nuevo Road	4	0	15,963	40	0.5	1.8%	0.7%	**62.1**	-	64	139	299	100	12,403	2,027	1,532
Indian Avenue																
South of Placentia Avenue	2	0	4,500	35	0.5	1.8%	0.7%	**55.2**	-	-	48	103	100	3,497	572	432
Between Placentia Avenue and Ramona Expressway	2	0	4,254	35	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	3,305	540	408

Cumulative No Project
Alternative Land Use Plan

Webster Avenue																
South of Ramona Expressway	2	0	1,098	35	0.5	1.8%	0.7%	**49.1**	-	-	-	40	100	853	139	105
Between Ramona Expressway and Harley Knox Avenue	2	0	3,966	35	0.5	1.8%	0.7%	**54.6**	-	-	44	95	100	3,082	504	381
I-215																
North of Ramona Expressway	6	0	10,836	64	0.5	1.8%	0.7%	**65.7**	-	112	241	519	100	8,420	1,376	1,040
Between Ramona Expressway and Placentia Avenue	6	0	8,718	64	0.5	1.8%	0.7%	**64.8**	-	97	208	449	100	6,774	1,107	837
Between Placentia Avenue and Nuevo Road	6	0	5,503	64	0.5	1.8%	0.7%	**62.8**	-	71	153	330	100	4,276	699	528
South of Nuevo Road	6	0	8,937	64	0.5	1.8%	0.7%	**64.9**	-	98	212	457	100	6,944	1,135	858

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2019-075
Project Name: Stoneridge Commerce Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Urban Crossroads 2020
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%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes: Day	Eve	Night
2040 With Project with MCP																
Sanderson Avenue (SR 79)																
North of Ramona Expressway	4	0	16,978	55	0.5	1.8%	0.7%	**65.8**	52	113	243	524	100	13,192	2,156	1,630
South of Ramona Expressway	4	0	15,873	55	0.5	1.8%	0.7%	**65.5**	50	108	233	501	100	12,333	2,016	1,524
Contour Avenue																
East of Hansen Avenue	2	0	3,181	25	0.5	1.8%	0.7%	**51.1**	-	-	-	55	100	2,472	404	305
West of Hansen Avenue	2	0	956	25	0.5	1.8%	0.7%	**45.8**	-	-	-	-	100	743	121	92
Hansen Avenue																
North of Contour Avenue	2	0	1,710	45	0.5	1.8%	0.7%	**53.6**	-	-	37	80	100	1,329	217	164
Between Contour Avenue and Montgomery Avenue	2	0	3,124	45	0.5	1.8%	0.7%	**56.2**	-	-	56	120	100	2,427	397	300
Nuevo Road																
East of Montgomery Avenue	2	0	2,782	55	0.5	1.8%	0.7%	**57.8**	-	33	72	155	100	2,162	353	267
Between Montgomery Avenue and Lakeview Avenue	2	0	2,174	55	0.5	1.8%	0.7%	**56.8**	-	-	61	131	100	1,689	276	209
Between Lakeview Avenue and Reservoir Avenue	2	0	6,686	55	0.5	1.8%	0.7%	**61.6**	-	60	129	277	100	5,195	849	642
Between Reservoir Avenue and the Project site	2	0	6,615	55	0.5	1.8%	0.7%	**61.6**	-	59	128	275	100	5,140	840	635
Between the Project site and Dunlap Drive	2	0	7,947	55	0.5	1.8%	0.7%	**62.4**	-	67	144	311	100	6,175	1,009	763
Between Dunlap Drive and Evans Road	2	0	6,948	55	0.5	1.8%	0.7%	**61.8**	-	61	132	285	100	5,399	882	667
Between Murrieta Road and Redlands Avenue	4	0	10,521	40	0.5	1.8%	0.7%	**60.3**	-	49	105	226	100	8,175	1,336	1,010
Between Redlands Avenue and Perris Boulevard	4	0	9,148	40	0.5	1.8%	0.7%	**59.7**	-	44	96	206	100	7,108	1,162	878
Orange Avenue																
Between Dunlap Drive and Evans Road	2	0	7,580	45	0.5	1.8%	0.7%	**60.0**	-	47	100	216	100	5,890	963	728
Between Evans Road and Murrieta Road	2	0	8,971	45	0.5	1.8%	0.7%	**60.8**	-	52	112	242	100	6,970	1,139	861
Between Redlands Avenue and Perris Boulevard	2	0	6,678	45	0.5	1.8%	0.7%	**59.5**	-	43	92	199	100	5,189	848	641

West of Perris Boulevard	2	0	5,748	45	0.5	1.8%	0.7%	**58.8**	-	39	84	180	100	4,466	730	552
Placentia Avenue																
East of Redlands Avenue	2	0	3,861	35	0.5	1.8%	0.7%	**54.5**	-	-	43	93	100	3,000	490	371
Between Redlands Avenue and Perris Boulevard	2	0	4,988	35	0.5	1.8%	0.7%	**55.6**	-	-	51	110	100	3,876	633	479
Rider Street																
Between Ramona Expressway and Bradley Road	4	0	6,988	45	0.5	1.8%	0.7%	**59.8**	-	45	97	208	100	5,430	887	671
Between Bradley Road and Evans Road	4	0	3,424	45	0.5	1.8%	0.7%	**56.7**	-	-	60	129	100	2,660	435	329
Between Evans Road and Redlands Avenue	4	0	6,327	45	0.5	1.8%	0.7%	**59.3**	-	-	90	195	100	4,916	804	607
Between Redlands Avenue and Perris Boulevard	4	0	5,292	45	0.5	1.8%	0.7%	**58.6**	-	-	80	173	100	4,112	672	508
Ramona Expressway																
South of Rider Street	4	0	20,456	45	0.5	1.8%	0.7%	**64.4**	-	92	198	426	100	15,894	2,598	1,964
Between Rider Street and Bradley Road	4	0	17,149	45	0.5	1.8%	0.7%	**63.7**	-	82	176	378	100	13,325	2,178	1,646
Between Bradley Road and Evans Road	4	0	15,966	45	0.5	1.8%	0.7%	**63.4**	-	78	167	361	100	12,406	2,028	1,533
Between Evans Road and Redlands Avenue	4	0	17,424	45	0.5	1.8%	0.7%	**63.7**	-	82	177	382	100	13,538	2,213	1,673
West of Redlands Avenue	4	0	14,391	45	0.5	1.8%	0.7%	**62.9**	-	73	156	337	100	11,182	1,828	1,382
East of Sanderson Avenue	4	0	15,294	45	0.5	1.8%	0.7%	**63.2**	-	76	163	351	100	11,883	1,942	1,468
West of Sanderson Avenue	4	0	10,152	45	0.5	1.8%	0.7%	**61.4**	-	57	124	267	100	7,888	1,289	975
Krameria Avenue																
West of Perris Boulevard	4	0	2,007	35	0.5	1.8%	0.7%	**51.8**	-	-	-	61	100	1,559	255	193
Between Perris Boulevard and Lasselle Street	4	0	4,396	35	0.5	1.8%	0.7%	**55.2**	-	-	48	103	100	3,416	558	422
East of Laselle Street	4	0	6,444	35	0.5	1.8%	0.7%	**56.8**	-	-	62	133	100	5,007	818	619
Iris Avenue																
West of Perris Boulevard	4	0	6,237	50	0.5	1.8%	0.7%	**60.4**	-	49	106	229	100	4,846	792	599
West of Perris Boulevard and Lasselle Street	4	0	9,582	50	0.5	1.8%	0.7%	**62.3**	-	66	142	305	100	7,445	1,217	920
East of Laselle Street	4	0	13,554	50	0.5	1.8%	0.7%	**63.8**	-	83	178	384	100	10,531	1,721	1,301
San Jacinto Avenue																
East of Menifee Road	2	0	995	35	0.5	1.8%	0.7%	**48.6**	-	-	-	38	100	773	126	96
West of Menifee Road	4	0	3,222	35	0.5	1.8%	0.7%	**53.8**	-	-	-	84	100	2,503	409	309
Ellis Road																
West of Menifee Road	2	0	1,036	35	0.5	1.8%	0.7%	**48.8**	-	-	-	39	100	805	132	99
Mapes Road																
East of Menifee Road	2	0	2,250	35	0.5	1.8%	0.7%	**52.2**	-	-	-	65	100	1,748	286	216
West of Menifee Road	2	0	1,611	35	0.5	1.8%	0.7%	**50.7**	-	-	-	52	100	1,252	205	155
Watson Road																
East of Menifee Road	2	0	3,834	35	0.5	1.8%	0.7%	**54.5**	-	-	43	93	100	2,979	487	368
West of Menifee Road	2	0	1,404	35	0.5	1.8%	0.7%	**50.1**	-	-	-	47	100	1,091	178	135
State Route 74																
East of Menifee Road	4	0	10,845	50	0.5	1.8%	0.7%	**62.8**	-	71	154	331	100	8,427	1,377	1,041
West of Menifee Road	4	0	11,817	50	0.5	1.8%	0.7%	**63.2**	-	76	163	351	100	9,182	1,501	1,134

Cumulative Plus Project
Alternative Land Use Plan

Lakeview Avenue																
North of Nuevo Road	2	0	3,456	45	0.5	1.8%	0.7%	**56.6**	-	-	59	128	100	2,685	439	332
Reservoir Avenue/ Menifee Road																
Between Nuevo Road and San Jacinto Avenue	2	0	10,773	35	0.5	1.8%	0.7%	**59.0**	-	40	86	184	100	8,371	1,368	1,034
Between San Jacinto Avenue and Ellis Avenue	2	0	8,523	35	0.5	1.8%	0.7%	**58.0**	-	34	73	158	100	6,622	1,082	818
Between Ellis Avenue and Mapes Road	2	0	8,167	35	0.5	1.8%	0.7%	**57.8**	-	33	71	153	100	6,346	1,037	784
Between Mapes Road and Watson Road	2	0	7,753	35	0.5	1.8%	0.7%	**57.6**	-	-	69	148	100	6,024	985	744
Between Watson Road and SR 74	2	0	7,636	35	0.5	1.8%	0.7%	**57.5**	-	-	68	147	100	5,933	970	733
South of SR 74	2	0	10,125	35	0.5	1.8%	0.7%	**58.7**	-	38	82	177	100	7,867	1,286	972
Dunlap Drive																
Between Nuevo Road and Orland Avenue	2	0	4,023	45	0.5	1.8%	0.7%	**57.3**	-	-	66	142	100	3,126	511	386
South of Nuevo Road	2	0	3,267	45	0.5	1.8%	0.7%	**56.4**	-	-	57	123	100	2,538	415	314
Bradley Road																
Between Ramona Expressway and Rider Street	2	0	1,935	35	0.5	1.8%	0.7%	**51.5**	-	-	-	59	100	1,503	246	186
South of Rider Street	2	0	531	35	0.5	1.8%	0.7%	**45.9**	-	-	-	-	100	413	67	51
Evans Road																
Between Nuevo Road and Orange Avenue	2	0	12,348	40	0.5	1.8%	0.7%	**60.9**	-	53	115	248	100	9,594	1,568	1,185
Between Orange Avenue and Rider Street	2	0	10,561	40	0.5	1.8%	0.7%	**60.2**	-	48	104	224	100	8,206	1,341	1,014
Between Rider Street and Ramona Expressway	4	0	13,504	40	0.5	1.8%	0.7%	**61.4**	-	58	124	267	100	10,493	1,715	1,296
Between Ramona Expressway and Krameria Avenue	4	0	13,513	40	0.5	1.8%	0.7%	**61.4**	-	58	124	267	100	10,500	1,716	1,297
Between Krameira Avenue and Iris Avenue	4	0	16,949	40	0.5	1.8%	0.7%	**62.4**	-	67	144	311	100	13,169	2,153	1,627
Murrieta Road																
North of Nuevo Road	2	0	1,674	25	0.5	1.8%	0.7%	**48.3**	-	-	-	36	100	1,301	213	161
South of Nuevo Road	2	0	2,268	25	0.5	1.8%	0.7%	**49.6**	-	-	-	44	100	1,762	288	218
Redlands Avenue																
South of Nuevo Road	2	0	6,129	45	0.5	1.8%	0.7%	**59.1**	-	40	87	188	100	4,762	778	588
Between Nuevo Road and Orange avenue	2	0	9,787	45	0.5	1.8%	0.7%	**61.1**	-	55	119	257	100	7,604	1,243	940
Between Orange Avenue and Placentia Avenue	2	0	8,487	45	0.5	1.8%	0.7%	**60.5**	-	50	108	233	100	6,594	1,078	815
Perris Boulevard																
North of Iris Avenue	4	0	11,322	40	0.5	1.8%	0.7%	**60.6**	-	51	110	238	100	8,797	1,438	1,087
Between Iris Avenue and Krameria Avenue	4	0	13,536	40	0.5	1.8%	0.7%	**61.4**	-	58	124	268	100	10,517	1,719	1,299
Between Krameria Avenue and San Michele Road	4	0	13,140	40	0.5	1.8%	0.7%	**61.3**	-	57	122	262	100	10,210	1,669	1,261
Between Ramona Expressway and Morgan Street	4	0	11,380	40	0.5	1.8%	0.7%	**60.7**	-	51	111	238	100	8,842	1,445	1,092
Between Placentia Avenue and Rider Street	4	0	12,613	40	0.5	1.8%	0.7%	**61.1**	-	55	119	255	100	9,800	1,602	1,211
Between Placentia Avenue and Orange Avenue	4	0	15,845	40	0.5	1.8%	0.7%	**62.1**	-	64	138	297	100	12,312	2,012	1,521
Between Orange Avenue and Nuevo Road	4	0	16,732	40	0.5	1.8%	0.7%	**62.3**	-	66	143	308	100	13,001	2,125	1,606
Indian Avenue																
South of Placentia Avenue	2	0	4,500	35	0.5	1.8%	0.7%	**55.2**	-	-	48	103	100	3,497	572	432
Between Placentia Avenue and Ramona Expressway	2	0	4,254	35	0.5	1.8%	0.7%	**54.9**	-	-	46	99	100	3,305	540	408

Cumulative Plus Project
Alternative Land Use Plan

Webster Avenue																
South of Ramona Expressway	2	0	1,098	35	0.5	1.8%	0.7%	**49.1**	-	-	-	40	100	853	139	105
Between Ramona Expressway and Harley Knox Avenue	2	0	6,966	35	0.5	1.8%	0.7%	**57.1**	-	-	64	138	100	5,413	885	669
I-215																
North of Ramona Expressway	6	0	10,836	64	0.5	1.8%	0.7%	**65.7**	-	112	241	519	100	8,420	1,376	1,040
Between Ramona Expressway and Placentia Avenue	6	0	9,714	64	0.5	1.8%	0.7%	**65.3**	-	104	224	483	100	7,548	1,234	933
Between Placentia Avenue and Nuevo Road	6	0	6,734	64	0.5	1.8%	0.7%	**63.7**	-	81	175	378	100	5,232	855	646
South of Nuevo Road	6	0	8,973	64	0.5	1.8%	0.7%	**64.9**	-	99	212	458	100	6,972	1,140	861

ATTACHMENT D

SoundPLAN Outputs – Onsite Project Noise

SoundPLAN
Output Source Information

1	At the end of Walnut Avenue and adjacent to schools.	Ground Floor	39.4 dBA
2	At the end of the cul-de-sac at Hawthorne Road.	Ground Floor	39.3 dBA
3	At the corner of Nuevo Road and Menifee Road.	Ground Floor	42.0 dBA
4	Adjacent to Lakeside Middle School.	Ground Floor	38.9 dBA
5	West of the Project site in the McCanna Hills Land Use Plan area.	Ground Floor	52.6 dBA
6	West of the Project site in the McCanna Hills Land Use Plan area.	Ground Floor	54.5 dBA
7	West of the Project site in the McCanna Hills Land Use Plan area.	Ground Floor	50.4 dBA
8	West of the Project site in the McCanna Hills Land Use Plan area.	Ground Floor	50.9 dBA

Number	Noise Source Information	Citation	Level at Source
1	Truck Loading Dock	City of San Jose 2014 Midpoint at 237 Loading Dock Noise Study	79.0 dBA
2	Parking Lot Activity	Reference measurement taken by ECORP Consulting at a parking lot with a grocery store and multiple restaurants.	61.1 dBA
2	Internal Circulation	FHWA Highway Noise Prediction Model	84.2 dBA