

503 WEST MISSION COMMERCIAL PROJECT NOISE IMPACT ANALYSIS

City of Escondido
February 22, 2024
Revised June 17, 2024



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

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Project No. 19703

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EXECUTIVE SUMMARY

The 1.5-acre (net) project site is located at 503 West Mission Avenue, situated at the southwest corner of the intersection of Mission Avenue and Centre City Parkway, in the City of Escondido, California. The project site is currently occupied with a sit-down restaurant, unpaved parking, and a pool for the adjacent hotel (Quality Inn).

The proposed project involves demolition of the existing restaurant and redevelopment of the site with three new commercial/food service uses totaling 6,110 square feet, including one 1,460 square foot coffee shop with drive through window, one 2,300 square foot fast food restaurant with drive through window (pick up only – no drive through ordering), and one 2,350 square foot fast food restaurant with drive through window. Project site access is proposed via one existing driveway at Mission Avenue and one new driveway at Centre City Parkway. The proposed project is anticipated to be constructed and fully operational by year 2025.

Existing Noise Environment

Sensitive receptors that may be affected by project generated noise include the existing motel use located adjacent to the west and the multi-family residential uses located adjacent to the south and approximately 165 feet southeast of the project site boundaries. Other land uses in the project vicinity include commercial (an auto repair) adjacent to the site on the west, commercial land uses to the east (including a car wash), and restaurant and commercial land uses to the northwest. There is also a private school located approximately 315 feet east of the project site.

Measured short-term ambient noise levels in the project vicinity ranged between 60.5 and 75.9 dBA L_{eq} . The dominant noise source was vehicle traffic associated with Centre City Parkway, Mission Avenue, Quince Street, and other surrounding roadways as well as noise associated with a car wash (i.e., dryers and music).

Project Construction Impacts – Onsite Equipment

Construction noise sources are regulated within the City of Escondido Municipal Code Section 17-234, which prohibits construction activities except on Monday through Friday between the hours of 7:00 AM and 6:00 PM and on Saturdays between the hours of 9:00 AM and 5:00 PM, construction activities are not permitted on Sundays and on days designated by the president, governor, or city council as public holidays. In addition, no construction equipment or combination of equipment, shall be operated so as to cause noise in excess of a one-hour average sound level limit of seventy-five (75) dB at any time, unless a variance has been obtained in advance from the city manager.

Modeled construction noise levels with Best Management Practices (BMPs) implemented (as described in the project description provided in Section 1 of this report) are expected to reach up to 74.7 dBA L_{eq} at the nearest commercial property line to the west, 75 dBA L_{eq} at the nearest hotel property line to the west, 63.2 dBA L_{eq} at the nearest residential property line to the south, 61.2 dBA L_{eq} at the nearest residential property line to the southeast, 62.2 dBA L_{eq} at the nearest school property line to the east, 64.8 dBA L_{eq} at the nearest property line of the Super Star Car Wash Express commercial use to the east, 67 dBA L_{eq} at the nearest property line of the Banfield Pet Hospital/Yoshinoya Restaurant commercial use to the east, 69 dBA L_{eq} at the nearest property line of the Habit Burger commercial use to the east, 66.4 dBA L_{eq} at the nearest commercial property line to the northeast, and 71.9 dBA L_{eq} at the nearest commercial property line to the north of the project site.

Project construction will not occur outside of the hours outlined as “exempt” in City of Escondido Municipal Code Section 7-234 and will not exceed the City’s 75 dBA L_{eq} noise standard. Impacts would be less than significant, and no mitigation is required.

Project Construction Impacts – Offsite Vehicle Trips

Construction truck trips would occur throughout the construction period. Given the project site's proximity to State Route 78 and Interstate 15 Freeway, it is anticipated that vendor and/or haul truck traffic would take the most direct route to the appropriate freeway ramps.

According to the FHWA, the traffic volumes need to be doubled in order to increase noise levels by 3 dBA CNEL.¹ The estimated existing weekday average daily trips along Centre City Parkway range between 15,200 to 24,200 and the estimated existing weekday average daily trips along Mission Avenue range between 10,600 and 18,000 average daily vehicle trips.² As shown in the CalEEMod output files provided in the Air Quality, Global Climate Change, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, 2024) the greatest number of construction-related vehicle trips per day would be during grading at up to 40 vehicle trips per day (7.5 for worker trips and 32.5 for vendor trips). Therefore, the addition of project vendor/haul trucks and worker vehicles per day along off-site roadway segments would not be anticipated to result in a doubling of traffic volumes. Off-site project generated construction vehicle trips would result in a negligible noise level increase and would not result in a substantial increase in ambient noise levels in light of the City's exterior incremental environmental noise impact standards for noise sensitive uses. Impacts would be less than significant. No mitigation measures are required.

Operational Noise Impacts – Offsite Vehicle Trips

During operation, the proposed project is expected to generate approximately 1,740 weekday net average daily trips with 135 trips during the AM peak-hour, 121 trips during the mid-day peak hour, and 122 trips during the PM peak-hour and 2,051 Saturday net average daily trips with 128 trips during the mid-day peak hour. Modeled existing traffic noise level noise levels range between 66-77 dBA CNEL at the right-of-way; and the modeled Existing Plus Project traffic noise levels range between 66-77 dBA CNEL at the right-of-way of each modeled roadway segment. Project generated vehicle traffic is anticipated to increase the noise by up to approximately 0.5 dBA CNEL and will not result in a substantial increase in ambient noise levels in light of the City's exterior incremental environmental noise impact standards for noise sensitive uses. This impact would be less than significant. No mitigation is required.

Operational Noise Impacts – Onsite Sources

Sensitive receptors that may be affected by project generated noise include the existing motel use located adjacent to the west and the multi-family residential uses located adjacent to the south and approximately 165 feet southeast of the project site boundaries. Other land uses in the project vicinity include commercial (an auto repair) adjacent to the site on the west, commercial land uses to the east (including a car wash), and restaurant and commercial land uses to the northwest. There is also a private school located approximately 315 feet east of the project site.

Ambient noise levels were conducted to establish existing noise levels in the vicinity of these land uses. Subsequently, the SoundPLAN noise model was used to model operational noise (discussed in Section 4 of this report). Existing measured noise levels near receptors that may be affected by project noise, range between and 61 and 76 dBA L_{eq} ; and project generated noise is expected to range between 42 and 55 dBA L_{eq} . Project operation will not result in more than a one-decibel increase at any offsite location. Project generated noise would not cause a violation of the daytime standard of (55 dBA L_{eq}) or the nighttime noise standard (50 dBA L_{eq}) at multiple family residential land uses located to the south, west and southeast of the project site; or cause an exceedance of the stationary noise standard (60 dBA L_{eq}) at nearby commercial land uses. Furthermore, project operation would not noticeably increase ambient noise levels in light of the City's

¹ Federal Highway Administration, Highway Noise Prediction Model, December 1978.

² The existing average daily traffic volumes were obtained from the In-N-Out & Coffee Bean (Mission/Centre City) Transportation Impact Analysis (TIA), Ganddini Group, Inc. (October 26, 2022).

exterior incremental environmental noise impact standards for noise sensitive uses. This impact would be less than significant. No mitigation is required.

Groundborne Vibration Impacts – Architectural Damage

The nearest off-site structures include the motel use to the west, with associated structures located as close as approximately 30 feet from the project's western property line, the commercial uses to the west, northwest, north, northeast, and east of the project site, with structures located between 50 to 300 feet from the nearest project property lines, and the multi-family residential uses to the south and southeast, with structures located as close as approximately 175 feet to the southeast and 62 feet to the south of the project's southern property line. Temporary vibration levels associated with project construction would not exceed the threshold at which there is a risk to "architectural" damage of 0.2 PPV in/sec or higher at residential structures and/or a PPV of 0.3 in/sec or higher at commercial structures. The project does not propose any non-construction related sources of ground-borne vibration. Temporary vibration levels associated with project construction would be less than significant. No mitigation is required.

Groundborne Vibration Impacts - Annoyance

The FTA identifies a level of 80 VdB as the level in which vibration becomes strongly perceptible to sensitive receptors. Due to distance, temporary vibration levels associated with project construction would not cause annoyance to receptors in the project vicinity. Furthermore, any potential annoyance would be short-term and will occur only during site grading, preparation, and paving which will be limited to daytime hours. Impacts are less than significant.

Air Traffic Impacts

The closest airports to the project site are the Ramona Airport, with associated airport runways located as close as approximately 11.4 miles southeast of the project site, and the McClellan-Palomar Airport, with associated airport runways located as close as approximately 10.4 miles to the northwest of the project site. As stated in the City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan Environmental Impact Report (EIR) (April 2012), the project site is not located within the 60 dBA CNEL noise contour of either the Ramona Airport or the McClellan-Palomar Airport. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels. There is no impact, and no mitigation is required.

1. INTRODUCTION

This section describes the purpose of this study and the proposed project.

PURPOSE AND OBJECTIVES

The purpose of this report is to provide an assessment of the noise impacts resulting from development of the proposed 503 West Mission Commercial project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state and local policies, including those of the City of Escondido, in the context of the California Environmental Quality Act (CEQA).

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise analysis.

PROJECT LOCATION

The 1.5-acre (net) project site is located at 503 West Mission Avenue, situated at the southwest corner of the intersection of Mission Avenue and Centre City Parkway, in the City of Escondido, California. The project site is currently occupied with a sit-down restaurant, unpaved parking, and a pool for the adjacent hotel (Quality Inn). A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The proposed project involves demolition of the existing restaurant and redevelopment of the site with three new commercial/food service uses totaling 6,110 square feet, including one 1,460 square foot coffee shop with drive through window, one 2,300 square foot fast food restaurant with drive through window (pick up only – no drive through ordering), and one 2,350 square foot fast food restaurant with drive through window. Project site access is proposed via one existing driveway at Mission Avenue and one new driveway at Centre City Parkway. The proposed project is anticipated to be constructed and fully operational by year 2025. Figure 2 illustrates the project site plan.

The following Best Management Practices (BMPs) are part of the proposed project and will be included on the project plans and any other related contract specifications:

1. Construction equipment will be required to follow the following measures during each specified construction phase:
 - Demolition:
 - Install mufflers on all rubber-tired dozers and tractors/loaders/backhoes (and any similar equipment) that will result in a reduction of at least 6 dB per piece of equipment.
 - Utilize enclosures or acoustic tents for all concrete/industrial saws that will result in a reduction of at least 6 dB per piece of equipment.
 - Site Preparation:
 - Install mufflers on all graders, rubber-tired dozers, and tractors/loaders/backhoes (and any similar equipment) that will result in a reduction of at least 6 dB per piece of equipment.

- Grading:
 - Install mufflers on all rubber-tired dozers, excavators, and tractors/loaders/backhoes (and any similar equipment) that will result in a reduction of at least 9 dB per piece of equipment.
 - Building Construction:
 - Install mufflers on all cranes and tractors/loaders/backhoes (and any similar equipment) that will result in a reduction of at least 8 dB per piece of equipment.
 - Utilize enclosures or acoustic tents for all generator sets that will result in a reduction of at least 8 dB per piece of equipment.
 - Paving:
 - Install mufflers on all pavers, rollers, and tractors/loaders/backhoes (and any similar equipment) that will result in a reduction of at least 4 dB per piece of equipment.
 - Utilize either mufflers and/or enclosures or acoustic tents (as applicable) for all paving equipment and cement and mortar mixers that will result in a reduction of at least 4 dB per piece of equipment.
2. All stationary construction equipment will be placed so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
 3. As applicable, all equipment shall be shut off when not in use.
 4. To the degree possible, equipment staging will be located in areas that create the greatest distance between construction-related noise and vibration sources and existing sensitive receptors.
 5. Jackhammers, pneumatic equipment, and all other portable stationary noise sources will be directed away and shielded from existing residences in the vicinity of the project site. Either one-inch plywood or sound blankets can be utilized for this purpose. They should reach up from the ground and block the line of sight between equipment and existing residences. The shielding should be without holes and cracks.
 6. No amplified music and/or voice will be allowed on the project site.
 7. Haul truck deliveries will not occur outside of the hours presented as exempt for construction per City of Escondido Municipal Code Section 7-234.

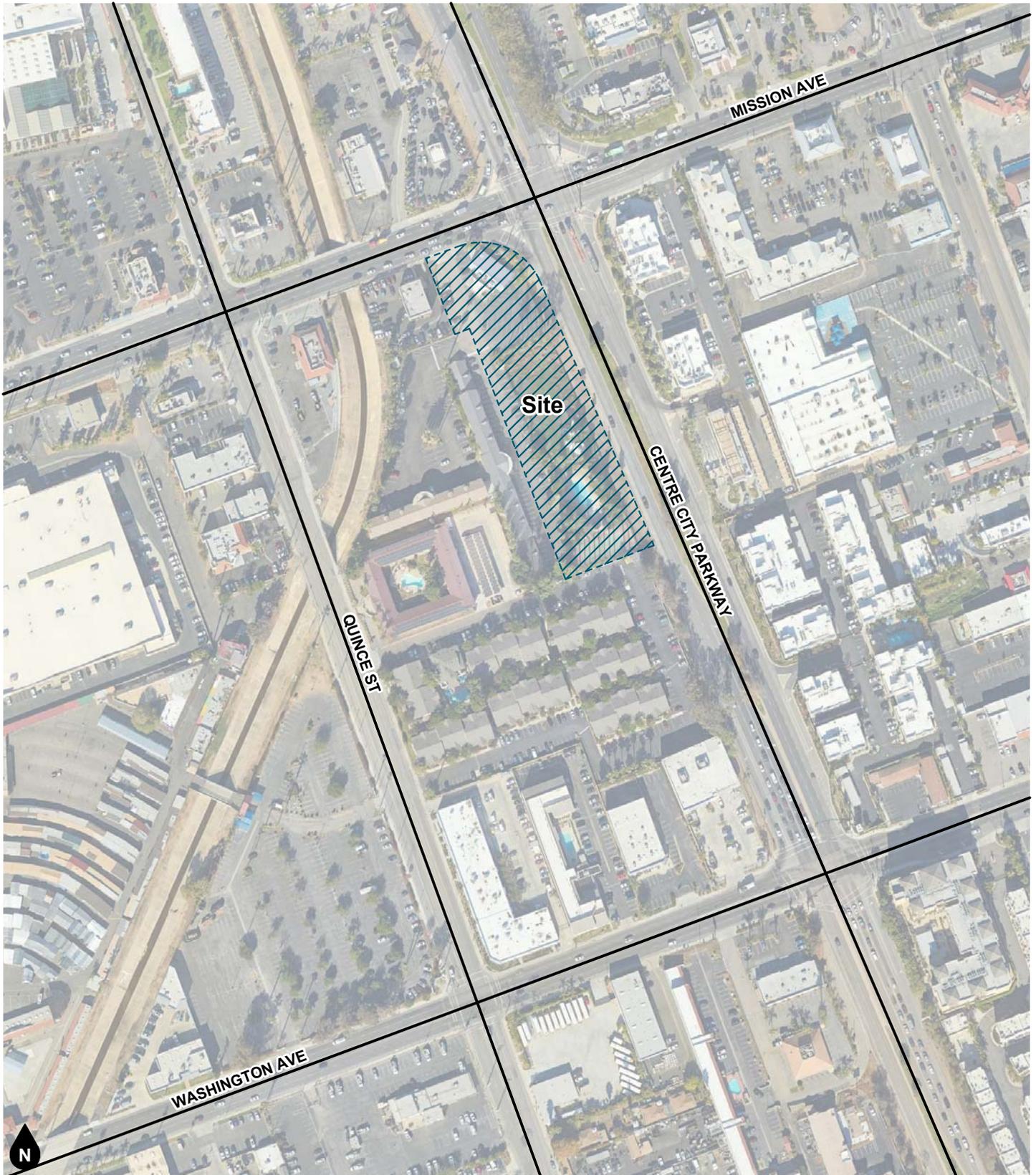


Figure 1
Project Location Map

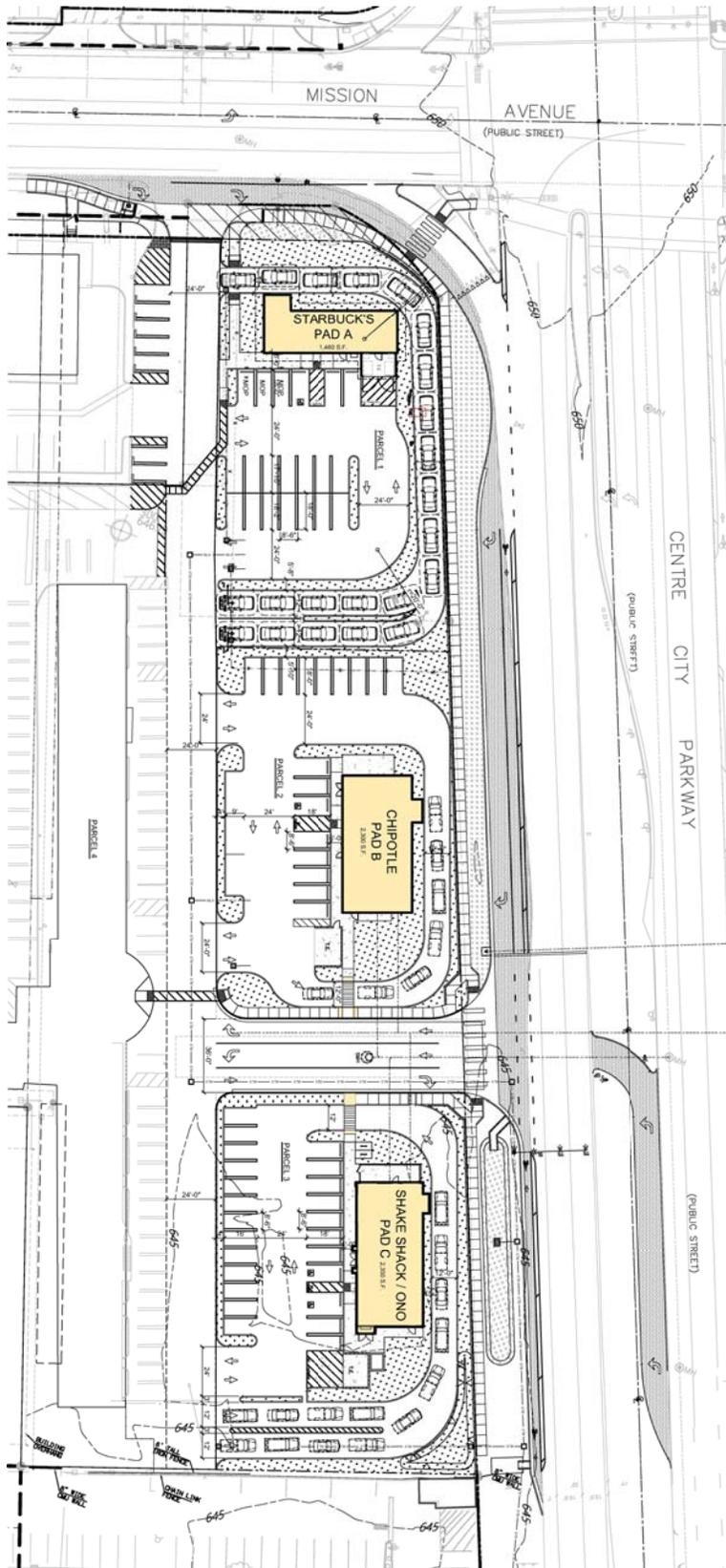


Figure 2
Site Plan

2. NOISE AND VIBRATION FUNDAMENTALS

This section provides an overview of key noise and vibration concepts.

NOISE FUNDAMENTALS

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects, and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease. Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq} , or the equivalent noise level for that period of time. For example, $L_{eq(3-hr)}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (DNL). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. DNL is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation’s Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

VIBRATION FUNDAMENTALS

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which

waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration decibels (VdB), ref one micro-inch per second. The Federal Railroad Administration uses the abbreviation "VdB" for vibration decibels to reduce the potential for confusion with sound decibel.

PPV is appropriate for evaluating the potential of building damage and VdB is commonly used to evaluate human response. Decibel notation acts to compress the range of numbers required in measuring vibration. Similar to the noise descriptors, L_{eq} and L_{max} can be used to describe the average vibration and the maximum vibration level observed during a single vibration measurement interval. Figure 4 illustrates common vibration sources and the human and structural responses to ground-borne vibration. As shown in the figure, the threshold of perception for human response is approximately 65 VdB; however, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. Vibration tolerance limits for sensitive instruments such as magnetic resonance imaging (MRI) or electron microscopes could be much lower than the human vibration perception threshold.

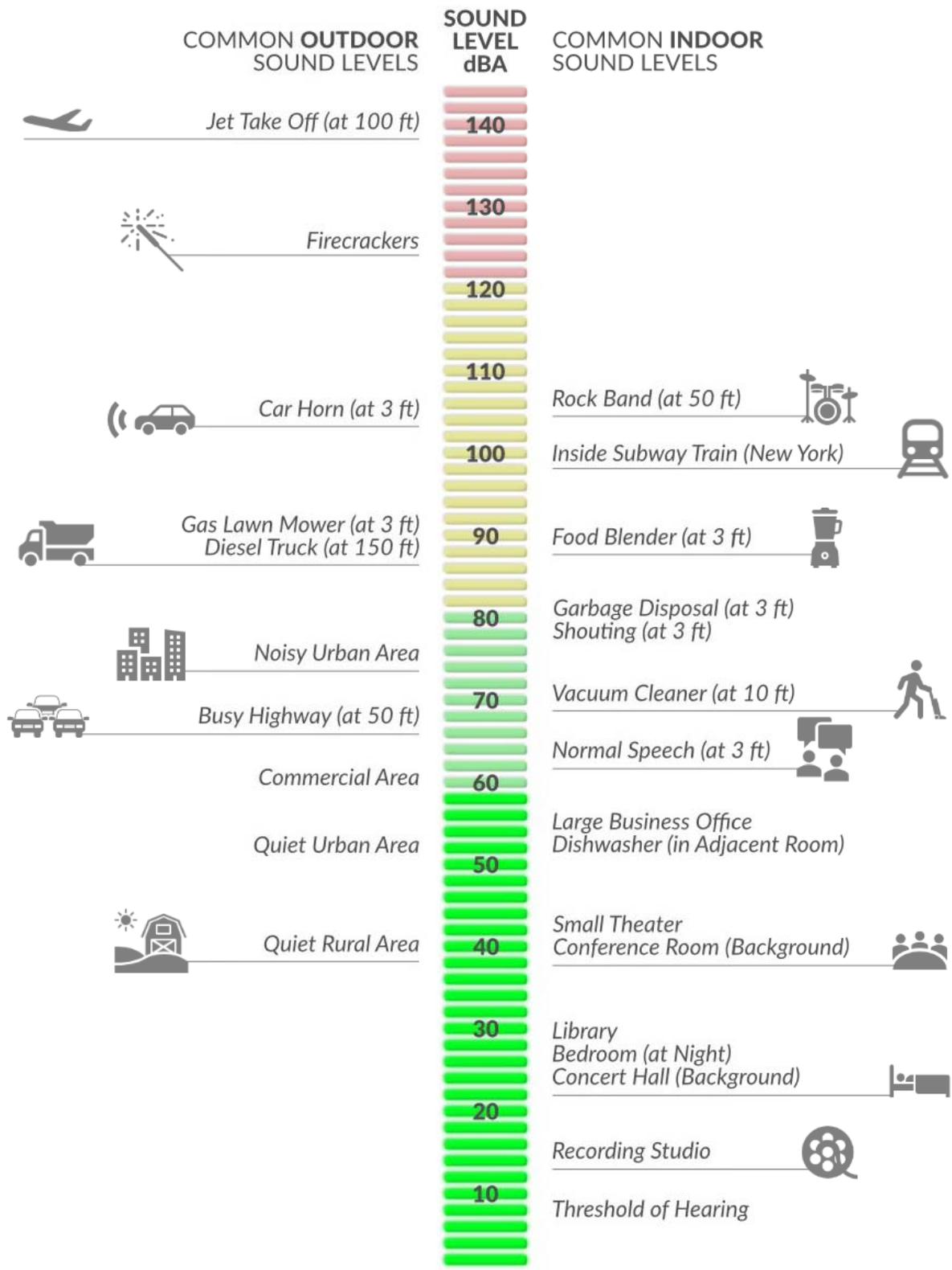


Figure 3
A-Weighted Comparative Sound Levels

© Ganddini Group, Inc.
Based on Policy & Guidance from Federal Aviation Administration

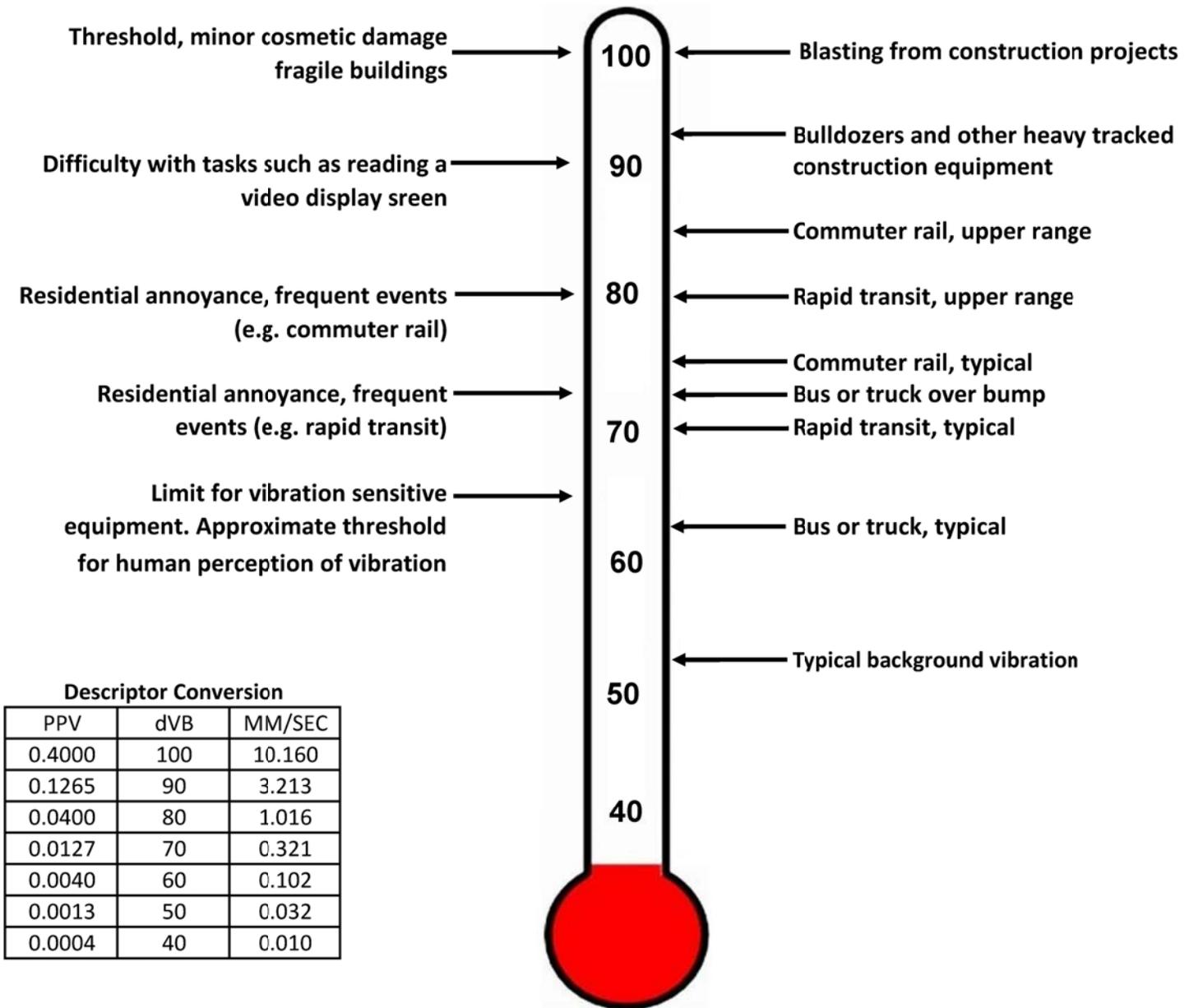


Figure 4
Typical Levels of Groundborne Vibration

Source: FRA, 2012. Federal Railroad Administration High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Policy Development, Washington, D.C. DOT/FRA/ORD-12/15. September.

3. EXISTING NOISE ENVIRONMENT

This section describes the existing noise setting in the project vicinity.

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by City Centre Parkway to the east, multi-family residential uses to the south, transient lodging and commercial use to the west, and Mission Avenue to the north of the project site.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas.

Sensitive receptors that may be affected by project generated noise include the existing motel use located adjacent to the west and the multi-family residential uses located adjacent to the south and approximately 165 feet southeast of the project site boundaries. Other land uses in the project vicinity include commercial (an auto repair) adjacent to the site on the west, commercial land uses to the east (including a car wash), and restaurant and commercial land uses to the northwest. There is also a private school located approximately 315 feet east of the project site.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, six (6) 15-minute daytime noise measurements were taken between 1:50 PM and 4:30 PM on October 25, 2022. Field worksheets and noise measurement output data are included in Appendix C.

As shown in Figure 5, the noise meter was placed at the following locations:

- NM1: represents the existing noise environment of the hotel use located to the west of the boundaries of the project site (Quality Inn Escondido Downtown, 501 Mission Avenue, Escondido). The noise meter was placed within the hotel parking lot just west of the western project site boundary and associated hotel pool.
- NM2: represents the existing noise environment of the multi-family residential uses to the south of the boundaries of the project site (Village Grove Apartments, 660 N Quince Street, Escondido). The noise meter was placed just south of the project site near the northern boundary of the multi-family residential uses.
- NM3: represents the existing noise environment of the multi-family residential uses located just east of Centre City Parkway and southeast of the boundaries of the project site (Alcove 650 Centre City Parkway, Escondido). The noise meter was placed near the northwest corner of the multi-family residential use and just east of Centre City Parkway.
- NM4: represents the existing noise environment of the commercial uses along the eastern side of Centre City Parkway as well as the school use to the east of the project site boundaries (700 Centre City Parkway, Escondido and Epiphany Prep Charter School, 725 N Escondido Boulevard, Escondido). The noise meter was placed near the western side of the school use just east of the commercial uses along Centre City Parkway.

- NM5: represents the existing noise environment of the commercial uses located at the southeastern corner of the intersection of Centre City Parkway and Mission Avenue (720 Centre City Parkway, Escondido). The noise meter was just east of Centre City Parkway and west of the drive-through associated with the commercial use.
- NM6: represents the existing noise environment of the commercial auto repair shop use to the west of the project site (Ben's Auto Repair, 515 Mission Avenue, Escondido). The noise meter was placed in the northern portion of the project site just east of Ben's Auto Repair and northeast of the Quality Inn Escondido Downtown.

Table 1 provides a summary of the short-term ambient noise data. Ambient noise levels were measured between 60.5 and 75.9 dBA L_{eq} . The dominant noise source was vehicle traffic associated with Centre City Parkway, Mission Avenue, Quince Street, and other surrounding roadways as well as noise associated with a car wash (i.e., dryers and music).

Table 1
Short-Term Noise Measurement Summary (dBA)

Daytime Measurements ^{1,2}								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	1:50 PM	60.5	72.4	50.9	64.8	62.7	61.6	60.2
NM2	2:27 PM	61.8	69.0	51.8	65.1	64.0	63.0	62.1
NM3	3:00 PM	71.3	87.5	55.2	76.9	74.8	72.5	68.5
NM4	3:22 PM	75.9	78.9	63.7	78.5	78.1	77.4	76.3
NM5	3:48 PM	69.3	84.4	56.1	76.6	73.8	69.6	65.2
NM6	4:15 PM	63.0	78.1	55.3	72.1	65.4	62.2	60.0

Notes:

- (1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.
- (2) Noise measurements performed on October 25, 2022.



Legend
 ⊕ Noise Measurement Location
 NM 1

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

FEDERAL REGULATION

Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

Federal Transit Administration (FTA)

Ground-borne noise refers to the noise generated by ground-borne vibration. Ground-borne noise that accompanies the building vibration is usually perceptible only inside buildings and typically is only an issue at locations with subway or tunnel operations where there is no airborne noise path or for buildings with substantial sound insulation such as a recording studio.¹ As such, available guidelines from the Federal Transit Administration (FTA) are utilized to assess impacts due to ground-borne vibration. The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. As shown in Table 2, the threshold at which there is a risk to "architectural" damage to reinforced concrete, steel, or timber (no plaster) buildings is a peak particle velocity (PPV) of 0.5, at engineered concrete and masonry (no plaster) buildings a PPV of 0.3, at non-engineered timber and masonry buildings a PPV of 0.2 and at buildings extremely susceptible to vibration damage a PPV of 0.1.

The FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories:

- (1) Vibration Category 1 – High Sensitivity,
- (2) Vibration Category 2 – Residential, and
- (3) Vibration Category 3 – Institutional.

¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2018, pp 108, 112.

The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. The vibration criteria associated with human annoyance for these three land-use categories are shown in Table 3. Table 3 shows that 80 VdB is the threshold for annoyance from groundborne vibration at sensitive receptors.

Therefore, impacts related to building damage would be significant if construction activities result in groundborne vibration of 0.2 PPV or higher at residential structures and/or a PPV of 0.3 or higher at commercial structures. Impacts related to human annoyance would be significant if they result in groundborne vibration levels that exceed 80 VdB at sensitive receptor locations.

STATE REGULATIONS

State of California General Plan Guidelines 2017

Though not adopted by law, the State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provides guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses.

The OPR Guidelines include a Noise and Land Use Compatibility Matrix which identifies acceptable and unacceptable community noise exposure limits for various land use categories. Where the "normally acceptable" range is used, it is defined as the highest noise level that should be considered for the construction of the buildings which do not incorporate any special acoustical treatment or noise mitigation. The "conditionally acceptable" or "normally unacceptable" ranges include conditions calling for detailed acoustical study prior to the construction or operation of the proposed project. The City has adopted their own version of these guidelines in the Community Protection Element of the City's General Plan.

LOCAL REGULATIONS

City of Escondido General Plan

The City's General Plan Community Protection Element establishes noise and land use compatibility standards and outlines goals and policies to achieve these standards. Table 4 summarizes the land use compatibility standards. The Community Protection Element (page VI-23) also includes standards for projects that could significantly alter existing noise levels. It states that "noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response based on a significant increase in existing noise levels. For example, if an area is currently below the maximum normally acceptable noise level, an increase in noise up to the maximum allowable level should not necessarily be allowed. Projects increasing noise levels by 5 dB or greater should be considered as generating a significant impact and should require mitigation." Table 5 summarizes the exterior incremental environmental noise impact standards for noise-sensitive uses.

The goals and policies from the City of Escondido General Plan Community Protection Element that are applicable to the proposed project are present below:

- Goal 5** Protection of the community from excessive noise exposure.
- Policy 5.1* Require development to meet acceptable exterior noise level standards as established in Table 4 and use the future noise contour map (Figure VI-17 of the City's General Plan) as a guide for evaluating the compatibility of new noise sensitive uses with projected noise levels. Noise shall be controlled at the source where possible.
- Policy 5.2* Apply a CNEL of 60 dB or less for single family and 65 dB or less for multi-family as goals where outdoor use is a major consideration (back yards and single-family housing developments, and recreation areas in multifamily housing developments) as discussed in Figure VI-13 of the City's General Plan and recognize that such levels may not necessarily be achievable in all residential areas.
- Policy 5.5* Require construction projects and new development to ensure acceptable vibration levels at nearby noise-sensitive uses based on Federal Transit Administrator criteria.
- Policy 5.6* Require the preparation of noise studies, as deemed necessary by the Planning Department, to analyze potential noise impacts associated with new development which could significantly alter existing noise levels in accordance with provisions outlined in Figure VI-14 of the City's General Plan.
- Policy 5.7* Encourage use of site and building design, noise barriers, and construction methods as outlined in Figure VI-15 of the City's General Plan to minimize impacts on and from new development.
- Policy 5.10* Require development projects that are subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.
- Policy 5.11* Limit direct access from individual properties along Major Roads and Prime Arterials in residential areas in order to minimize gaps in noise barrier sound walls.

City of Escondido Municipal Code

The City addresses noise in Article 12 Noise Abatement and Control of its Municipal Code. These ordinances are summarized below.

Section 17-229. Sound level limits.

- a) Unless a variance has been applied for and granted pursuant to this article, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth in the Table 6, except that construction noise level limits shall be governed by Section 17-234 of this article.
- b) Maximum Permissible Sound Levels by Receiving Land Use.
 - 1) The noise standards for the various categories of land use as presented in subsection (a) of this section shall, unless otherwise specifically indicated, apply to each property or portion of property substantially used for a particular type of land use reasonably similar to the land use types shown in subsection (a) of this section. Where two (2) or more dissimilar land uses occur on a single property, the more restrictive noise limits shall apply.

- 2) Additional land use classifications may be added by action of the city council to reflect both lower and higher existing ambient levels than those shown.
- 3) Where doubt exists when making identification of receiving land use, the city manager shall make an interpretation.
- 4) No person shall operate or cause to be operated, any source of sound at any location within the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level to exceed the environmental and/or nuisance interpretation of the applicable limits given in subsection (a) of this section.
- 5) Environmental noise shall be measured by the equivalent sound level (L_{eq}) for such hours as are specified; Nuisance noise shall be measured as a sound level not to be exceeded at any time; Sound levels by receiving land use shall be measured at the boundary or at any point within the boundary of the property affected; Fixed location public utility distribution or fixed transmission facilities, located on or adjacent to a property line shall be subject to noise level limits of this section measured at or beyond six (6) feet from the boundary of the easement upon which the equipment is located.

c) Corrections to Exterior Noise Level Limits.

- 1) If the noise is continuous, the L_{eq} for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.
- 2) If the noise is intermittent, the L_{eq} for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than fifteen (15) minutes is, however, strongly recommended when dealing with intermittent noise.
- 3) In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech, or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 17-229 shall be reduced by ten (10) dB or to the ambient noise level when such noises are not occurring.
- 4) If the measured ambient level exceeds that permissible in subsection (a) of this section, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.
- 5) The sound level limit at a location on a boundary between two (2) land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including but not limited to borrow pits and mines, shall be seventy-five (75) decibels (dB) at the property line regardless of the zone where the extractive industry is actually located. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six (6) feet from the boundary of the easement upon which the equipment is located.

Section 17-232. Refuse vehicles and parking lot sweepers.

No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle or parking lot sweeper between the hours of ten (10) PM to six (6) AM in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this article.

Section 17-234. Construction equipment.

Except for emergency work, it shall be unlawful for any person, including the City of Escondido, to operate construction equipment as follows:

- a) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of seven 7:00 AM and 6:00 PM and on Saturdays between the hours of 9:00 AM and 5:00 PM, and provided that the operation of such construction equipment complies with the requirements of subsection (d) of this section.
- b) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the president, governor, or city council as public holidays.
- c) A person may operate construction equipment at his/her residence or for the purpose of constructing or modifying a residence for himself/herself on Monday through Friday of a week between the hours of 7:00 AM and 6:00 PM, and on Saturdays, Sundays, and holidays between the hours of 9:00 AM and 5:00 PM; provided, that such operation of construction equipment is not carried on for profit or livelihood and complies with the requirements of subsection (d) of this section.
- d) No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of seventy-five (75) dB at any time, unless a variance has been obtained in advance from the city manager.
- e) Persons engaged in construction for profit or as a business shall post signs at conspicuous places on a construction site, indicating hours of work as prescribed by this article or authorized by permit and the applicable noise level limits.

Section 17-237. Landscape equipment.

It shall be unlawful for any person, including the City of Escondido to use any motorized landscape equipment, including but not limited to power blowers and vacuums, which causes a disturbing, excessive, or offensive noise as defined under section 17-227 (k) of this article.

Section 17-238. Grading.

- a) It shall be unlawful for any person, including the City of Escondido, to do any authorized grading at any construction site, except on Mondays through Fridays during a week between the hours of 7:00 AM and 6:00 PM and, provided a variance has been obtained in advance from the city manager, on Saturdays from 10:00 AM to 5:00 PM.
- b) For the purpose of this section, “grading” shall include but not be limited to compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling, and blasting.
- c) In addition, any equipment used for grading shall not be operated so as to cause noise in excess of a one-hour sound level limit of seventy-five (75) dB at any time when measured at or within the property lines of any property which is developed and used in whole or in part for residential purposes, unless a variance has been obtained in advance from the city manager.

Section 17-240. General noise regulations.

- a) General Prohibitions. In the absence of objective measurement by use of a sound level meter, it additionally shall be unlawful for any person to make, continue or cause to be made or continued, within the limits of said city, any disturbing, excessive, or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity.

The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists, include, but are not limited to, the following:

- 6) Schools, Courts, Churches, Hospitals. The creation of any *noise* on any street, sidewalk or public place adjacent to any school, institution of learning (except recreational areas of schools), church, court, library or other *noise*-sensitive zone, while the same are in use, or

adjacent to a hospital, rest home, or long-term medical or mental care facility which *noise* interferes with the workings of such institution or which disturbs or annoys patients in the hospital, rest home, or long-term medical or mental care facility, provided conspicuous signs are displayed in such streets, sidewalks or public places indicating the presence of a school, institution of learning, church, court, library, rest home, long-term medical or mental care facility, or other *noise*-sensitive zones, is prohibited.

- 9) Loading, Unloading Vehicles—Opening, Destroying Bales, Boxes. The creation of a loud and excessive *noise* in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers is a violation of this article.

- 12) Pile Drivers, Pneumatic Hammers, etc. No person shall operate between the hours of 6:00 PM and 7:00 AM on weekdays, or on Saturdays, Sundays or any legal holidays, any pile driver, pneumatic hammer, derrick, or other similar appliance, the use of which is attended by loud or unusual *noise*, unless a variance has been obtained in advance from the city manager.

**Table 2
Construction Vibration Damage Criteria**

Building/Structural Category	PPV, in/sec	Approximate Lv*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.1	90

Notes:

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

*RMS velocity in decibels, VdB re 1 micro-in/sec

Table 3
Ground-Borne Vibration (GBV) Impact Criteria for General Vibration Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB*	65 VdB*	65 VdB*
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

*This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical

**Table 4
Land Use Noise Exposure Levels**

Land Use Category	Community Noise Exposure					
	Ldn or CNEL, dBA					
	55	60	65	70	75	80
Residential-Single Family, Duplex, Mobile Home	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Multi-Family, Residential Mixed Use	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Transient Lodging, Motels, Hotels	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Sports Arena, Outdoor Spectator Sports	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Playgrounds, Parks	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Office Buildings, Businesses, Commercial and Professional	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Industrial, Manufacturing, Utilities, Agriculture	Normally Acceptable	Normally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable

Source: City of Escondido General Plan Communit Protection Element Figure VI-12 (May 2012).

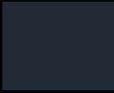
-  Normally Acceptable: Specified land use is satisfactory based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation or requirements.
-  Conditionally Acceptable: New construction or development should be undertaken only after a detailed 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 and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.
-  Clearly Unacceptable: New construction or development should generally not be undertaken.

Table 5
Exterior Incremental Environmental Noise Impact Standards
for Noise-Sensitive Uses (dBA)

Residences and Buildings Where People Normally Sleep ¹		Institutional Land Uses with Primarily Daytime and Evening Uses ²	
Existing Ldn	Allowable Noise Increment	Existing Peak Hour Leq	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Source: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006

Notes: Noise Levels are measured at the property line of the noise sensitive use.

- 1) This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
- 2) This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

**Table 6
City of Escondido Sound Level Limits**

Zone	Time	Applicable Limit One-hour Average Sound Level (Decibels)
Residential Zones	7:00 AM to 10:00 PM	50
	10:00 PM to 7:00 AM	45
Multi-Residential Zones	7:00 AM to 10:00 PM; 10:00 PM to 7:00 AM	55, 50
Commercial Zones	7:00 AM to 10:00 PM	60
	10:00 PM to 7:00 AM	55
Light Industrial/ Industrial Park Zones	Anytime	70*
General Industrial Zones	Anytime	75*

Notes:

(1) Source: City of Escondido Municipal Code Section 17-229.

*Subject to provisions of Ection 17-229(c)(5)

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

This section discusses the analysis methodologies used to assess noise impacts.

CONSTRUCTION NOISE MODELING

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

Construction noise associated with the proposed project was calculated at the sensitive receptor locations utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters, including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site.

The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the CalEEMod modeling in the Air Quality, Global Climate Change, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, Inc., 2024). For analysis purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the project site to the property line of residential properties with existing residential buildings. Sound emission levels associated with typical construction equipment as well as typical usage factors are provided in Table 7. Construction noise worksheets are provided in Appendix D.

SOUNDPLAN NOISE MODEL

The SoundPLAN acoustical modeling software was utilized to model project operational worst-case stationary noise impacts from the proposed project to adjacent sensitive uses (e.g., residences). SoundPLAN is capable of evaluating stationary noise sources (e.g., parking lots, heating, and ventilation systems (HVAC) drive-thru menus, car wash equipment, vacuums, etc.). The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. In addition to the information provided below, noise modeling input and outputs assumptions are provided in Appendix E.

Peak hour operational noise levels were modeled utilizing representative sound levels in the SoundPLAN model. Modeled noise sources include parking lot noise, speaker noise, exterior eating area/conversation noise and HVAC equipment noise. All noise sources were modeled to be in full operation for an entire hour. This is a conservative modeling effort, given that in actuality, several of the noise sources are not in operation continuously for an entire hour.

Parking Lot Noise

Parking lot noise was calculated using SoundPLAN methodology. Specifically, the traffic volume of the parking lot is entered with the number of moves per parking, the hour, and the number of parking bays. The user defines whether the parking lots are for automobiles, motorcycles, or trucks, and the emission level of a parking lot is automatically adjusted accordingly. The values for the number of parking moves for each time slice is the number of parking moves per reference unit (most often per parking bay), averaged for the hour².

SoundPLAN utilizes parking lot noise emission levels from the 6th revised edition of the parking lot study "Recommendations for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus

² SoundPLAN Essential 4.0 Manual. SoundPLAN International, LLC. May 2016.

Stations as well as of Multi-Story Car Parks and Underground Car Parks” published by the Bavarian Landesamt für Umwelt provides calculation methods to determine the emissions of parking lots.

The parking lot emission table documents the reference level (Lw, ref) from the parking lot study.

$$Lw, \text{ ref} = Lw0 + KPA + KI + KD + KStrO + 10 \log(B) \text{ [dB(A)]}$$

With the following parameters:

Lw0 = Basic sound power, sound power level of one motion / per hour on P+R areas = 63 dB(A)

KPA = Surcharge parking lot type

KI = Surcharge for impulse character

KD = Surcharge for the traffic passing and searching for parking bays in the driving lanes $2,5 * \lg(f * B - 9)$

f = Parking bays per unit of the reference value

B = Reference value

KStrO = Surcharge for the road surface

B = Reference value

Mechanical Equipment (HVAC Units) Noise

A noise reference level of 67.7 dBA at 3 feet (sound power level of 78.7 dB) was utilized to represent rooftop 5 Ton Carrier HVAC units³. A rooftop HVAC plan is not available at the time of this analysis so the exact location and number of units per building were estimated. A total of 6 rooftop units were modeled on the proposed rooftops.

Drive-Thru Speakers and Queuing Line

The drive-thru speakers were modeled as point sources and a SoundPLAN noise reference level to represent loud human voices of 77 dBA (sound power level) was utilized.

A queuing line associated with vehicles waiting in line to order food at the proposed drive-thru was modeled utilizing a line noise source with a sound power level of 50 every square meter.

Outdoor Eating Area

The outdoor eating areas proposed at the project site were modeled by utilizing SoundPLAN noise reference level for a human voice (conversation) at 65 dBA.

MOBILE SOURCE NOISE MODELING

Noise from vehicular traffic (Existing, Existing Plus Project, and Future) was modeled using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Key model parameters and REMEL adjustments are presented below:

- Roadway classification (e.g., freeway, major arterial, arterial, secondary, collector, etc.);
- Roadway active width (distance between the center of the outer most travel lanes on each side of the roadway);
- Average Daily Traffic (ADT) Volumes, Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks;
- Roadway grade and angle of view;

³ MD Acoustics, LLC Noise Measurement Data for RTU –Carrier 50TFQ0006.

- Site conditions (e.g., soft vs. hard); and
- Percentage of total ADT which flows each hour throughout a 24-hour period.

Traffic noise levels were calculated at the right-of-way based on distance from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the modeled noise levels are shown for comparative purposes only to show the difference between with and without project conditions. Traffic noise calculation worksheets are included in Appendix F.

Existing and Existing Plus Project Traffic Noise Levels

Project generated vehicle traffic is expected to utilize Centre City Parkway and Mission Avenue to access the project site. Existing average daily vehicle trips and trip distribution provided in the In-N-Out & Coffee Bean (Mission/Centre City) Transportation Impact Analysis (TIA), Ganddini Group, Inc. (February 21, 2023) and project average daily vehicle trips and trip distribution provided in the 503 West Mission Commercial Project Transportation Impact Comparison (Transportation Impact Comparison), Ganddini Group, Inc. (February 12, 2024) were utilized in the analysis. Per the Transportation Impact Comparison prepared for the proposed project, the project is anticipated to generate 1,740 net new daily weekday trips and 2,051 net new daily Saturday trips. Therefore, to provide a conservative analysis and as the project generates more daily trips on Saturdays, the Saturday volumes were analyzed in the analysis. Table 8 includes the modeled roadway segments as well as the average daily traffic volumes, posted speed limits, and vehicle mix utilized in this analysis.

GROUNDBORNE VIBRATION MODELING

Groundborne vibration modeling was performed using vibration propagation equations and construction equipment source levels obtained from the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018). Table 9 shows typical vibration levels associated with commonly used construction equipment based on data from the FTA.

There are several types of construction equipment that can cause vibration levels high enough to annoy people in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 9, a vibratory roller could generate up to 0.21 in/sec PPV at and operation of a large bulldozer could generate up to 0.089 PPV at a distance of 25 feet (two of the most vibratory pieces of construction equipment). Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as the vibratory roller moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.0026 in/sec PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment. Groundborne vibration calculations are provided in Appendix G.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (25/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 25ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.5$ (the value related to the attenuation rate through ground)

Table 7 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift ^{2,3}	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90

Table 7 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

- (1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.
- (2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
<http://www.noisetesting.info/blog/carl-strautins/page-3/>
- (3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

**Table 8
Project Average Daily Traffic Volumes and Roadway Parameters**

Roadway	Segment	Average Daily Traffic Volume ¹		Posted Travel Speeds (MPH)	Site Conditions
		Existing Saturday	Existing Plus Project Saturday		
Rock Spring Road	North of Mission Avenue	8,690	8,790	35	Soft
	Mission Avenue to Washington Avenue	7,730	7,830	35	Soft
Quince Street	Mission Avenue to Washington Avenue	5,870	6,030	35	Soft
Centre City Parkway	North of Mission Avenue	24,200	24,840	50	Soft
	Mission Avenue to Project Site	16,800	18,180	45	Soft
	Project Site to Washington Avenue	17,300	19,390	45	Soft
	South of Washington Avenue	15,160	15,370	45	Soft
Escondido Boulevard	North of Mission Avenue	8,380	8,480	35	Soft
Broadway	North of Lincoln Parkway	13,860	13,960	35	Soft
	Lincoln Parkway to Mission Avenue	16,900	17,210	35	Soft
	Mission Avenue to Washington Avenue	15,250	15,350	35	Soft
Lincoln Parkway	East of Broadway	21,700	21,910	40	Soft
Mission Avenue	West of Rock Spring Road	10,630	10,840	40	Soft
	Rock Spring Road to Quince Street	14,470	14,680	40	Soft
	Quince Street to Project Site	17,990	18,400	40	Soft
	Project Site to Centre City Parkway	18,160	18,720	40	Soft
	Centre City Parkway to Escondido Boulevard	16,830	17,600	40	Soft
	Escondido Boulevard to Broadway	12,360	12,980	40	Soft
	East of Broadway	11,620	11,830	40	Soft
Washington Avenue	West of Rock Spring Road	9,460	9,670	40	Soft
	Rock Spring Road to Quince Street	11,180	11,570	40	Soft
	Quince Street to Centre City Parkway	12,220	12,480	35	Soft
	Centre City Parkway to Escondido Boulevard	14,300	14,890	35	Soft

Vehicle Distribution (Light Mix) ²			
Motor-Vehicle Type	Daytime % (7 AM-7 PM)	Evening % (7 PM-10 PM)	Night % (10 PM-7 AM)
Automobiles	75.56	13.96	10.49
Medium Trucks	48.91	2.17	48.91
Heavy Trucks	47.30	5.41	47.30

Notes:

(1) Existing Saturday average daily traffic volumes obtained from the In-N-Out & Coffee Bean (Mission/Centre City) Transportation Impact Analysis (TIA), Ganddini Group, Inc. (February 21, 2023). Project average Saturday daily traffic volumes obtained from the 503 West Mission Commercial Project Transportation Impact Comparison, Ganddini Group, Inc. (February 12, 2024). As since the project has more average daily trips on Saturday than weekdays, the Saturday volumes were utilized for a worst-case analysis.

(2) Existing and project vehicle percentages are based on the Riverside County Industrial Hygiene Letter for Traffic Noise.

**Table 9
Construction Equipment Vibration Source Levels**

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment Manual, 2018.

*RMS velocity in decibels, VdB re 1 micro-in/sec

6. NOISE AND VIBRATION IMPACTS

This section analyzes the significance of project-related noise and groundborne vibration impacts relative to standards established by the City of Escondido and other applicable agencies in the context of CEQA. Appendix G of the California Environmental Quality Act Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) includes an environmental checklist that identifies issues upon which findings of significance should be made. The CEQA Environmental Checklist Appendix G, XIII. Noise, requires determination if the project would result in:

- a) *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?*
- b) *Generation of excessive groundborne vibration or groundborne noise levels?*
- c) *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 area to excessive noise levels?*

NOISE IMPACTS

Would the project result in:

- a) *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?*

Finding: Less Than Significant

In relation to the Environmental Checklist noise issue “a”, applicable standards established by the City of Escondido can be categorized into the following areas:

- Construction Noise
- Operational Noise

Project Construction

On-Site Equipment

Construction noise sources are regulated within the City of Escondido Municipal Code Section 17-234, which prohibits construction activities except on Monday through Friday between the hours of 7:00 AM and 6:00 PM and on Saturdays between the hours of 9:00 AM and 5:00 PM, construction activities are not permitted on Sundays and on days designated by the president, governor, or city council as public holidays. In addition, no construction equipment or combination of equipment, shall be operated so as to cause noise in excess of a one-hour average sound level limit of seventy-five (75) dB at any time, unless a variance has been obtained in advance from the city manager.

Construction activities will occur in phases including demolition, site preparation, grading, building construction, paving, and architectural coating. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. Construction activities are anticipated to begin no sooner than November 2024, with completion estimated by June 2025.

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

The existing motel property line located adjacent to the west and the multi-family residential property lines located adjacent to the south, and approximately 165 feet southeast of the project site boundaries may be affected by short-term noise impacts associated with construction noise. Other land uses in the project vicinity include commercial (an auto repair) adjacent to the site on the west, commercial land uses to the east (including a car wash), and restaurant and commercial land uses to the northwest. There is also a private school located approximately 315 feet east of the project site.

Construction noise associated with the proposed project was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the proposed construction activity. Construction noise levels were calculated for each phase. Anticipated noise levels during each construction phase with and without project BMPs are presented in Table 10. Worksheets for each phase are included as Appendix D.

Modeled construction noise levels with Best Management Practices (BMPs) implemented (as described in the project description provided in Section 1 of this report) are expected to reach up to 74.7 dBA L_{eq} at the nearest commercial property line to the west, 75 dBA L_{eq} at the nearest hotel property line to the west, 63.2 dBA L_{eq} at the nearest residential property line to the south, 61.2 dBA L_{eq} at the nearest residential property line to the southeast, 62.2 dBA L_{eq} at the nearest school property line to the east, 64.8 dBA L_{eq} at the nearest property line of the Super Star Car Wash Express commercial use to the east, 67 dBA L_{eq} at the nearest property line of the Banfield Pet Hospital/Yoshinoya Restaurant commercial use to the east, 69 dBA L_{eq} at the nearest property line of the Habit Burger commercial use to the east, 66.4 dBA L_{eq} at the nearest commercial property line to the northeast, and 71.9 dBA L_{eq} at the nearest commercial property line to the north of the project site.

Project construction will not occur outside of the hours outlined as “exempt” in City of Escondido Municipal Code Section 7-234 and will not exceed the City’s 75 dBA L_{eq} noise standard. Impacts related to construction activities would be less than significant and no mitigation is required.

Off-Site Vehicle Trips

Construction truck trips would occur throughout the construction period. Given the project site’s proximity to State Route 78 and Interstate 15 Freeway, it is anticipated that vendor and/or haul truck traffic would take the most direct route to the appropriate freeway ramps.

According to the FHWA, the traffic volumes need to be doubled in order to increase noise levels by 3 dBA CNEL.⁴ The estimated existing weekday average daily trips along Centre City Parkway range between 15,200 to 24,200 and the estimated existing weekday average daily trips along Mission Avenue range between 10,600 and 18,000 average daily vehicle trips.⁵ As shown in the CalEEMod output files provided in the Air Quality, Global Climate Change, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, 2024) the greatest number of construction-related vehicle trips per day would be during grading at up to 40 vehicle trips per day (7.5 for worker trips and 32.5 for vendor trips). Therefore, the addition of project vendor/haul trucks and worker vehicles per day along off-site roadway segments would not be anticipated to result in a doubling of traffic volumes. Off-site project generated construction vehicle trips would result in a negligible noise level increase and would not result in a substantial increase in ambient

⁴ Federal Highway Administration, Highway Noise Prediction Model, December 1978.

⁵ The existing average daily traffic volumes were obtained from the In-N-Out & Coffee Bean (Mission/Centre City) Transportation Impact Analysis (TIA), Ganddini Group, Inc. (October 26, 2022).

noise levels in light of the applicable thresholds presented in Table 5. Impacts would be less than significant. No mitigation measures are required.

Project Operational Noise

Onsite Noise Sources

Article 12 Section 17-229. *Sound level limits*, sets forth noise level limits for noise generated on one property to another. These land use-based noise level limits are shown in Table 5, Table 6 except that construction noise level limits shall be governed by Section 17-234 of Article 12.

Unless a variance has been applied for and granted pursuant to this article, it is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth in the

Sensitive receptors that may be affected by project generated noise include the existing motel use located adjacent to the west and the multi-family residential uses located adjacent to the south and approximately 165 feet southeast of the project site boundaries. Other land uses in the project vicinity include commercial (an auto repair) adjacent to the site on the west, commercial land uses to the east (including a car wash), and restaurant and commercial land uses to the northwest. There is also a private school located approximately 315 feet east of the project site.

Ambient noise levels were conducted to establish existing noise levels in the vicinity of these land uses. Subsequently, the SoundPLAN noise model was used to model operational noise (discussed in Section 4 of this report). SoundPLAN modeling results are shown on Figure 6 and Figure 7 and in Table 11. As shown in Table 11, existing measured noise levels near receptors that may be affected by project noise range between and 61 and 76 dBA L_{eq} ; and project generated noise is expected to range between 42 and 55 dBA L_{eq} . Project operation will not result in more than a one-decibel increase at any offsite location. Project generated noise would not cause a violation of the daytime standard of (55 dBA L_{eq}) or the nighttime noise standard (50 dBA L_{eq}) at multiple family residential land uses located to the south, west and southeast of the project site; or cause an exceedance of the stationary noise standard (60 dBA L_{eq}) at nearby commercial land uses. Furthermore, project operation would not noticeably increase ambient noise levels and will not result in a significant incremental increase in ambient noise levels per the applicable standards presented in Table 5. This impact would be less than significant. No mitigation is required.

Offsite Operational Noise Sources

During operation, the proposed project is expected to generate approximately 1,740 weekday net average daily trips with 128 trips during the AM peak-hour, 128 trips during the mid-day peak hour, and 128 trips during the PM peak-hour and 2,051 Saturday net average daily trips with 128 trips during the mid-day peak hour. Existing and Existing Plus Project generated traffic noise levels were modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated at the right of way from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. Roadway input parameters including Saturday average daily traffic volumes (ADTs), speeds, and vehicle distribution data is shown in Table 12. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions and is demonstrated in Table 12.

Existing Year (With Project): This scenario refers to existing year plus project traffic noise conditions and is demonstrated in Table 12.

As shown in Table 12, modeled Existing traffic noise levels range between 66 to 77 dBA CNEL at the right-of-way; and the modeled Existing Plus Project traffic noise levels range between 66 to 77 dBA CNEL at the right-of-way.

As stated in the City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan Environmental Impact Report (EIR) (April 2012), the City considers an increase in noise levels of 5 dB or greater as generating a significant impact.

As shown in Table 12, project generated vehicle traffic would result in increases of up to 0.5 dBA CNEL along affected roadway segments. Project generated operational vehicle traffic will not result in substantial increases in ambient noise levels in light of the applicable standards presented in Table 5. This impact would be less than significant. No mitigation is required.

GROUNDBORNE VIBRATION IMPACTS

Would the project result in:

b) *Generation of excessive groundborne vibration or groundborne noise levels?*

Finding: Less Than Significant

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 9, a vibratory roller could generate up to 0.21 PPV at a distance of 25 feet; and operation of a large bulldozer (0.089 PPV) at a distance of 25 feet (two of the most vibratory pieces of construction equipment). Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as the vibratory roller moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.0026 PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (100/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 100ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.1$ (the value related to the attenuation rate through ground)

Architectural Damage

Vibration generated by construction activity generally has the potential to damage structures. This damage could be structural damage, such as cracking of floor slabs, foundations, columns, beams, or walls, or cosmetic architectural damage, such as cracked plaster, stucco, or tile. (California Department of Transportation, 2020)

Table 2 identifies the threshold at which there is a risk to “architectural” damage to reinforced-concrete, steel, or timber (no plaster) buildings as a peak particle velocity (PPV) of 0.5, at engineered concrete and masonry (no plaster) buildings as a PPV of 0.3, at non-engineered timber and masonry buildings as a PPV of 0.2 and at buildings extremely susceptible to vibration damage as a PPV of 0.1. Therefore, impacts would be

significant if construction activities result in groundborne vibration of 0.2 PPV or higher at residential structures and/or a PPV of 0.3 or higher at commercial structures.

The nearest off-site structures include the motel use to the west, with associated structures located as close as approximately 30 feet from the project's western property line, the commercial uses to the west, northwest, north, northeast, and east of the project site, with structures located between 50 to 300 feet from the nearest project property lines, and the multi-family residential uses to the south and southeast, with structures located as close as approximately 175 feet to the southeast and 62 feet to the south of the project's southern property line. As stated by the project applicant, construction of the proposed project will not utilize any heavy vibration inducing construction equipment, such as vibratory rollers and large bulldozers. Therefore, construction-related project vibration was estimated with the use of a small bulldozer. As shown in Table 13, temporary vibration levels associated with project construction would not exceed the threshold at which there is a risk to "architectural" damage of 0.2 PPV in/sec or higher at residential structures and/or a PPV of 0.3 in/sec or higher at commercial structures. The project does not propose any non-construction related sources of ground-borne vibration.

Temporary vibration levels associated with project construction would be less than significant. No mitigation is required. Vibration worksheets are provided in Appendix G.

Annoyance to Persons

The primary effect of perceptible vibration is often a concern. However, secondary effects, such as the rattling of a china cabinet, can also occur, even when vibration levels are well below perception. Any effect (primary perceptible vibration, secondary effects, or a combination of the two) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping, or reading will be more sensitive than someone who is running on a treadmill. Reoccurring primary and secondary vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential. (California Department of Transportation, 2020)

As shown in Table 3, vibration becomes strongly perceptible to sensitive receptors at a level of 80 VdB⁶. A small bulldozer could generate 80 VdB at a distance of approximately 5 feet from the source.

The closest vibration-sensitive receptors include the motel use to the west, with associated structures located as close as approximately 30 feet from the project's western property line, and the multi-family residential uses to the south and southeast, with structures located as close as approximately 175 feet to the southeast and 62 feet to the south of the project's southern property line. Therefore, as shown in Table 13, due to distance, project construction would not cause annoyance to nearby receptors.

The next closest building to the west and the closest buildings to the northwest, north, northeast, and east west of the project site are those of commercial uses, which are not considered to be vibration-sensitive land uses. The FTA adopted standards associated with human annoyance for groundborne vibration impacts for three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as

⁶ The City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan Environmental Impact Report (EIR) (April 2012) states that the FTA thresholds for infrequent events, defined as fewer than 30 vibration events of the same kind per day, are applicable to construction and mining operations. These thresholds are 65 VdB at vibration-sensitive land uses and 80 VdB at residences and buildings where people normally sleep.

schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. Therefore, as commercial uses are not considered a vibration-sensitive land use, no further analysis in regard to annoyance is necessary to the commercial structures surrounding the project site.

Furthermore, any potential annoyance is expected to be short-term, occurring only during site grading, preparation, and paving. Impacts from vibration related annoyance would be less than significant. Vibration worksheets are provided in Appendix G.

AIR TRAFFIC IMPACTS

Would the project result in:

- c) 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 area to excessive noise levels?*

Finding: No Impact

The closest airports to the project site are the Ramona Airport, with associated airport runways located as close as approximately 11.4 miles southeast of the project site, and the McClellan-Palomar Airport, with associated airport runways located as close as approximately 10.4 miles to the northwest of the project site. As stated in the City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan Environmental Impact Report (EIR) (April 2012), the project site is not located within the 60 dBA CNEL noise contour of either the Ramona Airport or the McClellan-Palomar Airport. Therefore, the proposed project would not expose people residing or working in the area to excessive noise levels. There is no impact, and no mitigation is required.

Table 10 (1 of 3)
Construction Noise Levels (dBA Leq)

Receptor Location	Representative Noise Measurement ¹	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq) ²	Exceeds 75 dBA Leq (Yes/No)	Construction Noise Levels with BMPs (dBA Leq) ³	Exceeds 75 dBA Leq (Yes/No)
Phase: Demolition						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	80.7	Yes	74.7	No
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	77.9	Yes	71.9	No
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	66.5	No	60.5	No
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	65.8	No	59.8	No
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	68.2	No	62.2	No
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	68.7	No	62.7	No
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	73	No	67	No
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	75	No	69	No
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	72.4	No	66.4	No
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	77.9	Yes	71.9	No
Phase: Site Preparation						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	72.5	No	66.5	No
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	80.5	Yes	74.5	No
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	68.8	No	62.8	No
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	66.8	No	60.8	No
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	67.0	No	61	No
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	70.4	No	64.4	No
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	72.0	No	66	No
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	71.5	No	65.5	No
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	64.9	No	58.9	No
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	66.6	No	60.6	No

Table 10 (2 of 3)
Construction Noise Levels (dBA Leq)

Receptor Location	Representative Noise Measurement ¹	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq) ²	Exceeds 75 dBA Leq (Yes/No)	Construction Noise Levels with BMPs (dBA Leq) ³	Exceeds 75 dBA Leq (Yes/No)
Phase: Grading						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	71.9	No	66.1	No
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	81.4	Yes	74.9	No
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	69.6	No	63.2	No
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	67.7	No	61.2	No
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	67.9	No	61.4	No
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	71.3	No	64.8	No
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	72.8	No	66.3	No
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	72.3	No	65.8	No
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	65.7	No	59.2	No
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	67.5	No	61.0	No
Phase: Building Construction						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	73.1	No	66.8	No
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	81.2	Yes	74.9	No
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	69.4	No	63.1	No
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	67.4	No	61.1	No
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	67.6	No	61.3	No
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	71.0	No	64.7	No
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	72.6	No	66.3	No
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	72.1	No	65.8	No
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	65.5	No	59.2	No
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	67.2	No	60.9	No

Table 10 (3 of 3)
Construction Noise Levels (dBA Leq)

Receptor Location	Representative Noise Measurement ¹	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq) ²	Exceeds 75 dBA Leq (Yes/No)	Construction Noise Levels with BMPs (dBA Leq) ³	Exceeds 75 dBA Leq (Yes/No)
Phase: Paving						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	70.9	No	66.9	No
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	79.0	Yes	75.0	No
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	67.2	No	63.2	No
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	65.2	No	61.2	No
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	65.5	No	61.5	No
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	68.8	No	64.8	No
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	70.4	No	66.4	No
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	69.9	No	65.9	No
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	63.3	No	59.3	No
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	65.0	No	61.0	No
Phase: Architectural Coating						
Commercial use to the west (Ben's Auto Repair, 515 Mission Ave)	NM6	63.0	61.9	No	-	-
Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Ave)	NM1	60.5	69.9	No	-	-
Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince St)	NM2	61.8	58.2	No	-	-
Multi-family residential uses to the southeast (Alcove, 650 Centre City Pkwy)	NM3	71.3	56.2	No	-	-
School use to the east (Epiphany Prep Charter School, 725 N Escondido Blvd)	NM4	75.9	56.4	No	-	-
Commercial use to the east (Super Star Car Wash Express, 680 City Centre Pkwy)	NM3	71.3	59.8	No	-	-
Commercial use to the east (Banfield Pet Hospital/Restaurant Building, 700 City Centre Pkwy)	NM5	69.3	61.4	No	-	-
Commercial use to the east (The Habit Burger, 720 City Centre Pkwy)	NM5	69.3	60.8	No	-	-
Commercial use to the northeast (McDonald's, 340 W Mission Ave)	NM6	63.0	54.2	No	-	-
Commercial use to the north (Karz Plus, 506 W Mission Ave)	NM6	63.0	56.0	No	-	-

Notes:

- (1) Per measured existing ambient noise levels. See Figure 5 for noise measurement locations.
- (2) Construction noise worksheets are provided in Appendix D.
- (3) The noise level reductions provided in the best management practices (bmps) are that of the minimal reduction required to achieve the noise standard.

Table 11
On-Site Operational Noise (dBA Leq)

dBA, Leq				
Site Location	Measured Noise Level	Project Operational Noise	Combined Existing and Project Noise	Increase Due to Project
NM1	61	53	62	1
NM2	62	51	62	0
NM3	71	43	71	0
NM4	76	42	76	0
NM5	69	46	69	0
NM6	63	55	64	1

Notes:

(1) See Figure 5 for noise measurement locations and Figure 6 for Modeled Operational Noise Levels. Each noise measurement was performed over a 15-minute duration.

Table 12
Increase in Existing Noise Levels Along Roadways as a Result of Project (dBA CNEL)

Roadway	Segment	Distance from roadway centerline to right-of-way (feet) ²	Modeled Noise Levels (dBA CNEL) ¹				
			Existing Saturday Without Project at right-of-way	Existing Saturday Plus Project at right-of-way	Change in Noise Level	Exceeds Standards ³	Increase of 5 dB or More?
Rock Spring Rd	North of Mission Ave	40	67.25	67.30	0.05	Yes	No
	Mission Ave to Washington Ave	40	66.74	66.80	0.06	Yes	No
Quince St	Mission Ave to Washington Ave	40	65.55	65.66	0.11	Yes	No
Centre City Pkwy	North of Mission Ave	51	77.35	77.47	0.12	Yes	No
	Mission Ave to Project Site	51	75.07	75.42	0.35	Yes	No
	Project Site to Washington Ave	51	75.20	75.70	0.50	Yes	No
	South of Washington Ave	51	74.63	74.69	0.06	Yes	No
Escondido Blvd	North of Mission Ave	40	67.09	67.15	0.06	Yes	No
Broadway	North of Lincoln Pkwy	51	72.71	72.74	0.03	Yes	No
	Lincoln Pkwy to Mission Ave	51	73.57	73.65	0.08	Yes	No
	Mission Ave to Washington Ave	51	73.12	73.15	0.03	Yes	No
Lincoln Parkway	East of Broadway	63	74.53	74.57	0.04	Yes	No
Mission Ave	West of Rock Spring Rd	51	72.35	72.43	0.08	Yes	No
	Rock Spring Rd to Quince St	51	73.69	73.75	0.06	Yes	No
	Quince St to Project Site	51	74.63	74.73	0.10	Yes	No
	Project Site to Centre City Pkwy	51	74.67	74.81	0.14	Yes	No
	Centre City Pkwy to Escondido Blvd	51	74.34	74.54	0.20	Yes	No
	Escondido Blvd to Broadway	51	73.00	73.22	0.22	Yes	No
	East of Broadway	51	72.73	72.81	0.08	Yes	No
Washington Ave	West of Rock Spring Rd	40	68.83	68.93	0.10	Yes	No
	Rock Spring Rd to Quince St	40	69.56	69.71	0.15	Yes	No
	Quince St to Centre City Pkwy	40	68.73	68.82	0.09	Yes	No
	Centre City Pkwy to Escondido Blvd	40	69.41	69.59	0.18	Yes	No

Notes:

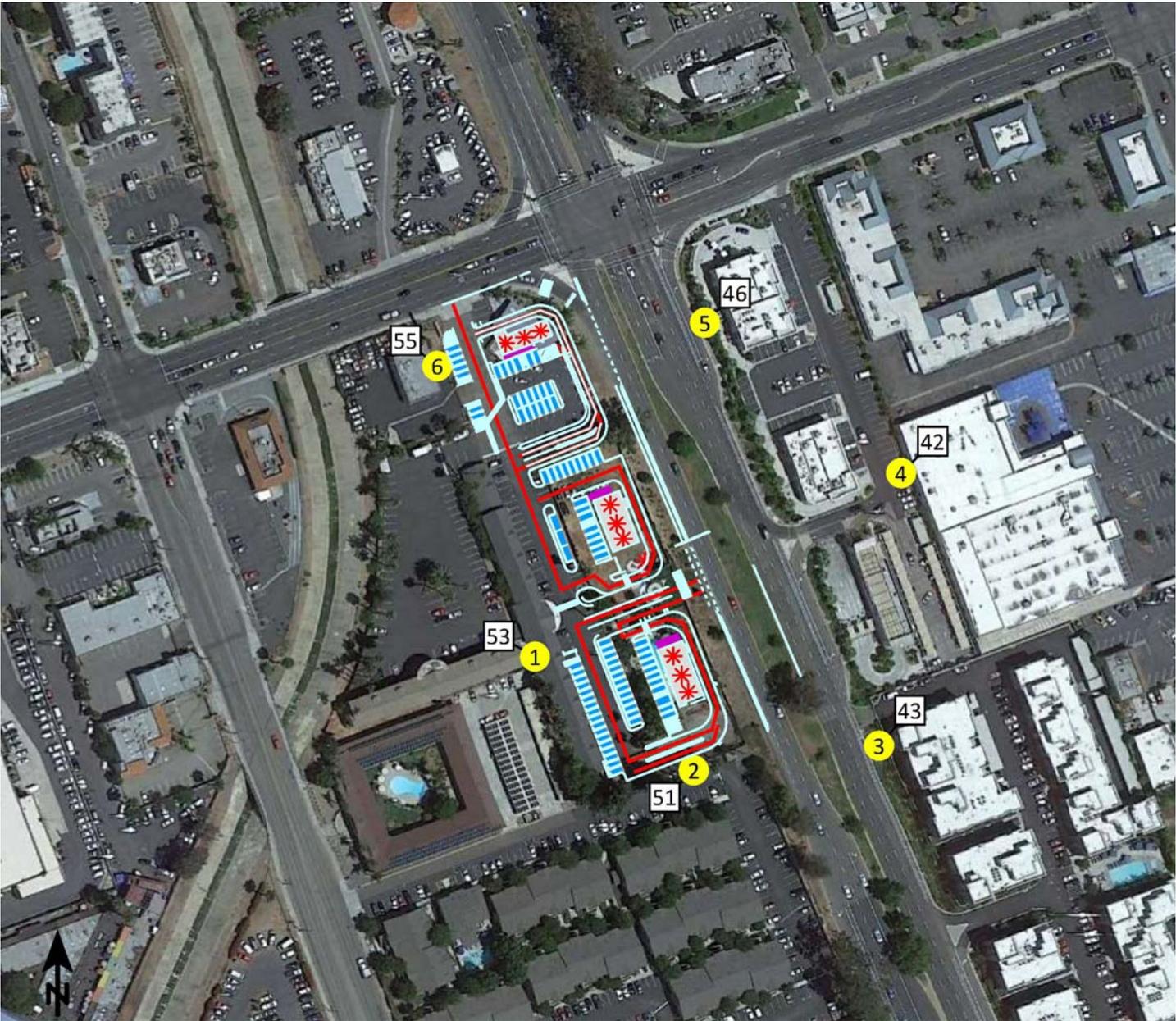
- (1) Exterior noise levels calculated 5 feet above pad elevation, perpendicular to subject roadway.
- (2) Right of way per the City of Escondido General Plan Mobility and Infrastructure Element.
- (3) Per the City of Escondido normally acceptable standard for single-family detached residential dwelling units of 60 dBA CNEL (see Table 5).

Table 13
Construction Vibration Levels at the Nearest Receptors

Receptor Location	Distance from Property Line to Nearest Structure (feet)	Equipment	Vibration Level ¹	Threshold Exceeded? ²
<i>Architectural Damage Analysis in (PPV)</i>				
Motel to West (Quality Inn Escondido Downtown, 501 W Missions Ave)	30	Small Bulldozer	0.002	No
Commercial to West (Ben's Auto Repair, 515 W Missions Ave)	50	Small Bulldozer	0.001	No
Commercial to Northwest (Denny's, 510 W Missions Ave)	158	Small Bulldozer	0.000	No
Commercial to North (Karz Plus, 506 W Missions Ave)	155	Small Bulldozer	0.000	No
Commercial to Northeast (McDonald's, 340 W Missions Ave)	300	Small Bulldozer	0.000	No
Commercial to East (The Habit Burger, 720 Centre City Parkway)	176	Small Bulldozer	0.000	No
Commercial to East (Yoshinoya, 700 Centre City Parkway)	179	Small Bulldozer	0.000	No
Commercial to East (Super Star Car Wash Express, 680 Centre City Parkway)	171	Small Bulldozer	0.000	No
Multi-Family Residential to Southeast (Alcove, 650 Centre City Parkway)	175	Small Bulldozer	0.000	No
Multi-Family Residential to South (Village Grove Apartments, 660 N Quince St)	62	Small Bulldozer	0.001	No
<i>Annoyance Analysis (in dVB)</i>				
Motel to West (Quality Inn Escondido Downtown, 501 W Missions Ave)	30	Small Bulldozer	56	No
Multi-Family Residential to Southeast (Alcove, 650 Centre City Parkway)	175	Small Bulldozer	33	No
Multi-Family Residential to South (Village Grove Apartments, 660 N Quince St)	62	Small Bulldozer	46	No

Notes:

(1) Vibration levels are provided in PPV in/sec for architectural damage and VdB for annoyance.



Signs and symbols

-  Proposed Project
-  Proposed buildings
-  Receiver
-  Point source (HVAC and Speakers)
-  Drives and Ques
-  Area Source - Patios
-  Parking lots
-  Noise Level Tables (dBA, Leq)

Figure 6
Operational Noise Levels



Signs and symbols

- Proposed Project
- Proposed buildings
- Point source (HVAC and Speakers)
- Drives and Ques
- Area Source - Patios
- Parking lots

Levels in dB(A)

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

Figure 7
Operational Noise Contours

7. REFERENCES

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1974 "Information on Levels of Environmental Noise Requisite to Protect Public Health And Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March 1974.

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2017 State of California General Plan Guidelines

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2001 General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways".

2009 County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County.

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2006 FHWA Roadway Construction Noise Model User's Guide. January.

APPENDICES

- Appendix A List of Acronyms
- Appendix B Glossary
- Appendix C Noise Measurement Field Worksheets
- Appendix D Construction Noise Modeling
- Appendix E SoundPLAN Input and Output
- Appendix F FHWA Worksheets
- Appendix G Vibration Worksheets

APPENDIX A
LIST OF ACRONYMS

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA Leq	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L ₀₂ ,L ₀₈ ,L ₅₀ ,L ₉₀	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
DNL	Day-Night Average Noise Level
Leq(x)	Equivalent Noise Level for "x" period of time
Leq	Equivalent Noise Level
L _{max}	Maximum Level of Noise (measured using a sound level meter)
L _{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

GLOSSARY

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. 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.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02} , L_{08} , L_{50} , L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max} , L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Offensive/ Offending/Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022
Project #: 19703
Noise Measurement #: NM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher
Nearest Address or Cross Street: 501 W Mission Avenue, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM1: Taken within Quality Hotel parking lot just west of pool (501 Mission Ave).
Adjacent: Hotel use surrounding with swimming pool (empty) to east, parking lot to north, south, & west and hotel building further west. Centre City Pkwy past pool to E,
mutifamily residences past parking lot to S.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST
Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat
Start Time: 1:50 PM **End Time:** 2:05 PM **Run Time:** _____
Leq: 60.5 dB **Primary Noise Source:** Traffic noise from vehicles traveling along Centre City Pkwy (~165' E of NM1),
W Mission Ave (~500' NNW of NM1) & other roads.
Lmax 72.4 dB
L2 64.8 dB **Secondary Noise Sources:** Occasional overhead air traffic. Bird song. Leaf rustle from 9mph breeze. Parking
lot, hotel & residential ambiance. Car wash ambiance from Centre City Pkwy.
L8 62.7 dB
L25 61.6 dB
L50 60.2 dB

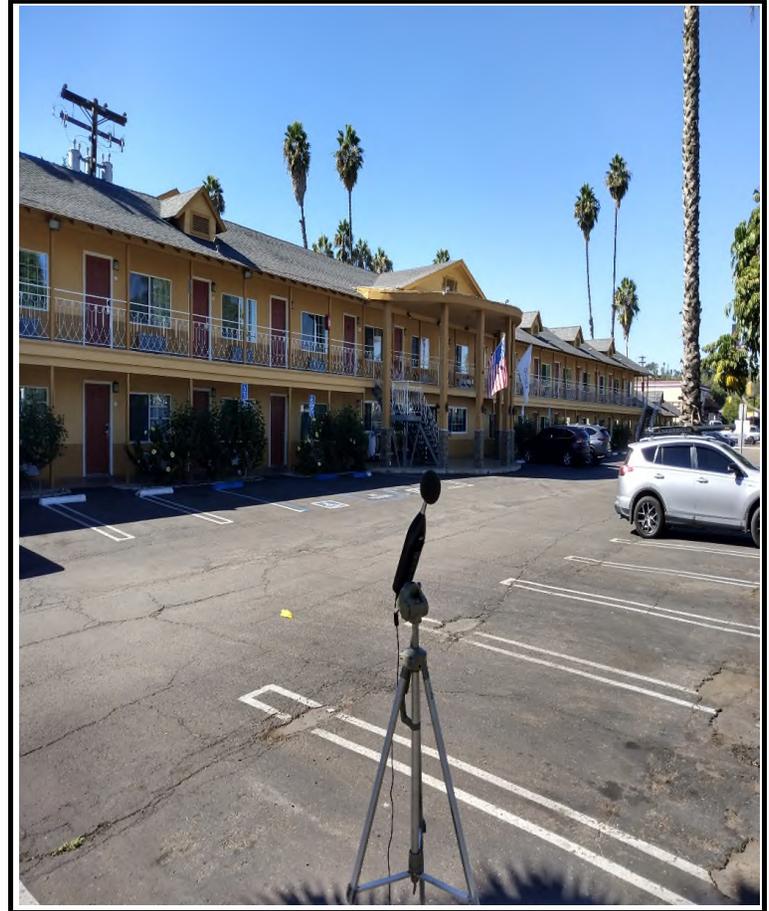
NOISE METER: <u>SoundTrack LXT Class 1</u>	CALIBRATOR: <u>Larson Davis CA 250</u>
MAKE: <u>Larson Davis</u>	MAKE: <u>Larson Davis</u>
MODEL: <u>LXT1</u>	MODEL: <u>CA 250</u>
SERIAL NUMBER: <u>3099</u>	SERIAL NUMBER: <u>2723</u>
FACTORY CALIBRATION DATE: <u>11/17/2021</u>	FACTORY CALIBRATION DATE: <u>11/18/2021</u>
FIELD CALIBRATION DATE: <u>10/25/2022</u>	

Noise Measurement
Field Data

PHOTOS:



NM1 looking E across Quality Hotel swimming pool (501 W Mission Ave, Escondido) towards Centre City Pkwy & car wash (behind trees) (~165').



NM1 looking NNW towards Quality Hotel office, 501 W Mission Ave, Escondido.

Summary

File Name on Meter	LxT_Data.127.s
File Name on PC	LxT_0003099-20221025 135032-LxT_Data.127.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM1 33° 7'36.88"N 117° 5'29.57"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Poject, City of Escondido

Measurement

Start	2022-10-25 13:50:32
Stop	2022-10-25 14:05:32
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 13:50:04
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.6 dB

Results

LAeq	60.5
LAE	90.1
EA	112.542 µPa²h
EA8	3.601 mPa²h
EA40	18.007 mPa²h
LApeak (max)	2022-10-25 13:54:27 90.9 dB
LASmax	2022-10-25 13:59:00 72.4 dB
LASmin	2022-10-25 13:50:54 50.9 dB

Statistics

LCeq	72.1 dB	LA2.00	64.8 dB
LAeq	60.5 dB	LA8.00	62.7 dB
LCeq - LAeq	11.6 dB	LA25.00	61.6 dB
LAlaq	61.5 dB	LA50.00	60.2 dB
LAeq	60.5 dB	LA66.60	58.8 dB
LAlaq - LAeq	1.0 dB	LA90.00	54.4 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.127.s	Computer's File Name	LxT_0003099-20221025 135032-LxT_Data.127
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM1 33° 7'36.88"N 117° 5'29.57"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 1 9 7 0 3 W e s t M i s s i o n C o m m e r c i a l P r o j e c t , C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 13:50:32	Duration	0:15:00.0
End Time	2022-10-25 14:05:32	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	60.5 dB		
LAE	90.1 dB	SEA	--- dB
EA	112.5 µPa²h	LAFTM5	62.6 dB
EA8	3.6 mPa²h		
EA40	18.0 mPa²h		
LA _{peak}	90.9 dB	2022-10-25 13:54:27	
LA _{Smax}	72.4 dB	2022-10-25 13:59:00	
LA _{Smin}	50.9 dB	2022-10-25 13:50:54	
LA _{eq}	60.5 dB		
LC _{eq}	72.1 dB	LC _{eq} - LA _{eq}	11.6 dB
LAI _{eq}	61.5 dB	LAI _{eq} - LA _{eq}	1.0 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	5	0:00:36.1
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

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

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	60.5 dB		72.1 dB		--- dB	
L _{S(max)}	72.4 dB	2022-10-25 13:59:00	--- dB		--- dB	
L _{S(min)}	50.9 dB	2022-10-25 13:50:54	--- dB		--- dB	
L _{Peak(max)}	90.9 dB	2022-10-25 13:54:27	--- dB		--- dB	

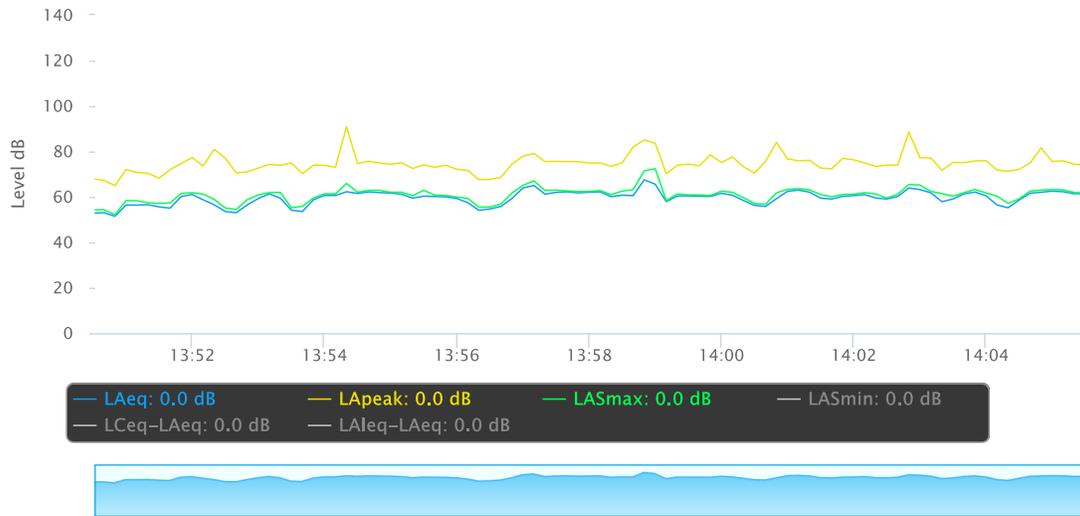
Overloads

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

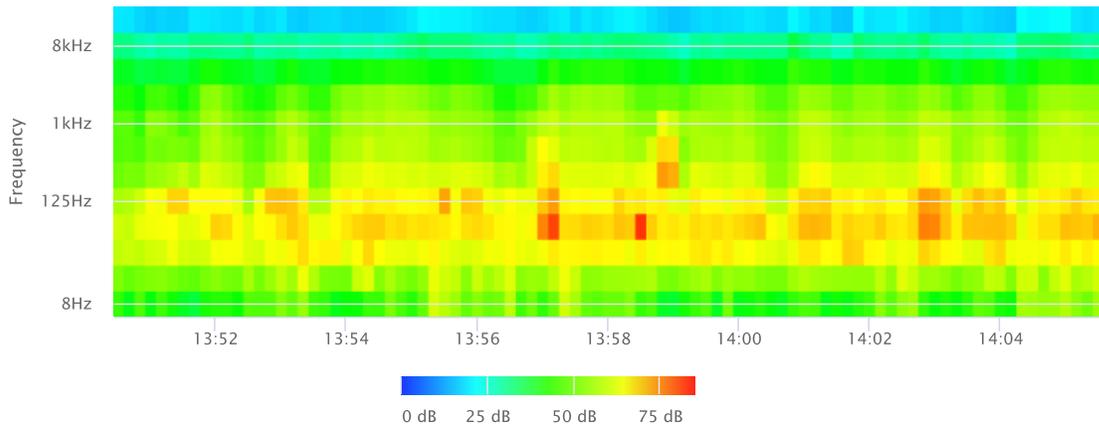
Statistics

LAS 2.0	64.8 dB
LAS 8.0	62.7 dB
LAS 25.0	61.6 dB
LAS 50.0	60.2 dB
LAS 66.6	58.8 dB
LAS 90.0	54.4 dB

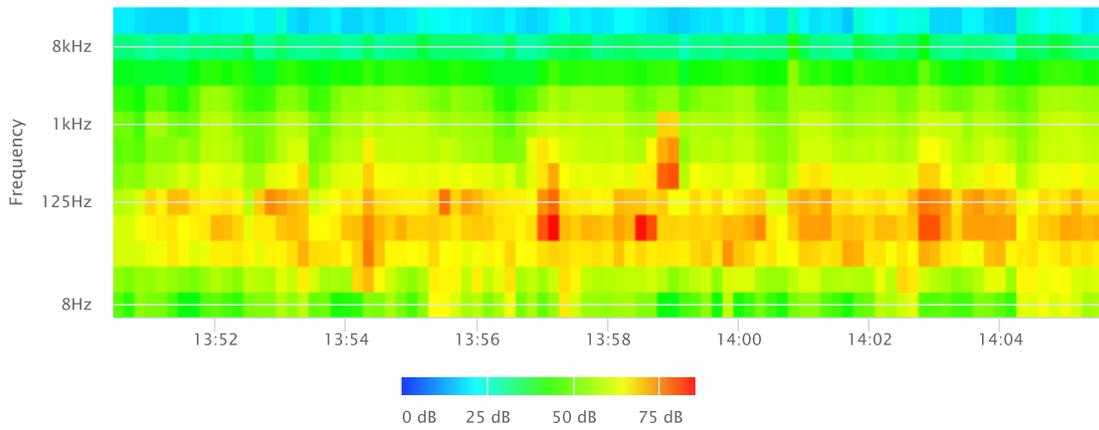
Time History



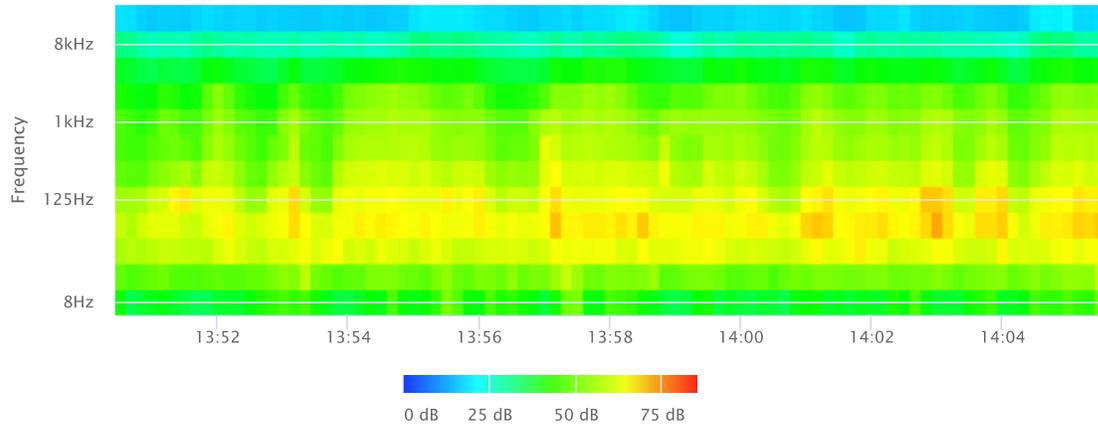
OBA 1/1 Leq



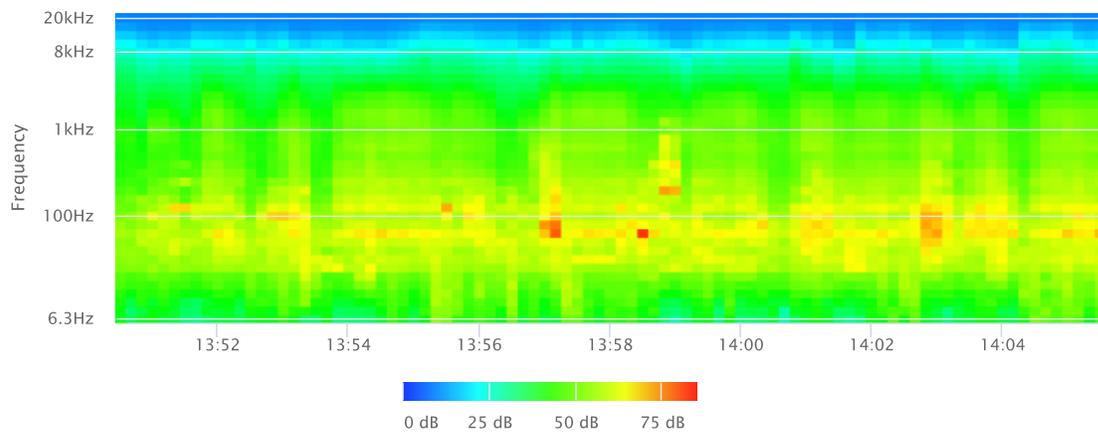
OBA 1/1 Lmax



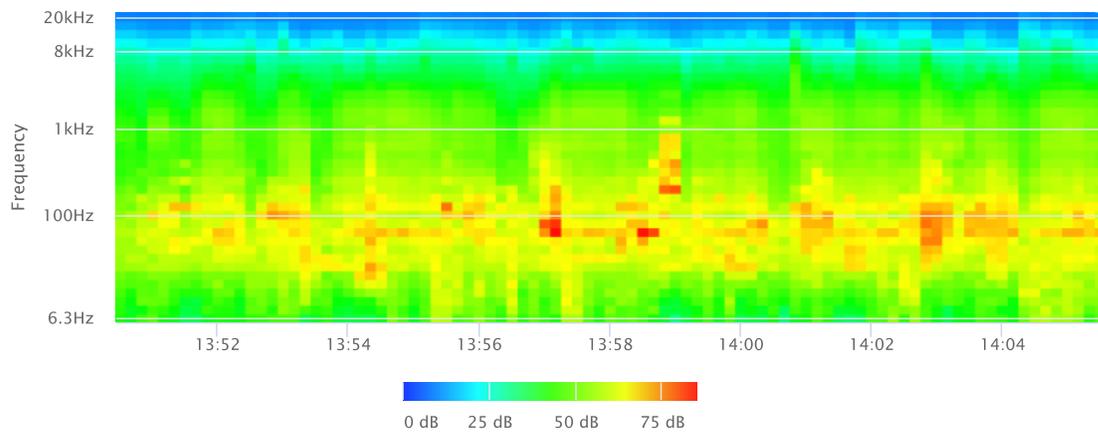
OBA 1/1 Lmin



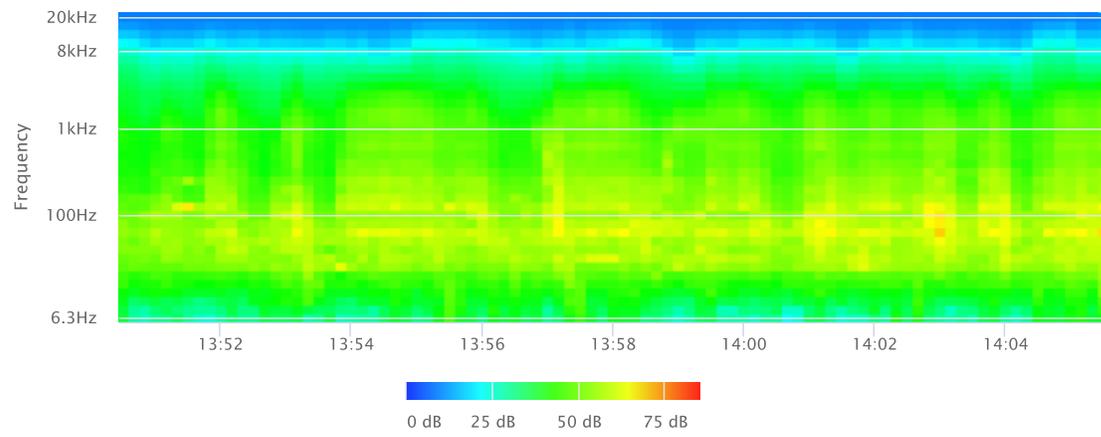
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022
Project #: 19703
Noise Measurement #: NM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher
Nearest Address or Cross Street: Village Grove Apartments, 660 N Quince Street, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM2: Taken at near northern boundary of Village Grove Apartments, 660 N Quince St. Adjacent: Village Grove Apts & associated parking lot areas to S/SE/SW, Quince Park Apartments to the NW, Quality Inn w/ associated swimming pool & tennis court to the N, & Centre City Pkwy to the E.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST
Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat
Start Time: 2:27 PM **End Time:** 2:42 PM **Run Time:** _____
Leq: 61.8 dB **Primary Noise Source:** Traffic noise from vehicles traveling along Centre City Pkwy (~130' E of NM2),
Lmax 69 dB W Mission Ave (~630' NNW of NM2), Quince St (~440' WSW of NM2) & other roads.
L2 65.1 dB **Secondary Noise Sources:** Occasional overhead air traffic. Bird song. Leaf rustle from 9mph breeze. Parking
L8 64.0 dB lot, residential & hotel ambiance. Car wah ambiance from Centre City Pkwy.
L25 63.0 dB
L50 62.1 dB

NOISE METER: <u>SoundTrack LXT Class 1</u>	CALIBRATOR: <u>Larson Davis CA 250</u>
MAKE: <u>Larson Davis</u>	MAKE: <u>Larson Davis</u>
MODEL: <u>LXT1</u>	MODEL: <u>CA 250</u>
SERIAL NUMBER: <u>3099</u>	SERIAL NUMBER: <u>2723</u>
FACTORY CALIBRATION DATE: <u>11/17/2021</u>	FACTORY CALIBRATION DATE: <u>11/18/2021</u>
FIELD CALIBRATION DATE: <u>10/25/2022</u>	

Noise Measurement
Field Data

PHOTOS:



NM2 looking SSE towards residence C06 Village Grove Apartments, 660 N Quince St, Escondido.



NM2 looking WSW down northern access road to Village Grove Apartments towards Quince St intersection (~440').

Summary

File Name on Meter	LxT_Data.128.s
File Name on PC	LxT_0003099-20221025 142755-LxT_Data.128.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM2 33° 7'35.58"N 117° 5'28.54"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Project, City of Escondido.

Measurement

Start	2022-10-25 14:27:55
Stop	2022-10-25 14:42:55
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 14:27:30
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.6 dB

Results

LAeq	61.8
LAE	91.3
EA	151.0086 µPa²h
EA8	4.832277 mPa²h
EA40	24.16138 mPa²h
LApeak (max)	2022-10-25 14:29:14 94.4 dB
LASmax	2022-10-25 14:36:04 69.0 dB
LASmin	2022-10-25 14:34:36 51.8 dB

Statistics

LCeq	71.1 dB	LA2.00	65.1 dB
LAeq	61.8 dB	LA8.00	64.0 dB
LCeq - LAeq	9.4 dB	LA25.00	63.0 dB
LALeq	62.8 dB	LA50.00	62.1 dB
LAeq	61.8 dB	LA66.60	60.5 dB
LALeq - LAeq	1.0 dB	LA90.00	55.6 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.128.s	Computer's File Name	LxT_0003099-20221025 142755-LxT_Data.128
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM2 33° 7'35.58"N 117° 5'28.54"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 19703 503 West Mission Commercial Project), C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 14:27:55	Duration	0:15:00.0
End Time	2022-10-25 14:42:55	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	61.8 dB		
LAE	91.3 dB	SEA	--- dB
EA	151.0 µPa²h	LAFTM5	63.7 dB
EA8	4.8 mPa²h		
EA40	24.2 mPa²h		
LA _{peak}	94.4 dB	2022-10-25 14:29:14	
LAS _{max}	69.0 dB	2022-10-25 14:36:04	
LAS _{min}	51.8 dB	2022-10-25 14:34:36	
LA _{eq}	61.8 dB		
LC _{eq}	71.1 dB	LC _{eq} - LA _{eq}	9.4 dB
LAI _{eq}	62.8 dB	LAI _{eq} - LA _{eq}	1.0 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	5	0:00:43.8
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

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

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	61.8 dB		71.1 dB		--- dB	
L _{S(max)}	69.0 dB	2022-10-25 14:36:04	--- dB		--- dB	
L _{S(min)}	51.8 dB	2022-10-25 14:34:36	--- dB		--- dB	
L _{Peak(max)}	94.4 dB	2022-10-25 14:29:14	--- dB		--- dB	

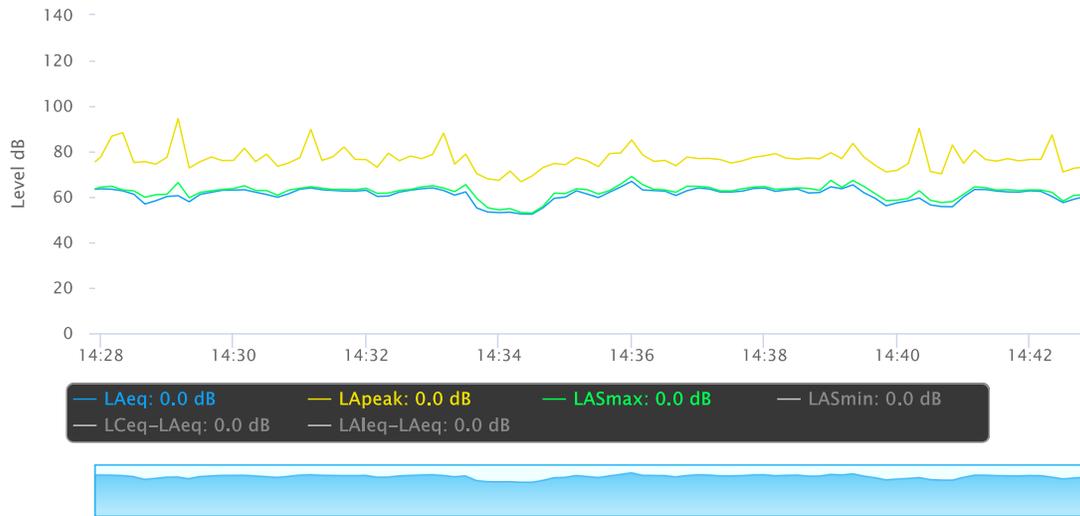
Overloads

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

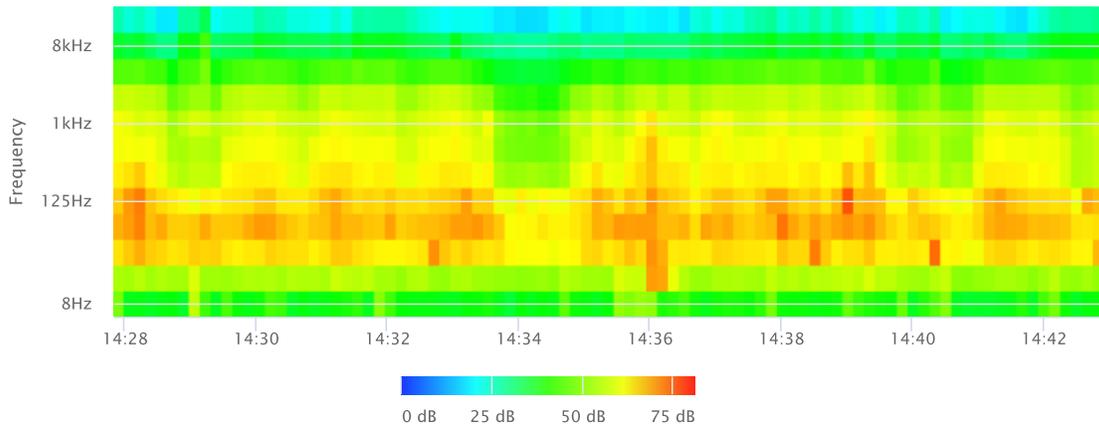
Statistics

LAS 2.0	65.1 dB
LAS 8.0	64.0 dB
LAS 25.0	63.0 dB
LAS 50.0	62.1 dB
LAS 66.6	60.5 dB
LAS 90.0	55.6 dB

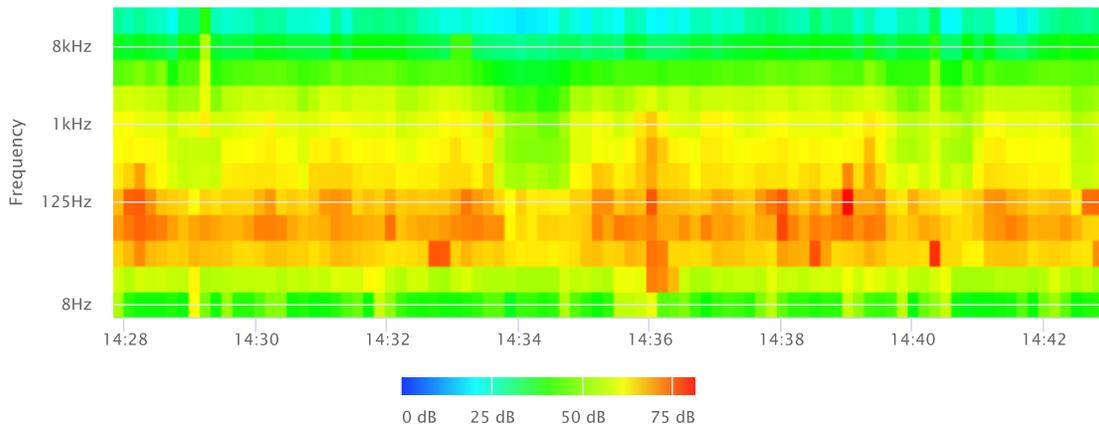
Time History



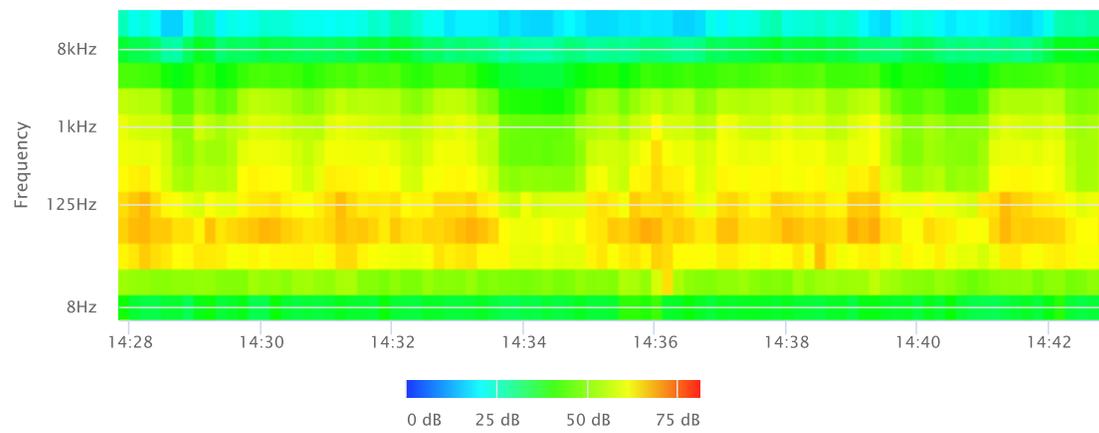
OBA 1/1 Leq



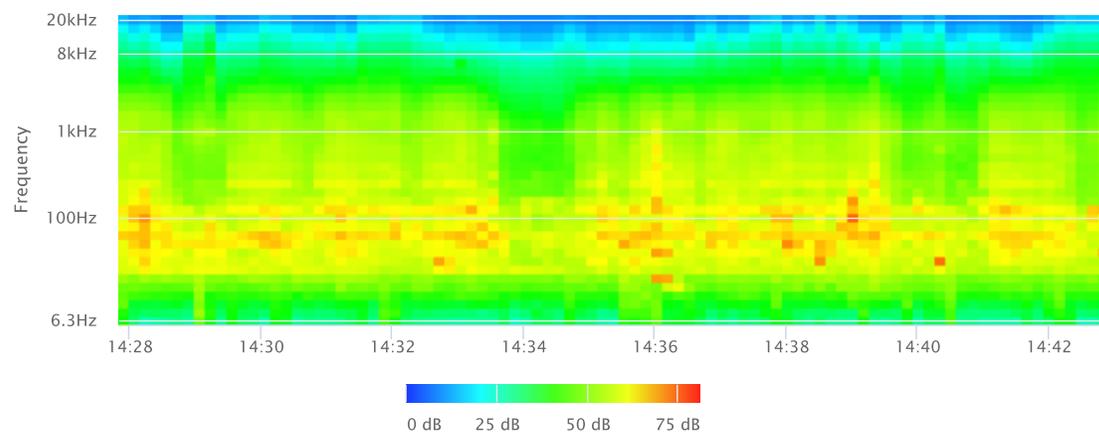
OBA 1/1 Lmax



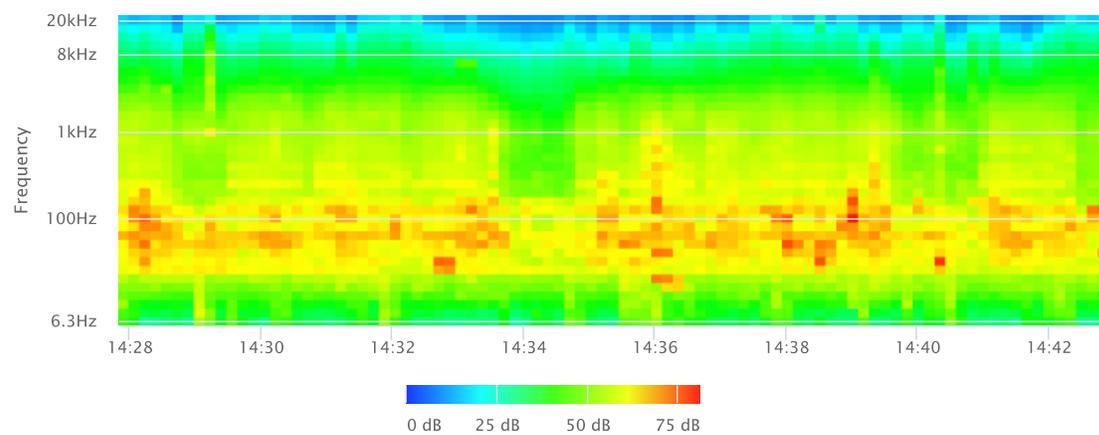
OBA 1/1 Lmin



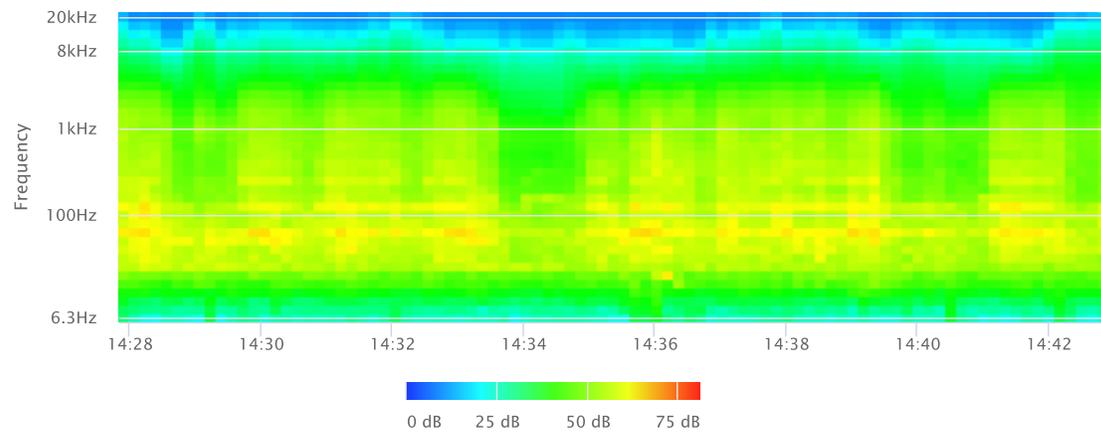
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022

Project #: 19703

Noise Measurement #: NM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 650 N Centre City Parkway, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM3: Taken at NW corner gate to multifamily residences at 650 Centre City

Pkwy. Adjacent: Centre City Pkwy to the W, car wash & various businesses to the N/NE, & multifamily residences to the E/SE.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST

Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat

Start Time: 3:00 PM **End Time:** 3:15 PM **Run Time:** _____

Leq: 71.3 dB **Primary Noise Source:** Traffic noise from the 384 vehicles passing microphone traveling along Centre

Lmax 87.5 dB City Pkwy just W of NM3. Traffic ambiance from other roads.

L2 76.9 dB **Secondary Noise Sources:** Occasional overhead air traffic. Bird song. Leaf rustle from 9mph breeze. Parking

L8 74.8 dB lot & residential ambiance. Noise from car wash blowers NE of NM3.

L25 72.5 dB

L50 68.5 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

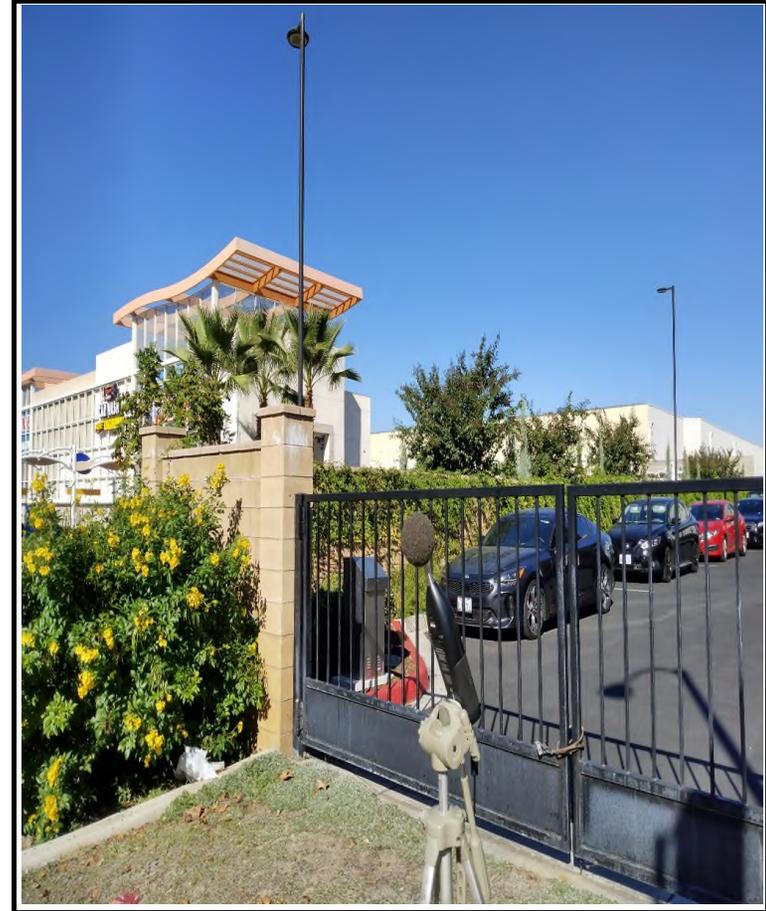
FIELD CALIBRATION DATE: 10/25/2022

Noise Measurement
Field Data

PHOTOS:



NM3 looking SSE down Centre City Pkwy towards W Washington Ave intersection (~610'). Building 650 N Centre City Pkwy, Escondido on the left of image.



NM3 looking NNE towards Super Star Carwash building, 680 Centre City Pkwy, Escondido. Car wash in operation.

Summary

File Name on Meter	LxT_Data.129.s
File Name on PC	LxT_0003099-20221025 150011-LxT_Data.129.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM3 33° 7'36.37"N 117° 5'25.79"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Project, City of Escondido.

Measurement

Start	2022-10-25 15:00:11
Stop	2022-10-25 15:15:11
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 14:59:52
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.7 dB

Results

LAeq	71.3
LAE	100.9
EA	1.361008 mPa²h
EA8	43.55224 mPa²h
EA40	217.7612 mPa²h
LApeak (max)	2022-10-25 15:12:15 104.9 dB
LASmax	2022-10-25 15:12:16 87.5 dB
LASmin	2022-10-25 15:12:02 55.2 dB

Statistics

LCeq	79.0 dB	LA2.00	76.9 dB
LAeq	71.3 dB	LA8.00	74.8 dB
LCeq - LAeq	7.7 dB	LA25.00	72.5 dB
LALeq	72.4 dB	LA50.00	68.5 dB
LAeq	71.3 dB	LA66.60	66.4 dB
LALeq - LAeq	1.1 dB	LA90.00	63.5 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.129.s	Computer's File Name	LxT_0003099-20221025 150011-LxT_Data.129
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM3 33° 7'36.37"N 117° 5'25.79"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 1 9 7 0 3 5 0 3 West Mission Commercial Project, C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 15:00:11	Duration	0:15:00.0
End Time	2022-10-25 15:15:11	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	71.3 dB		
LAE	100.9 dB	SEA	--- dB
EA	1.4 mPa²h	LAFTM5	75.2 dB
EA8	43.6 mPa²h		
EA40	217.8 mPa²h		
LA _{peak}	104.9 dB	2022-10-25 15:12:15	
LAS _{max}	87.5 dB	2022-10-25 15:12:16	
LAS _{min}	55.2 dB	2022-10-25 15:12:02	
LA _{eq}	71.3 dB		
LC _{eq}	79.0 dB	LC _{eq} - LA _{eq}	7.7 dB
LAI _{eq}	72.4 dB	LAI _{eq} - LA _{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	9	0:13:29.6
LAS > 85.0 dB	1	0:00:02.9
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

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

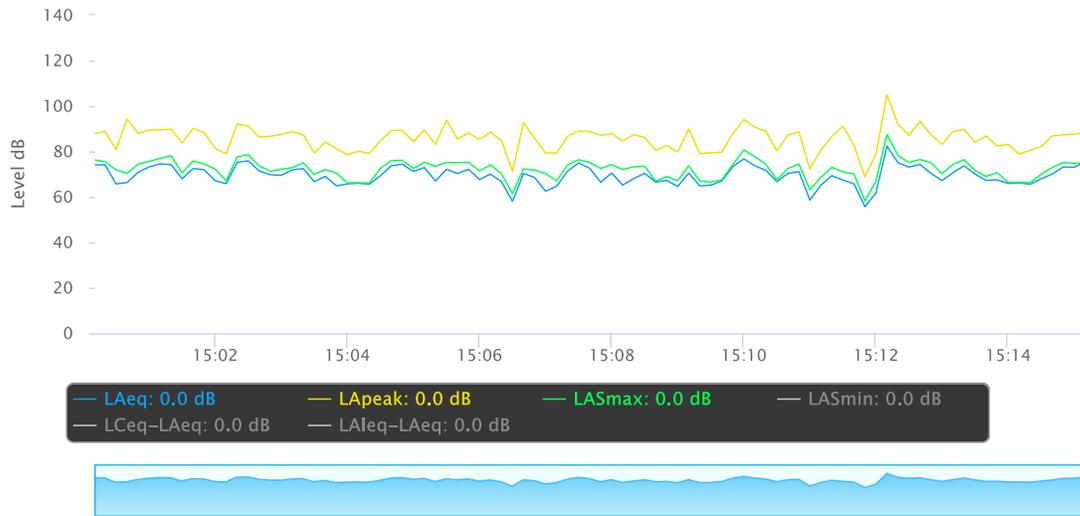
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	71.3 dB		79.0 dB		--- dB	
LS _(max)	87.5 dB	2022-10-25 15:12:16	--- dB		--- dB	
LS _(min)	55.2 dB	2022-10-25 15:12:02	--- dB		--- dB	
L _{Peak(max)}	104.9 dB	2022-10-25 15:12:15	--- dB		--- dB	

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

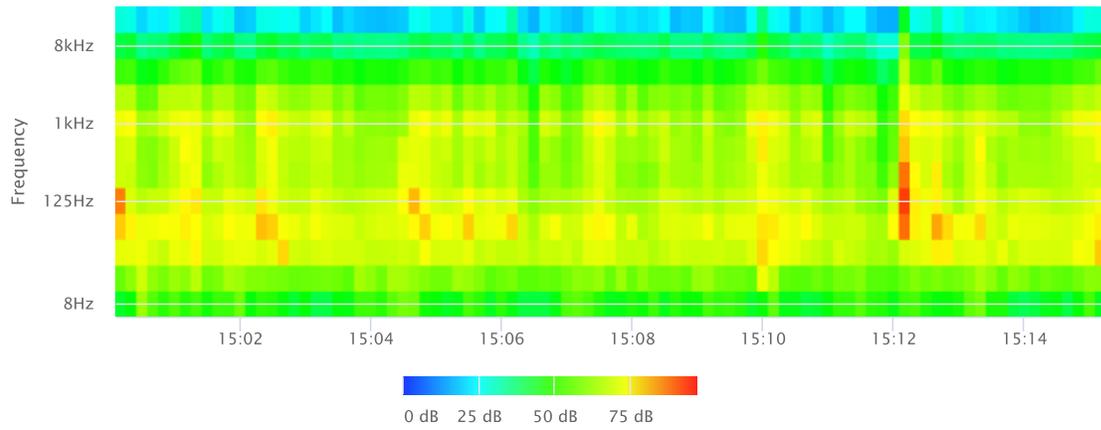
Statistics

LAS 2.0	76.9 dB
LAS 8.0	74.8 dB
LAS 25.0	72.5 dB
LAS 50.0	68.5 dB
LAS 66.6	66.4 dB
LAS 90.0	63.5 dB

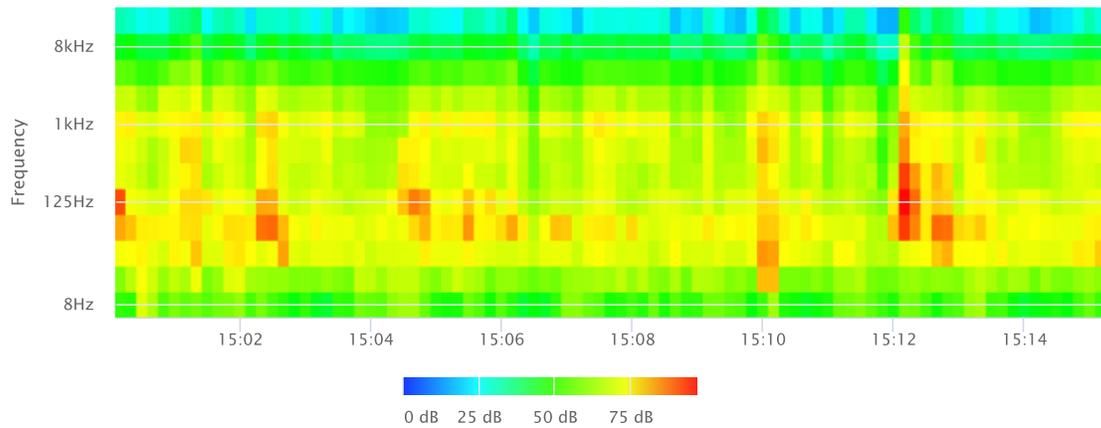
Time History



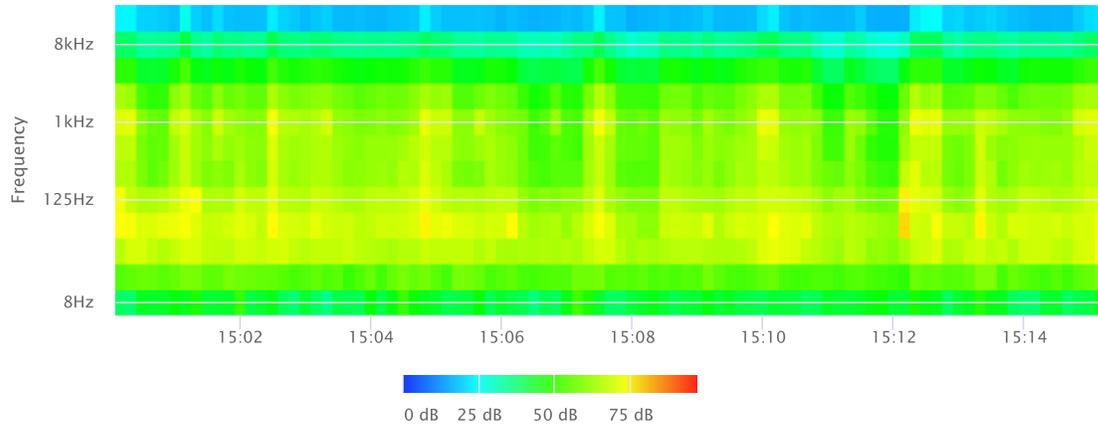
OBA 1/1 Leq



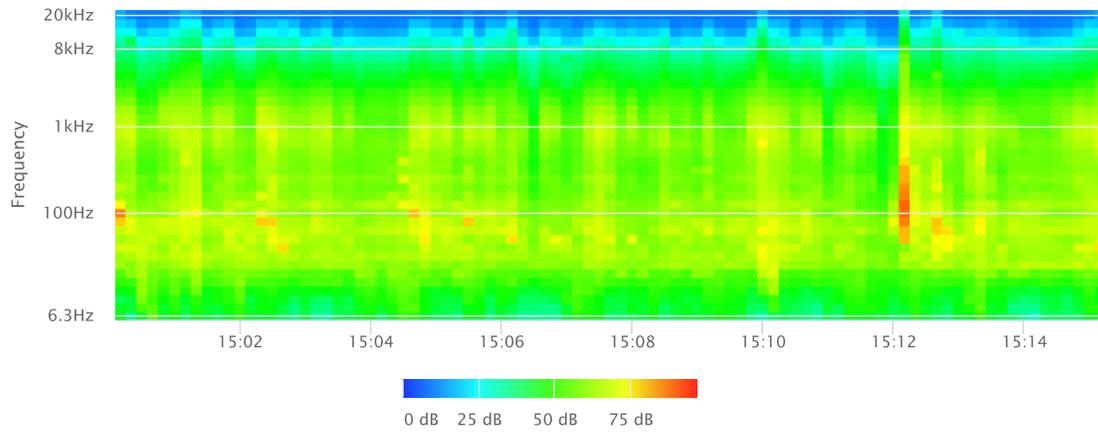
OBA 1/1 Lmax



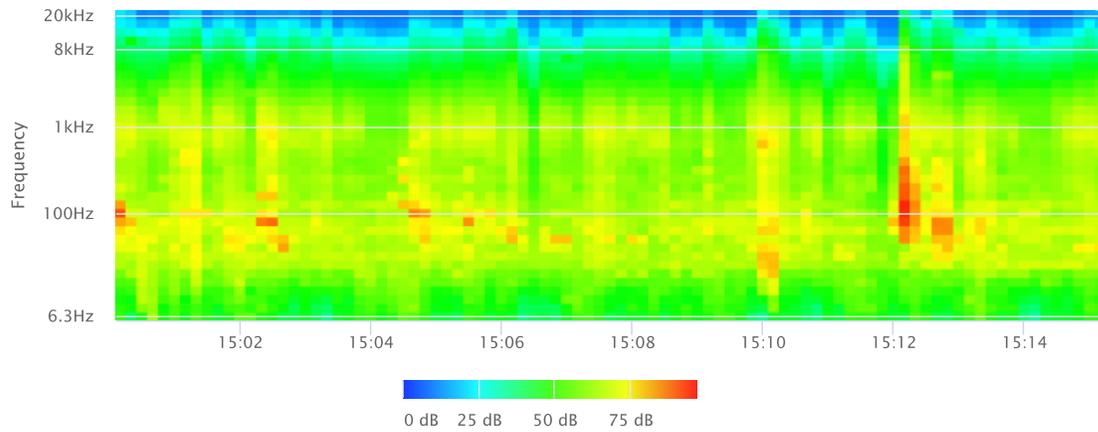
OBA 1/1 Lmin



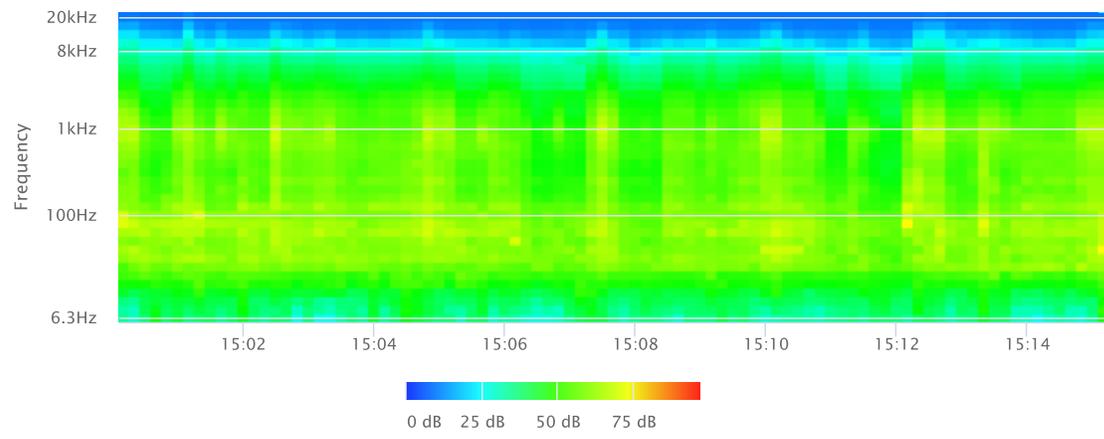
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022
Project #: 19703
Noise Measurement #: NM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher
Nearest Address or Cross Street: 700 Centre City Parkway, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM4: Taken within parking area near SE corner of Bldg 700 Centre City Pkwy.
Adjacent: Centre City Pkwy ~150' to the W, car wash tunnel exit (blowers) ~70' to the SW, commercial uses w/ associated parking surrounding, & Epiphany Prep Charter School building to east.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST
Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat
Start Time: 3:22 PM **End Time:** 3:37 PM **Run Time:** _____
Leq: 75.9 dB **Primary Noise Source:** Noise from carwash blowers ~65' SW of microphone & music being played
Lmax 78.9 dB throughout carwash detailing area.
L2 78.5 dB **Secondary Noise Sources:** Noise from traffic traveling on Centre City Pkwy. Occasional overhead air traffic.
L8 78.1 dB Parking lot ambiance. Leaf rustle from breeze. Traffic ambiance from other roads.
L25 77.4 dB
L50 76.3 dB

NOISE METER: <u>SoundTrack LXT Class 1</u>	CALIBRATOR: <u>Larson Davis CA 250</u>
MAKE: <u>Larson Davis</u>	MAKE: <u>Larson Davis</u>
MODEL: <u>LXT1</u>	MODEL: <u>CA 250</u>
SERIAL NUMBER: <u>3099</u>	SERIAL NUMBER: <u>2723</u>
FACTORY CALIBRATION DATE: <u>11/17/2021</u>	FACTORY CALIBRATION DATE: <u>11/18/2021</u>
FIELD CALIBRATION DATE: <u>10/25/2022</u>	

Noise Measurement
Field Data

PHOTOS:



NM4 looking directly at exit & blowers to carwash building, 680 Centre City Pkwy, Escondido (~65' SW of microphone).



NM4 looking W down access road from parking lot to Centre City Pkwy intersection (~150'). Carwash, 680 Centre City Pkwy, on the left of image & commercial building, 700 Centre City Pkwy, on the right.

Summary

File Name on Meter	LxT_Data.130.s
File Name on PC	LxT_0003099-20221025 152248-LxT_Data.130.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM4 33° 7'39.09"N 117° 5'25.47"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Project, City of Escondido.

Measurement

Start	2022-10-25 15:22:48
Stop	2022-10-25 15:37:48
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 15:22:32
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.8 dB

Results

LAeq	75.9
LAE	105.5
EA	3.933913 mPa²h
EA8	125.8852 mPa²h
EA40	629.4261 mPa²h
LApeak (max)	2022-10-25 15:28:21 92.9 dB
LASmax	2022-10-25 15:28:30 78.9 dB
LASmin	2022-10-25 15:31:31 63.7 dB

Statistics

LCeq	80.2 dB	LA2.00	78.5 dB
LAeq	75.9 dB	LA8.00	78.1 dB
LCeq - LAeq	4.3 dB	LA25.00	77.4 dB
LALeq	76.4 dB	LA50.00	76.3 dB
LAeq	75.9 dB	LA66.60	75.0 dB
LALeq - LAeq	0.4 dB	LA90.00	69.3 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.130.s	Computer's File Name	LxT_0003099-20221025 152248-LxT_Data.130
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM4 33° 7'39.09"N 117° 5'25.47"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 1 9 7 0 3 5 0 3 West Mission Commercial Project, C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 15:22:48	Duration	0:15:00.0
End Time	2022-10-25 15:37:48	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	75.9 dB		
LAE	105.5 dB	SEA	--- dB
EA	3.9 mPa ² h	LAFTM5	77.2 dB
EA8	125.9 mPa ² h		
EA40	629.4 mPa ² h		
LA _{peak}	92.9 dB	2022-10-25 15:28:21	
LAS _{max}	78.9 dB	2022-10-25 15:28:30	
LAS _{min}	63.7 dB	2022-10-25 15:31:31	
LA _{eq}	75.9 dB		
LC _{eq}	80.2 dB	LC _{eq} - LA _{eq}	4.3 dB
LAI _{eq}	76.4 dB	LAI _{eq} - LA _{eq}	0.4 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	1	0:14:59.9
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

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

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	75.9 dB		80.2 dB		--- dB	
L _{S(max)}	78.9 dB	2022-10-25 15:28:30	--- dB		--- dB	
L _{S(min)}	63.7 dB	2022-10-25 15:31:31	--- dB		--- dB	
L _{Peak(max)}	92.9 dB	2022-10-25 15:28:21	--- dB		--- dB	

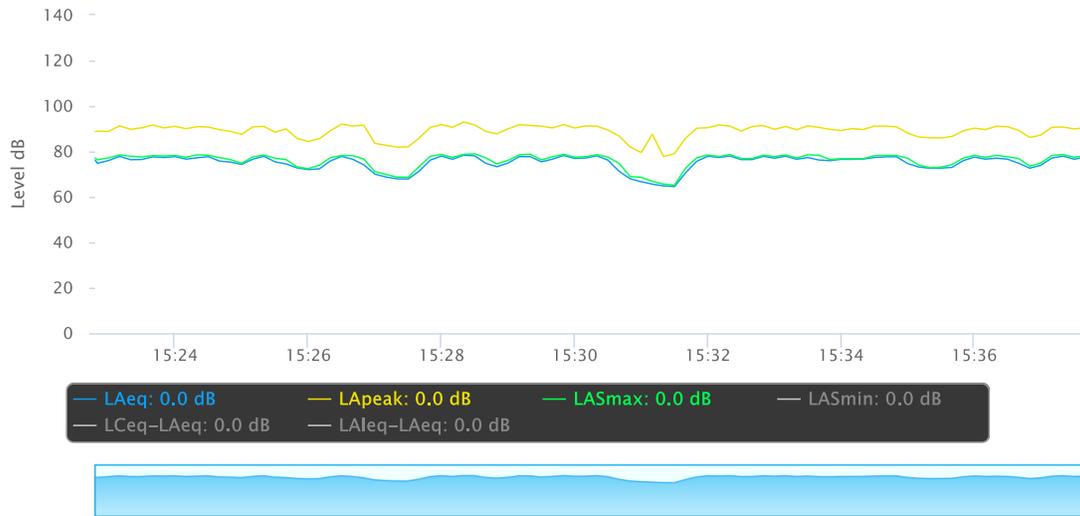
Overloads

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

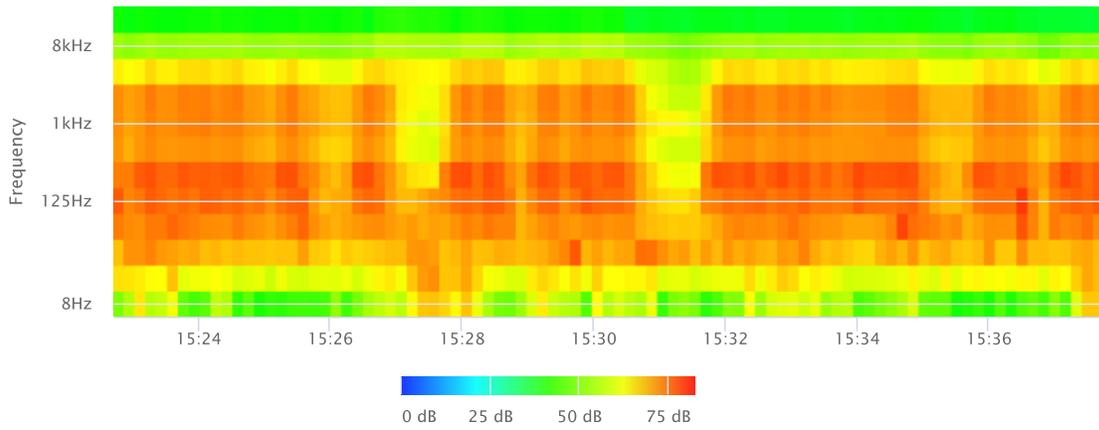
Statistics

LAS 2.0	78.5 dB
LAS 8.0	78.1 dB
LAS 25.0	77.4 dB
LAS 50.0	76.3 dB
LAS 66.6	75.0 dB
LAS 90.0	69.3 dB

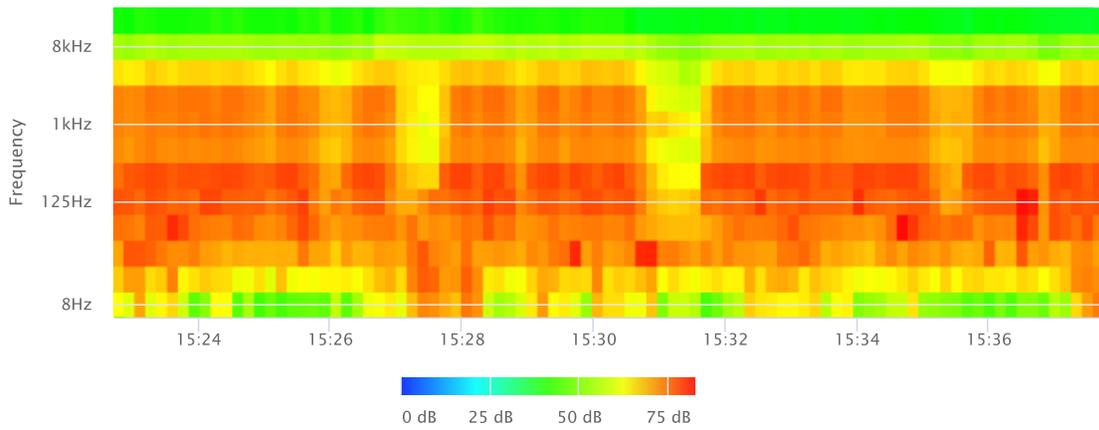
Time History



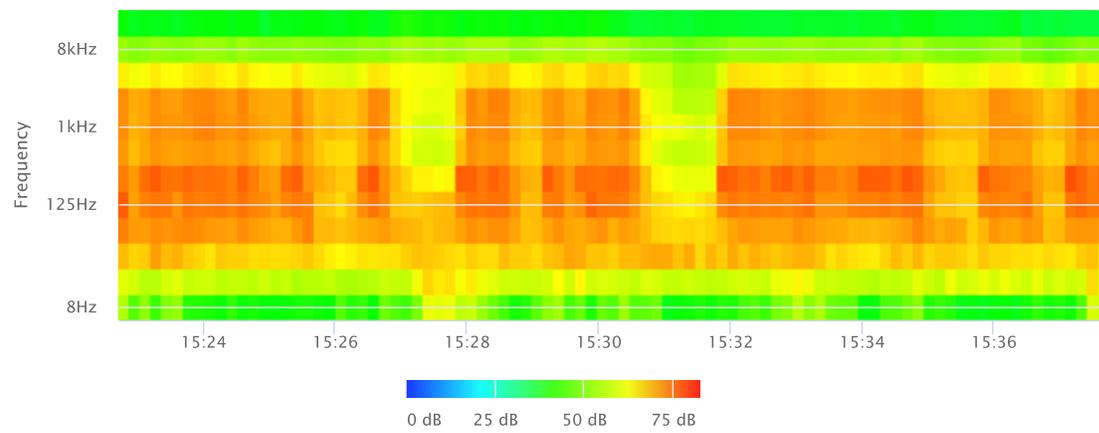
OBA 1/1 Leq



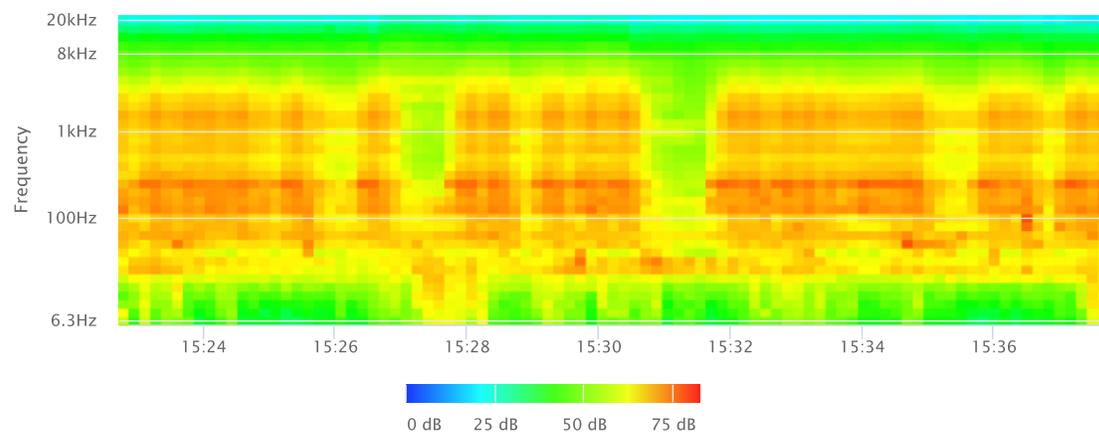
OBA 1/1 Lmax



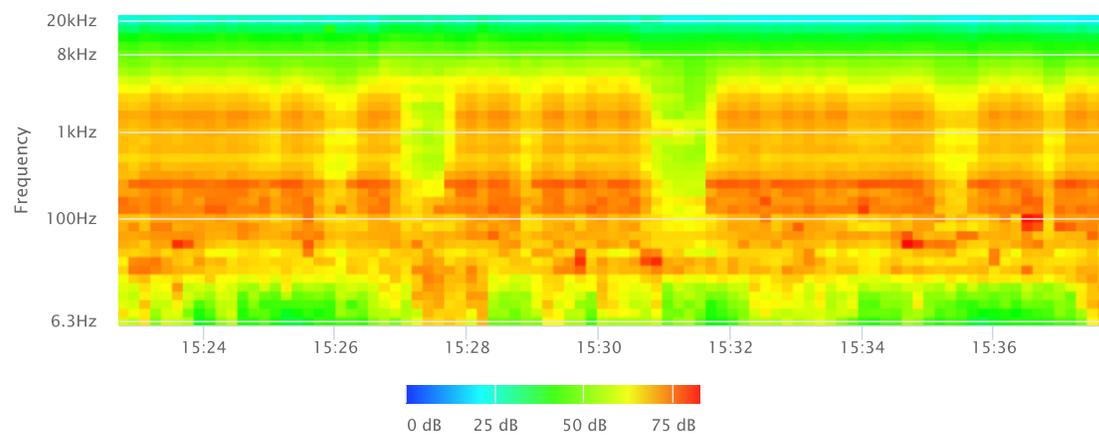
OBA 1/1 Lmin



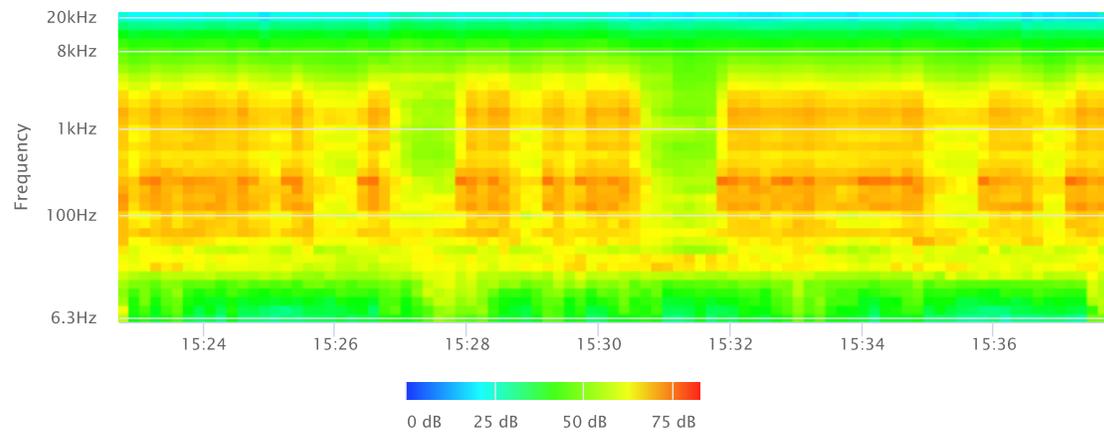
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022

Project #: 19703

Noise Measurement #: NM5 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 720 Centre City Parkway, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM5: Taken just E of Centre City Pkwy & just W of the drive-through associated with 720 Centre City Pkwy. Adjacent: Centre City Pkwy to W, Centre City Pkwy & W Mission Ave intersection ~120' N, & fast-food restaurant to east.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST

Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat

Start Time: 3:48 PM **End Time:** 4:03 PM **Run Time:** _____

Leq: 69.3 dB **Primary Noise Source:** Traffic noise from the 414 vehicles passing microphone traveling along Centre

Lmax 84.4 dB City Pkwy. Traffic noise from vehicles traveling along W Mission Ave.

L2 76.6 dB **Secondary Noise Sources:** Carwash ambiance from bldg 680 Centre City Pkwy. Occasional overhead air traffic.

L8 73.8 dB Leaf rustle from breeze. Traffic ambiance from other roads.

L25 69.6 dB

L50 65.2 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 10/25/2022

Noise Measurement
Field Data

PHOTOS:



NM5 looking NNW along Centre City Pkwy towards W Mission Ave intersection (~120').



NM5 looking W across Centre City Pkwy towards building 503 W Mission Ave, Escondido (at SW corner of intersection). Building is vacant.

Summary

File Name on Meter	LxT_Data.131.s
File Name on PC	LxT_0003099-20221025 154823-LxT_Data.131.lbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM5 33° 7'41.09"N 117° 5'28.25"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Project, City of Escondido.

Measurement

Start	2022-10-25 15:48:23
Stop	2022-10-25 16:03:23
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 15:48:02
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.8 dB

Results

LAeq	69.3
LAE	98.8
EA	849.2092 $\mu\text{Pa}^2\text{h}$
EA8	27.17469 mPa^2h
EA40	135.8735 mPa^2h
LApeak (max)	2022-10-25 15:57:50 104.8 dB
LASmax	2022-10-25 15:57:50 84.4 dB
LASmin	2022-10-25 15:52:51 56.1 dB

Statistics

LCeq	78.7 dB	LA2.00	76.6 dB
LAeq	69.3 dB	LA8.00	73.8 dB
LCeq - LAeq	9.4 dB	LA25.00	69.6 dB
LALeq	71.7 dB	LA50.00	65.2 dB
LAeq	69.3 dB	LA66.60	63.5 dB
LALeq - LAeq	2.4 dB	LA90.00	60.7 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.131.s	Computer's File Name	LxT_0003099-20221025 154823-LxT_Data.13:
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM5 33° 7'41.09"N 117° 5'28.25"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 1 9 7 0 3 5 0 3 West Mission Commercial Project, C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 15:48:23	Duration	0:15:00.0
End Time	2022-10-25 16:03:23	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	69.3 dB		
LAE	98.8 dB	SEA	--- dB
EA	849.2 μPa²h	LAFTM5	74.1 dB
EA8	27.2 mPa²h		
EA40	135.9 mPa²h		
LA _{peak}	104.8 dB	2022-10-25 15:57:50	
LAS _{max}	84.4 dB	2022-10-25 15:57:50	
LAS _{min}	56.1 dB	2022-10-25 15:52:51	
LA _{eq}	69.3 dB		
LC _{eq}	78.7 dB	LC _{eq} - LA _{eq}	9.4 dB
LAI _{eq}	71.7 dB	LAI _{eq} - LA _{eq}	2.4 dB

Exceedances

Count Duration

LAS > 65.0 dB	23	0:09:06.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

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

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	69.3 dB		78.7 dB		--- dB	
L _{S(max)}	84.4 dB	2022-10-25 15:57:50	--- dB		--- dB	
L _{S(min)}	56.1 dB	2022-10-25 15:52:51	--- dB		--- dB	
L _{Peak(max)}	104.8 dB	2022-10-25 15:57:50	--- dB		--- dB	

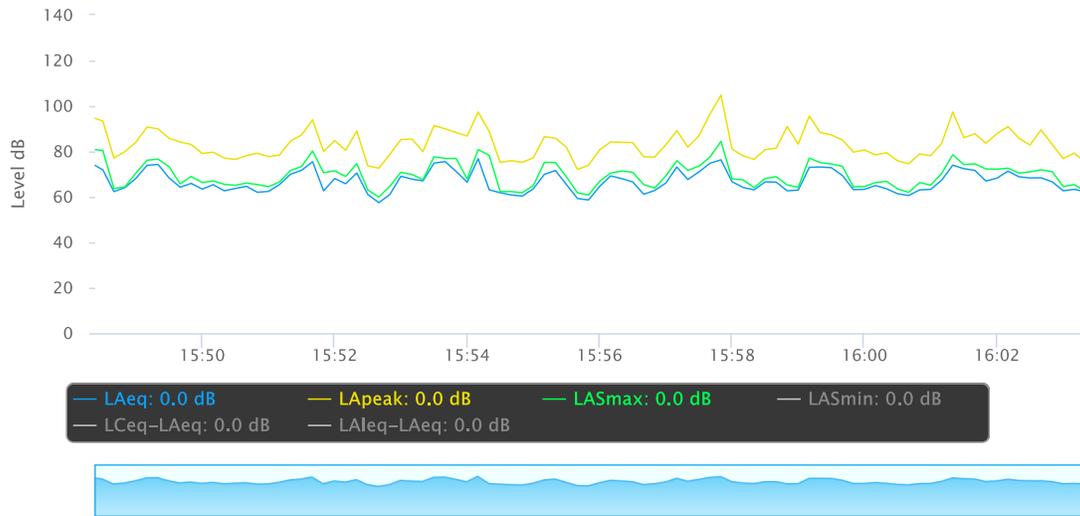
Overloads

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

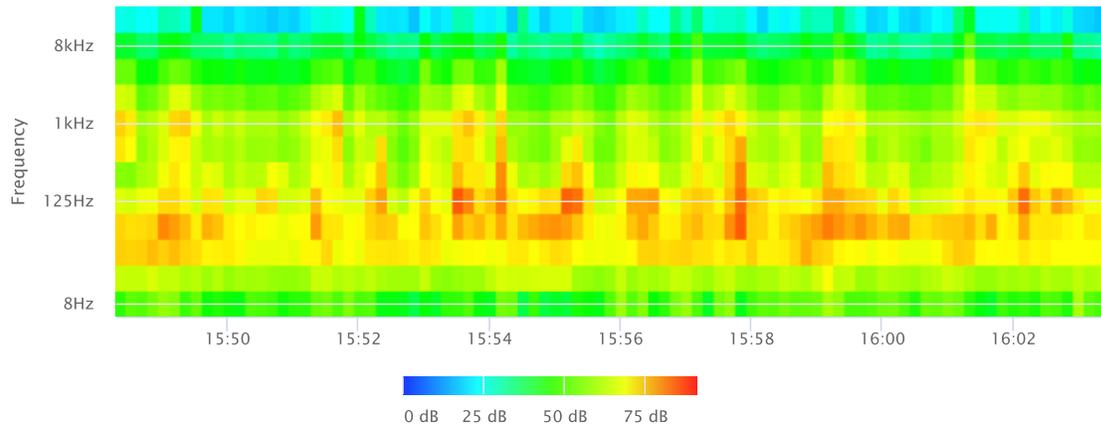
Statistics

LAS 2.0	76.6 dB
LAS 8.0	73.8 dB
LAS 25.0	69.6 dB
LAS 50.0	65.2 dB
LAS 66.6	63.5 dB
LAS 90.0	60.7 dB

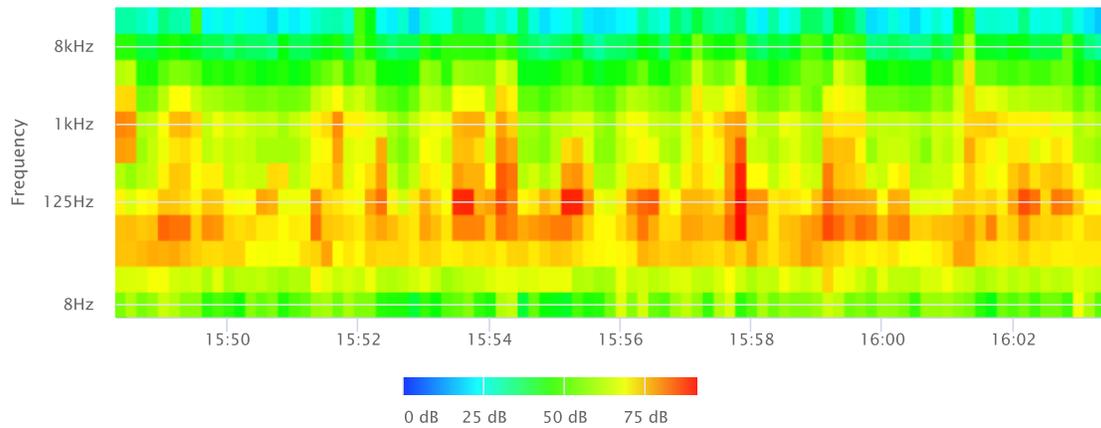
Time History



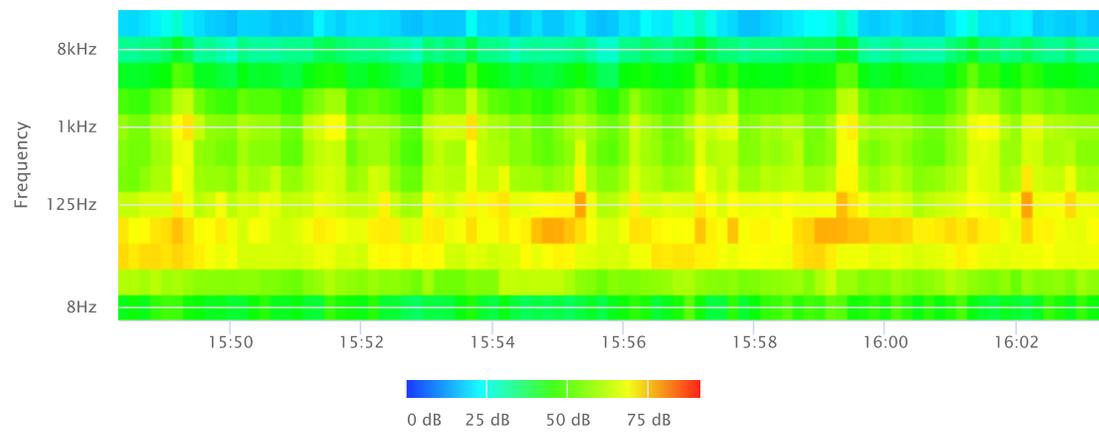
OBA 1/1 Leq



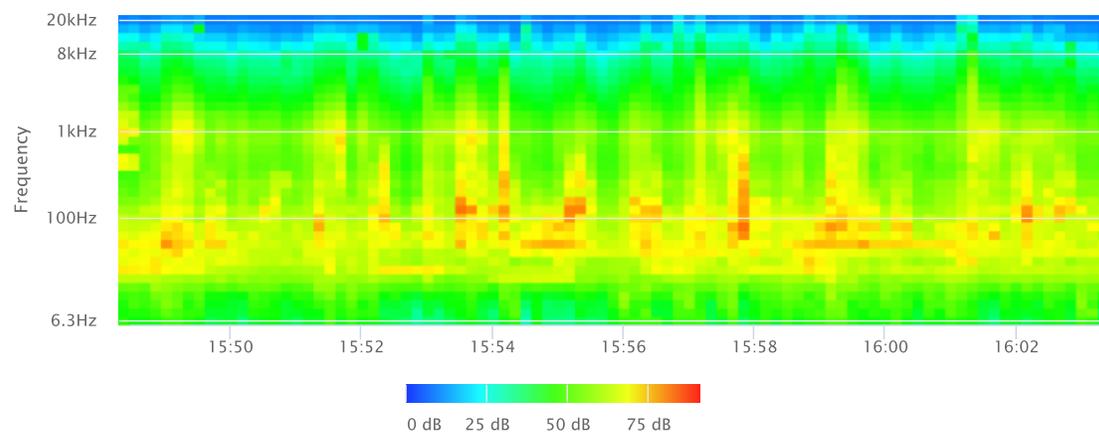
OBA 1/1 Lmax



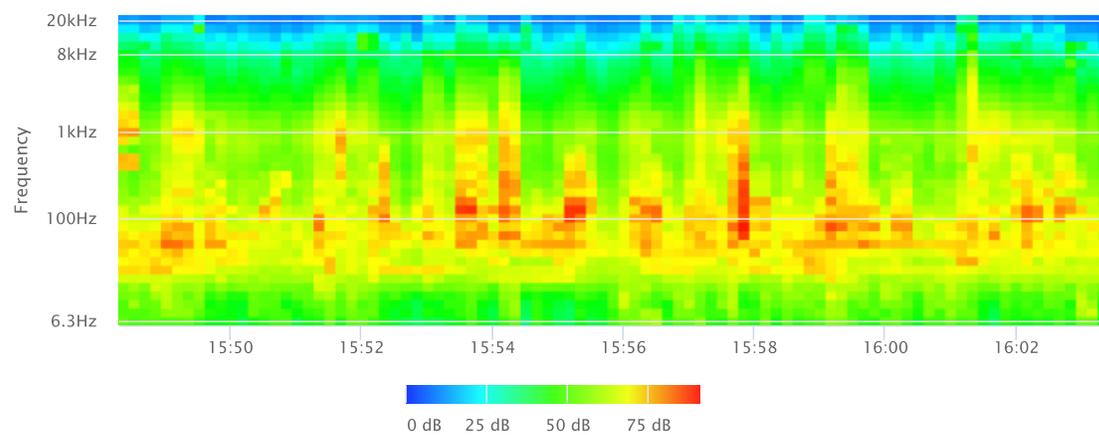
OBA 1/1 Lmin



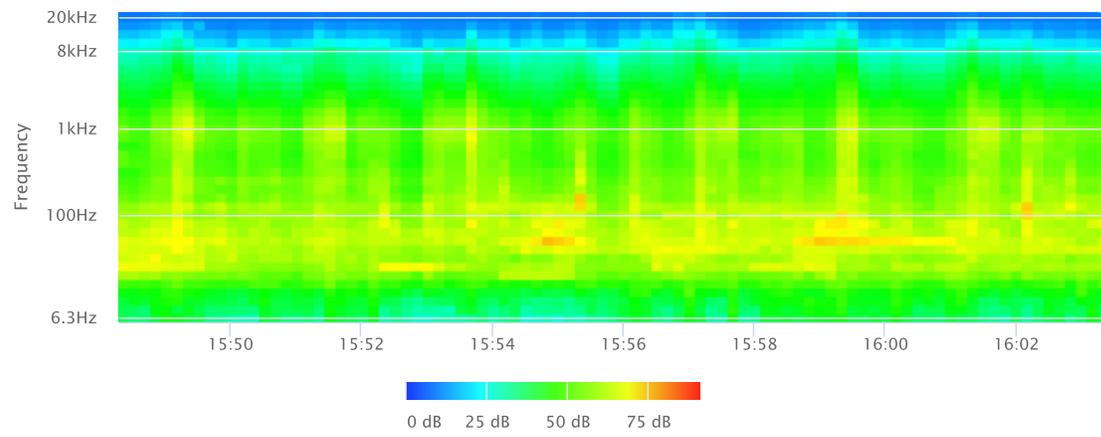
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: 503 West Mission Commercial Project, City of Escondido **Date:** October 25, 2022

Project #: 19703

Noise Measurement #: NM6 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 503 W Mission Ave, Escondido, CA 92025

Site Description (Type of Existing Land Use and any other notable features): NM6: Taken in northern portion of project site within the pavement located between 515 & 503 W Mission Ave, Escondido. Adjacent: Centre City Pkwy ~125' ENE, Centre City Parkway & W Mission Ave intersection ~100' NNW, auto repair building to west, empty commercial building to east, and hotel use to south.

Weather: Clear skies, sunny. Sunset: 6:05 PM **Settings:** SLOW FAST

Temperature: 77 deg F **Wind:** 9mph **Humidity:** 23% **Terrain:** Flat

Start Time: 4:15 PM **End Time:** 4:30 PM **Run Time:** _____

Leq: 63 dB **Primary Noise Source:** Traffic noise from the 438 vehicles traveling along W Mission Ave during

Lmax 78.1 dB measurement. Traffic noise from vehicles traveling on Centre City Pkwy.

L2 72.1 dB **Secondary Noise Sources:** Carwash ambiance from bldg 680 Centre City Pkwy. Occasional overhead air traffic.

L8 65.4 dB Leaf rustle from breeze. Traffic ambiance from other roads. Auto repair ambiance.

L25 62.2 dB

L50 60.0 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 250

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 250

SERIAL NUMBER: 3099 **SERIAL NUMBER:** 2723

FACTORY CALIBRATION DATE: 11/17/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

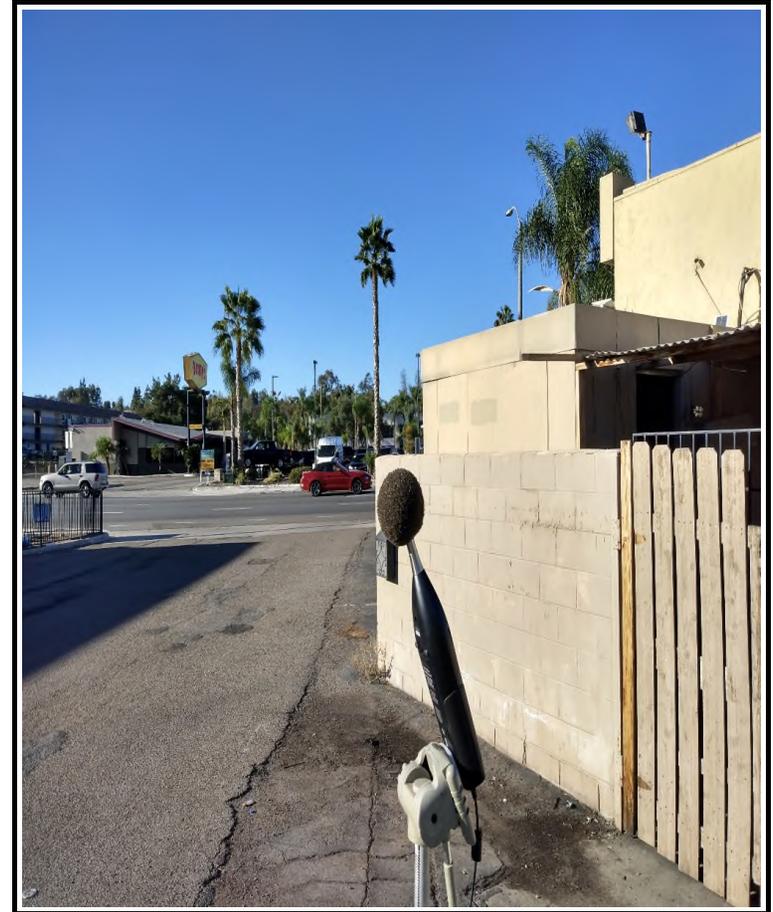
FIELD CALIBRATION DATE: 10/25/2022

Noise Measurement
Field Data

PHOTOS:



NM6 looking W towards Ben's Auto Repair, 515 W Mission Ave, Escondido.



NM6 looking NNW atowards W mission Ave (~100').
Vacated building, 503 W Mission Ave, Escondido, on the right of image.

Summary

File Name on Meter	LxT_Data.132.s
File Name on PC	LxT_0003099-20221025 161522-LxT_Data.132.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM6 33° 7'40.51"N 117° 5'31.24"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19703 503 West Mission Commercial Project, City of Escondido.

Measurement

Start	2022-10-25 16:15:22
Stop	2022-10-25 16:30:22
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2022-10-25 16:15:03
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	C Weighting
OBA Max Spectrum	At LMax
Overload	122.7 dB

Results

LAeq	63.0
LAE	92.5
EA	198.172 $\mu\text{Pa}^2\text{h}$
EA8	6.341505 mPa^2h
EA40	31.70753 mPa^2h
LApeak (max)	2022-10-25 16:17:52 101.5 dB
LASmax	2022-10-25 16:17:52 78.1 dB
LASmin	2022-10-25 16:29:49 55.3 dB

Statistics

LCeq	76.2 dB	LA2.00	72.1 dB
LAeq	63.0 dB	LA8.00	65.4 dB
LCeq - LAeq	13.3 dB	LA25.00	62.2 dB
LALeq	65.3 dB	LA50.00	60.0 dB
LAeq	63.0 dB	LA66.60	58.9 dB
LALeq - LAeq	2.3 dB	LA90.00	57.3 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.132.s	Computer's File Name	LxT_0003099-20221025 161522-LxT_Data.132
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM6 33° 7'40.51"N 117° 5'31.24"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	G a n d d i n i P r o j e c t 1 9 7 0 3 5 0 3 West Mission Commercial Project, C i t y o f E s c o n d i d o .		
Start Time	2022-10-25 16:15:22	Duration	0:15:00.0
End Time	2022-10-25 16:30:22	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	63.0 dB		
LAE	92.5 dB	SEA	--- dB
EA	198.2 μPa²h	LAFTM5	67.0 dB
EA8	6.3 mPa²h		
EA40	31.7 mPa²h		
LA _{peak}	101.5 dB	2022-10-25 16:17:52	
LAS _{max}	78.1 dB	2022-10-25 16:17:52	
LAS _{min}	55.3 dB	2022-10-25 16:29:49	
LA _{eq}	63.0 dB		
LC _{eq}	76.2 dB	LC _{eq} - LA _{eq}	13.3 dB
LAI _{eq}	65.3 dB	LAI _{eq} - LA _{eq}	2.3 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	13	0:01:45.9
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

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

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	63.0 dB		76.2 dB		--- dB	
L _{S(max)}	78.1 dB	2022-10-25 16:17:52	--- dB		--- dB	
L _{S(min)}	55.3 dB	2022-10-25 16:29:49	--- dB		--- dB	
L _{Peak(max)}	101.5 dB	2022-10-25 16:17:52	--- dB		--- dB	

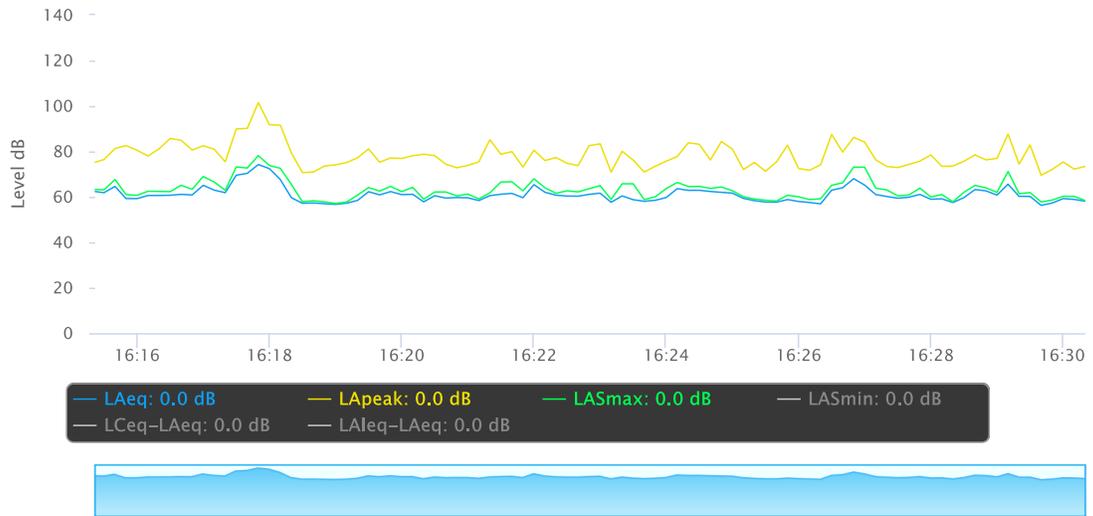
Overloads

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

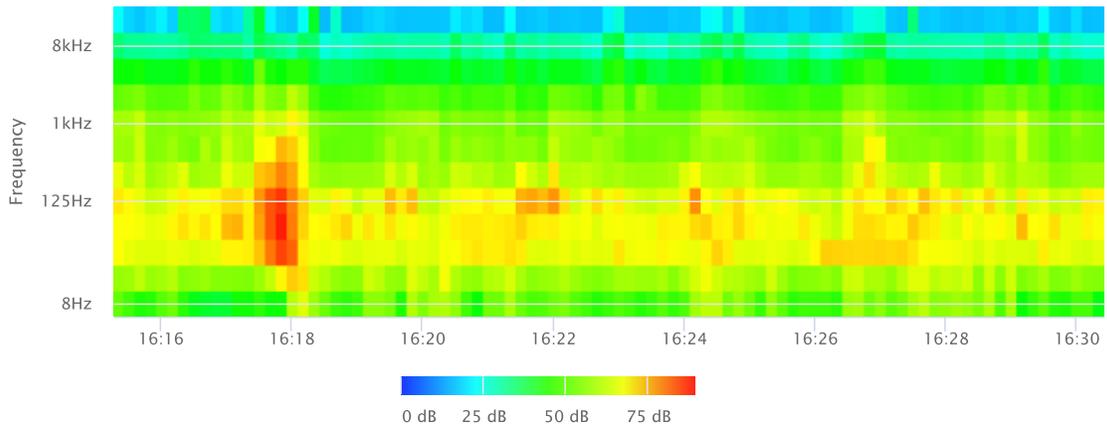
Statistics

LAS 2.0	72.1 dB
LAS 8.0	65.4 dB
LAS 25.0	62.2 dB
LAS 50.0	60.0 dB
LAS 66.6	58.9 dB
LAS 90.0	57.3 dB

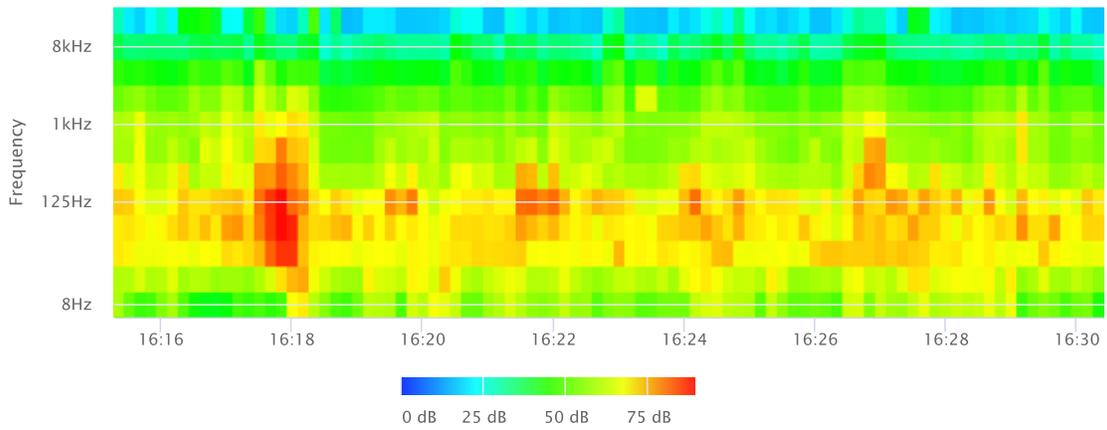
Time History



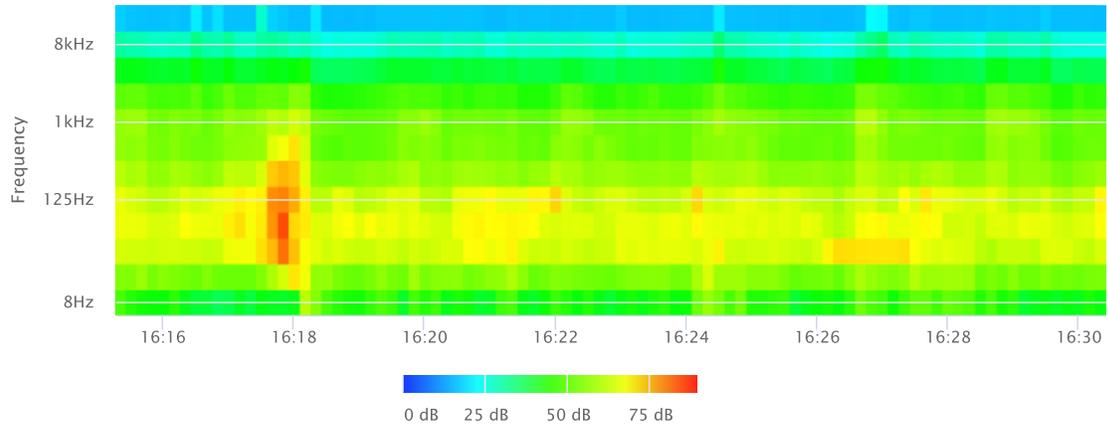
OBA 1/1 Leq



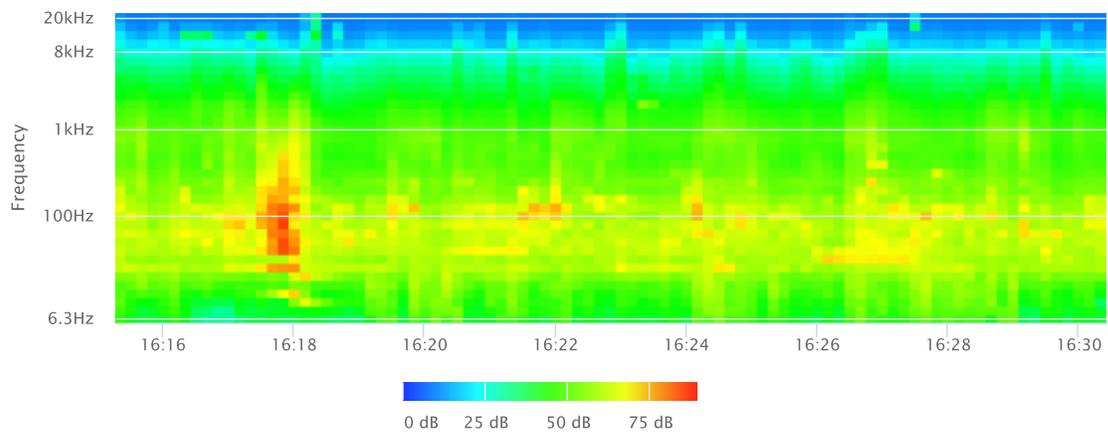
OBA 1/1 Lmax



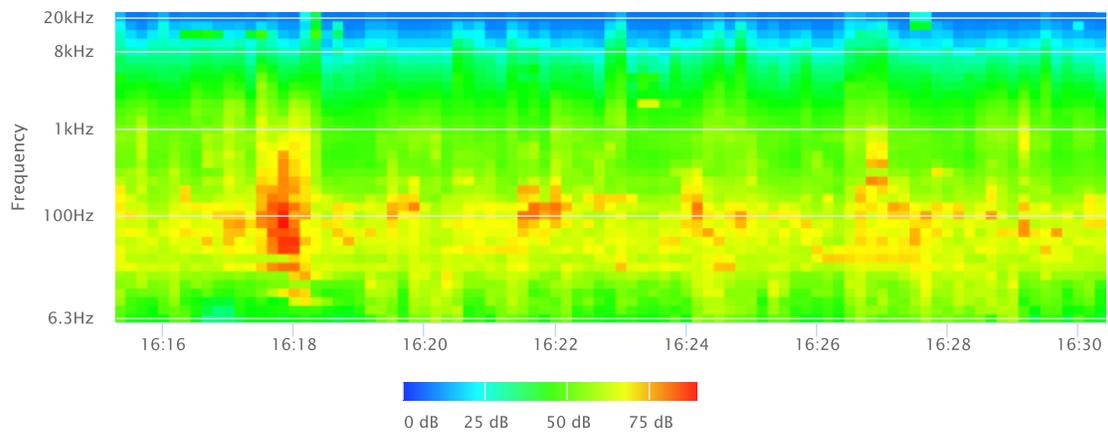
OBA 1/1 Lmin



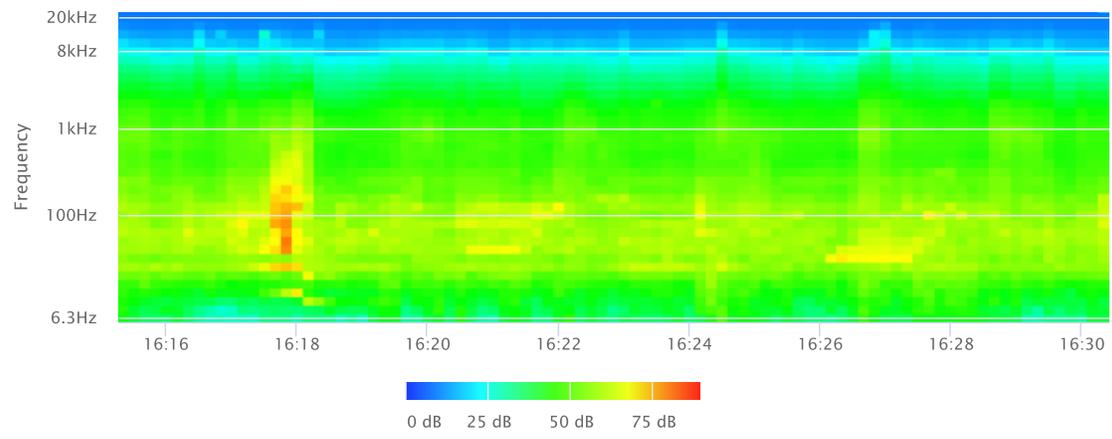
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



APPENDIX D
CONSTRUCTION NOISE MODELING

Receptor - Commercial use to the west (Ben's Auto Repair, 515 Mission Avenue, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	110	20	0.20	-6.8	-7.0	83.2	76.2	Enclosure or Acoustic Tent (6 dB Reduction)	70.2	6.0
Rubber Tired Dozers	1	82	110	40	0.40	-6.8	-4.0	75.2	71.2	Muffler (6 dB Reduction)	65.2	
Tractors/Loaders/Backhoes	3	84	110	40	1.20	-6.8	0.8	77.2	77.9	Muffler (6 dB Reduction)	71.9	
Log Sum									80.7		74.7	
Site Preparation												
Graders	1	85	202	40	0.40	-12.1	-4.0	72.9	68.9	Muffler (6 dB Reduction)	62.9	6.0
Rubber Tired Dozers	1	82	202	40	0.40	-12.1	-4.0	69.9	65.9	Muffler (6 dB Reduction)	59.9	
Tractors/Loaders/Backhoes	1	84	202	40	0.40	-12.1	-4.0	71.9	67.9	Muffler (6 dB Reduction)	61.9	
Log Sum									72.5		66.5	
Grading												
Rubber Tired Dozers	1	82	202	40	0.40	-12.1	-4.0	69.9	65.9	Muffler (9 dB Reduction)	56.9	5.8
Tractors/Loaders/Backhoes	1	84	202	40	0.40	-12.1	-4.0	71.9	67.9	Muffler (9 dB Reduction)	58.9	
Plate Compactor	1	83	202	20	0.20	-12.1	-7.0	70.9	63.9	n/a	63.9	
Excavator	1	81	202	40	0.40	-12.1	-4.0	68.9	64.9	Muffler (9 dB Reduction)	55.9	
Log Sum									71.9		66.1	
Building Construction												
Cranes	2	81	202	16	0.32	-12.1	-4.9	68.9	63.9	Muffler (8 dB Reduction)	55.9	6.3
Forklifts ²	2	48	202	40	0.80	-12.1	-1.0	35.9	34.9	n/a	34.9	
Generator Sets	1	81	202	50	0.50	-12.1	-3.0	68.9	65.9	Enclosure or Acoustic Tent (8 dB Reduction)	57.9	
Welders	3	74	202	40	1.20	-12.1	0.8	61.9	62.7	n/a	62.7	
Tractors/Loaders/Backhoes	2	84	202	40	0.80	-12.1	-1.0	71.9	70.9	Muffler (8 dB Reduction)	62.9	
Log Sum									73.1		66.8	
Paving												
Pavers	1	77	202	50	0.50	-12.1	-3.0	64.9	61.9	Muffler (4 dB Reduction)	57.9	4.0
Paving Equipment	1	77	202	50	0.50	-12.1	-3.0	64.9	61.9	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	57.9	
Rollers	1	80	202	20	0.20	-12.1	-7.0	67.9	60.9	Muffler (4 dB Reduction)	56.9	
Cement and Mortar Mixers	1	79	202	40	0.40	-12.1	-4.0	66.9	62.9	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	58.9	
Tractors/Loaders/Backhoes	1	84	202	40	0.40	-12.1	-4.0	71.9	67.9	Muffler (4 dB Reduction)	63.9	
Log Sum									70.9		66.9	
Architectural Coating												
Air Compressors	1	78	202	40	0.40	-12.1	-4.0	65.9	61.9	-	-	-
Log Sum									61.9		-	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Transient lodging use to the west (Quality Inn Escondido Downtown, 501 Mission Avenue, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	151	20	0.20	-9.6	-7.0	80.4	73.4	Enclosure or Acoustic Tent (6 dB Reduction)	67.4	6.0
Rubber Tired Dozers	1	82	151	40	0.40	-9.6	-4.0	72.4	68.4	Muffler (6 dB Reduction)	62.4	
Tractors/Loaders/Backhoes	3	84	151	40	1.20	-9.6	0.8	74.4	75.2	Muffler (6 dB Reduction)	69.2	
Log Sum									77.9		71.9	
Site Preparation												
Graders	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9	Muffler (6 dB Reduction)	70.9	6.0
Rubber Tired Dozers	1	82	80	40	0.40	-4.1	-4.0	77.9	73.9	Muffler (6 dB Reduction)	67.9	
Tractors/Loaders/Backhoes	1	84	80	40	0.40	-4.1	-4.0	79.9	75.9	Muffler (6 dB Reduction)	69.9	
Log Sum									80.5		74.5	
Grading												
Rubber Tired Dozers	1	82	80	40	0.40	-4.1	-4.0	77.9	73.9	Muffler (9 dB Reduction)	64.9	6.5
Tractors/Loaders/Backhoes	2	84	80	40	0.80	-4.1	-1.0	79.9	78.9	Muffler (9 dB Reduction)	69.9	
Plate Compactor	1	83	80	20	0.20	-4.1	-7.0	78.9	71.9	n/a	71.9	
Excavator	1	81	80	40	0.40	-4.1	-4.0	76.9	72.9	Muffler (9 dB Reduction)	63.9	
Log Sum									81.4		74.9	
Building Construction												
Cranes	2	81	80	16	0.32	-4.1	-4.9	76.9	72.0	Muffler (8 dB Reduction)	64.0	6.3
Forklifts ²	2	48	80	40	0.80	-4.1	-1.0	43.9	42.9	n/a	42.9	
Generator Sets	1	81	80	50	0.50	-4.1	-3.0	76.9	73.9	Enclosure or Acoustic Tent (8 dB Reduction)	65.9	
Welders	3	74	80	40	1.20	-4.1	0.8	69.9	70.7	n/a	70.7	
Tractors/Loaders/Backhoes	2	84	80	40	0.80	-4.1	-1.0	79.9	78.9	Muffler (8 dB Reduction)	70.9	
Log Sum									81.2		74.9	
Paving												
Pavers	1	77	80	50	0.50	-4.1	-3.0	72.9	69.9	Muffler (4 dB Reduction)	65.9	4.0
Paving Equipment	1	77	80	50	0.50	-4.1	-3.0	72.9	69.9	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	65.9	
Rollers	1	80	80	20	0.20	-4.1	-7.0	75.9	68.9	Muffler (4 dB Reduction)	64.9	
Cement and Mortar Mixers	1	79	80	40	0.40	-4.1	-4.0	74.9	70.9	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	66.9	
Tractors/Loaders/Backhoes	1	84	80	40	0.40	-4.1	-4.0	79.9	75.9	Muffler (4 dB Reduction)	71.9	
Log Sum									79.0		75.0	
Architectural Coating												
Air Compressors	1	78	80	40	0.40	-4.1	-4.0	73.9	69.9	-	-	-
Log Sum									69.9		-	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Multi-family residential uses to the south (Village Grove Apartments, 660 N Quince Street, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	561	20	0.20	-21.0	-7.0	69.0	62.0	Enclosure or Acoustic Tent (6 dB Reduction)	56.0	6.0
Rubber Tired Dozers	1	82	561	40	0.40	-21.0	-4.0	61.0	57.0	Muffler (6 dB Reduction)	51.0	
Tractors/Loaders/Backhoes	3	84	561	40	1.20	-21.0	0.8	63.0	63.8	Muffler (6 dB Reduction)	57.8	
Log Sum									66.5	60.5		
Site Preparation												
Graders	1	85	310	40	0.40	-15.8	-4.0	69.2	65.2	Muffler (6 dB Reduction)	59.2	6.0
Rubber Tired Dozers	1	82	310	40	0.40	-15.8	-4.0	66.2	62.2	Muffler (6 dB Reduction)	56.2	
Tractors/Loaders/Backhoes	1	84	310	40	0.40	-15.8	-4.0	68.2	64.2	Muffler (6 dB Reduction)	58.2	
Log Sum									68.8	62.8		
Grading												
Rubber Tired Dozers	1	82	310	40	0.40	-15.8	-4.0	66.2	62.2	Muffler (9 dB Reduction)	53.2	6.5
Tractors/Loaders/Backhoes	2	84	310	40	0.80	-15.8	-1.0	68.2	67.2	Muffler (9 dB Reduction)	58.2	
Plate Compactor	1	83	310	20	0.20	-15.8	-7.0	67.2	60.2	n/a	60.2	
Excavator	1	81	310	40	0.40	-15.8	-4.0	65.2	61.2	Muffler (9 dB Reduction)	52.2	
Log Sum									69.6	63.2		
Building Construction												
Cranes	2	81	310	16	0.32	-15.8	-4.9	65.2	60.2	Muffler (8 dB Reduction)	52.2	6.3
Forklifts ²	2	48	310	40	0.80	-15.8	-1.0	32.2	31.2	n/a	31.2	
Generator Sets	1	81	310	50	0.50	-15.8	-3.0	65.2	62.1	Enclosure or Acoustic Tent (8 dB Reduction)	54.1	
Welders	3	74	310	40	1.20	-15.8	0.8	58.2	58.9	n/a	58.9	
Tractors/Loaders/Backhoes	2	84	310	40	0.80	-15.8	-1.0	68.2	67.2	Muffler (8 dB Reduction)	59.2	
Log Sum									69.4	63.1		
Paving												
Pavers	1	77	310	50	0.50	-15.8	-3.0	61.2	58.1	Muffler (4 dB Reduction)	54.1	4.0
Paving Equipment	1	77	310	50	0.50	-15.8	-3.0	61.2	58.1	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	54.1	
Rollers	1	80	310	20	0.20	-15.8	-7.0	64.2	57.2	Muffler (4 dB Reduction)	53.2	
Cement and Mortar Mixers	1	79	310	40	0.40	-15.8	-4.0	63.2	59.2	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	55.2	
Tractors/Loaders/Backhoes	1	84	310	40	0.40	-15.8	-4.0	68.2	64.2	Muffler (4 dB Reduction)	60.2	
Log Sum									67.2	63.2		
Architectural Coating												
Air Compressors	1	78	310	40	0.40	-15.8	-4.0	62.2	58.2	-	-	-
Log Sum									58.2	-		

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Multi-family residential uses to the southeast (Alcove 650 Centre City Parkway, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	610	20	0.20	-21.7	-7.0	68.3	61.3	Enclosure or Acoustic Tent (6 dB Reduction)	55.3	6.0
Rubber Tired Dozers	1	82	610	40	0.40	-21.7	-4.0	60.3	56.3	Muffler (6 dB Reduction)	50.3	
Tractors/Loaders/Backhoes	3	84	610	40	1.20	-21.7	0.8	62.3	63.1	Muffler (6 dB Reduction)	57.1	
								Log Sum	65.8		59.8	
Site Preparation												
Graders	1	85	390	40	0.40	-17.8	-4.0	67.2	63.2	Muffler (6 dB Reduction)	57.2	6.0
Rubber Tired Dozers	1	82	390	40	0.40	-17.8	-4.0	64.2	60.2	Muffler (6 dB Reduction)	54.2	
Tractors/Loaders/Backhoes	1	84	390	40	0.40	-17.8	-4.0	66.2	62.2	Muffler (6 dB Reduction)	56.2	
								Log Sum	66.8		60.8	
Grading												
Rubber Tired Dozers	1	82	390	40	0.40	-17.8	-4.0	64.2	60.2	Muffler (9 dB Reduction)	51.2	6.5
Tractors/Loaders/Backhoes	2	84	390	40	0.80	-17.8	-1.0	66.2	65.2	Muffler (9 dB Reduction)	56.2	
Plate Compactor	1	83	390	20	0.20	-17.8	-7.0	65.2	58.2	n/a	58.2	
Excavator	1	81	390	40	0.40	-17.8	-4.0	63.2	59.2	Muffler (9 dB Reduction)	50.2	
								Log Sum	67.7		61.2	
Building Construction												
Cranes	2	81	390	16	0.32	-17.8	-4.9	63.2	58.2	Muffler (8 dB Reduction)	50.2	6.3
Forklifts ²	2	48	390	40	0.80	-17.8	-1.0	30.2	29.2	n/a	29.2	
Generator Sets	1	81	390	50	0.50	-17.8	-3.0	63.2	60.1	Enclosure or Acoustic Tent (8 dB Reduction)	52.1	
Welders	3	74	390	40	1.20	-17.8	0.8	56.2	56.9	n/a	56.9	
Tractors/Loaders/Backhoes	2	84	390	40	0.80	-17.8	-1.0	66.2	65.2	Muffler (8 dB Reduction)	57.2	
								Log Sum	67.4		61.1	
Paving												
Pavers	1	77	390	50	0.50	-17.8	-3.0	59.2	56.1	Muffler (4 dB Reduction)	52.1	4.0
Paving Equipment	1	77	390	50	0.50	-17.8	-3.0	59.2	56.1	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	52.1	
Rollers	1	80	390	20	0.20	-17.8	-7.0	62.2	55.2	Muffler (4 dB Reduction)	51.2	
Cement and Mortar Mixers	1	79	390	40	0.40	-17.8	-4.0	61.2	57.2	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	53.2	
Tractors/Loaders/Backhoes	1	84	390	40	0.40	-17.8	-4.0	66.2	62.2	Muffler (4 dB Reduction)	58.2	
								Log Sum	65.2		61.2	
Architectural Coating												
Air Compressors	1	78	390	40	0.40	-17.8	-4.0	60.2	56.2	-	-	-
								Log Sum	56.2		-	-

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - School use to the east (Epiphany Prep Charter School, 725 N Escondido Boulevard, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	461	20	0.20	-19.3	-7.0	70.7	63.7	Enclosure or Acoustic Tent (6 dB Reduction)	57.7	6.0
Rubber Tired Dozers	1	82	461	40	0.40	-19.3	-4.0	62.7	58.7	Muffler (6 dB Reduction)	52.7	
Tractors/Loaders/Backhoes	3	84	461	40	1.20	-19.3	0.8	64.7	65.5	Muffler (6 dB Reduction)	59.5	
Log Sum									68.2	62.2		
Site Preparation												
Graders	1	85	379	40	0.40	-17.6	-4.0	67.4	63.4	Muffler (6 dB Reduction)	57.4	6.0
Rubber Tired Dozers	1	82	379	40	0.40	-17.6	-4.0	64.4	60.4	Muffler (6 dB Reduction)	54.4	
Tractors/Loaders/Backhoes	1	84	379	40	0.40	-17.6	-4.0	66.4	62.4	Muffler (6 dB Reduction)	56.4	
Log Sum									67.0	61.0		
Grading												
Rubber Tired Dozers	1	82	379	40	0.40	-17.6	-4.0	64.4	60.4	Muffler (9 dB Reduction)	51.4	6.5
Tractors/Loaders/Backhoes	2	84	379	40	0.80	-17.6	-1.0	66.4	65.4	Muffler (9 dB Reduction)	56.4	
Plate Compactor	1	83	379	20	0.20	-17.6	-7.0	65.4	58.4	n/a	58.4	
Excavator	1	81	379	40	0.40	-17.6	-4.0	63.4	59.4	Muffler (9 dB Reduction)	50.4	
Log Sum									67.9	61.4		
Building Construction												
Cranes	2	81	379	16	0.32	-17.6	-4.9	63.4	58.5	Muffler (8 dB Reduction)	50.5	6.3
Forklifts ²	2	48	379	40	0.80	-17.6	-1.0	30.4	29.4	n/a	29.4	
Generator Sets	1	81	379	50	0.50	-17.6	-3.0	63.4	60.4	Enclosure or Acoustic Tent (8 dB Reduction)	52.4	
Welders	3	74	379	40	1.20	-17.6	0.8	56.4	57.2	n/a	57.2	
Tractors/Loaders/Backhoes	2	84	379	40	0.80	-17.6	-1.0	66.4	65.4	Muffler (8 dB Reduction)	57.4	
Log Sum									67.6	61.3		
Paving												
Pavers	1	77	379	50	0.50	-17.6	-3.0	59.4	56.4	Muffler (4 dB Reduction)	52.4	4.0
Paving Equipment	1	77	379	50	0.50	-17.6	-3.0	59.4	56.4	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	52.4	
Rollers	1	80	379	20	0.20	-17.6	-7.0	62.4	55.4	Muffler (4 dB Reduction)	51.4	
Cement and Mortar Mixers	1	79	379	40	0.40	-17.6	-4.0	61.4	57.4	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	53.4	
Tractors/Loaders/Backhoes	1	84	379	40	0.40	-17.6	-4.0	66.4	62.4	Muffler (4 dB Reduction)	58.4	
Log Sum									65.5	61.5		
Architectural Coating												
Air Compressors	1	78	379	40	0.40	-17.6	-4.0	60.4	56.4	-	-	-
Log Sum									56.4	-	-	-

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Commercial use to the east (Super Star Car Wash Express, 680 City Centre Parkway, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	438	20	0.20	-18.9	-7.0	71.1	64.2	Enclosure or Acoustic Tent (6 dB Reduction)	58.2	6.0
Rubber Tired Dozers	1	82	438	40	0.40	-18.9	-4.0	63.1	59.2	Muffler (6 dB Reduction)	53.2	
Tractors/Loaders/Backhoes	3	84	438	40	1.20	-18.9	0.8	65.1	65.9	Muffler (6 dB Reduction)	59.9	
								Log Sum	68.7		62.7	
Site Preparation												
Graders	1	85	257	40	0.40	-14.2	-4.0	70.8	66.8	Muffler (6 dB Reduction)	60.8	6.0
Rubber Tired Dozers	1	82	257	40	0.40	-14.2	-4.0	67.8	63.8	Muffler (6 dB Reduction)	57.8	
Tractors/Loaders/Backhoes	1	84	257	40	0.40	-14.2	-4.0	69.8	65.8	Muffler (6 dB Reduction)	59.8	
								Log Sum	70.4		64.4	
Grading												
Rubber Tired Dozers	1	82	257	40	0.40	-14.2	-4.0	67.8	63.8	Muffler (9 dB Reduction)	54.8	6.5
Tractors/Loaders/Backhoes	2	84	257	40	0.80	-14.2	-1.0	69.8	68.8	Muffler (9 dB Reduction)	59.8	
Plate Compactor	1	83	257	20	0.20	-14.2	-7.0	68.8	61.8	n/a	61.8	
Excavator	1	81	257	40	0.40	-14.2	-4.0	66.8	62.8	Muffler (9 dB Reduction)	53.8	
								Log Sum	71.3		64.8	
Building Construction												
Cranes	2	81	257	16	0.32	-14.2	-4.9	66.8	61.8	Muffler (8 dB Reduction)	53.8	6.3
Forklifts ²	2	48	257	40	0.80	-14.2	-1.0	33.8	32.8	n/a	32.8	
Generator Sets	1	81	257	50	0.50	-14.2	-3.0	66.8	63.8	Enclosure or Acoustic Tent (8 dB Reduction)	55.8	
Welders	3	74	257	40	1.20	-14.2	0.8	59.8	60.6	n/a	60.6	
Tractors/Loaders/Backhoes	2	84	257	40	0.80	-14.2	-1.0	69.8	68.8	Muffler (8 dB Reduction)	60.8	
								Log Sum	71.0		64.7	
Paving												
Pavers	1	77	257	50	0.50	-14.2	-3.0	62.8	59.8	Muffler (4 dB Reduction)	55.8	4.0
Paving Equipment	1	77	257	50	0.50	-14.2	-3.0	62.8	59.8	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	55.8	
Rollers	1	80	257	20	0.20	-14.2	-7.0	65.8	58.8	Muffler (4 dB Reduction)	54.8	
Cement and Mortar Mixers	1	79	257	40	0.40	-14.2	-4.0	64.8	60.8	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	56.8	
Tractors/Loaders/Backhoes	1	84	257	40	0.40	-14.2	-4.0	69.8	65.8	Muffler (4 dB Reduction)	61.8	
								Log Sum	68.8		64.8	
Architectural Coating												
Air Compressors	1	78	257	40	0.40	-14.2	-4.0	63.8	59.8	-	-	-
								Log Sum	59.8		-	-

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Commercial use to the east (Banfield Pet Hospital/Yoshinoya Japanese Restaurant Building, 700 City Centre Parkway, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)	
Demolition													
Concrete/Industrial Saws	1	90	267	20	0.20	-14.6	-7.0	75.4	68.5	Enclosure or Acoustic Tent (6 dB Reduction)	62.5	6.0	
Rubber Tired Dozers	1	82	267	40	0.40	-14.6	-4.0	67.4	63.5	Muffler (6 dB Reduction)	57.5		
Tractors/Loaders/Backhoes	3	84	267	40	1.20	-14.6	0.8	69.4	70.2	Muffler (6 dB Reduction)	64.2		
Log Sum									73.0			67.0	
Site Preparation													
Graders	1	85	215	40	0.40	-12.7	-4.0	72.3	68.4	Muffler (6 dB Reduction)	62.4	6.0	
Rubber Tired Dozers	1	82	215	40	0.40	-12.7	-4.0	69.3	65.4	Muffler (6 dB Reduction)	59.4		
Tractors/Loaders/Backhoes	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4	Muffler (6 dB Reduction)	61.4		
Log Sum									72.0			66.0	
Grading													
Rubber Tired Dozers	1	82	215	40	0.40	-12.7	-4.0	69.3	65.4	Muffler (9 dB Reduction)	56.4	6.5	
Tractors/Loaders/Backhoes	2	84	215	40	0.80	-12.7	-1.0	71.3	70.4	Muffler (9 dB Reduction)	61.4		
Plate Compactor	1	83	215	20	0.20	-12.7	-7.0	70.3	63.3	n/a	63.3		
Excavator	1	81	215	40	0.40	-12.7	-4.0	68.3	64.4	Muffler (9 dB Reduction)	55.4		
Log Sum									72.8			66.3	
Building Construction													
Cranes	2	81	215	16	0.32	-12.7	-4.9	68.3	63.4	Muffler (8 dB Reduction)	55.4	6.3	
Forklifts ²	2	48	215	40	0.80	-12.7	-1.0	35.3	34.4	n/a	34.4		
Generator Sets	1	81	215	50	0.50	-12.7	-3.0	68.3	65.3	Enclosure or Acoustic Tent (8 dB Reduction)	57.3		
Welders	3	74	215	40	1.20	-12.7	0.8	61.3	62.1	n/a	62.1		
Tractors/Loaders/Backhoes	2	84	215	40	0.80	-12.7	-1.0	71.3	70.4	Muffler (8 dB Reduction)	62.4		
Log Sum									72.6			66.3	
Paving													
Pavers	1	77	215	50	0.50	-12.7	-3.0	64.3	61.3	Muffler (4 dB Reduction)	57.3	4.0	
Paving Equipment	1	77	215	50	0.50	-12.7	-3.0	64.3	61.3	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	57.3		
Rollers	1	80	215	20	0.20	-12.7	-7.0	67.3	60.3	Muffler (4 dB Reduction)	56.3		
Cement and Mortar Mixers	1	79	215	40	0.40	-12.7	-4.0	66.3	62.4	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	58.4		
Tractors/Loaders/Backhoes	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4	Muffler (4 dB Reduction)	63.4		
Log Sum									70.4			66.4	
Architectural Coating													
Air Compressors	1	78	215	40	0.40	-12.7	-4.0	65.3	61.4	-	-	-	
Log Sum									61.4			-	

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Commercial use to the east (The Habit Burger, 720 City Centre Parkway, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	211	20	0.20	-12.5	-7.0	77.5	70.5	Enclosure or Acoustic Tent (6 dB Reduction)	64.5	6.0
Rubber Tired Dozers	1	82	211	40	0.40	-12.5	-4.0	69.5	65.5	Muffler (6 dB Reduction)	59.5	
Tractors/Loaders/Backhoes	3	84	211	40	1.20	-12.5	0.8	71.5	72.3	Muffler (6 dB Reduction)	66.3	
Log Sum									75.0		69.0	
Site Preparation												
Graders	1	85	228	40	0.40	-13.2	-4.0	71.8	67.8	Muffler (6 dB Reduction)	61.8	6.0
Rubber Tired Dozers	1	82	228	40	0.40	-13.2	-4.0	68.8	64.8	Muffler (6 dB Reduction)	58.8	
Tractors/Loaders/Backhoes	1	84	228	40	0.40	-13.2	-4.0	70.8	66.8	Muffler (6 dB Reduction)	60.8	
Log Sum									71.5		65.5	
Grading												
Rubber Tired Dozers	1	82	228	40	0.40	-13.2	-4.0	68.8	64.8	Muffler (9 dB Reduction)	55.8	6.5
Tractors/Loaders/Backhoes	2	84	228	40	0.80	-13.2	-1.0	70.8	69.9	Muffler (9 dB Reduction)	60.9	
Plate Compactor	1	83	228	20	0.20	-13.2	-7.0	69.8	62.8	n/a	62.8	
Excavator	1	81	228	40	0.40	-13.2	-4.0	67.8	63.8	Muffler (9 dB Reduction)	54.8	
Log Sum									72.3		65.8	
Building Construction												
Cranes	2	81	228	16	0.32	-13.2	-4.9	67.8	62.9	Muffler (8 dB Reduction)	54.9	6.3
Forklifts ²	2	48	228	40	0.80	-13.2	-1.0	34.8	33.9	n/a	33.9	
Generator Sets	1	81	228	50	0.50	-13.2	-3.0	67.8	64.8	Enclosure or Acoustic Tent (8 dB Reduction)	56.8	
Welders	3	74	228	40	1.20	-13.2	0.8	60.8	61.6	n/a	61.6	
Tractors/Loaders/Backhoes	2	84	228	40	0.80	-13.2	-1.0	70.8	69.9	Muffler (8 dB Reduction)	61.9	
Log Sum									72.1		65.8	
Paving												
Pavers	1	77	228	50	0.50	-13.2	-3.0	63.8	60.8	Muffler (4 dB Reduction)	56.8	4.0
Paving Equipment	1	77	228	50	0.50	-13.2	-3.0	63.8	60.8	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	56.8	
Rollers	1	80	228	20	0.20	-13.2	-7.0	66.8	59.8	Muffler (4 dB Reduction)	55.8	
Cement and Mortar Mixers	1	79	228	40	0.40	-13.2	-4.0	65.8	61.8	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	57.8	
Tractors/Loaders/Backhoes	1	84	228	40	0.40	-13.2	-4.0	70.8	66.8	Muffler (4 dB Reduction)	62.8	
Log Sum									69.9		65.9	
Architectural Coating												
Air Compressors	1	78	228	40	0.40	-13.2	-4.0	64.8	60.8	-	-	-
Log Sum									60.8		-	

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Commercial use to the northeast (McDonald's, 340 W Mission Ave, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	285	20	0.20	-15.1	-7.0	74.9	67.9	Enclosure or Acoustic Tent (6 dB Reduction)	61.9	6.0
Rubber Tired Dozers	1	82	285	40	0.40	-15.1	-4.0	66.9	62.9	Muffler (6 dB Reduction)	56.9	
Tractors/Loaders/Backhoes	3	84	285	40	1.20	-15.1	0.8	68.9	69.7	Muffler (6 dB Reduction)	63.7	
								Log Sum	72.4		66.4	
Site Preparation												
Graders	1	85	487	40	0.40	-19.8	-4.0	65.2	61.2	Muffler (6 dB Reduction)	55.2	6.0
Rubber Tired Dozers	1	82	487	40	0.40	-19.8	-4.0	62.2	58.2	Muffler (6 dB Reduction)	52.2	
Tractors/Loaders/Backhoes	1	84	487	40	0.40	-19.8	-4.0	64.2	60.2	Muffler (6 dB Reduction)	54.2	
								Log Sum	64.9		58.9	
Grading												
Rubber Tired Dozers	1	82	487	40	0.40	-19.8	-4.0	62.2	58.2	Muffler (9 dB Reduction)	49.2	6.5
Tractors/Loaders/Backhoes	2	84	487	40	0.80	-19.8	-1.0	64.2	63.3	Muffler (9 dB Reduction)	54.3	
Plate Compactor	1	83	487	20	0.20	-19.8	-7.0	63.2	56.2	n/a	56.2	
Excavator	1	81	487	40	0.40	-19.8	-4.0	61.2	57.2	Muffler (9 dB Reduction)	48.2	
								Log Sum	65.7		59.2	
Building Construction												
Cranes	2	81	487	16	0.32	-19.8	-4.9	61.2	56.3	Muffler (8 dB Reduction)	48.3	6.3
Forklifts ²	2	48	487	40	0.80	-19.8	-1.0	28.2	27.3	n/a	27.3	
Generator Sets	1	81	487	50	0.50	-19.8	-3.0	61.2	58.2	Enclosure or Acoustic Tent (8 dB Reduction)	50.2	
Welders	3	74	487	40	1.20	-19.8	0.8	54.2	55.0	n/a	55.0	
Tractors/Loaders/Backhoes	2	84	487	40	0.80	-19.8	-1.0	64.2	63.3	Muffler (8 dB Reduction)	55.3	
								Log Sum	65.5		59.2	
Paving												
Pavers	1	77	487	50	0.50	-19.8	-3.0	57.2	54.2	Muffler (4 dB Reduction)	50.2	4.0
Paving Equipment	1	77	487	50	0.50	-19.8	-3.0	57.2	54.2	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	50.2	
Rollers	1	80	487	20	0.20	-19.8	-7.0	60.2	53.2	Muffler (4 dB Reduction)	49.2	
Cement and Mortar Mixers	1	79	487	40	0.40	-19.8	-4.0	59.2	55.2	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	51.2	
Tractors/Loaders/Backhoes	1	84	487	40	0.40	-19.8	-4.0	64.2	60.2	Muffler (4 dB Reduction)	56.2	
								Log Sum	63.3		59.3	
Architectural Coating												
Air Compressors	1	78	487	40	0.40	-19.8	-4.0	58.2	54.2	-	-	-
								Log Sum	54.2		-	-

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Commercial use to the north (Karz Plus, 506 W Mission Ave, Escondido)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ²	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Best Management Practice (BMP)	Noise Level with BMP	Reduction (dBA Leq)
Demolition												
Concrete/Industrial Saws	1	90	151	20	0.20	-9.6	-7.0	80.4	73.4	Enclosure or Acoustic Tent (6 dB Reduction)	67.4	6.0
Rubber Tired Dozers	1	82	151	40	0.40	-9.6	-4.0	72.4	68.4	Muffler (6 dB Reduction)	62.4	
Tractors/Loaders/Backhoes	3	84	151	40	1.20	-9.6	0.8	74.4	75.2	Muffler (6 dB Reduction)	69.2	
								Log Sum	77.9		71.9	
Site Preparation												
Graders	1	85	399	40	0.40	-18.0	-4.0	67.0	63.0	Muffler (6 dB Reduction)	57.0	6.0
Rubber Tired Dozers	1	82	399	40	0.40	-18.0	-4.0	64.0	60.0	Muffler (6 dB Reduction)	54.0	
Tractors/Loaders/Backhoes	1	84	399	40	0.40	-18.0	-4.0	66.0	62.0	Muffler (6 dB Reduction)	56.0	
								Log Sum	66.6		60.6	
Grading												
Rubber Tired Dozers	1	82	399	40	0.40	-18.0	-4.0	64.0	60.0	Muffler (9 dB Reduction)	51.0	6.5
Tractors/Loaders/Backhoes	2	84	399	40	0.80	-18.0	-1.0	66.0	65.0	Muffler (9 dB Reduction)	56.0	
Plate Compactor	1	83	399	20	0.20	-18.0	-7.0	65.0	58.0	n/a	58.0	
Excavator	1	81	399	40	0.40	-18.0	-4.0	63.0	59.0	Muffler (9 dB Reduction)	50.0	
								Log Sum	67.5		61.0	
Building Construction												
Cranes	2	81	399	16	0.32	-18.0	-4.9	63.0	58.0	Muffler (8 dB Reduction)	50.0	6.3
Forklifts ²	2	48	399	40	0.80	-18.0	-1.0	30.0	29.0	n/a	29.0	
Generator Sets	1	81	399	50	0.50	-18.0	-3.0	63.0	59.9	Enclosure or Acoustic Tent (8 dB Reduction)	51.9	
Welders	3	74	399	40	1.20	-18.0	0.8	56.0	56.8	n/a	56.8	
Tractors/Loaders/Backhoes	2	84	399	40	0.80	-18.0	-1.0	66.0	65.0	Muffler (8 dB Reduction)	57.0	
								Log Sum	67.2		60.9	
Paving												
Pavers	1	77	399	50	0.50	-18.0	-3.0	59.0	55.9	Muffler (4 dB Reduction)	51.9	4.0
Paving Equipment	1	77	399	50	0.50	-18.0	-3.0	59.0	55.9	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	51.9	
Rollers	1	80	399	20	0.20	-18.0	-7.0	62.0	55.0	Muffler (4 dB Reduction)	51.0	
Cement and Mortar Mixers	1	79	399	40	0.40	-18.0	-4.0	61.0	57.0	Muffler, Enclosure or Acoustic Tent (4 dB Reduction)	53.0	
Tractors/Loaders/Backhoes	1	84	399	40	0.40	-18.0	-4.0	66.0	62.0	Muffler (4 dB Reduction)	58.0	
								Log Sum	65.0		61.0	
Architectural Coating												
Air Compressors	1	78	399	40	0.40	-18.0	-4.0	60.0	56.0	-	-	-
								Log Sum	56.0		-	-

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
- (2) Source: SoundPLAN reference list.
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

APPENDIX E
SOUNDPLAN INPUT AND OUTPUT

Contribution levels of the receivers

Source name	Traffic lane	Level Day dB(A)
1	EG	53.3
1	-	18.8
2	-	26.0
Drive-Que 1	-	22.1
Drive-Que 2	-	20.7
Drive-Que 3	-	30.2
Drive-Que 4	-	35.2
Drive-Que 5	-	20.4
HVAC 1	-	29.2
HVAC 2	-	29.0
HVAC 3	-	28.8
HVAC 4	-	34.8
HVAC 5	-	35.7
HVAC 6	-	36.3
HVAC 7	-	36.3
HVAC 8	-	37.3
HVAC 9	-	36.4
HVAC 10	-	35.8
Park 1	-	35.6
Park 2	-	31.2
Park 3	-	35.5
Park 4	-	28.6
Park 5	-	26.3
Park 6	-	35.4
Park 7	-	39.7
Park 8	-	49.8
Park 9	-	46.1
Park 10	-	42.4
Patio 2	-	17.9
Speaker 1	-	18.8
Speaker 2	-	24.6
2	EG	51.4
1	-	15.2
2	-	15.2
Drive-Que 1	-	16.3
Drive-Que 2	-	12.7
Drive-Que 3	-	21.2
Drive-Que 4	-	37.8
Drive-Que 5	-	39.2
HVAC 1	-	25.1
HVAC 2	-	25.1
HVAC 3	-	20.3
HVAC 4	-	26.0
HVAC 5	-	30.6
HVAC 6	-	28.2
HVAC 7	-	28.2
HVAC 8	-	30.4
HVAC 9	-	32.9
HVAC 10	-	42.6
Park 1	-	32.1
Park 2	-	28.0
Park 3	-	29.4
Park 4	-	24.9
Park 5	-	21.9
Park 6	-	27.6
Park 7	-	32.2
Park 8	-	46.1
Park 9	-	44.0
Park 10	-	44.1
Patio 2	-	10.7
Speaker 1	-	5.4
Speaker 2	-	13.2

Contribution levels of the receivers

Source name	Traffic lane	Level Day dB(A)
3	EG	43.0
1	-	13.7
2	-	12.3
Drive-Que 1	-	12.7
Drive-Que 2	-	13.6
Drive-Que 3	-	19.4
Drive-Que 4	-	25.0
Drive-Que 5	-	19.2
HVAC 1	-	23.4
HVAC 2	-	23.6
HVAC 3	-	23.7
HVAC 4	-	27.3
HVAC 5	-	27.8
HVAC 6	-	28.7
HVAC 7	-	28.7
HVAC 8	-	32.5
HVAC 9	-	33.2
HVAC 10	-	33.8
Park 1	-	29.7
Park 2	-	26.6
Park 3	-	24.8
Park 4	-	18.2
Park 5	-	14.1
Park 6	-	24.8
Park 7	-	26.0
Park 8	-	36.4
Park 9	-	32.8
Park 10	-	29.8
Patio 2	-	0.7
Speaker 1	-	11.9
Speaker 2	-	17.0
4	EG	42.1
1	-	16.4
2	-	18.2
Drive-Que 1	-	17.3
Drive-Que 2	-	17.1
Drive-Que 3	-	20.8
Drive-Que 4	-	22.7
Drive-Que 5	-	13.3
HVAC 1	-	26.2
HVAC 2	-	26.7
HVAC 3	-	27.0
HVAC 4	-	29.8
HVAC 5	-	30.0
HVAC 6	-	30.1
HVAC 7	-	30.1
HVAC 8	-	29.9
HVAC 9	-	29.7
HVAC 10	-	29.4
Park 1	-	32.0
Park 2	-	29.3
Park 3	-	30.5
Park 4	-	25.2
Park 5	-	22.9
Park 6	-	16.3
Park 7	-	22.0
Park 8	-	30.8
Park 9	-	30.6
Park 10	-	27.6
Patio 2	-	13.2
Speaker 1	-	15.2
Speaker 2	-	17.9

Contribution levels of the receivers

Source name	Traffic lane	Level Day dB(A)
5	EG	45.6
1	-	23.7
2	-	18.3
Drive-Que 1	-	22.6
Drive-Que 2	-	25.4
Drive-Que 3	-	23.7
Drive-Que 4	-	21.8
Drive-Que 5	-	8.2
HVAC 1	-	32.0
HVAC 2	-	30.9
HVAC 3	-	35.7
HVAC 4	-	33.4
HVAC 5	-	31.4
HVAC 6	-	32.2
HVAC 7	-	32.2
HVAC 8	-	28.5
HVAC 9	-	27.4
HVAC 10	-	26.8
Park 1	-	38.2
Park 2	-	34.3
Park 3	-	35.7
Park 4	-	28.2
Park 5	-	26.5
Park 6	-	27.3
Park 7	-	28.5
Park 8	-	32.1
Park 9	-	32.3
Park 10	-	29.1
Patio 2	-	22.8
Speaker 1	-	24.7
Speaker 2	-	18.9
6	EG	54.6
1	-	28.9
2	-	17.3
Drive-Que 1	-	36.6
Drive-Que 2	-	29.8
Drive-Que 3	-	24.5
Drive-Que 4	-	21.3
Drive-Que 5	-	10.1
HVAC 1	-	43.4
HVAC 2	-	32.7
HVAC 3	-	28.9
HVAC 4	-	32.7
HVAC 5	-	30.2
HVAC 6	-	28.9
HVAC 7	-	28.9
HVAC 8	-	27.4
HVAC 9	-	26.2
HVAC 10	-	23.8
Park 1	-	43.7
Park 2	-	42.2
Park 3	-	36.7
Park 4	-	52.7
Park 5	-	39.6
Park 6	-	29.8
Park 7	-	34.4
Park 8	-	35.2
Park 9	-	33.2
Park 10	-	31.0
Patio 2	-	22.0
Speaker 1	-	26.3
Speaker 2	-	5.2

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour			Road surface	Separated method	Lw,ref dB(A)
			Day	Evening	Night			
Park 1	Visitors and staff	12 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	75.0
Park 2	Visitors and staff	6 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	70.8
Park 3	Visitors and staff	9 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	72.5
Park 4	Visitors and staff	5 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	70.0
Park 5	Visitors and staff	2 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	66.0
Park 6	Visitors and staff	3 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	67.8
Park 7	Visitors and staff	8 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	72.0
Park 8	Visitors and staff	17 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	77.6
Park 9	Visitors and staff	13 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	75.6
Park 10	Visitors and staff	11 Parking bays	1.500	0.000	0.000	Asphaltic driving lanes	no	74.2

Receiver list

No.	Receiver name	Building side	Floor	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	1	-	EG	-	53.3	-
2	2	-	EG	-	51.4	-
3	3	-	EG	-	43.0	-
4	4	-	EG	-	42.1	-
5	5	-	EG	-	45.6	-
6	6	-	EG	-	54.6	-

APPENDIX F
FHWA WORKSHEETS

Existing Traffic Noise

1
 Rock Spring Road
 North of Mission Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8690
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	532.95	6.52	2.53	393.86	1.16	1.16	98.65	8.69	3.38
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.52	2.39	-1.71	20.21	-5.11	-5.10	14.19	3.64	-0.46
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.53	53.12	54.24	61.22	45.61	50.84	55.20	54.37	55.49
	DAY LEQ	63.54		EVENING LEQ	61.71		NIGHT LEQ	59.82	

F CNEL 67.25 Day hour 89.00
 DAY LEQ 63.54 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

1 :ld
 Rock Spring Road :Road
 North of Mission Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8790
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	539.09	6.59	2.56	398.39	1.17	1.17	99.79	8.79	3.42
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.57	2.44	-1.66	20.26	-5.07	-5.05	14.24	3.69	-0.41
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.58	53.17	54.29	61.27	45.66	50.89	55.25	54.42	55.54
	DAY LEQ	63.59		EVENING LEQ	61.75		NIGHT LEQ	59.87	

CNEL 67.30
 DAY LEQ 63.59

Day hour 89.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

2
 :ld
 :Road
 :Segment

Rock Spring Road
 Mission Avenue to Washington
 Avenue

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 7730
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	474.08	5.80	2.25	350.35	1.03	1.03	87.75	7.73	3.01
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.01	1.89	-2.22	19.70	-5.62	-5.61	13.69	3.14	-0.97
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.02	52.61	53.73	60.71	45.10	50.33	54.70	53.86	54.98
	DAY LEQ	63.03		EVENING LEQ	61.20		NIGHT LEQ	59.31	

CNEL 66.74
 DAY LEQ 63.03

Day hour 90.00
 Absorptive? no
 Use hour? no
 GRADE dB 1.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

2 :ld
 Rock Spring Road :Road
 Mission Avenue to Washington Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 7830
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	480.21	5.87	2.28	354.88	1.04	1.04	88.89	7.83	3.05
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.07	1.94	-2.16	19.75	-5.57	-5.56	13.74	3.19	-0.91
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.08	52.67	53.79	60.76	45.16	50.39	54.75	53.92	55.03
	DAY LEQ	63.09		EVENING LEQ	61.25		NIGHT LEQ	59.36	

CNEL 66.80
 DAY LEQ 63.09

Day hour 90.00
 Absorptive? no
 Use hour? no
 GRADE dB 1.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

3
 Quince Street
 Mission Avenue to Washington Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 5870
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	360.00	4.40	1.71	266.05	0.78	0.78	66.64	5.87	2.28
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	19.82	0.69	-3.41	18.50	-6.82	-6.81	12.49	1.94	-2.16
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.83	51.42	52.53	59.51	43.91	49.14	53.50	52.67	53.78
	DAY LEQ	61.84		EVENING LEQ	60.00		NIGHT LEQ	58.11	

CNEL 65.55
 DAY LEQ 61.84

Day hour 91.00
 Absorptive? no
 Use hour? no
 GRADE dB 2.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

3 :ld
 Quince Street :Road
 Mission Avenue to Washington Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 6030
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	369.82	4.52	1.76	273.30	0.80	0.80	68.46	6.03	2.35
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	19.93	0.81	-3.29	18.62	-6.70	-6.69	12.61	2.06	-2.04
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	60.94	51.53	52.65	59.63	44.03	49.25	53.62	52.78	53.90
	DAY LEQ	61.96		EVENING LEQ	60.12		NIGHT LEQ	58.23	

CNEL 65.66
 DAY LEQ 61.96

Day hour 91.00
 Absorptive? no
 Use hour? no
 GRADE dB 2.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

4
 Centre City Parkway
 North of Mission Avenue

:Id
 :Road
 :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 24200
 Speed 50
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1401.52	29.04	48.40	1040.47	4.84	8.07	258.02	40.33	67.22
Speed in MPH	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	71.12	78.79	83.02	71.12	78.79	83.02	71.12	78.79	83.02
ADJUSTMENTS									
Flow	24.17	7.33	9.55	22.88	-0.45	1.77	16.82	8.76	10.98
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.13	60.97	67.42	68.84	53.19	59.64	62.78	62.40	68.84
	DAY LEQ	72.33		EVENING LEQ	69.44		NIGHT LEQ	70.53	

CNEL 77.35
 DAY LEQ 72.33

Day hour 92.00
 Absorptive? no
 Use hour? no
 GRADE dB 3.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

4 :ld
 Centre City Parkway :Road
 North of Mission Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 24840
 Speed 50
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1438.58	29.81	49.68	1067.99	4.97	8.28	264.84	41.40	69.00
Speed in MPH	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	71.12	78.79	83.02	71.12	78.79	83.02	71.12	78.79	83.02
ADJUSTMENTS									
Flow	24.28	7.45	9.67	22.99	-0.33	1.88	16.93	8.87	11.09
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.25	61.09	67.53	68.95	53.30	59.75	62.90	62.51	68.96
	DAY LEQ	72.44		EVENING LEQ	69.55		NIGHT LEQ	70.64	

CNEL 77.47
 DAY LEQ 72.44

Day hour 92.00
 Absorptive? no
 Use hour? no
 GRADE dB 3.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

5 :ld
 Centre City Parkway :Road
 Mission Avenue to Project Site :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 16800
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	972.96	20.16	33.60	722.31	3.36	5.60	179.12	28.00	46.67
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	23.04	6.21	8.43	21.75	-1.57	0.64	15.69	7.63	9.85
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	67.23	58.67	65.41	65.94	50.89	57.63	59.88	60.10	66.84
	DAY LEQ	69.78		EVENING LEQ	66.65		NIGHT LEQ	68.34	

CNEL 75.07
 DAY LEQ 69.78

Day hour 93.00
 Absorptive? no
 Use hour? no
 GRADE dB 4.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

5 :ld
 Centre City Parkway :Road
 Mission Avenue to Project Site :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 18180
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1052.88	21.82	36.36	781.64	3.64	6.06	193.83	30.30	50.50
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	23.39	6.55	8.77	22.09	-1.23	0.99	16.04	7.98	10.19
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	67.57	59.02	65.75	66.28	51.23	57.97	60.22	60.44	67.18
	DAY LEQ	70.12		EVENING LEQ	67.00		NIGHT LEQ	68.68	

CNEL 75.42
 DAY LEQ 70.12

Day hour 93.00
 Absorptive? no
 Use hour? no
 GRADE dB 4.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

6 :ld
 Centre City Parkway :Road
 Project Site to Washington Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 17300
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1001.91	20.76	34.60	743.81	3.46	5.77	184.45	28.83	48.06
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	23.17	6.33	8.55	21.88	-1.45	0.77	15.82	7.76	9.98
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	67.36	58.80	65.54	66.07	51.02	57.76	60.01	60.23	66.97
	DAY LEQ	69.90		EVENING LEQ	66.78		NIGHT LEQ	68.47	

CNEL 75.20
 DAY LEQ 69.90

Day hour 94.00
 Absorptive? no
 Use hour? no
 GRADE dB 5.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

6 :ld
 Centre City Parkway :Road
 Project Site to Washington Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 19390
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1122.95	23.27	38.78	833.67	3.88	6.46	206.73	32.32	53.86
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	23.67	6.83	9.05	22.37	-0.95	1.27	16.32	8.26	10.47
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	67.85	59.30	66.03	66.56	51.51	58.25	60.50	60.72	67.46
	DAY LEQ	70.40		EVENING LEQ	67.28		NIGHT LEQ	68.96	

CNEL 75.70
 DAY LEQ 70.40

Day hour 94.00
 Absorptive? no
 Use hour? no
 GRADE dB 5.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

7 :ld
 Centre City Parkway :Road
 South of Washington Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 15160
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	877.98	18.19	30.32	651.80	3.03	5.05	161.63	25.27	42.11
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	22.60	5.76	7.98	21.30	-2.02	0.20	15.25	7.19	9.41
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.79	58.23	64.96	65.49	50.45	57.18	59.44	59.65	66.39
	DAY LEQ	69.33		EVENING LEQ	66.21		NIGHT LEQ	67.89	

CNEL 74.63
 DAY LEQ 69.33

Day hour 95.00
 Absorptive? no
 Use hour? no
 GRADE dB 6.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

7 :ld
 Centre City Parkway :Road
 South of Washington Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 15370
 Speed 45
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	890.14	18.44	30.74	660.83	3.07	5.12	163.87	25.62	42.69
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	22.66	5.82	8.04	21.36	-1.96	0.26	15.31	7.25	9.47
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.85	58.29	65.02	65.55	50.51	57.24	59.50	59.71	66.45
	DAY LEQ	69.39		EVENING LEQ	66.27		NIGHT LEQ	67.95	

CNEL **74.69**
 DAY LEQ 69.39

Day hour 95.00
 Absorptive? no
 Use hour? no
 GRADE dB 6.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

8 :ld
 Escondido Boulevard :Road
 North of Mission Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8380
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	513.94	6.28	2.44	379.81	1.12	1.12	95.13	8.38	3.26
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.36	2.24	-1.86	20.05	-5.27	-5.26	14.04	3.49	-0.62
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.37	52.96	54.08	61.06	45.45	50.68	55.05	54.21	55.33
	DAY LEQ	63.38		EVENING LEQ	61.55		NIGHT LEQ	59.66	

CNEL 67.09
 DAY LEQ 63.38

Day hour 96.00
 Absorptive? no
 Use hour? no
 GRADE dB 7.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

8 :ld
Escondido Boulevard :Road
North of Mission Avenue :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 8480
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	520.07	6.36	2.47	384.34	1.13	1.13	96.27	8.48	3.30
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	21.41	2.29	-1.81	20.10	-5.22	-5.21	14.09	3.54	-0.56
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.42	53.01	54.13	61.11	45.51	50.74	55.10	54.26	55.38
	DAY LEQ	63.44		EVENING LEQ	61.60		NIGHT LEQ	59.71	

CNEL 67.15
 DAY LEQ 63.44

Day hour 96.00
 Absorptive? no
 Use hour? no
 GRADE dB 7.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

9 :ld
 Broadway :Road
 North of Lincoln Parkway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 13860
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	802.69	16.63	27.72	595.91	2.77	4.62	147.77	23.10	38.50
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.30	6.46	8.68	22.01	-1.32	0.90	15.95	7.89	10.11
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.25	56.14	63.57	61.96	48.35	55.79	55.90	57.56	65.00
	DAY LEQ	66.81		EVENING LEQ	63.05		NIGHT LEQ	66.15	

CNEL 72.71
 DAY LEQ 66.81

Day hour 97.00
 Absorptive? no
 Use hour? no
 GRADE dB 8.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

9 :ld
 Broadway :Road
 North of Lincoln Parkway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 13960
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	808.48	16.75	27.92	600.21	2.79	4.65	148.84	23.27	38.78
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.33	6.49	8.71	22.04	-1.29	0.93	15.98	7.92	10.14
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.28	56.17	63.60	61.99	48.38	55.82	55.93	57.59	65.03
	DAY LEQ	66.84		EVENING LEQ	63.08		NIGHT LEQ	66.18	

F CNEL 72.74 Day hour 97.00
 DAY LEQ 66.84 Absorptive? no
 Use hour? no
 GRADE dB 8.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

10 :ld
 Broadway :Road
 Lincoln Parkway to Mission Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 16900
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	978.75	20.28	33.80	726.61	3.38	5.63	180.18	28.17	46.94
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	24.16	7.32	9.54	22.87	-0.46	1.76	16.81	8.75	10.97
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.11	57.00	64.43	62.82	49.21	56.65	56.76	58.42	65.86
	DAY LEQ	67.67		EVENING LEQ	63.91		NIGHT LEQ	67.01	

CNEL 73.57
 DAY LEQ 67.67

Day hour 98.00
 Absorptive? no
 Use hour? no
 GRADE dB 9.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

10 :ld
 Broadway :Road
 Lincoln Parkway to Mission Avenue :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 17210
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	996.70	20.65	34.42	739.94	3.44	5.74	183.49	28.68	47.81
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	24.24	7.40	9.62	22.95	-0.38	1.84	16.89	8.83	11.05
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.19	57.08	64.51	62.90	49.29	56.73	56.84	58.50	65.94
	DAY LEQ	67.75		EVENING LEQ	63.99		NIGHT LEQ	67.09	

CNEL 73.65
 DAY LEQ 67.75

Day hour 98.00
 Absorptive? no
 Use hour? no
 GRADE dB 9.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

11 :ld
 :Road
 :Segment
Broadway
Mission Avenue to Washington Avenue

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 15250
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	883.19	18.30	30.50	655.67	3.05	5.08	162.59	25.42	42.36
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.71	6.88	9.10	22.42	-0.90	1.31	16.36	8.30	10.52
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.67	56.55	63.99	62.37	48.77	56.21	56.32	57.98	65.41
	DAY LEQ	67.23		EVENING LEQ	63.46		NIGHT LEQ	66.56	

CNEL 73.12
 DAY LEQ 67.23

Day hour 99.00
 Absorptive? no
 Use hour? no
 GRADE dB 10.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

11 :ld
 :Road
 :Segment
Broadway
Mission Avenue to Washington Avenue

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 15350
 Speed 35
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	888.98	18.42	30.70	659.97	3.07	5.12	163.66	25.58	42.64
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.74	6.91	9.12	22.45	-0.88	1.34	16.39	8.33	10.55
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.70	56.58	64.01	62.40	48.80	56.23	56.35	58.01	65.44
	DAY LEQ	67.26		EVENING LEQ	63.49		NIGHT LEQ	66.59	

CNEL 73.15
 DAY LEQ 67.26

Day hour 99.00
 Absorptive? no
 Use hour? no
 GRADE dB 10.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

12 :ld
 Lincoln Parkway :Road
 East of Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 21700
 Speed 40
 Distance 63
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1256.73	26.04	43.40	932.98	4.34	7.23	231.36	36.17	60.28
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	24.67	7.83	10.05	23.37	0.05	2.27	17.32	9.26	11.48
Distance	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.95	58.07	65.13	64.66	50.29	57.35	58.60	59.50	66.56
	DAY LEQ	68.94		EVENING LEQ	65.53		NIGHT LEQ	67.89	

CNEL 74.53
 DAY LEQ 68.94

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

12 :ld
 Lincoln Parkway :Road
 East of Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 21910
 Speed 40
 Distance 63
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1268.90	26.29	43.82	942.01	4.38	7.30	233.60	36.52	60.86
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	24.71	7.87	10.09	23.41	0.09	2.31	17.36	9.30	11.52
Distance	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07	-1.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.99	58.11	65.18	64.70	50.33	57.39	58.64	59.54	66.60
	DAY LEQ	68.99		EVENING LEQ	65.57		NIGHT LEQ	67.93	

CNEL 74.57
 DAY LEQ 68.99

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

13 :ld
 Mission Avenue :Road
 West of Rock Spring Road :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 10630
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	615.63	12.76	21.26	457.03	2.13	3.54	113.33	17.72	29.53
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	21.57	4.73	6.95	20.27	-3.05	-0.83	14.22	6.16	8.38
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.77	55.89	62.95	62.48	48.11	55.17	56.42	57.31	64.38
	DAY LEQ	66.76		EVENING LEQ	63.35		NIGHT LEQ	65.70	

CNEL 72.35
 DAY LEQ 66.76

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

13 :ld
 Mission Avenue :Road
 West of Rock Spring Road :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 10840
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	627.79	13.01	21.68	466.06	2.17	3.61	115.57	18.07	30.11
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	21.65	4.82	7.03	20.36	-2.97	-0.75	14.30	6.24	8.46
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.86	55.97	63.04	62.56	48.19	55.26	56.51	57.40	64.46
	DAY LEQ	66.85		EVENING LEQ	63.43		NIGHT LEQ	65.79	

CNEL 72.43
 DAY LEQ 66.85

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

14 :ld
 Mission Avenue :Road
 Rock Spring Road to Quince Street :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 14470
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	838.02	17.36	28.94	622.13	2.89	4.82	154.28	24.12	40.19
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.91	6.07	8.29	21.61	-1.71	0.51	15.56	7.50	9.72
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.11	57.23	64.29	63.82	49.45	56.51	57.76	58.65	65.72
	DAY LEQ	68.10		EVENING LEQ	64.69		NIGHT LEQ	67.04	

CNEL 73.69
 DAY LEQ 68.10

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

14 :ld
 Mission Avenue :Road
 Rock Spring Road to Quince Street :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 14680
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	850.18	17.62	29.36	631.16	2.94	4.89	156.51	24.47	40.78
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.97	6.13	8.35	21.67	-1.65	0.57	15.62	7.56	9.78
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.17	57.29	64.35	63.88	49.51	56.57	57.82	58.72	65.78
	DAY LEQ	68.16		EVENING LEQ	64.75		NIGHT LEQ	67.11	

CNEL 73.75
 DAY LEQ 68.16

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

15 :ld
 Mission Avenue :Road
 Quince Street to Project Site :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 17990
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1041.87	21.59	35.98	773.47	3.60	6.00	191.81	29.98	49.97
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	23.85	7.02	9.23	22.56	-0.77	1.45	16.50	8.44	10.66
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.06	58.17	65.24	64.76	50.39	57.46	58.71	59.60	66.66
	DAY LEQ	69.05		EVENING LEQ	65.63		NIGHT LEQ	67.99	

CNEL 74.63
 DAY LEQ 69.05

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

15 :ld
 Mission Avenue :Road
 Quince Street to Project Site :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 18400
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1065.62	22.08	36.80	791.10	3.68	6.13	196.18	30.67	51.11
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	23.95	7.11	9.33	22.66	-0.67	1.55	16.60	8.54	10.76
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.15	58.27	65.34	64.86	50.49	57.55	58.80	59.70	66.76
	DAY LEQ	69.14		EVENING LEQ	65.73		NIGHT LEQ	68.09	

CNEL 74.73
 DAY LEQ 69.14

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

16 :ld
 Mission Avenue :Road
 Project Site to Centre City Parkway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 18160
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1051.72	21.79	36.32	780.78	3.63	6.05	193.62	30.27	50.44
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	23.89	7.06	9.28	22.60	-0.72	1.49	16.54	8.48	10.70
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.10	58.21	65.28	64.80	50.43	57.50	58.75	59.64	66.71
	DAY LEQ	69.09		EVENING LEQ	65.68		NIGHT LEQ	68.03	

CNEL 74.67
 DAY LEQ 69.09

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

16 :ld
 Mission Avenue :Road
 Project Site to Centre City Parkway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 18720
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1084.15	22.46	37.44	804.86	3.74	6.24	199.59	31.20	52.00
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	24.02	7.19	9.41	22.73	-0.59	1.63	16.67	8.62	10.83
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.23	58.35	65.41	64.93	50.56	57.63	58.88	59.77	66.84
	DAY LEQ	69.22		EVENING LEQ	65.81		NIGHT LEQ	68.16	

CNEL 74.81
 DAY LEQ 69.22

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

17 :ld
 Mission Avenue :Road
 Centre City Parkway to Escondido Boulevard :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 16830
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	974.69	20.20	33.66	723.60	3.37	5.61	179.44	28.05	46.75
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	23.56	6.73	8.94	22.27	-1.06	1.16	16.21	8.15	10.37
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.77	57.88	64.95	64.47	50.10	57.17	58.42	59.31	66.37
	DAY LEQ	68.76		EVENING LEQ	65.34		NIGHT LEQ	67.70	

CNEL 74.34
 DAY LEQ 68.76

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

17 :ld
 Mission Avenue :Road
 Centre City Parkway to Escondido Boulevard :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 17600
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1019.29	21.12	35.20	756.71	3.52	5.87	187.65	29.33	48.89
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	23.76	6.92	9.14	22.46	-0.86	1.36	16.41	8.35	10.57
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.96	58.08	65.14	64.67	50.30	57.36	58.61	59.50	66.57
	DAY LEQ	68.95		EVENING LEQ	65.54		NIGHT LEQ	67.89	

CNEL 74.54
 DAY LEQ 68.95

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

18 :ld
 Mission Avenue :Road
 Escondido Boulevard to Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 12360
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	715.82	14.83	24.72	531.41	2.47	4.12	131.78	20.60	34.33
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.22	5.39	7.60	20.93	-2.40	-0.18	14.87	6.81	9.03
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.43	56.54	63.61	63.13	48.76	55.83	57.08	57.97	65.03
	DAY LEQ	67.42		EVENING LEQ	64.00		NIGHT LEQ	66.36	

CNEL 73.00
 DAY LEQ 67.42

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

18 :ld
 Mission Avenue :Road
 Escondido Boulevard to Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 12980
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	751.72	15.58	25.96	558.07	2.60	4.33	138.39	21.63	36.06
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.43	5.60	7.82	21.14	-2.18	0.04	15.08	7.02	9.24
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.64	56.75	63.82	63.34	48.97	56.04	57.29	58.18	65.25
	DAY LEQ	67.63		EVENING LEQ	64.22		NIGHT LEQ	66.57	

CNEL 73.22
 DAY LEQ 67.63

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

19 :ld
 Mission Avenue :Road
 East of Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 11620
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	672.96	13.94	23.24	499.60	2.32	3.87	123.89	19.37	32.28
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	21.95	5.12	7.34	20.66	-2.66	-0.45	14.60	6.54	8.76
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.16	56.27	63.34	62.86	48.49	55.56	56.81	57.70	64.77
	DAY LEQ	67.15		EVENING LEQ	63.74		NIGHT LEQ	66.09	

CNEL 72.73
 DAY LEQ 67.15

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Plus Project Traffic Noise

19 :ld
 Mission Avenue :Road
 East of Broadway :Segment

Vehicle Distribution (Heavy Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.54	14.02	10.43	92.00
Medium Trucks	48.00	2.00	50.00	3.00
Heavy Trucks	48.00	2.00	50.00	5.00

ADT 11830
 Speed 40
 Distance 51
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	685.12	14.20	23.66	508.63	2.37	3.94	126.13	19.72	32.86
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.03	5.20	7.41	20.74	-2.59	-0.37	14.68	6.62	8.84
Distance	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.24	56.35	63.42	62.94	48.57	55.64	56.89	57.78	64.84
	DAY LEQ	67.23		EVENING LEQ	63.81		NIGHT LEQ	66.17	

CNEL 72.81
 DAY LEQ 67.23

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside heavy truck mix.



Existing Traffic Noise

20 :ld
 Washington Avenue :Road
 West of Rock Spring Road :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 9460
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	580.18	7.09	2.76	428.76	1.26	1.26	107.39	9.46	3.68
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	21.31	2.18	-1.92	20.00	-5.33	-5.31	13.98	3.43	-0.67
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.57	54.39	55.14	63.25	46.89	51.74	57.24	55.64	56.39
	DAY LEQ	65.40		EVENING LEQ	63.64		NIGHT LEQ	61.25	

CNEL 68.83
 DAY LEQ 65.40

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

20 :ld
 Washington Avenue :Road
 West of Rock Spring Road :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 9670
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	593.06	7.25	2.82	438.28	1.29	1.29	109.78	9.67	3.76
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	21.40	2.28	-1.82	20.09	-5.23	-5.22	14.08	3.53	-0.57
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.66	54.49	55.24	63.35	46.98	51.84	57.34	55.74	56.48
	DAY LEQ	65.49		EVENING LEQ	63.74		NIGHT LEQ	61.34	

CNEL 68.93
 DAY LEQ 65.49

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

21 :ld
 Washington Avenue :Road
 Rock Spring Road to Quince Street :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 11180
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	685.66	8.38	3.26	506.72	1.49	1.49	126.92	11.18	4.35
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.03	2.91	-1.19	20.72	-4.60	-4.59	14.71	4.16	0.06
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.29	55.12	55.87	63.98	47.61	52.47	57.97	56.37	57.12
	DAY LEQ	66.12		EVENING LEQ	64.37		NIGHT LEQ	61.97	

CNEL 69.56
 DAY LEQ 66.12

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

21 :ld
 Washington Avenue :Road
 Rock Spring Road to Quince Street :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 11570
 Speed 40
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	709.58	8.68	3.37	524.39	1.54	1.54	131.35	11.57	4.50
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16
ADJUSTMENTS									
Flow	22.18	3.06	-1.04	20.87	-4.45	-4.44	14.86	4.31	0.21
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.44	55.27	56.01	64.13	47.76	52.62	58.12	56.52	57.26
	DAY LEQ	66.27		EVENING LEQ	64.52		NIGHT LEQ	62.12	

CNEL 69.71
 DAY LEQ 66.27

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

22 :ld
 Washington Avenue :Road
 Quince Street to Centre City Parkway :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 12220
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	749.45	9.16	3.56	553.85	1.63	1.63	138.73	12.22	4.75
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.00	3.87	-0.23	21.69	-3.63	-3.62	15.68	5.12	1.02
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.01	54.60	55.72	62.70	47.09	52.32	56.68	55.85	56.97
	DAY LEQ	65.02		EVENING LEQ	63.19		NIGHT LEQ	61.30	

CNEL 68.73
 DAY LEQ 65.02

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

22 :ld
 Washington Avenue :Road
 Quince Street to Centre City Parkway :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 12480
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	765.39	9.36	3.64	565.64	1.66	1.67	141.68	12.48	4.85
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.09	3.97	-0.14	21.78	-3.54	-3.53	15.77	5.22	1.11
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.10	54.69	55.81	62.79	47.18	52.41	56.78	55.94	57.06
	DAY LEQ	65.11		EVENING LEQ	63.28		NIGHT LEQ	61.39	

CNEL 68.82
 DAY LEQ 65.11

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Traffic Noise

23 :ld
 Washington Avenue :Road
 Centre City Parkway to Escondido Boulevard :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 14300
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	877.01	10.72	4.17	648.13	1.90	1.91	162.34	14.30	5.56
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.68	4.56	0.46	22.37	-2.95	-2.94	16.36	5.81	1.71
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.69	55.28	56.40	63.38	47.78	53.01	57.37	56.53	57.65
	DAY LEQ	65.71		EVENING LEQ	63.87		NIGHT LEQ	61.98	

CNEL 69.41
 DAY LEQ 65.71

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



Existing Plus Project Traffic Noise

23 :ld
 Washington Avenue :Road
 Centre City Parkway to Escondido Boulevard :Segment

Vehicle Distribution (Light Truck Mix)				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	75.56	13.96	10.49	97.40
Medium Trucks	48.91	2.17	48.91	1.84
Heavy Trucks	47.30	5.41	47.30	0.74

ADT 14890
 Speed 35
 Distance 40
 Left Angle -90
 Right Angle 90

Noise Parameters	Daytime			Evening			Night		
	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	913.20	11.17	4.34	674.87	1.98	1.99	169.04	14.89	5.79
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	23.86	4.73	0.63	22.55	-2.78	-2.76	16.53	5.98	1.88
Distance	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.87	55.46	56.58	63.55	47.95	53.18	57.54	56.71	57.83
	DAY LEQ	65.88		EVENING LEQ	64.04		NIGHT LEQ	62.16	

CNEL 69.59
 DAY LEQ 65.88

Day hour 0.00
 Absorptive? no
 Use hour? no
 GRADE dB 0.00

Notes:

- (1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108
- (2) Vehicle percentages based on County of Riverside light truck mix.



APPENDIX G
VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Motel to West		
Address:	Quality Inn Escondido Downtown, 501 W Missions Ave, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	30.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.002	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to West		
Address:	Ben's Auto Repair, 515 W Missions Ave, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	50.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.001	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to Northwest		
Address:	Denny's, 510 W Missions Ave, Escondido		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	158.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to North		
Address:	Karz Plus, 506 W Missions Ave, Escondido		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment =	6	Small Bulldozer	INPUT SECTION IN GREEN
Type			
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	155.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to Northeast		
Address:	McDonald's, 340 W Missions Ave, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	300.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to East		
Address:	The Habit Burger, 720 Centre City Parkway, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	176.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to East		
Address:	Yoshinoya, 700 Centre City Parkway, Escondido		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	179.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to East		
Address:	Super Star Car Wash Express, 680 Centre City Parkway, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	171.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Multi-Family Residential to Southeast		
Address:	Alcove, 650 Centre City Parkway, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	175.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.000	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19703 West Mission Commercial Project	Date:	2/21/24
Source:	Small Bulldozer		
Scenario:	Unmitigated		
Location:	Multi-Family Residential to South		
Address:	Village Grove Apartments, 660 N Quince St, Escondido		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	6	Small Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.003	Reference PPV (in/sec) at 25 ft.	
D =	62.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.001	IN/SEC	OUTPUT IN BLUE

Construction Annoyance Vibration Calculations

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

Eq. 7-3: $L_{\text{distance}} = L_{\text{ref}} - 30 \log (D/25)$

L_{distance} = the rms velocity level adjusted for distance, VdB

L_{ref} = the source reference vibration level at 25 feet, VdB

D = distance from the equipment to the receiver, ft.

Small Bulldozer:

Motel to West: $L_{\text{distance}} = 58 - 30 \log (30/25) = 55.62 \text{ VdB}$

MF to Southeast: $L_{\text{distance}} = 58 - 30 \log (175/25) = 32.65 \text{ VdB}$

MF to South: $L_{\text{distance}} = 58 - 30 \log (62/25) = 46.17 \text{ VdB}$

Under Threshold Distance: $58 - 30 \log (5/25) = 79 \text{ VdB}$



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