BEYOND FOOD MART (NEC TRUMBLE AND ETHANAC) NOISE IMPACT ANALYSIS

City of Perris

March 26, 2024

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

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Project No. 19674

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EXECUTIVE SUMMARY

The 2.54-acre project site (APN: 329-240-021, 022) is located at the northeast corner of Trumble Road and Ethanac Road in the City of Perris, California. The project site is currently undeveloped and zoned Community Commercial (CC).

The proposed project (CUP 22-05292) involves construction of a 7,250 square foot convenience store/gas station including drive through window with eight (8) dual-sided gasoline fuel pumps (i.e., 16-vehicle fueling positions), and an automated car wash tunnel with associated vacuum stations. Vehicular access for the project site is proposed via one full access driveway on Trumble Road and one right-turn in/out only access driveway on Ethanac Road.

Existing Noise Environment

Sensitive receptors that may be affected by project generated noise include the existing single-family residential uses located approximately 280 feet southeast, 960 feet to the east, and 755 feet north of the project site.

Measured short-term ambient noise levels in the project vicinity ranged between 54.2 and 72.1 dBA L_{eq} and long-term noise ambient noise levels ranged between 53.9 to 73.2 dBA L_{eq}. The dominant noise source in the project vicinity was vehicle traffic associated with Ethanac Road, Sherman Road, Trumble Road, 215 Freeway, and other surrounding roadways.

Project Construction Impacts – Onsite Equipment

Project construction will not occur outside of the hours outlined in Section 7.34.060 of the City of Perris Municipal Code. Based on the modeled construction noise levels, construction noise levels are estimated to reach up to a maximum of 65.1 dBA L_{max} at the nearest residential property lines to the project site. Therefore, the project would not exceed City's construction noise standard of 80 dBA L_{max} in residential zones. The project impact is less than significant; no mitigation is required.

Notwithstanding the above, best management practices (BMPs) are provided in the Project Description and should be added to project plans and in contract specifications to minimize construction noise emanating from the proposed project.

Project Construction Impacts – Offsite Vehicle Trips

Project vehicle traffic generated during project construction would be anticipated to be nominal relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 3 dBA. The project impact is less than significant; no mitigation is required.

Operational Noise Impacts – Onsite Sources - CNEL

Based on the operational noise modeling, project operation is expected to range between 44 and 57 dBA CNEL. Modeled project operational noise levels would be below the City's General Plan land use compatibility criteria of 60 dBA CNEL. Therefore, project operational noise impacts would be less than significant and no mitigation is required.

Operational Noise Impacts – Onsite Sources - Lmax

Based on the operational noise modeling, maximum operational noise levels, due to sound amplification, may reach up to approximately 11 dBA L_{max} at the nearest sensitive receptor. The operation of the proposed project would not result in activities that would cause maximum noise events from sound amplification to

exceed the City's daytime noise standard of 80 dBA L_{max} or the nighttime noise standard of 60 dBA L_{max}. This impact would be less than significant and no mitigation is required.

Operational Noise Impacts – Offsite Vehicle Trips

The addition of project trips is not expected to change noise levels more than the applicable threshold at any of the study roadway segments. The project impact is less than significant; no mitigation is required.

Groundborne Vibration Impacts

Groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural damage or severe annoyance to persons living or working in nearby buildings. The project impact is less than significant; no mitigation is required.

Air Traffic Impacts

The project site is located outside of the 60 dBA CNEL noise contour and within Compatibility Zone D (Flight Corridor Buffer) of the March Air Reserve Base/Inland Port Airport. Commercial uses are allowed in Zone D. Therefore, the project would not expose people residing or working in the project area to excessive noise levels associated with airports. The impact would be less than significant; 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 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 Perris, 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 in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise and vibration analysis.

PROJECT LOCATION

The 2.54-acre project site (APN: 329-240-021, 022) is located at the northeast corner of Trumble Road and Ethanac Road in the City of Perris, California. The project site is currently undeveloped and zoned Community Commercial (CC). A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The proposed project (CUP 22-05292) involves construction of a 7,250 square foot convenience store/gas station including drive through window with eight (8) dual-sided gasoline fuel pumps (i.e., 16-vehicle fueling positions), and an automated car wash tunnel with associated vacuum stations. Vehicular access for the project site is proposed via one full access driveway on Trumble Road and one right-turn in/out only access driveway on Ethanac Road.

Figure 2 illustrates the project site plan.

The following best management practices (BMPs) shall be provided on project plans and in contract specifications to minimize construction noise emanating from the proposed project:

1. All equipment, whether fixed or mobile, will be equipped with properly operating and maintained mufflers, consistent with manufacturer standards.
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 and not left to idle 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 during construction.
7. Haul truck deliveries will not occur outside of the hours presented as exempt for construction per Section 7.34.060 of the City of Perris' Municipal Code.

Figure 1
Project Location Map

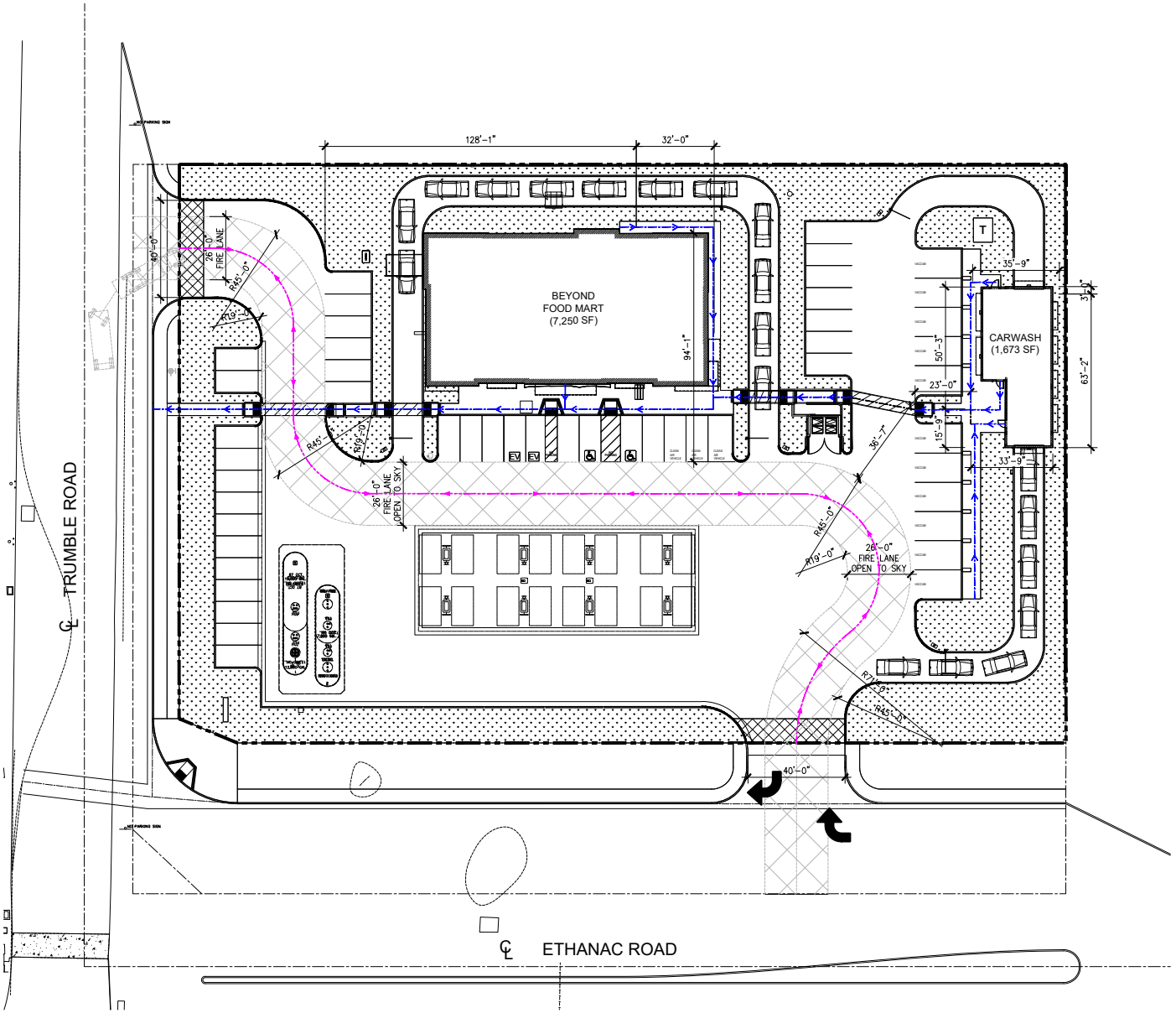


Figure 2
Site Plan

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, $L_{eq(3\text{-}hr)}$ 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 weighs 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

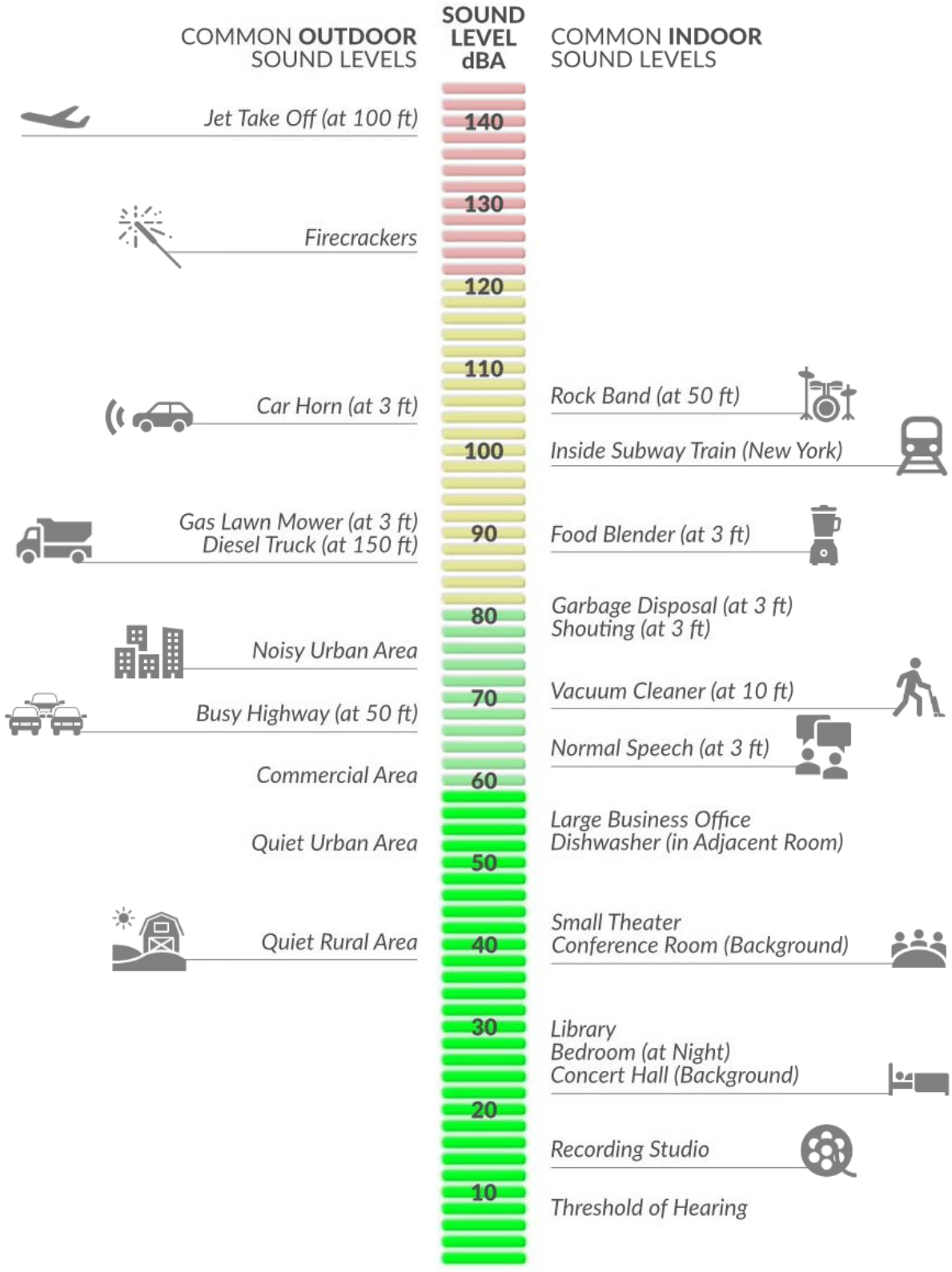
The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which

waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Rayleigh 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.

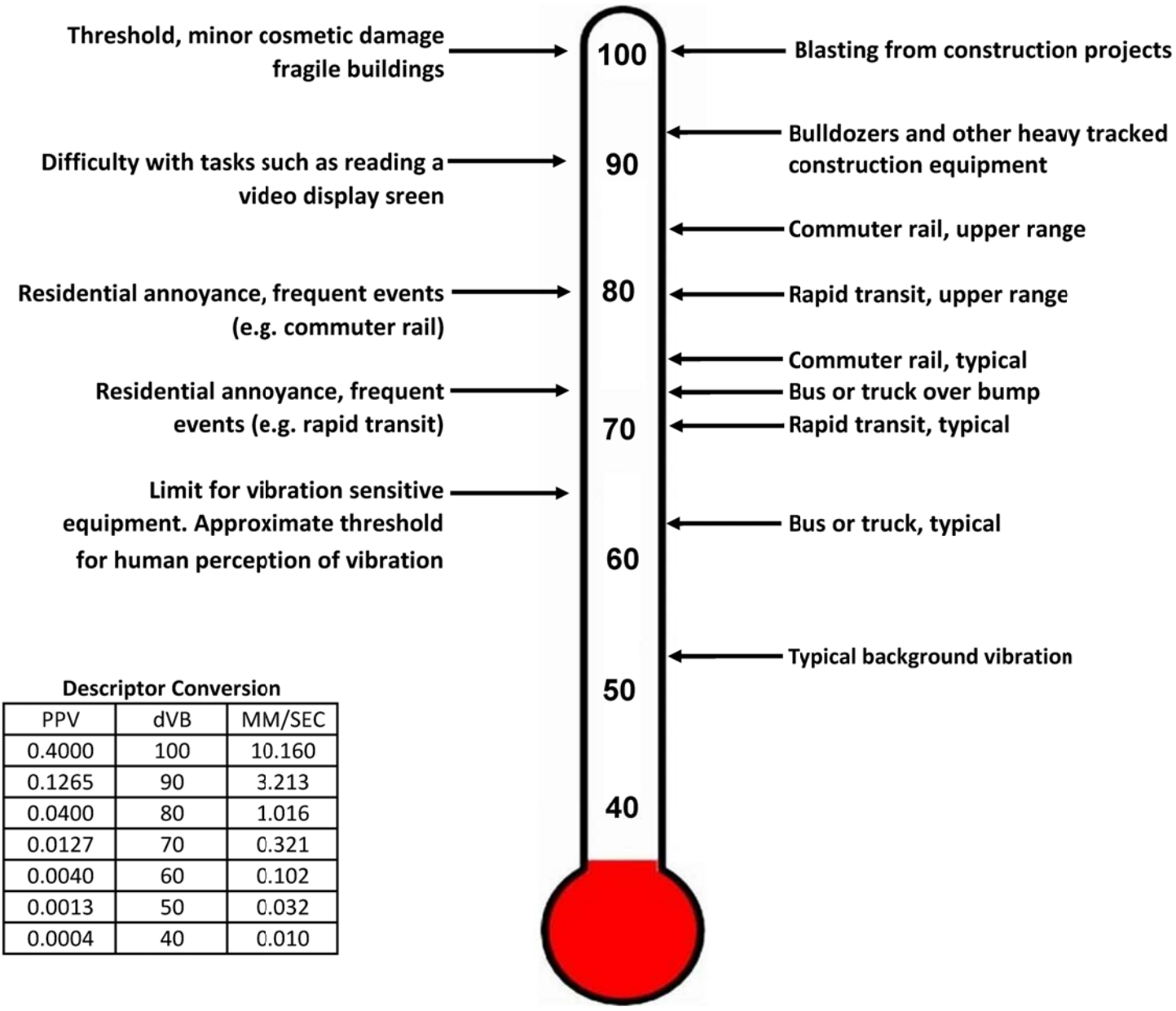
Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration 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.



Based on Policy & Guidance from Federal Aviation Administration

Figure 3
A-Weighted Comparative Sound Levels



Descriptor Conversion

PPV	dVB	MM/SEC
0.4000	100	10.160
0.1265	90	3.213
0.0400	80	1.016
0.0127	70	0.321
0.0040	60	0.102
0.0013	50	0.032
0.0004	40	0.010

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.

Figure 4
Typical Levels of Groundborne Vibration

3. EXISTING NOISE ENVIRONMENT

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

EXISTING LAND USES AND SENSITIVE RECEPTORS

The existing uses surrounding the project site include vacant land zoned Commercial Community (CC) to the north and east; Ethanac Road to the south with vacant land zoned Commercial Retail (CR) further south[1]; Trumble Road to the west with vacant land zoned Commercial Community (CC) further west; and vacant land zoned Commercial Community (CC) to the southwest (at the southwest corner of the intersection of Trumble Road and Ethanac Road) 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.

Existing sensitive land uses that may be affected by project noise include the existing single-family residential uses located approximately 280 feet southeast, 960 feet to the east, and 755 feet north of the project site.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section SI.4 2014, Class 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, five (5) 15-minute daytime noise measurements were taken between 1:49 PM and 4:11 PM on November 7, 2023. In addition, one (1) long-term 24-hour noise measurement was also taken from November 7, 2023 to November 8, 2023. Field worksheets and noise measurement worksheets are provided in Appendix C.

As shown on Figure 5, existing ambient noise measurements were taken at the following locations:

STNM1: represents the existing noise environment of the single-family residential use located to the southeast of the project site along the southern side of Ethanac Road (27391 Ethanac Road, Perris). The noise meter was placed near the northern property line of the residential use just south of Ethanac Road.

STNM2: represents the existing noise environment of the single-family residential uses located to the east of the project site along the eastern side of Sherman Road (25962 Sherman Road, Perris). The noise meter was placed near the western property line of the residential use just east of Sherman Road.

STNM3: represents the existing noise environment of the single-family residential uses located to north of the project site along the eastern side of Trumble Road (25870 Trumble Road, Perris). The noise meter was placed near the western property line of the residential use just east of Trumble Road.

STNM4: represents the existing noise environment of the vacant land to the north and east of the project site as well as the project site itself. The noise meter was placed near the northeastern corner of the project site. These properties are zoned for commercial land uses.

STNM5: represents the existing noise environment of the commercial uses to the south of the project site on the southern side of Ethanac Road (27271 Ethanac Road, Perris). The noise meter was placed near the northern property line of the commercial use just south of Ethanac Road.

[1] The vacant land at the southeast corner of Ethanac Road and Trumble Road is designated as Community Retail (CR) per the City of Menifee Zoning Map (adopted December 18, 2019).

LTNM1: represents the existing noise environment of the project site. The noise meter was placed near the southern property line of the project site just north of Ethanac Road.

Table 1 provides a summary of the short-term ambient noise data. Table 2 provides hourly interval ambient noise data from the long-term noise measurements. Measured short-term ambient noise levels ranged between 54.2 and 72.1 dBA L_{eq}. Long-term (24-hour) hourly noise measurement ambient noise levels ranged from 53.9 to 73.2 dBA L_{eq}. The dominant noise source in the project vicinity was vehicle traffic associated with Ethanac Road, Sherman Road, Trumble Road, 215 Freeway, and other surrounding roadways.

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)
STNM1	1:49 PM	72.1	87.2	44.7	79.3	76.3	73.4	69.1
STNM2	2:16 PM	67.8	89.1	45.1	75.9	70.9	64.8	58.4
STNM3	2:50 PM	66.1	82.6	48.4	75.9	71.3	64.5	56.1
STNM4	3:24 PM	54.2	68.1	46.0	58.1	56.8	55.0	53.2
STNM5	3:56 PM	68.9	85.4	53.0	77.4	72.5	69.0	64.8

Notes:
(1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.
(2) Noise measurements performed on November 7, 2023.

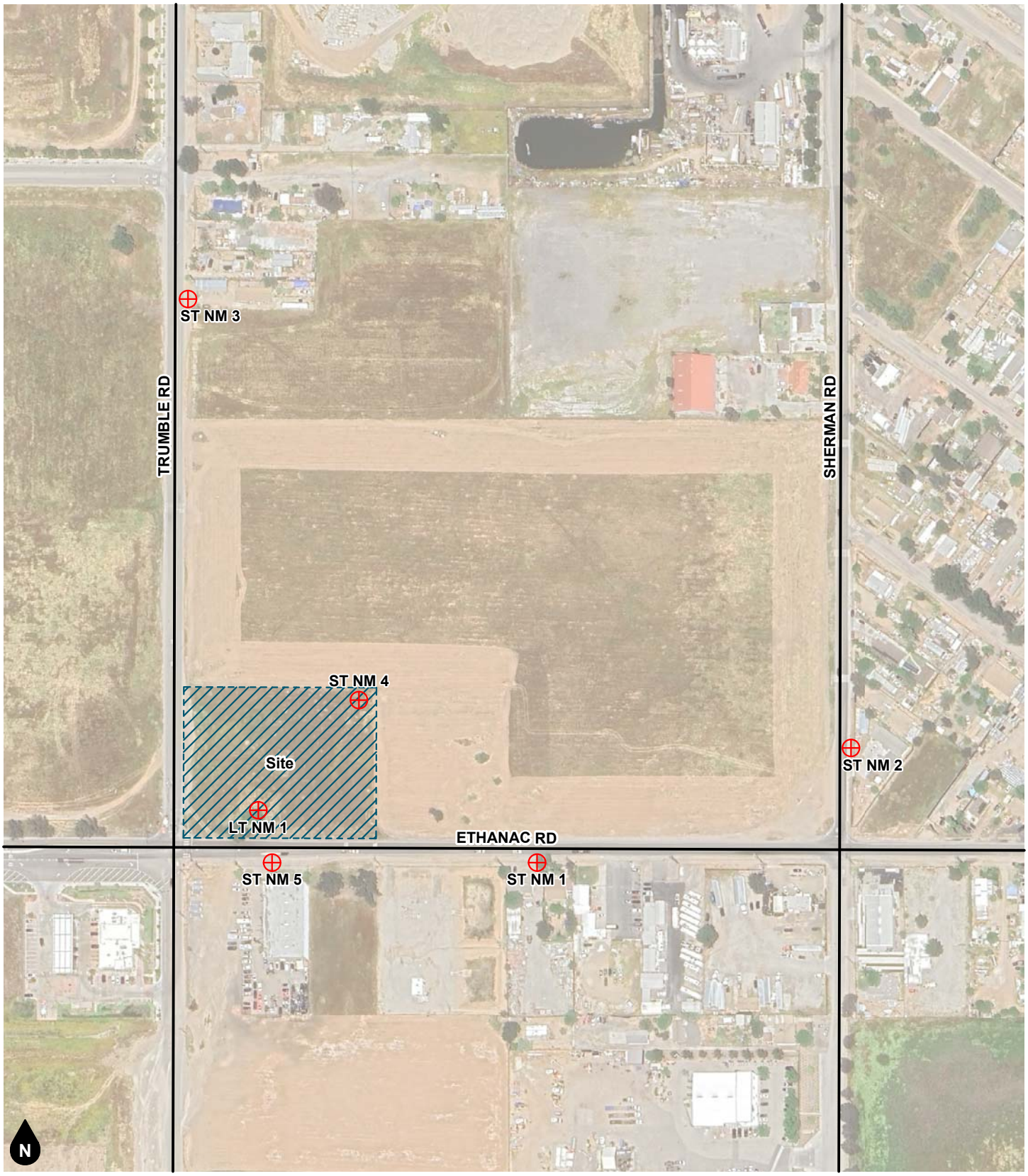
Table 2
Long-Term Noise Measurement Summary (LTNM1) (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	6:00 PM	66.4	88.2	36.5	76.2	71.6	64.3	58.1
1	6:00 PM	61.3	74.7	47.5	67.4	65.0	62.6	59.4
2	7:00 PM	60.3	72.5	45.7	67.0	64.6	61.7	57.3
3	8:00 PM	59.4	80.8	42.0	66.9	63.9	60.0	54.4
4	9:00 PM	60.4	87.6	41.5	66.5	63.2	58.3	51.9
5	10:00 PM	58.3	81.1	40.0	66.5	62.5	56.3	49.6
6	11:00 PM	59.2	83.3	40.9	65.5	61.6	54.9	51.4
7	12:00 AM	54.3	72.7	41.6	63.8	58.8	51.7	49.2
8	1:00 AM	54.8	76.2	40.3	64.3	58.2	50.2	47.5
9	2:00 AM	53.9	75.7	36.9	63.9	56.9	48.6	44.9
10	3:00 AM	54.1	70.4	36.5	64.2	59.0	49.8	44.5
11	4:00 AM	61.9	87.1	46.3	69.8	65.4	59.5	54.1
12	5:00 AM	63.2	87.6	43.0	69.6	66.3	62.1	56.2
13	6:00 AM	63.9	88.2	42.6	70.8	66.9	63.5	58.8
14	7:00 AM	63.8	84.3	44.1	71.2	67.5	64.3	60.4
15	8:00 AM	62.8	80.9	47.2	70.2	66.3	62.9	58.9
16	9:00 AM	61.1	77.0	47.1	69.3	65.1	61.4	57.4
17	10:00 AM	61.0	79.3	48.9	68.6	64.5	61.2	57.7
18	11:00 AM	62.7	79.3	52.1	70.5	66.0	62.7	59.7
19	12:00 PM	69.6	87.0	52.0	77.7	73.8	69.8	65.4
20	1:00 PM	71.8	85.1	52.3	79.1	76.4	72.5	68.6
21	2:00 PM	73.2	84.6	57.1	79.2	77.0	74.3	71.7
22	3:00 PM	73.0	84.1	56.4	79.1	76.8	73.8	71.2
23	4:00 PM	72.2	85.9	54.2	79.0	76.6	73.4	69.6
24	5:00 PM	64.1	83.4	51.9	70.3	67.3	64.8	62.3
CNEL	69.0							

Notes:

(1) See Figure 5 for noise measurement locations. Noise measurement was performed over a 24-hour duration.

(2) Noise measurement performed from November 7, 2023 to November 8, 2023.



Legend

NM 1 Noise Measurement Location

ST NM Short-Term Noise Measurement

LT NM Long-Term Noise Measurement

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

This section provides an overview of the regulatory setting relevant to noise.

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 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.

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.

Department of Transportation

The California Department of Transportation (Caltrans) has developed several publications on groundborne vibration. The *Transportation and Construction Vibration Guidance Manual* (Caltrans, 2020) provides informational content that supplements previous publications with improved knowledge and information relating to groundborne transportation- and construction-induced vibrations. Although the *Transportation and Construction Vibration Guidance Manual* is not an official policy, standard, specification, or regulation, it serves as a useful guide for evaluating vibration impacts.

Table 3 and Table 4 show the guideline criteria for potential damage and annoyance resulting from groundborne vibration. As shown in Table 3, these guidelines recommend that the threshold at which there is a risk of architectural damage is a peak particle velocity (PPV) of 0.25 inches/second (in/sec) for historic buildings, PPV of 0.3 in/sec at older residential structures, and a PPV of 0.5 in/sec at new residential structures and modern commercial/industrial buildings. Table 3 shows that a PPV of 0.4 in/sec is the threshold at which groundborne vibration becomes severe in regard to annoyance (Caltrans, 2020).

LOCAL REGULATIONS

City of Perris General Plan

The City of Perris has adopted their own version of the State Land Use Compatibility Guidelines for land use planning and to assess potential transportation noise impacts to proposed land uses (see Table 5).

The City of Perris General Plan Noise Element also includes the following goals, policies, and implementation measures in regard to noise which apply to the proposed project.

Goal-1: Land Use Siting: *Future land uses compatible with projected noise environments.*

Policy I.A:
The State of California Noise/Land Use Compatibility Criteria shall be used in determining land use compatibility for new development.

Implementation Measures

I.A.1 All new development proposals will be evaluated with respect to the State Noise/Land Use Compatibility Criteria. Placement of noise sensitive uses will be discouraged within any area exposed to exterior noise levels that fall into the "Normally Unacceptable" range and prohibited within areas exposed to "Clearly Unacceptable" noise ranges.

Goal-V: Stationary Source Noise: *Future non-residential land uses compatible with noise sensitive land uses.*

Policy V.A:
New large scale commercial or industrial facilities located within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level as required by the State of California Noise/Land Use Compatibility Criteria.

Implementation Measures

V.A.1 An acoustical impact analysis shall be prepared for new industrial and large-scale commercial facilities to be constructed within 160 feet of the property line of any existing noise sensitive land use. This analysis shall document the nature of the commercial or industrial facility as well as all interior or exterior facility operations that would generate exterior noise. The analysis shall document the placement of any existing or proposed noise-sensitive land uses situated within the 160-foot distance. The analysis shall determine the potential noise levels that could be received at these sensitive land uses and specify specific measures to be employed by the large scale commercial or industrial facility to ensure that these levels do not exceed 60 dBA CNEL at the property line of the adjoining sensitive land use. No development permits or approval of land use applications shall be issued until the acoustic analysis is received and approved by the City of Perris Staff.

City of Perris Municipal Code

Chapter 7.34 of the City's Municipal Code establishes base ambient noise levels and establishes maximum noise level limits for stationary noise sources.

7.34.050 General Prohibition.

(a) It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof. The standards for dBA noise level in section 7.34.040 shall apply to this section. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section.

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

(1) The level of the noise;
(2) Whether the nature of the noise is usual or unusual;
(3) Whether the origin of the noise is natural or unnatural;
(4) The level of the ambient noise;
(5) The proximity of the noise to sleeping facilities;
(6) The nature and zoning of the area from which the noise emanates and the area where it is received;
(7) The time of day or night the noise occurs;
(8) The duration of the noise; and
(9) Whether the noise is recurrent, intermittent, or constant.

7.34.040 Sound Amplification.

No person shall amplify sound using sound amplifying equipment contrary to any of the following:

1) The only amplified sound permitted shall be either music or the human voice, or both.

2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

Time Period	*Maximum Noise Level*
10:01 PM – 7:00 AM	*60 dBA*
7:01 AM – 10:00 PM	*80 dBA*

7.34.060 Hours of Construction.

It is unlawful for any person between the hours of 7:00 PM of any day and 7:00 AM of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA L_{max} in residential zones in the City of Perris.

7.34.070 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 7:00 PM to 7:00 AM in any residential area unless a permit has been applied for and granted by the city.

7.34.080 Disturbing, excessive, offensive noises; declaration of certain acts constituting.

The following activities, among others, are declared to cause loud, disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

(7) *Leaf blowers*

a. *The term "leaf blower" means any portable, hand-held or backpack, engine-powered device with a nozzle that creates a direct able airstream which is capable of and intended for moving leaves and light materials.*

b. *No person shall operate a leaf blower in any residential zoned area between the hours of 7:00 PM and 8:00 AM on weekdays and 5:00 PM and 9:00 AM on weekends or on legal holidays.*

c. *No person may operate any leaf blower at a sound level in excess of 80 decibels measured at a distance of 50 feet or greater from the point of noise origin.*

Leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.

19.51.080 Noise.

Chapter 19.51 of the City's Municipal Code establishes noise levels and regulations for land uses within the March ARB/IP Airport Overlay Zone (MAOZ).

Airport Related Noise. Noise compatibility standards are intended to prevent the establishment of noise-sensitive land uses in portions of the airport environ that are exposed to significant levels of aircraft noise. Where permitted within the Airport Overlay Zone (AOZ), the following noise-sensitive land uses shall comply with applicable noise exposure criteria:

1) *All new residences, schools, libraries, museums, hotels and motels, hospitals and nursing homes, places of worship, and other noise-sensitive uses must have sound attenuation features incorporated into the structures sufficient to reduce interior noise levels from exterior aviation-related sources to no more than CNEL 40 dB. This requirement is intended to reduce the disruptiveness of loud individual aircraft noise events upon uses in this zone and represents a higher standard than the CNEL 45 dB standard set by state and local regulations and the Riverside County ALUC policy.*

2) *Office space must have sound attenuation features sufficient to reduce the exterior aviation-related noise level to no more than CNEL 45 dB. To ensure compliance with these criteria, an acoustical study shall be required to be completed for any development proposed to be situated where the aviation-related noise exposure is more than 20 dB above the interior standard (e.g., within the CNEL 60 dB contour where the interior standard is CNEL 40 dB).*

3) *Standard building construction is presumed to provide adequate sound attenuation where the difference between the exterior noise exposure and the interior standard is 20 dB or less.*

Table 3
Guideline Vibration Damage Potential Threshold Criteria

Structure Condition	Maximum PPV (in/sec)	
	Transient Sources[1]	Continuous/Frequent Intermittent Sources[1]
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: California Department of Transportation. Transportation and Construction Vibration Guidance Manual, Chapter 7 Table 19, April 2020.

Notes:

(1) Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 4
Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: California Department of Transportation. Transportation and Construction Vibration Guidance Manual, Chapter 7 Table 20, April 2020.

Notes:

(1) Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 5
City of Perris Land Use Compatibility Guidelines for Noise

Land Use Category	Community Noise Equivalent Level (CNEL)						
	55	60	65	70	75	80	85
Residential: Low Density Single Family, Duplex, Mobile Homes							
Residential: Multi-Family							
Commercial: Hotels/Motels, Transient Lodging							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheatres, Meeting Halls							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional, and Mixed-Use Developments							
Industrial, Manufacturing Utilities, Agriculture							

Normally Acceptable:	Specific land use is satisfactory, based up the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable:	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features included in the design. Conventional constuction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable:	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.
Clearly Unacceptable:	New construction or development should generally not be undertaken.

Source: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, February 1976 and City of Perris General Plan, 2005.

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 for a similar project.[2] 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 6. Construction noise worksheets are provided in Appendix D.

STATIONARY SOURCE/OPERATIONAL NOISE MODELING

The SoundPLAN acoustical modeling software was utilized to model project operational stationary noise levels from the proposed project to adjacent sensitive uses (e.g., residences). SoundPLAN is capable of evaluating stationary noise sources (e.g., parking lots, drive-through 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.

Operational noise levels were modeled utilizing representative sound levels in the SoundPLAN model. Modeled noise sources include car wash drying system, vacuums, fueling areas, vehicle movement/parking lot, HVAC equipment, and drive through queue. The CNEL as well as the expected maximum noise level associated with project operation was modeled utilizing representative sound levels in the SoundPLAN model. All noise sources were modeled to be in full operation. The entire project, including the proposed car wash and vacuums was assumed to be operational 24 hours a day, seven days a week.

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 space, 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 hour[3].

[2] *Beyond Food Mart (Oliver and Iris) Noise Impact Analysis* prepared by Ganddini Group, Inc. (July 7, 2023). However, it should be noted that the demolition phase of construction equipment was not included in the analysis for this project as there is no demolition anticipated and site is vacant.

[3] SoundPLAN Essential 4.0 Manual. SoundPLAN International, LLC. May 2016.

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 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 parking lot study:

Lw, ref = Lw0 + KPA + KI + KD + KStrO + 10 log(B) [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 passaging 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

Car Wash Equipment Noise

The car wash drying system is by far the loudest noise source associated with the car wash tunnel. A representative sound level of 95.1 dBA L_{eq}[4] at the tunnel exit (109.9 L_w) was utilized to model the drying system in the SoundPLAN noise model. It was assumed that the dryer itself would be located 5 feet inside the tunnel. The dryer was modeled at a height of eight feet. The sound specifications for the representative Drying system are provided in Appendix E.

Vacuum Equipment Noise

A point noise source of 76.8 dBA L_{eq} (sound power level of 84.8 dB) at a distance of three feet was assigned to each vacuum station to represent noise associated with general vacuuming/blowing activities. This noise level was collected at a Fast Five Car Wash in the City of Murrieta, California on November 7th, 2017. The measured 76.8 dB noise level at three feet is an average of three (3) five-minute noise measurements taken while cleaning the front seat area of a car.[5] This modeling methodology is very conservative as it assumes that all vacuum stations are being utilized at the same time continuously for an entire hour.

Service Station Fueling Area

The service station fueling areas were modeled by utilizing SoundPLAN noise reference level for a human voice at 65 dBA within the entire area. This representative sound level is intended to represent fueling area activities including vehicles arriving and leaving, mechanical noise, and conversation.

Mechanical Equipment (HVAC Units)

It is expected that the buildings associated with the proposed project would include rooftop mounted heating, ventilation, and air conditioning (HVAC) units. 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 units[6]. 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. The noise source height for

[4] Representative Noise Measurement for Peco Blower System, Surf Thru Car Wash. MD Acoustics, LLC.
[5] 2017 Noise Measurements, Fast Five Car Wash. City of Murrieta, November 7. Kunzman Associates, Inc.
[6] MD Acoustics, LLC Noise Measurement Data for RTU –Carrier 50TFQ0006 and car alarm.

each HVAC unit was assumed at 1 meter above the roof top. The roof top is assumed to be approximately 6 meters (~19.7 feet) above grade.

Queuing

A line noise source with a sound pressure level of 50 dB L_{eq} every square meter was utilized to represent vehicle drive-through queuing for both the carwash and the drive-through restaurant.

Speaker Noise

The proposed car wash and drive though speakers were modeled at a sound power level of 65 dB. As shown on Figure 5 and Table 1, the closest measurement to the proposed speakers would be STNM4, with a measured noise level of 54.2 dBA L_{eq}. Therefore, the assumed noise level of the speakers provides a conservative assumption as generally these types of speakers can adjust to approximately 5 dB above the ambient noise level.

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,
- 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 Trumble Road and Ethanac Road to access the project site. Existing average daily vehicle trips, project average daily vehicle trips, and project trip distribution were provided in the traffic study prepared for the project (Ganddini 2024). Per the traffic study, the project is anticipated to generate 3,187 new daily trips. Table 7 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 8 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 persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 8, 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:

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

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 6 (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 6 (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 7
Project Average Daily Traffic Volumes and Roadway Parameters

Roadway	Segment	Average Daily Traffic Volume[1]		Posted Travel Speeds (MPH)	Site Conditions
		Existing	Existing Plus Project		
Ethanac Road	West of Interstate 215	24,300	24,620	55	Soft
	Interstate 215 to Encanto Drive	16,600	17,550	45	Soft
	Encanto Drive to Trumble Road	15,400	16,510	45	Soft
	Trumble Road to Sherman Road	12,800	14,080	45	Soft
	East of Sherman Road	9,700	10,340	45	Soft
Encanto Drive	South of Ethanac Road	3,700	3,860	35	Soft
Trumble Road	North of Ethanac Road	2,600	2,920	45	Soft
	South of Ethanac Road	2,000	2,480	45	Soft
Sherman Road	North of Ethanac Road	3,300	3,780	40	Soft
	South of Ethanac Road	600	760	40	Soft

Vehicle Distribution (Heavy Mix)[2]			
Motor-Vehicle Type	Daytime % (7 AM-7 PM)	Evening % (7 PM-10 PM)	Night % (10 PM-7 AM)
Automobiles	75.54	14.02	10.43
Medium Trucks	48.00	2.00	50.00
Heavy Trucks	48.00	2.00	50.00

Notes:

(1) Existing and project average daily traffic volumes were obtained from the Beyond Food Mart (NEC Trumble and Ethanac) Traffic Impact Analysis (TIA) prepared by Ganddini Group, Inc. (February 26, 2024).

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

Table 8
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 Perris 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 Perris can be categorized into the following areas:

- Construction Noise
- Operational Noise

Project Construction

On-Site Equipment

Construction noise is regulated within Section 7.34.060 of the City of Perris Municipal Code (see Regulatory Setting section of this report). Accordingly, the project would result in a significant impact if:

- Project construction occurs outside the hours of 7:00 AM and 7:00 PM Monday through Saturday or anytime on legal holidays, with the exception of Columbus Day and Washington's Birthday, and Sundays; or,
- Project construction noise exceeds 80 dBA L_{max} in residential zones within the City.

Project construction noise levels at nearby sensitive receptors were calculated using the FTA methodology. Construction noise modeling worksheets for each phase are provided in Appendix D. Anticipated noise levels during each construction phase are presented in Table 9.

Although not protected by City Ordinance criteria, the equivalent of the average noise level (L_{eq}) associated with simultaneous operation of all equipment associated with each construction phase was modeled at properties that have existing residential uses, including those that are zoned for residential uses and those that are not zoned for residential uses (non-conforming residential land uses), within proximity of the project site. Because most all construction equipment is expected to move around the project site, combined noise levels were modeled from the center of the site, as is industry standard. Construction noise levels are expected to reach up to reach up to 66 dBA L_{eq} at the nearest existing residential property line to the southeast, 58.7 dBA L_{eq} at the nearest existing residential property line to the east, and 60.8 dBA L_{eq} at the nearest existing residential property line to the north of the project site.

Project construction will not occur outside of the hours outlined in Section 7.34.060 of the City of Perris Municipal Code. Section 7.34.060 of the City's municipal code prohibits construction activity from exceeding 80 dBA L_{max} in residential zones within the City. Based on the modeled construction noise levels (see Table 9), construction noise levels are estimated to reach a maximum of 65.1 dBA L_{max} at the nearest residential property line. Therefore, the project would not exceed City-established standards relating to construction noise. The project impact is less than significant; no mitigation is required.

Notwithstanding the above, best management practices (BMPs) are provided in the Project Description and should be added to project plans and in contract specifications to minimize construction noise emanating from the proposed project.

Off-Site Vehicle Trips

Construction truck trips would occur throughout the construction period. Given the project site's proximity to the 215 Freeway, it is anticipated that vendor and/or haul truck traffic would take the most direct route to the appropriate freeway ramps.

Ethanac Road currently handles between approximately 9,700 and 24,300 average daily vehicle trips and Trumble Road currently handles between approximately 2,000 and 2,600 average daily vehicle trips in the vicinity of the project site.[7] Existing traffic noise levels along Ethanac Road range between 72.06 and 77.4 dBA CNEL and existing daytime traffic noise levels along Trumble Road range between 64.68 and 63.54 dBA CNEL (see Table 12). As stated previously, a doubling of traffic volume would be anticipated to increase noise levels by approximately 3 dBA. Furthermore, it is widely accepted that the average healthy human ear can barely perceive changes of 3 dBA in an outdoor environment and that a change of 5 dBA is readily perceptible.[8] Therefore, vehicle traffic generated during project construction would be anticipated to be nominal relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 3 dBA. The project impact is less than significant; no mitigation is required.

Project Operational Noise

Onsite Noise Sources

Stationary noise source standards are established within the City of Perris General Plan Noise Element Implementation Measure V.A.1 and Municipal Code Section 7.34.040 (see Regulatory Setting section of this report). Accordingly, the project would result in a significant impact if:

- Project operational noise exceeds the City-established noise standard of 60 dBA CNEL at the property line of adjoining sensitive land uses.

[7] Existing average daily traffic volumes obtained from the *Beyond Food Mart (NEC Trumble and Ethanac) Traffic Impact Analysis* (Ganddini Group, Inc., February 26, 2024).

[8] California Department of Transportation's *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013)

- Amplified sound (music and/or human voice) beyond the property line of the property from which the sound emanates that exceeds 80 dBA L_{max} from 7:01 AM to 10:00 PM or 60 dBA L_{max} from 10:01 PM to 7:00 AM at the property line of any residential neighborhood is prohibited. The project may result in a significant impact if it results in maximum noise events that exceed 80 dBA.

Noise levels were determined based on the SoundPLAN acoustical model developed for the project. Noise levels were modeled at existing residential uses. SoundPLAN modeling worksheets are provided in Appendix E. Figure 6 and 7 show the modeled project operational noise levels in dBA CNEL at the nearby sensitive receptors, conservatively assuming all on-site noise sources simultaneously. In addition, Figure 8 shows the modeled project operational noise levels in dBA L_{max} at nearby sensitive receptors. Table 10 and 11 shows the modeled project operational noise levels relative to the City-established standards.

Noise Levels - CNEL

Based on the operational noise modeling, project operation is expected to range between approximately 44 and 57 dBA CNEL at the property line of nearby sensitive receivers. As shown in Table 10 and Figure 6 and 7, modeled project operational noise levels would be below the City's General Plan land use compatibility criteria of 60 dBA CNEL. Therefore, project operational noise impacts would be less than significant, and no mitigation is required.

Noise Levels - Lmax

As discussed previously, Section 7.34.040 of the City's Noise Ordinance prohibits the generation of amplified sound (music and/or human voice) beyond the property line of the property from which the sound emanates that exceeds 80 dBA L_{max} from 7:01 AM to 10:00 PM or 60 dBA L_{max} from 10:01 PM to 7:00 AM at the property line of the property from which the sound emanates. Section 7.34.050 applies these noise standards to any noise in a residential neighborhood. The drive through and car wash speakers were included in the model.

As shown in Table 11 and Figure 8, maximum operational noise levels, due to sound amplification, may reach up to approximately 11 dBA L_{max} at the nearest sensitive receptor. The operation of the proposed project would not result in activities that would cause maximum noise events from sound amplification to exceed the City's daytime noise standard of 80 dBA L_{max} or the nighttime noise standard of 60 dBA L_{max}. This impact would be less than significant, and no mitigation is required.

Offsite Operational Noise Sources

California courts have rejected use of what is effectively a single "absolute noise level" threshold of significance (e.g., exceed 65 dBA CNEL) on the grounds that the use of such a threshold fails to consider the magnitude or severity of increases in noise levels attributable to the project in different environments (see *King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814). California courts have also upheld the use of "ambient plus increment" thresholds for assessing project noise impacts as consistent with CEQA, noting however, that the severity of existing noise levels should not be ignored by incorporating a smaller incremental threshold for areas where existing ambient noise levels were already high (see *Mission Bay Alliance v. Office of Community Investment and Infrastructure* (2016) 6 Cal.App.5th 160).

Pursuant to the Perris Valley Commerce Center Specific Plan (PVCCSP) environmental Impact Report (EIR), project roadway noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development.

When the resulting noise levels at noise-sensitive land uses (e.g., residential, etc.):

- are less than 60 dBA CNEL and the project creates a 5 dBA CNEL or greater project-related level increase; or,

- exceed 60 dBA CNEL and the project creates a 3 dBA CNEL or greater project-related noise level increase.

Roadway noise levels were calculated at roadways included in the *Beyond Food Mart (NEC Trumble and Ethanac) Traffic Impact Analysis* (Ganddini Group, Inc., February 26, 2024) based on the FHWA Traffic Noise Prediction Model methodology. During operation, the proposed project is expected to generate approximately 3,187 average daily trips with 193 trips during the AM peak-hour and 221 trips during the PM peak-hour. Roadway noise levels were calculated for the following scenarios:

- *Existing (without Project)*: This scenario refers to existing year traffic noise conditions.
- *Existing Plus Project*: This scenario refers to existing year plus project traffic noise conditions.

Table 12 shows the change in existing roadway noise levels with the addition of project-generated operational trips. FHWA Traffic Noise Prediction Model calculation worksheets are provided in Appendix F.

As shown in Table 12, modeled existing traffic noise levels range between 59-77 dBA CNEL and the modeled Existing Plus Project traffic noise levels range between 60-77 dBA CNEL at the right-of-way of each study roadway segment. The addition of project trips is not expected to change noise levels in excess of the applicable threshold at any of the study roadway segments (see Table 12). The project impact is 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

In relation to the Environmental Checklist noise issue "b", the City of Perris has not established thresholds of significance concerning groundborne vibration. In the absence of City-established thresholds, groundborne vibration impacts are based on guidance from the *Transportation and Construction Vibration Guidance Manual* (California Department of Transportation, 2020) (see Regulatory Setting section). Accordingly, the project would result in a significant impact if:

- Groundborne vibration levels generated by the project have the potential to cause architectural damage at nearby buildings by exceeding the following PPV:
  - 0.08 in/sec at extremely fragile historic buildings, ruins, ancient monuments
  - 0.10 in/sec at fragile buildings
  - 0.25 in/sec at historic and some old buildings
  - 0.30 in/sec at older residential structures
  - 0.50 in/sec at new residential structures and modern industrial/commercial buildings.
- Groundborne vibration levels generated by the project have the potential to cause severe annoyance to people living or working in nearby buildings by exceeding a PPV of 0.4 in/sec.

Groundborne vibration modeling worksheets are provided in Appendix G.

Based on the groundborne vibration modeling (Table 13), use of a vibratory roller is expected to generate a PPV of 0.031 in/sec and use of a bulldozer is expected to generate a PPV of 0.013 in/sec at the closest off-site building, a commercial structure located approximately 90 feet south of the project site. Other equipment anticipated to be used during project construction generate lower PPV. Therefore, groundborne vibration generated by project construction would not exceed the levels necessary to cause architectural

damage or severe annoyance to persons living or working in nearby buildings. The project impact is less than significant; no mitigation is required.

The most substantial sources of groundborne vibration during post-construction project operations will include the movement of passenger vehicles and trucks on paved and generally smooth surfaces. Loaded trucks generally have a PPV of 0.076 at a distance of 25 feet (Caltrans 2020), which is a substantially lower PPV than that of a vibratory roller (0.210 in/sec PPV at 25 feet). Therefore, groundborne vibration levels generated by project operation would not exceed those modeled for project construction.

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 airport to the project site is the March Air Reserve Base/Inland Port Airport located approximately 2.83 miles to the northwest of the project site. Per the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan (ALUCP) (2014), the project site is located within Compatibility Zone D (Flight Corridor Buffer). Exhibit N-3 of the Noise Element of the City's General Plan shows that the project site is well outside of the airport's 60 dBA CNEL noise contour. In addition, Figure 4-2 of the more recent Final Air Installations Compatible Use Zones Study for March Air Reserve Base (Air Force Reserve Command) (AICUZ 2018) (Figure 9) shows that the project site is well outside the airport's 60 dBA CNEL noise contour.

Per the 2018 AICUZ the Air Force provides planning contours–noise contours based on reasonable projections of future missions and operations. AICUZ studies using planning contours provide a description of the long-term (5-10 year) aircraft noise environment for projected aircraft operations that is more consistent with the planning horizon used by State, tribal, regional and local planning bodies."

The proposed project includes construction and operation of a 7,250 square foot convenience store/gas station including drive through window with eight (8) dual-sided gasoline fuel pumps (i.e., 16-vehicle fueling positions) and an automated car wash tunnel. As shown in Table MA-2, Basic Compatibility Criteria, of the March Air Reserve Base Inland Port ALCUP, commercial uses are considered allowed uses within Zone D. Neither the City of Perris Municipal Code nor the March Air Reserve Base Inland Port ALCUP establish airport noise criteria for commercial land uses.

The project would not expose people residing or working in the project area to excessive noise levels associated with airports. This impact would be less than significant. No mitigation is required.

Table 9
Construction Noise Levels (dBA L_{max})

Phase	Receptor Location	Closest Measured Ambeint Noise Location[2]	Existing Measured Noise Levels (dBA, Lmax)	Construction Noise Levels (dBA Lmax)	Construction Noise Levels Exceed Daytime 80 dBA Lmax Standard (Y/N)
Site Preparation	Existing Residential to Southeast (27381 Ethanac Road, Perris)	STNM1	87.3	65.1	N
	Existing Residential to East (25962 Sherman Road, Perris)	STNM2	89.1	57.8	N
	Existing Residential to North (25870 Trumble Road, Perris)	STNM3	82.6	59.8	N
Grading	Existing Residential to Southeast (27381 Ethanac Road, Perris)	STNM1	87.3	65.1	N
	Existing Residential to East (25962 Sherman Road, Perris)	STNM2	89.1	57.8	N
	Existing Residential to North (25870 Trumble Road, Perris)	STNM3	82.6	59.8	N
Building Construction	Existing Residential to Southeast (27381 Ethanac Road, Perris)	STNM1	87.3	64.1	N
	Existing Residential to East (25962 Sherman Road, Perris)	STNM2	89.1	56.8	N
	Existing Residential to North (25870 Trumble Road, Perris)	STNM3	82.6	58.8	N
Paving	Existing Residential to Southeast (27381 Ethanac Road, Perris)	STNM1	87.3	64.1	N
	Existing Residential to East (25962 Sherman Road, Perris)	STNM2	89.1	56.8	N
	Existing Residential to North (25870 Trumble Road, Perris)	STNM3	82.6	58.8	N
Architectural Coating	Existing Residential to Southeast (27381 Ethanac Road, Perris)	STNM1	87.3	58.1	N
	Existing Residential to East (25962 Sherman Road, Perris)	STNM2	89.1	50.8	N
	Existing Residential to North (25870 Trumble Road, Perris)	STNM3	82.6	52.8	N

Notes:
(1) Construction noise worksheets are provided in Appendix D.
(2) Nearest noise measurement as shown in Figure 5 and Table 1.

Table 10
Analysis of Project Operational Noise Levels (dBA CNEL)

Receptor Location[1]	Land Use	Closest Measured Ambient Noise Location[2]	Existing Measured Noise Levels (dBA CNEL)	Operational Noise Levels (dBA CNEL)[3]	Increase In Ambient Noise Levels Due to Project Operation	Does Project Noise Exceed 60 DBA CNEL Standard (Y/N)
1	Existing Use Residentially Zoned Property	STNM1	72.1	51.5	0	N
2	Existing Use Residentially Zoned Property	STNM2	67.8	44.4	0	N
3	Existing Use Residentially Zoned Property	STNM3	66.1	56.8	0	N

Notes:
(1) Receptors as shown on Figures 6 and 7.
(2) Estimated using short-term noise measurements (see Figure 5 and Table 1).

Table 11
Analysis of Project Operational Noise Levels (dBA Lmax)

Receptor Location[1]	Land Use	Closest Measured Ambient Noise Location[2]	Existing Measured Noise Levels (dBA Lmax)	Operational Noise Levels (dBA Lmax)[3]	Increase In Ambient Noise Levels Due to Project Operation	Does Project Noise Exceed daytime 80 dBA Lmax or nighttime 60 dBA Lmax Standards (Y/N)
1	Existing Use Residentially Zoned Property	STNM1	87.2	11.3	0	N/N
2	Existing Use Residentially Zoned Property	STNM2	89.1	4.4	0	N/N
3	Existing Use Residentially Zoned Property	STNM3	82.6	7.1	0	N/N

Notes:
(1) Receptors as shown on Figures 6 and 7.
(2) Estimated using short-term noise measurements (see Figure 5 and Table 1).

Table 12
Increase in Existing Noise Levels Due to Project Generated Vehicle Traffic (dBA CNEL)

Roadway	Segment	Distance from roadway centerline to ROW (feet)[1]	Modeled Noise Levels (dBA CNEL)[2]				
			Existing Without Project	Existing Plus Project	Change in Noise Level	Exceeds Standards[3]	Increase of 3 dB or More?
Ethanac Road	West of Interstate 215	59	77.40	77.46	0.06	Yes	No
	Interstate 215 to Encanto Drive	59	74.39	74.63	0.24	Yes	No
	Encanto Drive to Trumble Road	59	74.06	74.37	0.31	Yes	No
	Trumble Road to Sherman Road	59	73.26	73.67	0.41	Yes	No
	East of Sherman Road	59	72.06	72.33	0.27	Yes	No
Encanto Drive	South of Ethanac Road	33	64.38	64.56	0.18	Yes	No
Trumble Road	North of Ethanac Road	37	64.68	65.18	0.50	Yes	No
	South of Ethanac Road	37	63.54	64.47	0.93	Yes	No
Sherman Road	North of Ethanac Road	59	66.6	67.2	0.58	Yes	No
	South of Ethanac Road	59	59.2	60.3	1.03	Yes	No

Notes:

(1) Right-of-way (ROW) per the City of Perris General Plan Circulation Element or the City of Menifee General Plan Circulation Element, depending on the jurisdiciton of the roadway segment.

(2) Exterior noise levels calculated 5 feet above pad elevation, perpendicular to subject roadway, at right-of-way line.

(3) Per the City of Perris normally acceptable standard for single-family detached residential dwelling units is 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]
Architectural Damage Analysis				
Commercial to Southwest (Shell & Circle K Gas Station, 1765 Ethanac Road, Perris)	188	Vibratory Roller	0.010	No
	188	Large Bulldozer	0.004	No
Commercial to South (Inland Products & Top Tech Smog Check, 27271 Ethanac Road, Menifee)	90	Vibratory Roller	0.031	No
	90	Large Bulldozer	0.013	No
Commercial to Southeast (27381 Ethanac Road, Menifee)	285	Vibratory Roller	0.005	No
	285	Large Bulldozer	0.002	No

Notes:

(1) Vibration levels are provided in PPV in/sec.

(2) Caltrans identifies the threshold at which there is a risk to "architectural" damage to historic and some old buildings as 0.25 in/sec PPV and to modern industrial/commercial buildings as 0.5 in/sec PPV (see Table 3).

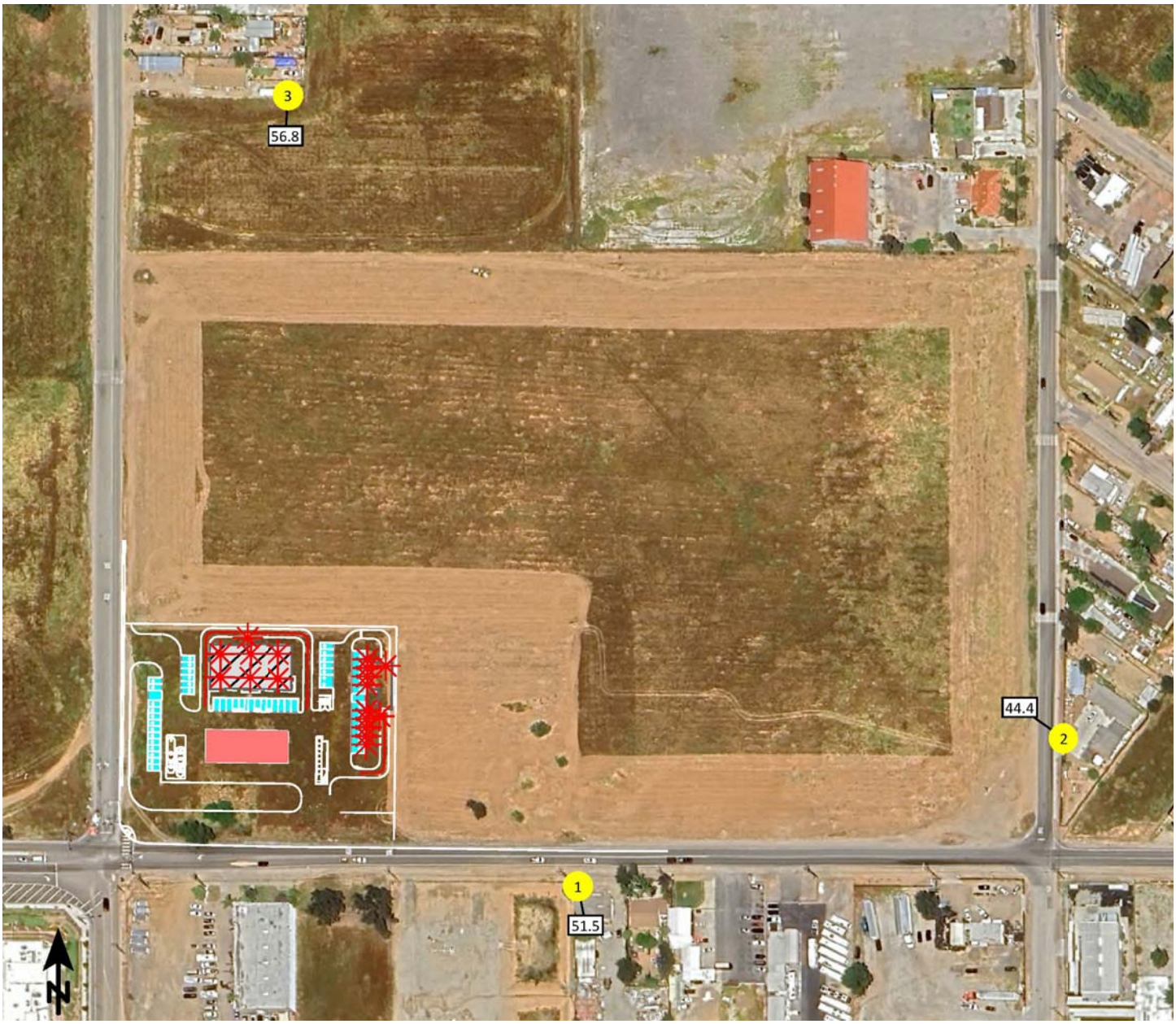


Figure 6
Operational Noise Levels (dBA CNEL)

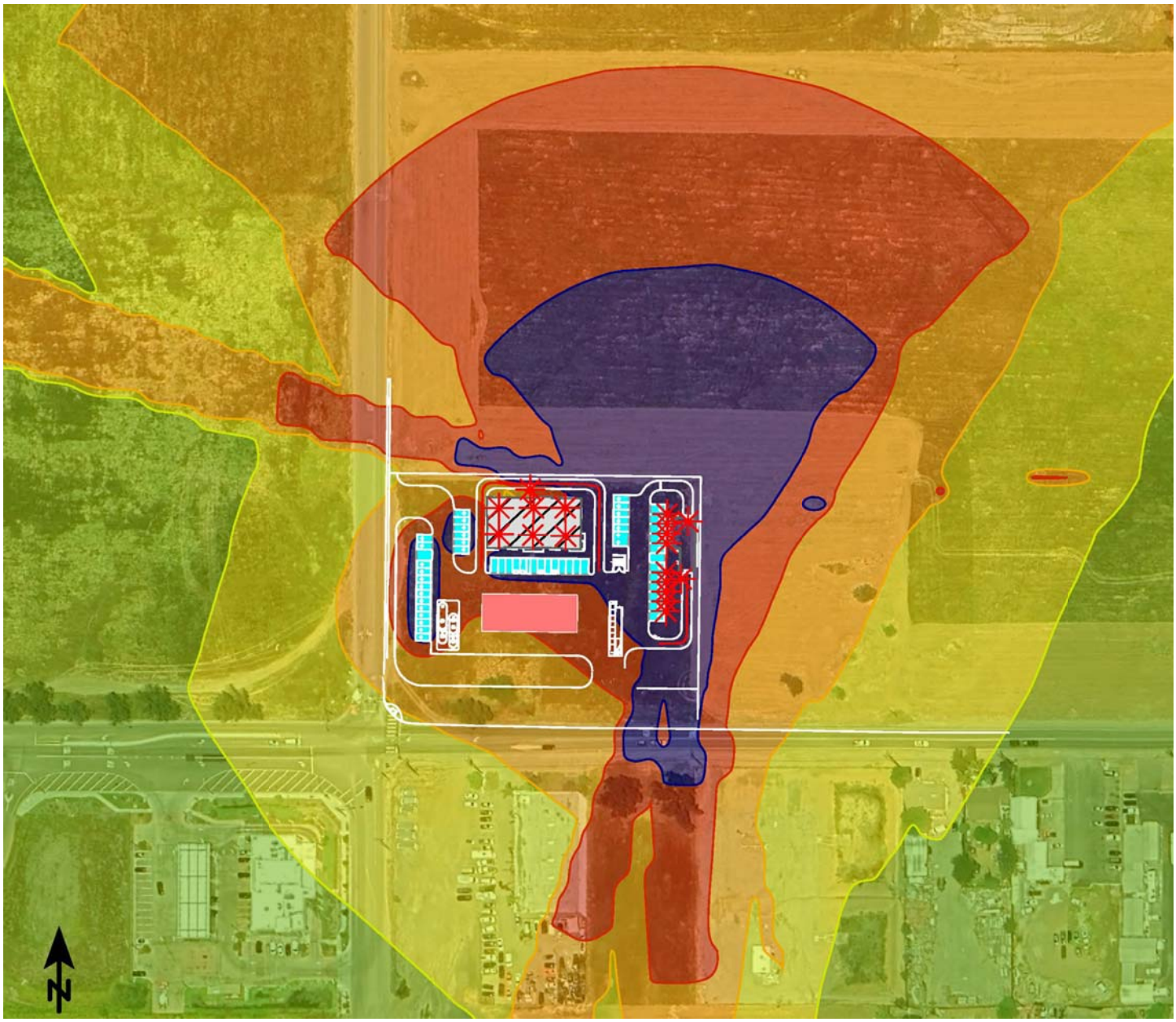
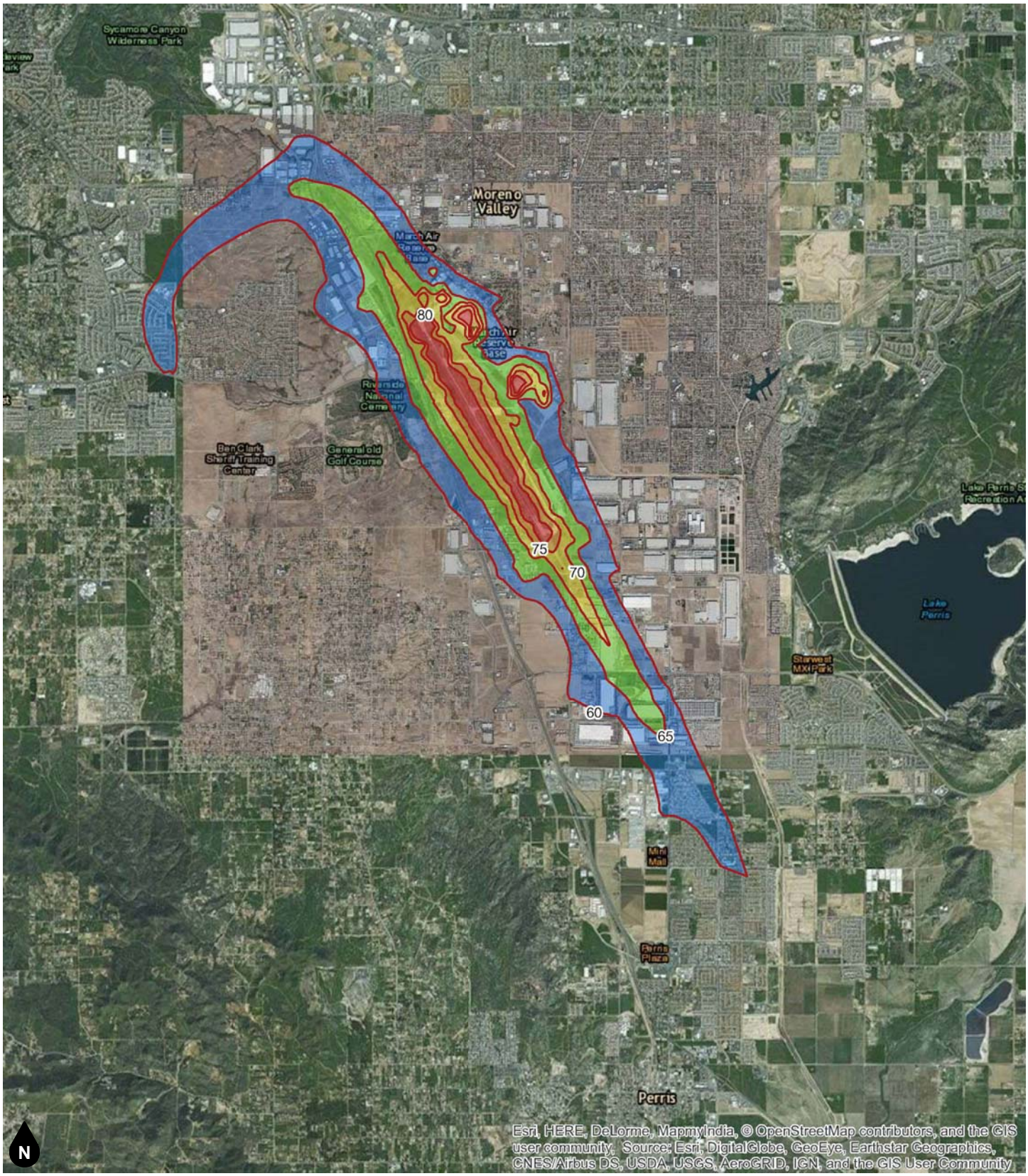


Figure 7
Operational Noise Level Contours (dBA CNEL)

Figure 8
Operational Noise Levels (dBA Lmax)



Legend

March ARB 2018 Noise Contours

Noise Contour Levels (CNEL)

60dB 65dB 70dB 75dB 80dB

Figure 9
March ARB 2018 AICUZ 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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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 L_{eq}	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
$L_{eq(x)}$	Equivalent Noise Level for '"x" period of time
L_{eq}	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)
Lp	Sound pressure level
LOS C	Level of Service C
Lw	Sound Power Level
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}	Lmax 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. Lmin 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: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7, 2023

Project #: 19674

Noise Measurement #: STNM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 27391 Ethanac Road, Menifee, CA 92585

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just north of residence located at 27391 Ethanac Road & south of Ethanac Road. Adjacent: Ethanac Road to north with various businesses along south side of Ethanac Rd and vacant land to north, 215 Fwy (running N-S) ~2,000 ft W, & a single-family residence to south.

Weather: About 20% cloud, filtered sunshine. Sunset 4:52 PM. **Settings:** SLOW FAST

Temperature: 66 deg F **Wind:** 7 mph **Humidity:** 20% **Terrain:** Flat

Start Time: 1:49 PM **End Time:** 2:04 PM **Run Time:**

Leq: 72.1 dB **Primary Noise Source:** Traffic noise from the 184 vehicles traveling along Ethanac Rd passing microphone

Lmax 87.2 dB during STNM1.

L2 79.3 dB **Secondary Noise Sources:** Some residential ambiance, distant overhead air traffic. Bird song.

L8 76.3 dB Traffic ambiance from vehicles on other roads.

L25 73.4 dB

L50 69.1 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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:

STNM1 looking ESE towards front yard of residence 27391 Ethanac Road, Menifee.

STNM1 looking W down Ethanac Road towards Trumble Road intersection (~720'). Residence 27381 Ethanac Road, Menifee on the left.

Summary	
File Name on Meter	LxT_Data.350.s
File Name on PC	LxT_0003099-20231107 134933-LxT_Data.350.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM1 33°44'34.46"N 117°10'56.79"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 13:49:33
Stop	2023-11-07 14:04:33
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 13:49:14
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	72.1			
LAE	101.6			
EA	1.619529	mPa²h		
EA8	51.82492	mPa²h		
EA40	259.1246	mPa²h		
LApeak (max)	2023-11-07 14:02:23	103.9	dB	
LASmax	2023-11-07 14:02:23	87.2	dB	
LASmin	2023-11-07 13:51:41	44.7	dB	

			Statistics	
LCeq	77.8	dB	**LA2.00**	79.3 dB
LAeq	72.1	dB	**LA8.00**	76.3 dB
LCeq - LAeq	5.7	dB	**LA25.00**	73.4 dB
LAleq	74.3	dB	**LA50.00**	69.1 dB
LAeq	72.1	dB	**LA66.60**	64.3 dB
LAleq - LAeq	2.2	dB	**LA90.00**	53.4 dB
Overload Count	0			

Measurement Report

Report Summary

Meter's File Name	LxT_Data.350.s	Computer's File Name	LxT_0003099-20231107 134933-LxT_Data.350.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM1 33°44'34.46"N 117°10'56.79"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 13:49:33	Duration	0:15:00.0
End Time	2023-11-07 14:04:33	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	72.1 dB		
LAE	101.6 dB	SEA	--- dB
EA	1.6 mPa²h	LAFTM5	77.9 dB
EA8	51.8 mPa²h		
EA40	259.1 mPa²h		
LA_{peak}	103.9 dB	2023-11-07 14:02:23	
LAS_{max}	87.2 dB	2023-11-07 14:02:23	
LAS_{min}	44.7 dB	2023-11-07 13:51:41	
LA_{eq}	72.1 dB		
LC_{eq}	77.8 dB	LC_{eq} - LA_{eq}	5.7 dB
LAI_{eq}	74.3 dB	LAI_{eq} - LA_{eq}	2.2 dB

Exceedances	Count	Duration
LAS > 65.0 dB	33	0:10:23.4
LAS > 85.0 dB	1	0:00:02.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

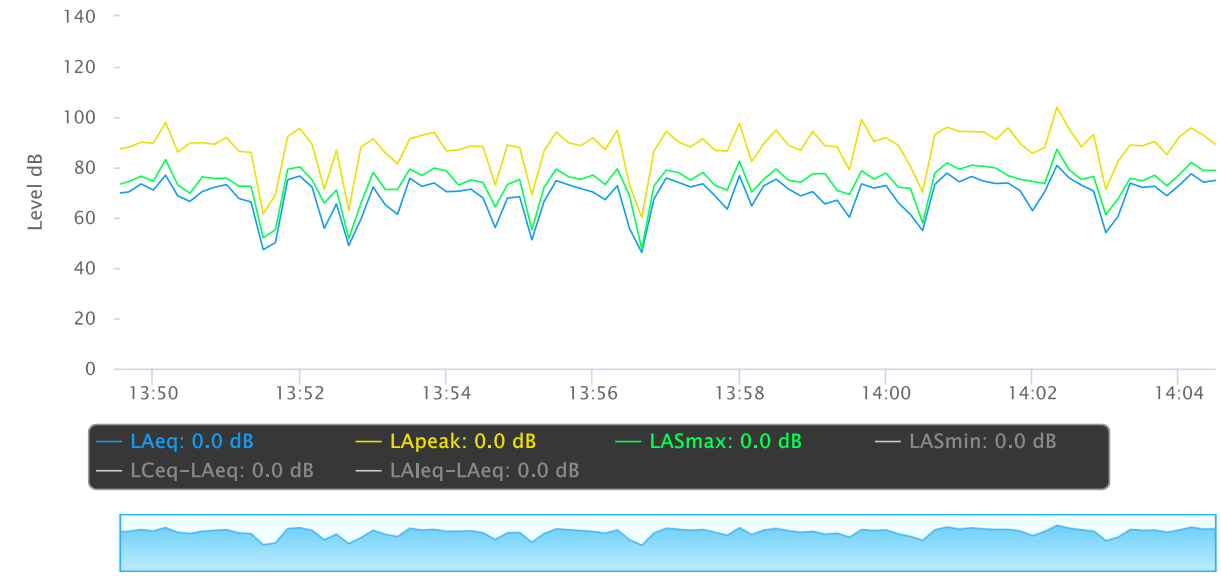
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	72.1 dB		77.8 dB		--- dB	
$L_{S(max)}$	87.2 dB	2023-11-07 14:02:23	--- dB		--- dB	
$L_{S(min)}$	44.7 dB	2023-11-07 13:51:41	--- dB		--- dB	
$L_{Peak(max)}$	103.9 dB	2023-11-07 14:02:23	--- dB		--- dB	

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

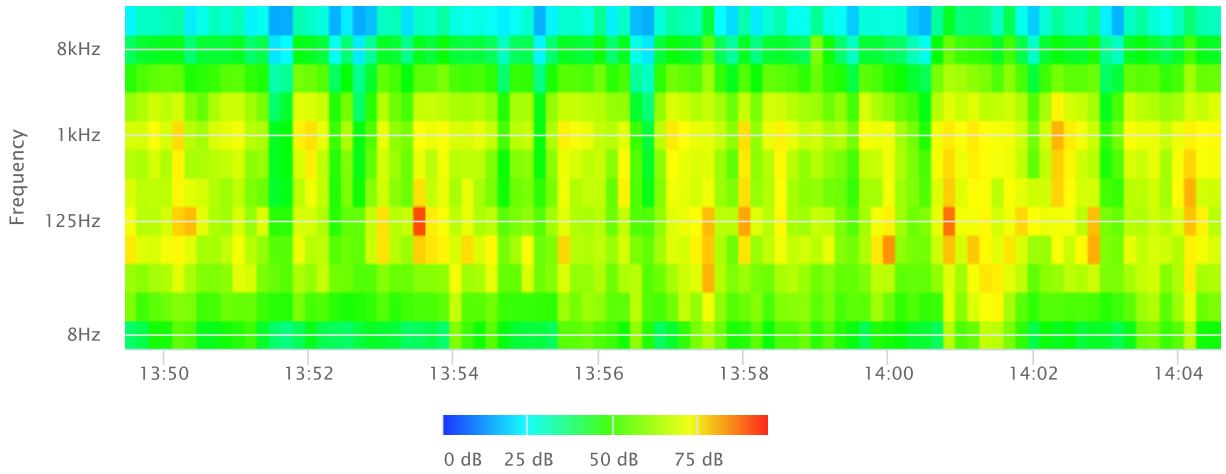
Statistics

LAS 2.0	79.3 dB
LAS 8.0	76.3 dB
LAS 25.0	73.4 dB
LAS 50.0	69.1 dB
LAS 66.6	64.3 dB
LAS 90.0	53.4 dB

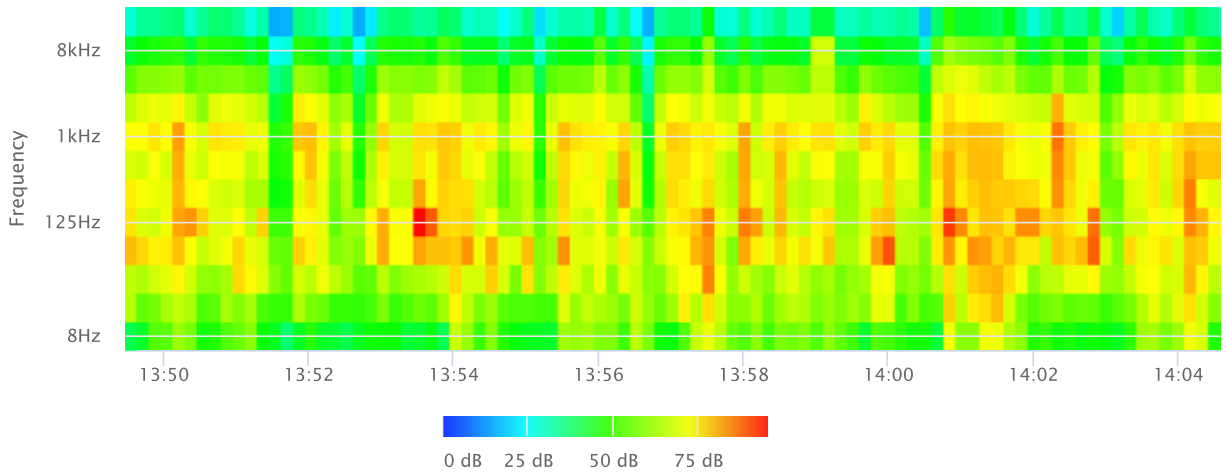
Time History



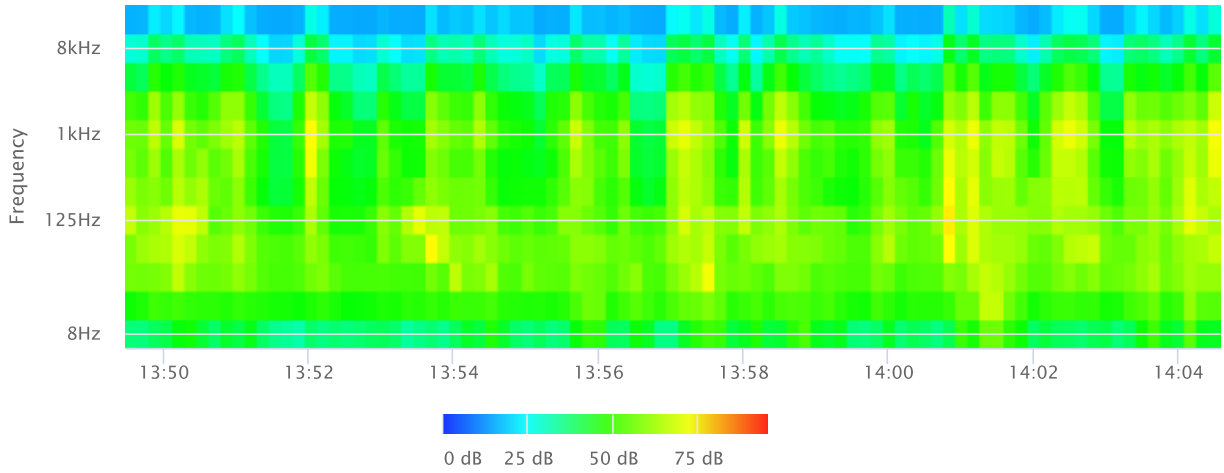
OBA 1/1 Leq



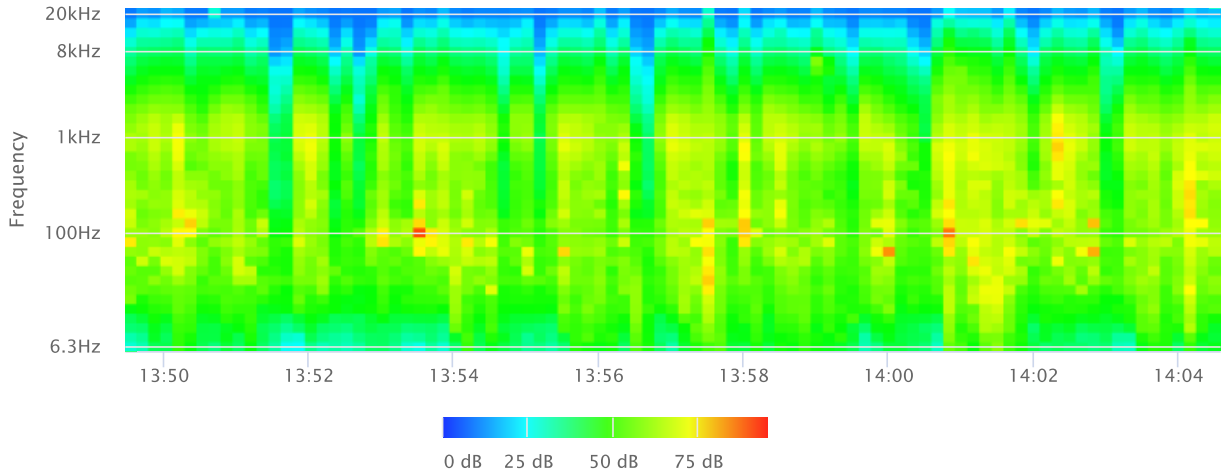
OBA 1/1 Lmax



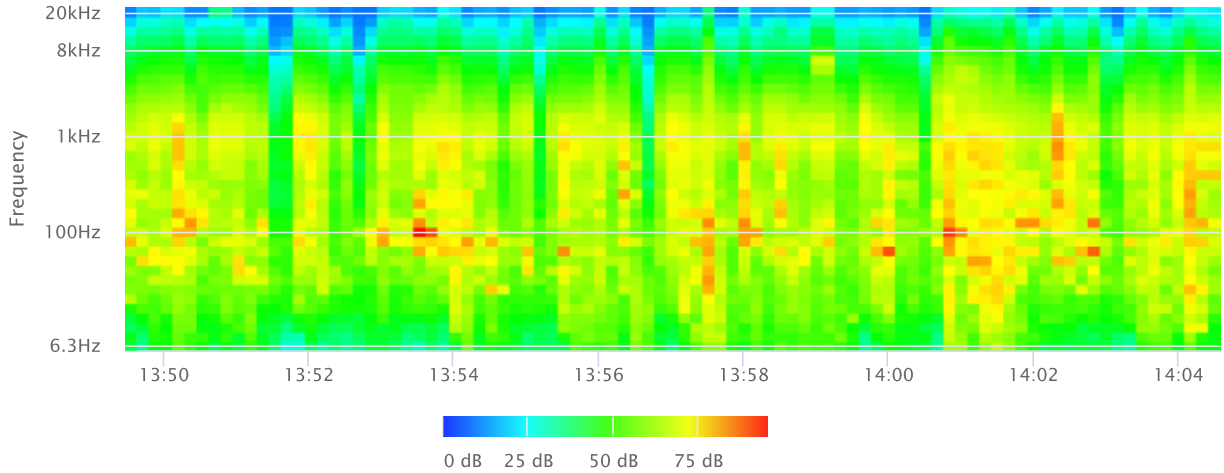
OBA 1/1 Lmin



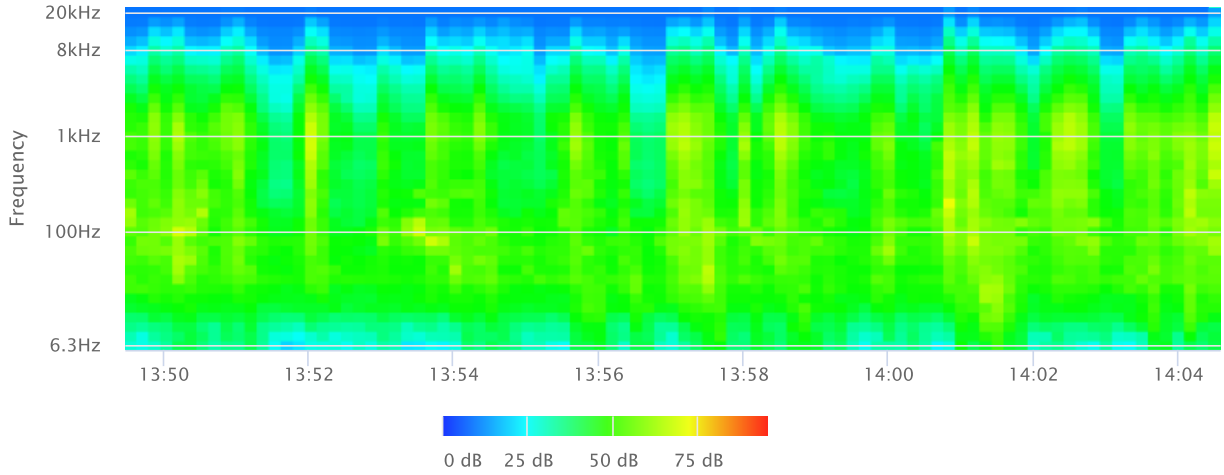
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
13:50
13:52
13:54
13:56
13:58
14:00
14:02
14:04
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7, 2023

Project #: 19674

Noise Measurement #: STNM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 25962 Sherman Road, Menifee, CA 92585

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just west of the residence at 25962 Sherman Road and east of Sherman Road. Adjacent: Sherman Rd (running N-S) just W with vacant land further west, Ethanac Rd (running E-W) ~160' S, & residential uses to east.

Weather: About 20% cloud, filtered sunshine. Sunset 4:52 PM. **Settings:** SLOW FAST

Temperature: 63 deg F **Wind:** 5 mph **Humidity:** 69% **Terrain:** Flat

Start Time: 2:16 PM **End Time:** 2:31 PM **Run Time:**

Leq:	67.8	dB
Lmax	89.1	dB
L2	75.9	dB
L8	70.9	dB
L25	64.8	dB
L50	58.4	dB

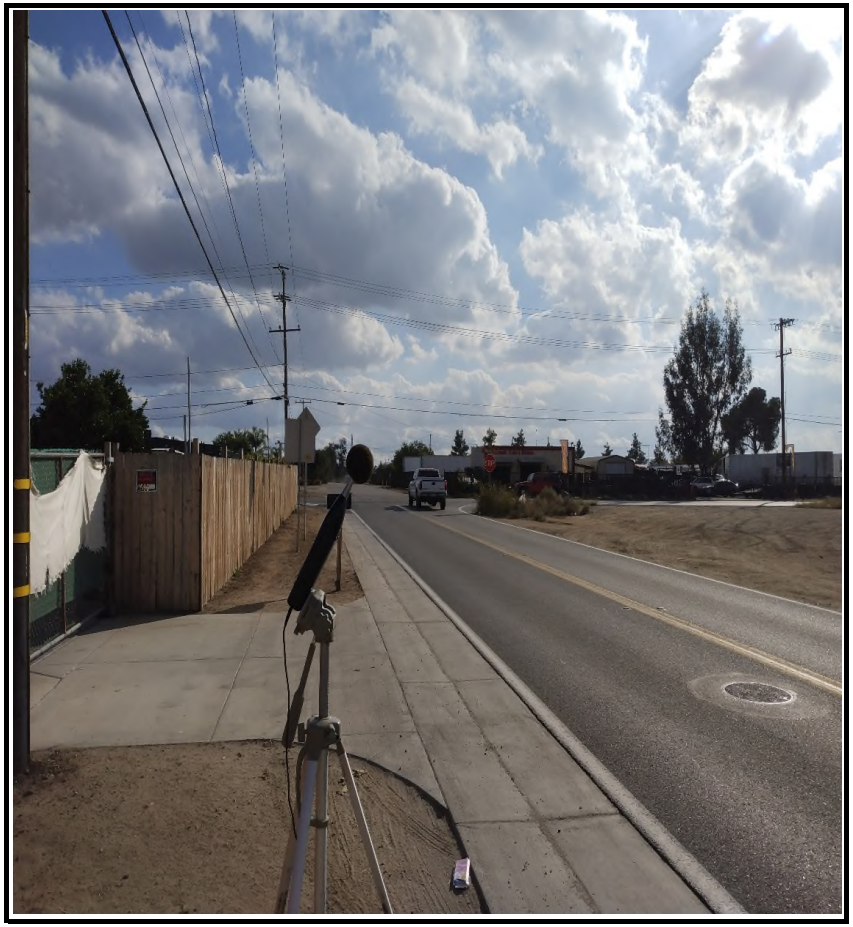
Primary Noise Source: Traffic noise from the 64 vehicles passing microphone traveling along Sherman Road. Traffic ambiance from vehicles on other roads.

Secondary Noise Sources: Some residential ambiance, distant overhead air traffic. Bird song.

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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:



STNM2 looking S down Sherman Road toward Ethanac Road intersection (~160'). Residence 25962 Sherman Road, Menifee on the left.

STNM2 looking N up Sherman Road towards Highway 74 (~1,900'). Residence 25962 Sherman Road, Menifee on the right.

Summary	
File Name on Meter	LxT_Data.351.s
File Name on PC	LxT_0003099-20231107 141630-LxT_Data.351.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM2 33°44'36.37"N 117°10'49.44"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 14:16:30
Stop	2023-11-07 14:31:30
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 14:16:10
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			
LA_{eq}	67.8		
LAE	97.4		
EA	605.974	µPa²h	
EA8	19.39117	mPa²h	
EA40	96.95584	mPa²h	
$LA_{peak\ (max)}$	2023-11-07 14:16:42	101.9	dB
LAS_{max}	2023-11-07 14:16:42	89.1	dB
LAS_{min}	2023-11-07 14:23:47	45.1	dB

		Statistics	
LC_{eq}	79.3 dB	**LA2.00**	75.9 dB
LA_{eq}	67.8 dB	**LA8.00**	70.9 dB
LC_{eq} - LA_{eq}	11.5 dB	**LA25.00**	64.8 dB
LAI_{eq}	71.0 dB	**LA50.00**	58.4 dB
LA_{eq}	67.8 dB	**LA66.60**	55.3 dB
LAI_{eq} - LA_{eq}	3.2 dB	**LA90.00**	49.2 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.351.s	Computer's File Name	LxT_0003099-20231107 141630-LxT_Data.351.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM2 33°44'36.37"N 117°10'49.44"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 14:16:30	Duration	0:15:00.0
End Time	2023-11-07 14:31:30	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	67.8 dB		
LAE	97.4 dB	SEA	--- dB
EA	606.0 µPa²h	LAFTM5	73.9 dB
EA8	19.4 mPa²h		
EA40	97.0 mPa²h		
LA_{peak}	101.9 dB	2023-11-07 14:16:42	
LAS_{max}	89.1 dB	2023-11-07 14:16:42	
LAS_{min}	45.1 dB	2023-11-07 14:23:47	
LA_{eq}	67.8 dB		
LC_{eq}	79.3 dB	LC_{eq} - LA_{eq}	11.5 dB
LAI_{eq}	71.0 dB	LAI_{eq} - LA_{eq}	3.2 dB

Exceedances	Count	Duration
LAS > 65.0 dB	33	0:04:18.1
LAS > 85.0 dB	1	0:00:03.2
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

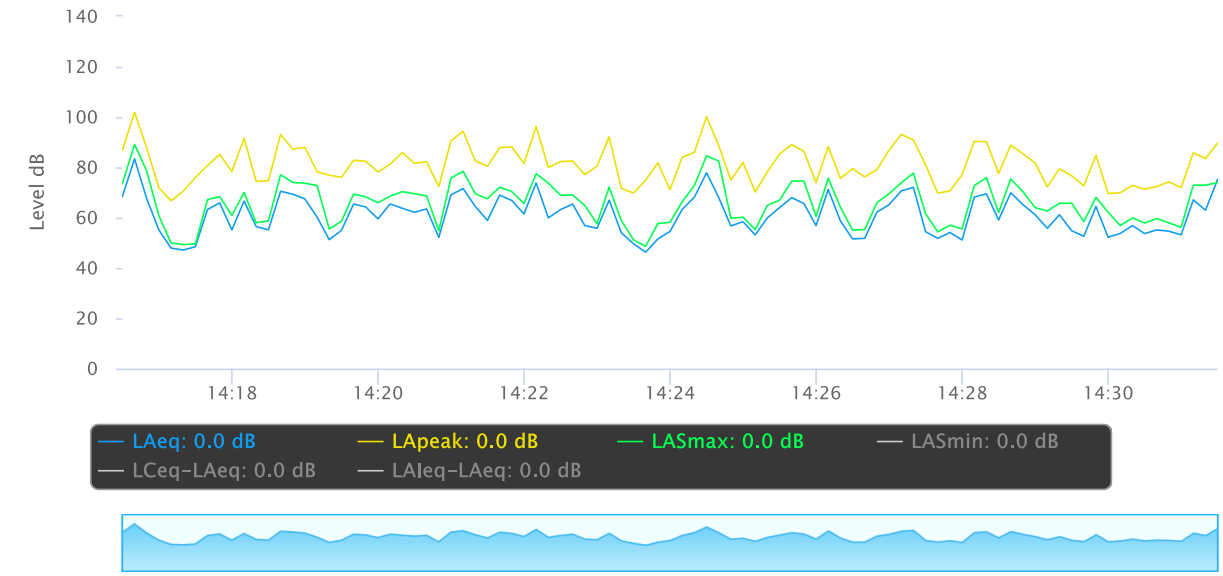
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	67.8 dB		79.3 dB		--- dB	
$L_{S(max)}$	89.1 dB	2023-11-07 14:16:42	--- dB		--- dB	
$L_{S(min)}$	45.1 dB	2023-11-07 14:23:47	--- dB		--- dB	
$L_{Peak(max)}$	101.9 dB	2023-11-07 14:16:42	--- dB		--- dB	

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

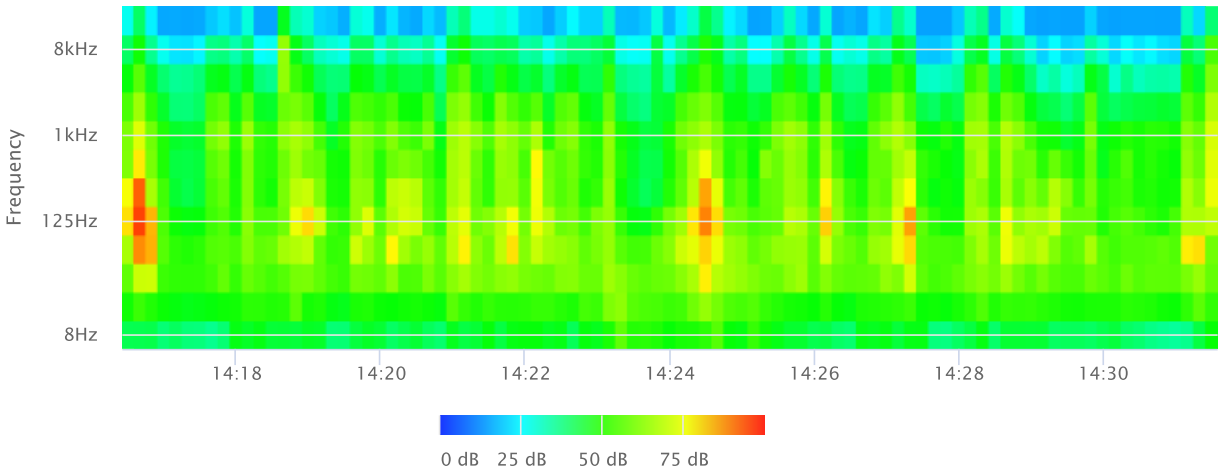
Statistics

LAS 2.0	75.9 dB
LAS 8.0	70.9 dB
LAS 25.0	64.8 dB
LAS 50.0	58.4 dB
LAS 66.6	55.3 dB
LAS 90.0	49.2 dB

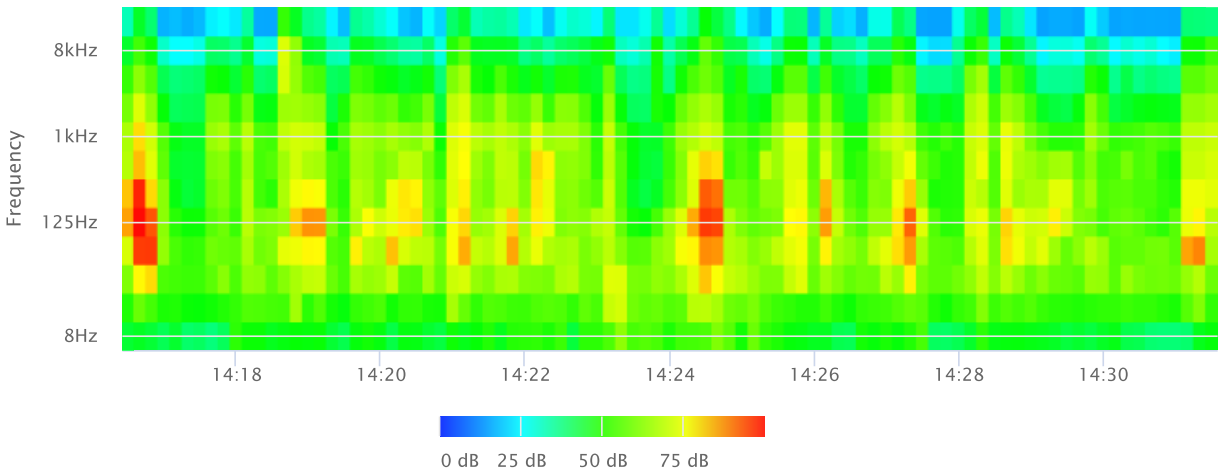
Time History



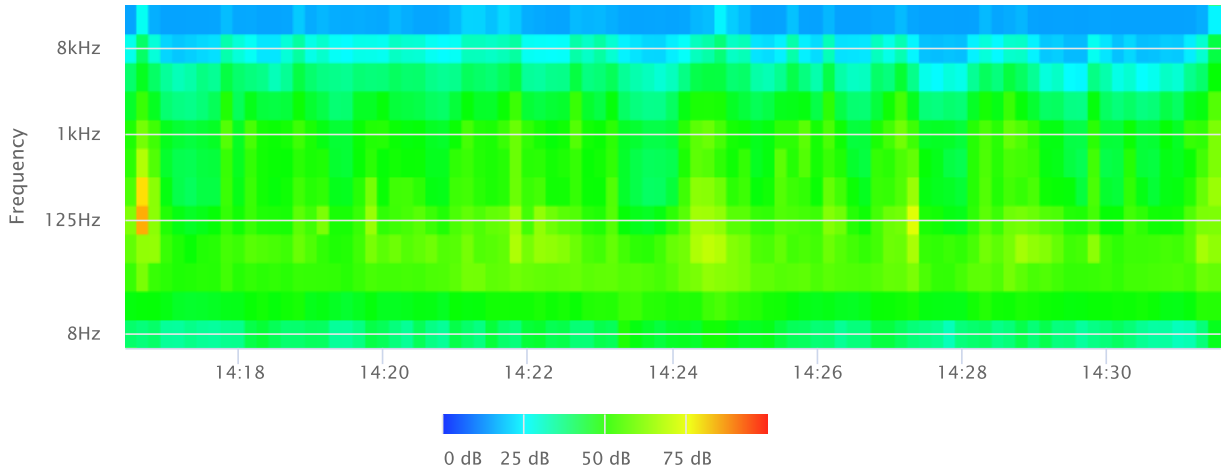
OBA 1/1 Leq



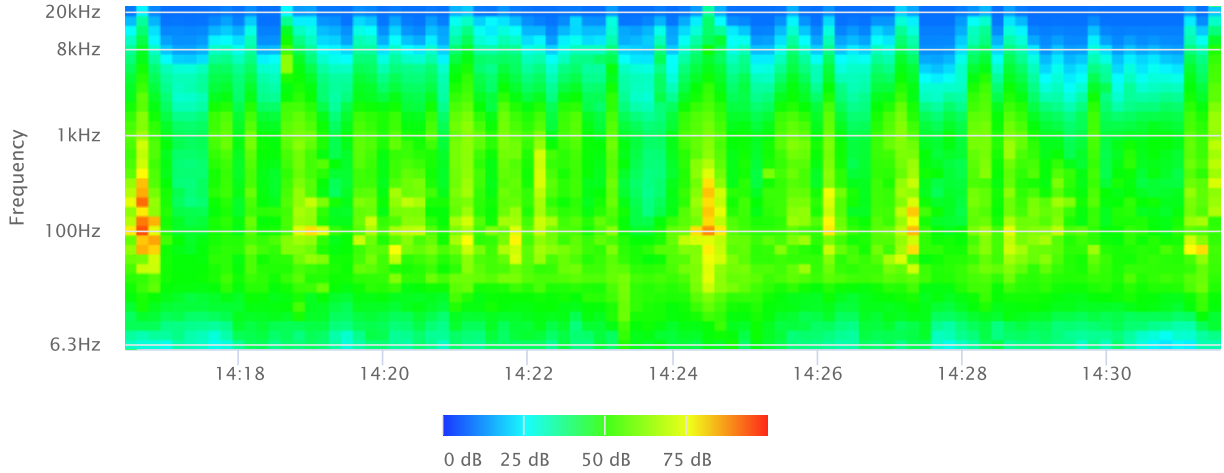
OBA 1/1 Lmax



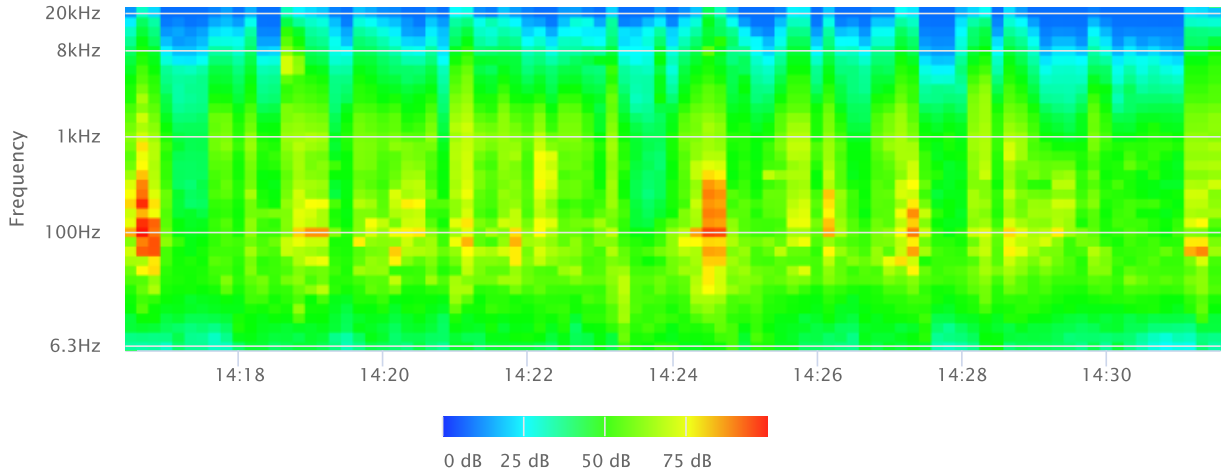
OBA 1/1 Lmin



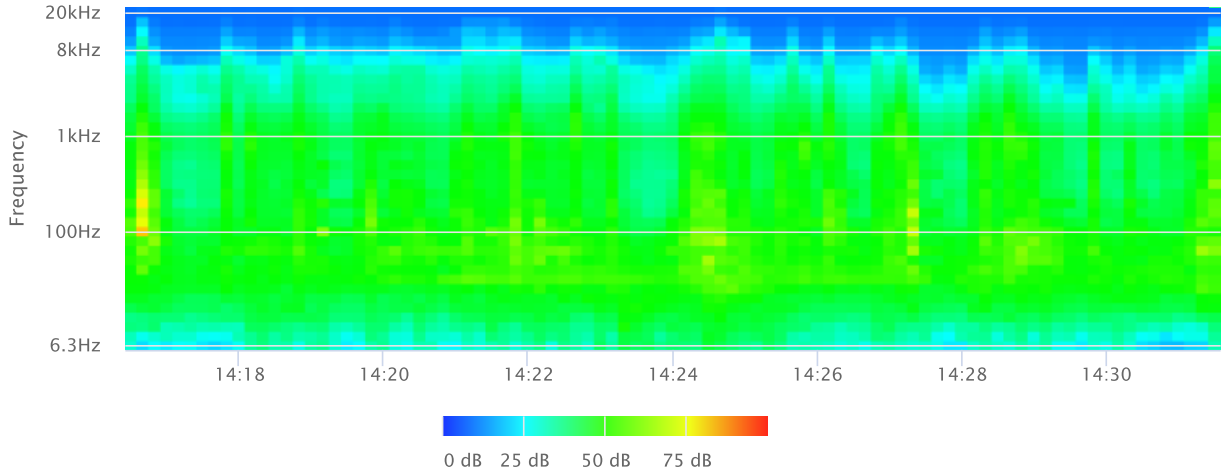
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
14:18
14:20
14:22
14:24
14:26
14:28
14:30
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7, 2023

Project #: 19674

Noise Measurement #: STNM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 25870 Trumble Road, Romoland, CA 92585

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just southwest of residence at 25870 Trumble Road and east of Trumble Road. Adjacent: Trumble Rd (running N-S) just W with vacant land further west, Ethanac Rd (running E-W) ~1,060' S, a residential use to east, and vacant land to southeast.

Weather: About 20% cloud, filtered sunshine. Sunset 4:52 PM. **Settings:** SLOW FAST

Temperature: 63 deg F **Wind:** 5 mph **Humidity:** 69% **Terrain:** Flat

Start Time: 2:50 PM **End Time:** 3:05 PM **Run Time:**

Leq: 66.1 dB

Lmax 82.6 dB

L2 75.9 dB

L8 71.3 dB

L25 64.5 dB

L50 56.1 dB

Primary Noise Source: Traffic noise from the 42 vehicles passing microphone traveling along Trumble Road. Traffic ambiance from vehicles on 215 Fwy & other roads.

Secondary Noise Sources: Some residential ambiance, distant overhead air traffic. Bird song.

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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:

STNM3 looking NE into frontyard of residence 25870 Trumble Road, Romoland.

STNM3 looking S down Trumble Road towards Ethanac Road intersection (~1,060').

Summary	
File Name on Meter	LxT_Data.352.s
File Name on PC	LxT_0003099-20231107 145012-LxT_Data.352.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM3 33°44'45.34"N 117°11'5.10"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 14:50:12
Stop	2023-11-07 15:05:12
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 14:49:57
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			
LA_{eq}	66.1		
LAE	95.7		
EA	410.5217	µPa²h	
EA8	13.13669	mPa²h	
EA40	65.68346	mPa²h	
$LA_{peak\ (max)}$	2023-11-07 15:02:11	100.2	dB
LAS_{max}	2023-11-07 14:50:12	82.6	dB
LAS_{min}	2023-11-07 15:02:40	48.4	dB

			Statistics	
LC_{eq}	72.5	dB	**LA2.00**	75.9 dB
LA_{eq}	66.1	dB	**LA8.00**	71.3 dB
LC_{eq} - LA_{eq}	6.3	dB	**LA25.00**	64.5 dB
LAI_{eq}	68.1	dB	**LA50.00**	56.1 dB
LA_{eq}	66.1	dB	**LA66.60**	53.0 dB
LAI_{eq} - LA_{eq}	2.0	dB	**LA90.00**	50.9 dB
Overload Count	0			

Measurement Report

Report Summary

Meter's File Name	LxT_Data.352.s	Computer's File Name	LxT_0003099-20231107 145012-LxT_Data.352.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM3 33°44'45.34"N 117°11'5.10"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 14:50:12	Duration	0:15:00.0
End Time	2023-11-07 15:05:12	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	66.1 dB		
LAE	95.7 dB	SEA	--- dB
EA	410.5 µPa²h	LAFTM5	71.7 dB
EA8	13.1 mPa²h		
EA40	65.7 mPa²h		
LA_{peak}	100.2 dB	2023-11-07 15:02:11	
LAS_{max}	82.6 dB	2023-11-07 14:50:12	
LAS_{min}	48.4 dB	2023-11-07 15:02:40	
LA_{eq}	66.1 dB		
LC_{eq}	72.5 dB	LC_{eq} - LA_{eq}	6.3 dB
LAI_{eq}	68.1 dB	LAI_{eq} - LA_{eq}	2.0 dB

Exceedances	Count	Duration
LAS > 65.0 dB	27	0:04:10.1
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

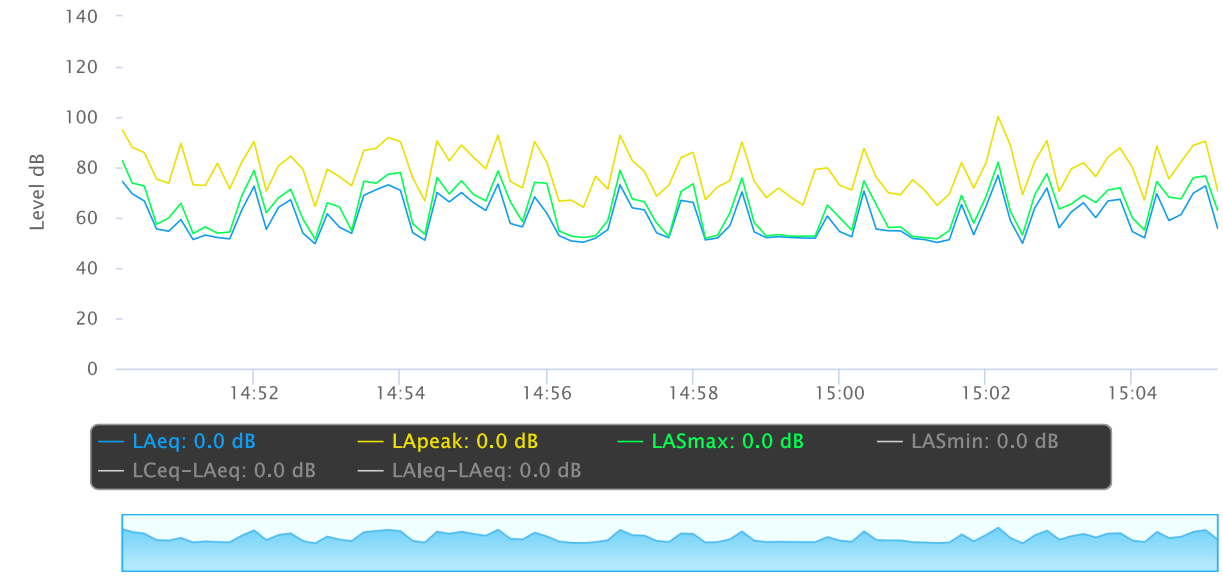
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	66.1 dB		72.5 dB		--- dB	
$L_{S(max)}$	82.6 dB	2023-11-07 14:50:12	--- dB		--- dB	
$L_{S(min)}$	48.4 dB	2023-11-07 15:02:40	--- dB		--- dB	
$L_{Peak(max)}$	100.2 dB	2023-11-07 15:02:11	--- dB		--- dB	

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

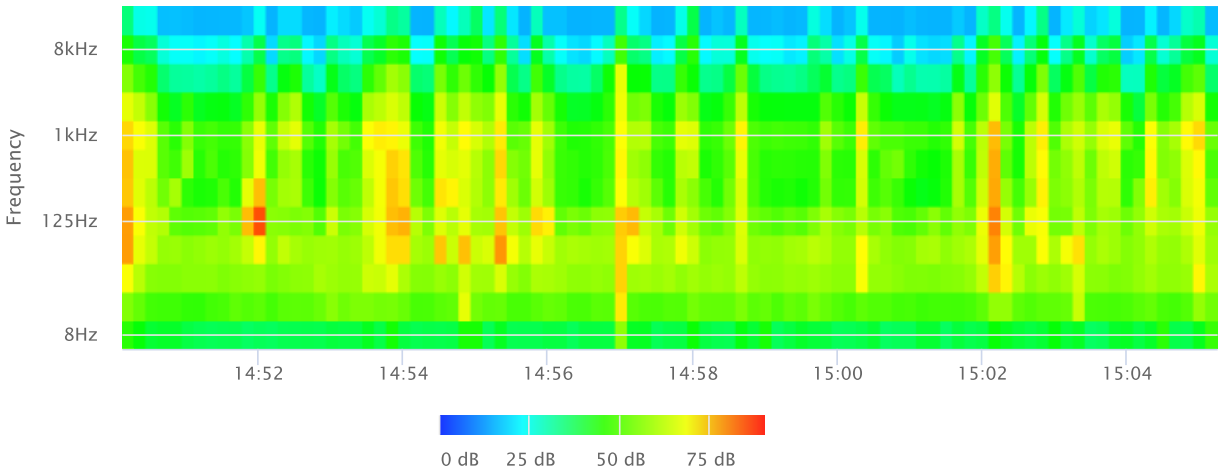
Statistics

LAS 2.0	75.9 dB
LAS 8.0	71.3 dB
LAS 25.0	64.5 dB
LAS 50.0	56.1 dB
LAS 66.6	53.0 dB
LAS 90.0	50.9 dB

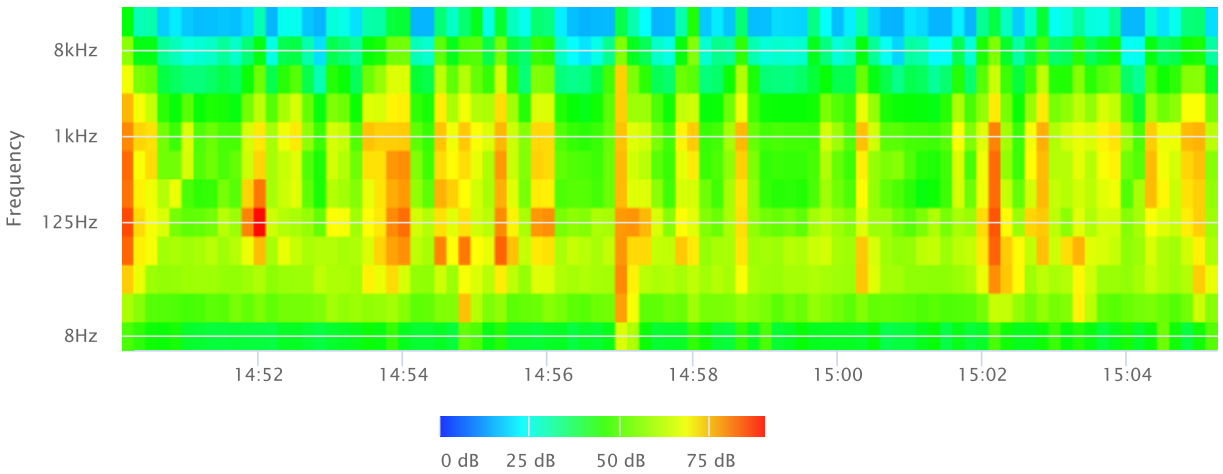
Time History



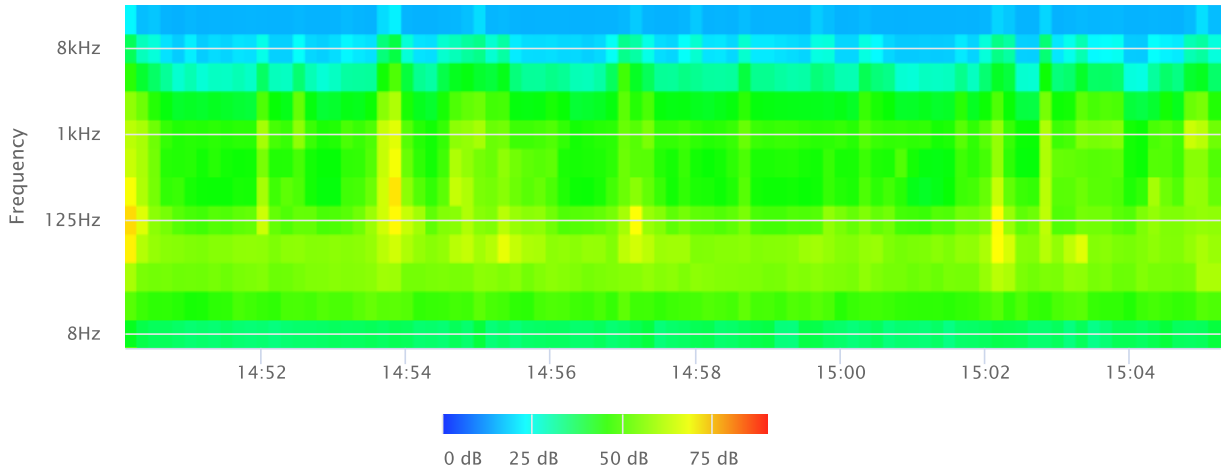
OBA 1/1 Leq



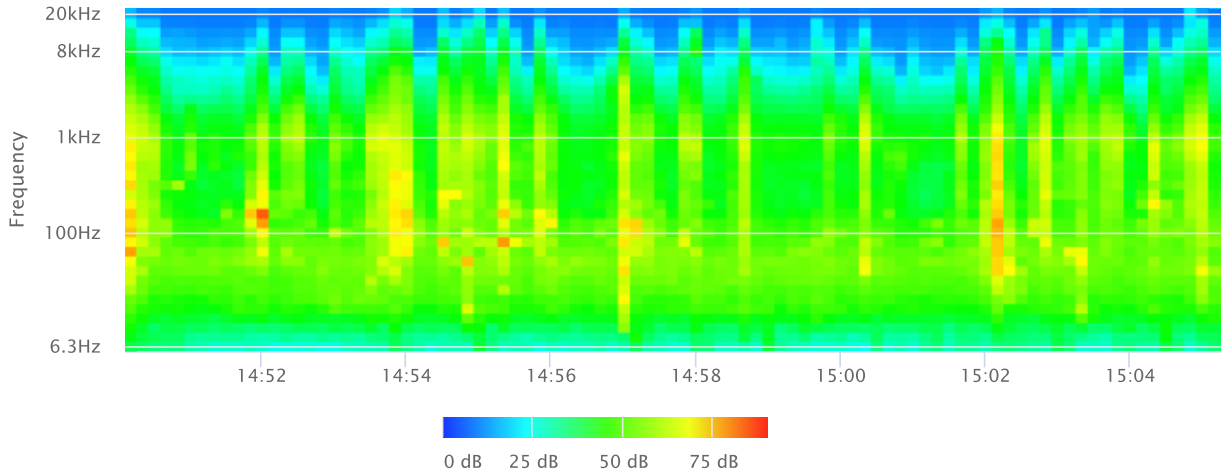
OBA 1/1 Lmax



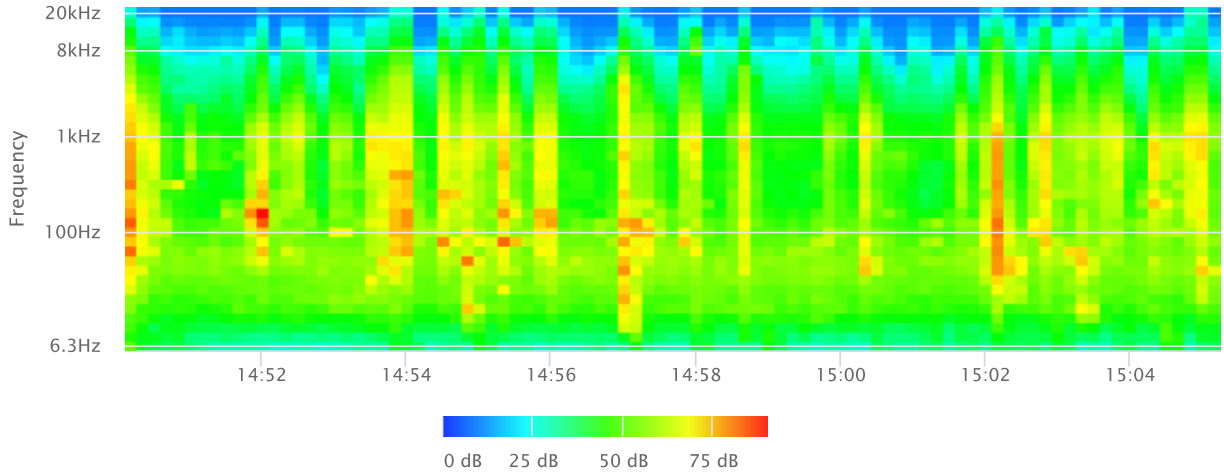
OBA 1/1 Lmin



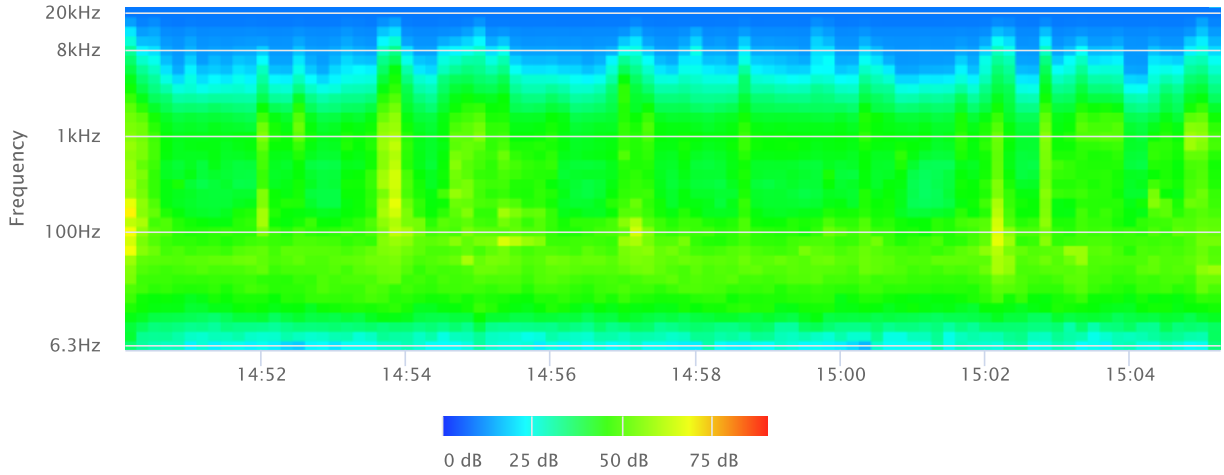
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
14:52
14:54
14:56
14:58
15:00
15:02
15:04
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7, 2023

Project #: 19674

Noise Measurement #: STNM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: NE corner of site area 33°44'37.72"N 117°11'0.83"W

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Near the northeastern corner of the project site.

Adjacent: Trumble Rd (running N-S) ~380' W, Ethanac Rd (running E-W) ~290' S, vacant project site to southwest, and vacant land to north and east.

Weather: About 20% cloud, filtered sunshine. Sunset 4:52 PM. **Settings:** SLOW FAST

Temperature: 63 deg F **Wind:** 5 mph **Humidity:** 69% **Terrain:** Flat

Start Time: 3:24 PM **End Time:** 3:39 PM **Run Time:**

Leq: 54.2 dB

Lmax 68.1 dB

L2 58.1 dB

L8 56.8 dB

L25 55.0 dB

L50 53.2 dB

Primary Noise Source: Traffic noise from the vehicles passing microphone traveling along Trumble Road & Ethanac Road. Traffic ambiance from vehicles on 215 Fwy & other roads.

Secondary Noise Sources: Distant overhead air traffic. Bird song.

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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:

STNM4 looking W along northern edge of site area towards Trumble Road (~370' W). Traffic lights to Ethanac Road & on/off ramp to north bound 215 Fwy visible in the distance (~1,360' WSW), on the left.

STNM4 looking S along eastern edge of site area towards Ethanac Road (~290'). Trumble Rd & Ethanac Rd intersection on the left (traffic lights, ~460' SW) on the right.

Summary	
File Name on Meter	LxT_Data.353.s
File Name on PC	LxT_0003099-20231107 152409-LxT_Data.353.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM4 33°44'37.72"N 117°11'0.83"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 15:24:09
Stop	2023-11-07 15:39:09
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 15:23:45
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	54.2		
LAE	83.8		
EA	26.46336 µPa²h		
EA8	846.8276 µPa²h		
EA40	4.234138 mPa²h		
LApeak (max)	2023-11-07 15:31:17	92.7 dB	
LASmax	2023-11-07 15:31:15	68.1 dB	
LASmin	2023-11-07 15:24:26	46.0 dB	

		Statistics	
LCeq	66.8 dB	**LA2.00**	58.1 dB
LAeq	54.2 dB	**LA8.00**	56.8 dB
LCeq - LAeq	12.6 dB	**LA25.00**	55.0 dB
LAIeq	55.6 dB	**LA50.00**	53.2 dB
LAeq	54.2 dB	**LA66.60**	51.6 dB
LAIeq - LAeq	1.3 dB	**LA90.00**	50.0 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.353.s	Computer's File Name	LxT_0003099-20231107 152409-LxT_Data.353.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM4 33°44'37.72"N 117°11'0.83"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 15:24:09	Duration	0:15:00.0
End Time	2023-11-07 15:39:09	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	54.2 dB		
LAE	83.8 dB	SEA	--- dB
EA	26.5 µPa²h	LAFTM5	56.7 dB
EA8	846.8 µPa²h		
EA40	4.2 mPa²h		
LA_{peak}	92.7 dB	2023-11-07 15:31:17	
LAS_{max}	68.1 dB	2023-11-07 15:31:15	
LAS_{min}	46.0 dB	2023-11-07 15:24:26	
LA_{eq}	54.2 dB		
LC_{eq}	66.8 dB	LC_{eq} - LA_{eq}	12.6 dB
LAI_{eq}	55.6 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 65.0 dB	1	0:00:04.5
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

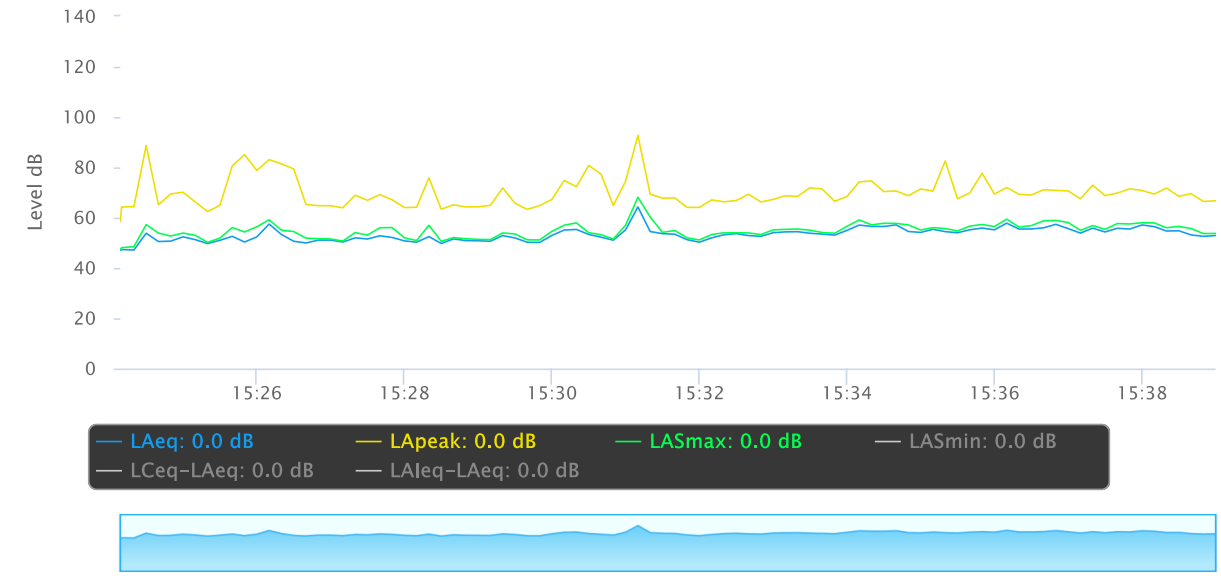
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	54.2 dB		66.8 dB		--- dB	
$L_{S(max)}$	68.1 dB	2023-11-07 15:31:15	--- dB		--- dB	
$L_{S(min)}$	46.0 dB	2023-11-07 15:24:26	--- dB		--- dB	
$L_{Peak(max)}$	92.7 dB	2023-11-07 15:31:17	--- dB		--- dB	

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

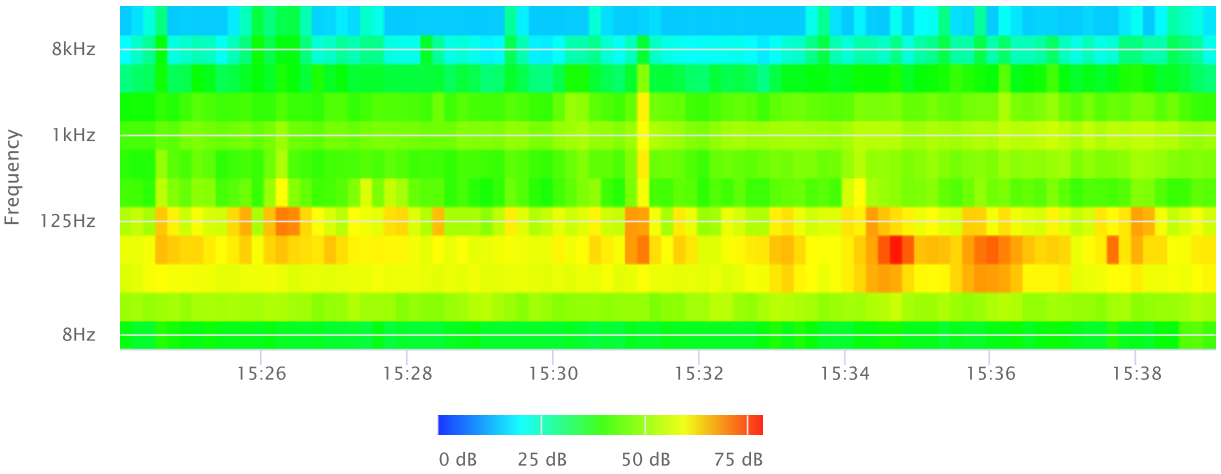
Statistics

LAS 2.0	58.1 dB
LAS 8.0	56.8 dB
LAS 25.0	55.0 dB
LAS 50.0	53.2 dB
LAS 66.6	51.6 dB
LAS 90.0	50.0 dB

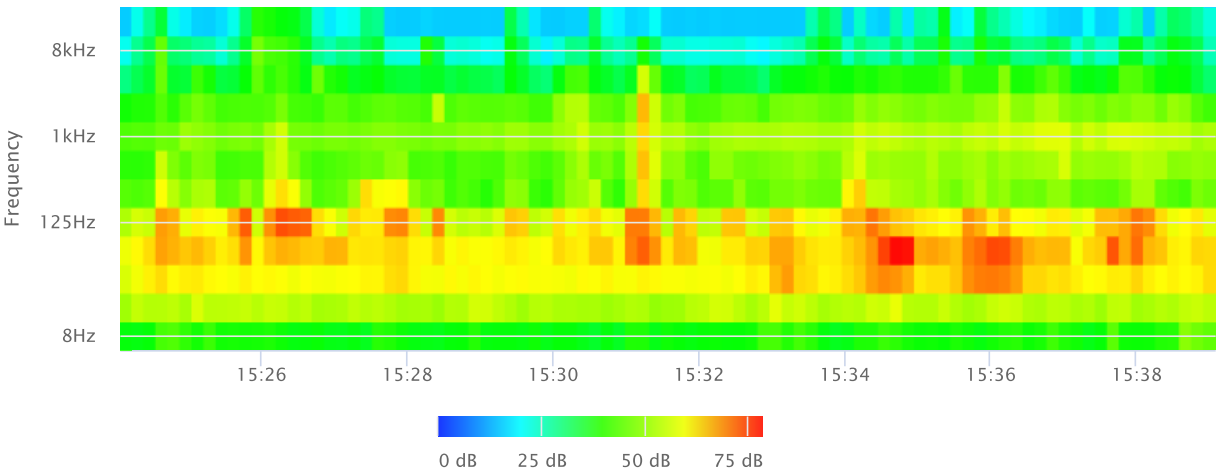
Time History



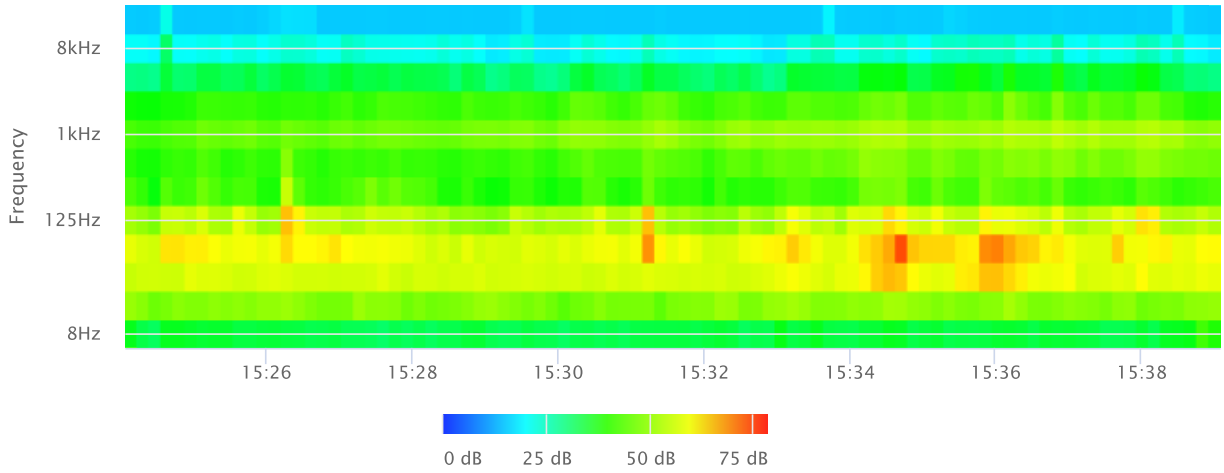
OBA 1/1 Leq



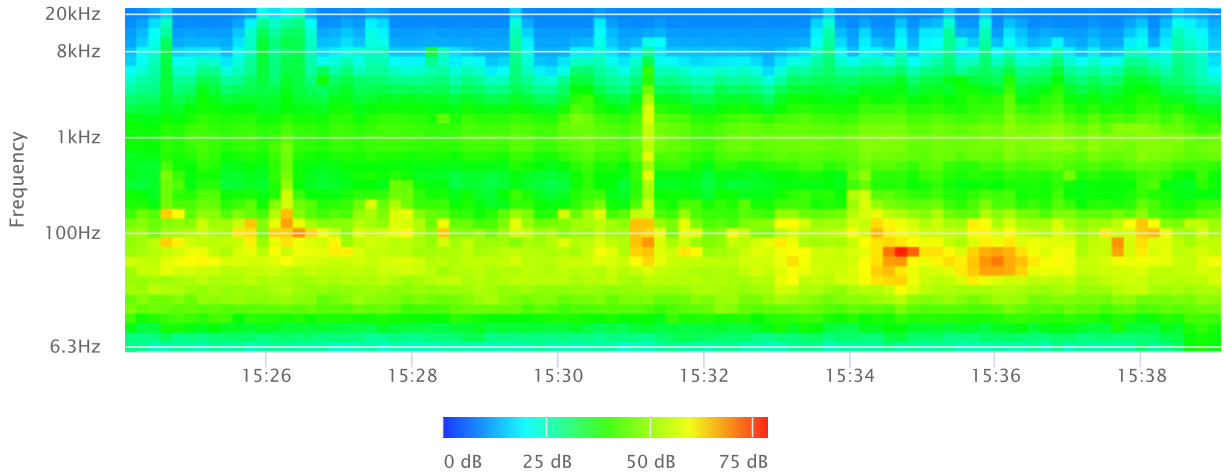
OBA 1/1 Lmax



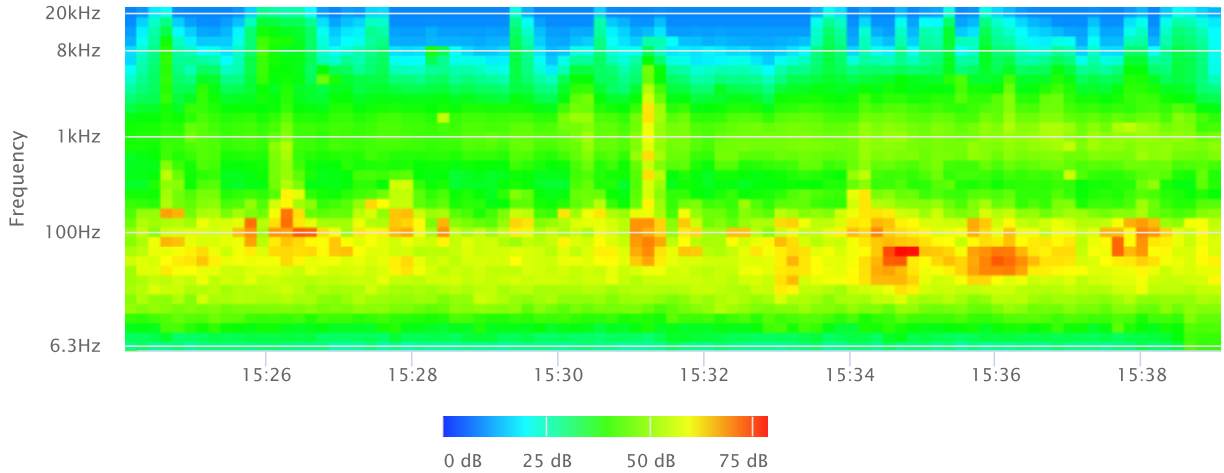
OBA 1/1 Lmin



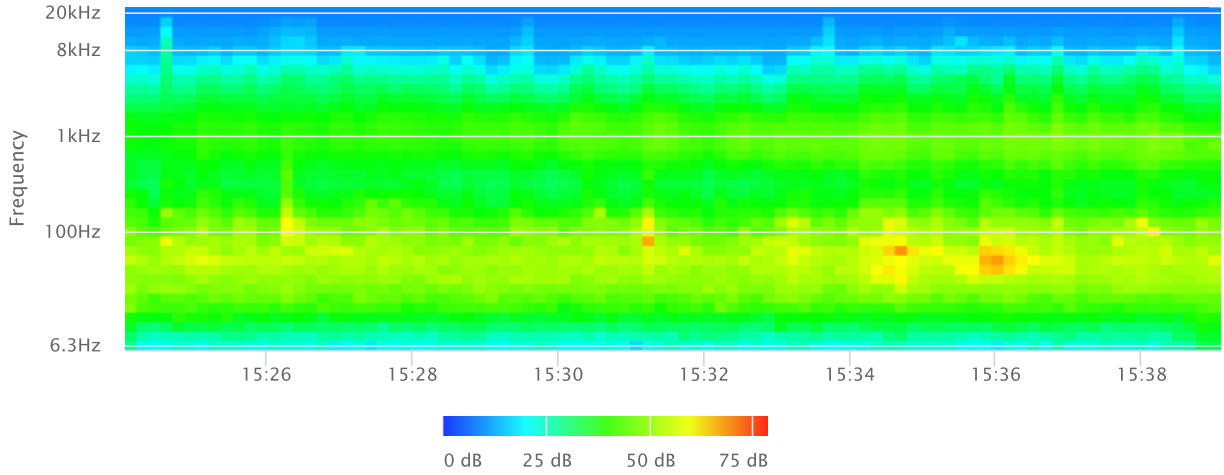
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
15:26
15:28
15:30
15:32
15:34
15:36
15:38
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7, 2023

Project #: 19674

Noise Measurement #: STNM5 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 27271 Ethanac Road, Menifee, CA 92585

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: The project site along southern side of Ethanac Road and north of the business at 27271 Ethanac Rd. Adjacent: Trumble Rd (running N-S) ~200' W, Ethanac Rd (running E-W) just N with vacant project site further north, & commercial smog shop to south.

Weather: About 20% cloud, filtered sunshine. Sunset 4:52 PM. **Settings:** SLOW FAST

Temperature: 63 deg F **Wind:** 5 mph **Humidity:** 69% **Terrain:** Flat

Start Time: 3:56 PM **End Time:** 4:11 PM **Run Time:**

Leq:	68.9	dB	**Primary Noise Source:** Traffic noise from the 236 vehicles passing microphone traveling along Ethanac Rd.
Lmax	85.4	dB	Traffic ambiance from vehicles on Trumble Rd, 215 Fwy & other roads.
L2	77.4	dB	**Secondary Noise Sources:** Distant overhead air traffic. Bird song.
L8	72.5	dB	
L25	69.0	dB	
L50	64.8	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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:

STNM5 looking S directly at the northern side of building 27271 Ethanac Road, Menifee.

STNM5 looking WNW along Ethanac Road towards Trumble Road intersection (traffic lights, ~220' WNW).

Summary	
File Name on Meter	LxT_Data.354.s
File Name on PC	LxT_0003099-20231107 155615-LxT_Data.354.ldbin
Serial Number	3099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM5 33°44'34.16"N 117°11'2.74"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 15:56:15
Stop	2023-11-07 16:11:15
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 15:55:51
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			
LA_{eq}	68.9		
LAE	98.4		
EA	769.7939 µPa²h		
EA8	24.6334 mPa²h		
EA40	123.167 mPa²h		
$LA_{peak\ (max)}$	2023-11-07 16:06:57	100.3 dB	
LAS_{max}	2023-11-07 16:06:58	85.4 dB	
LAS_{min}	2023-11-07 15:57:05	53.0 dB	

		Statistics	
LC_{eq}	78.5 dB	**LA2.00**	77.4 dB
LA_{eq}	68.9 dB	**LA8.00**	72.5 dB
LC_{eq} - LA_{eq}	9.6 dB	**LA25.00**	69.0 dB
LAI_{eq}	70.7 dB	**LA50.00**	64.8 dB
LA_{eq}	68.9 dB	**LA66.60**	61.4 dB
LAI_{eq} - LA_{eq}	1.8 dB	**LA90.00**	55.9 dB
Overload Count	0		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.354.s	Computer's File Name	LxT_0003099-20231107 155615-LxT_Data.354.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	STNM5 33°44'34.16"N 117°11'2.74"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 15:56:15	Duration	0:15:00.0
End Time	2023-11-07 16:11:15	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	68.9 dB		
LAE	98.4 dB	SEA	--- dB
EA	769.8 µPa²h	LAFTM5	73.4 dB
EA8	24.6 mPa²h		
EA40	123.2 mPa²h		
LA_{peak}	100.3 dB	2023-11-07 16:06:57	
LAS_{max}	85.4 dB	2023-11-07 16:06:58	
LAS_{min}	53.0 dB	2023-11-07 15:57:05	
LA_{eq}	68.9 dB		
LC_{eq}	78.5 dB	LC_{eq} - LA_{eq}	9.6 dB
LAI_{eq}	70.7 dB	LAI_{eq} - LA_{eq}	1.8 dB

Exceedances	Count	Duration
LAS > 65.0 dB	33	0:08:19.5
LAS > 85.0 dB	1	0:00:01.4
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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

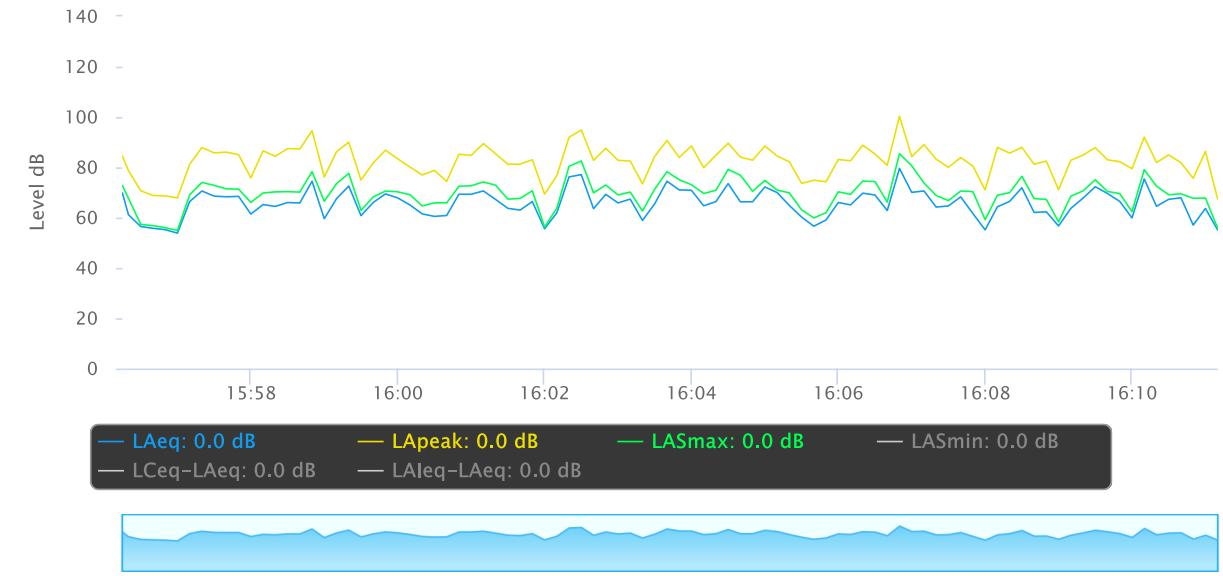
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	68.9 dB		78.5 dB		--- dB	
$L_{S(max)}$	85.4 dB	2023-11-07 16:06:58	--- dB		--- dB	
$L_{S(min)}$	53.0 dB	2023-11-07 15:57:05	--- dB		--- dB	
$L_{Peak(max)}$	100.3 dB	2023-11-07 16:06:57	--- dB		--- dB	

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

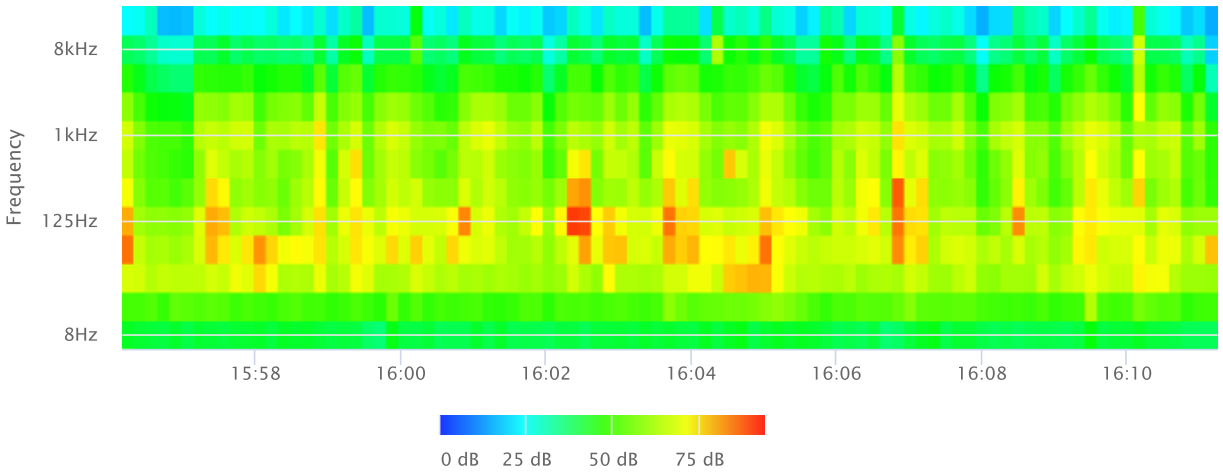
Statistics

LAS 2.0	77.4 dB
LAS 8.0	72.5 dB
LAS 25.0	69.0 dB
LAS 50.0	64.8 dB
LAS 66.6	61.4 dB
LAS 90.0	55.9 dB

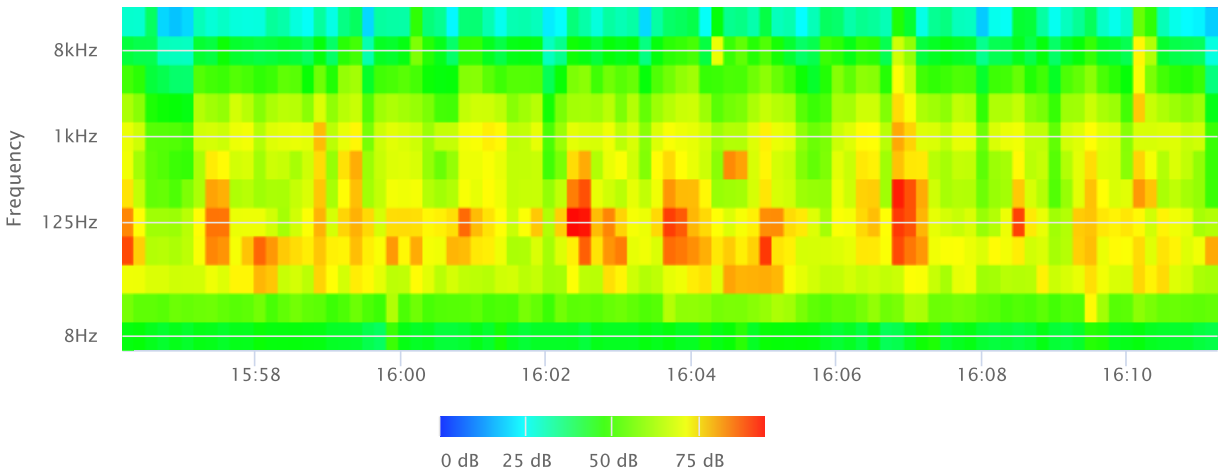
Time History



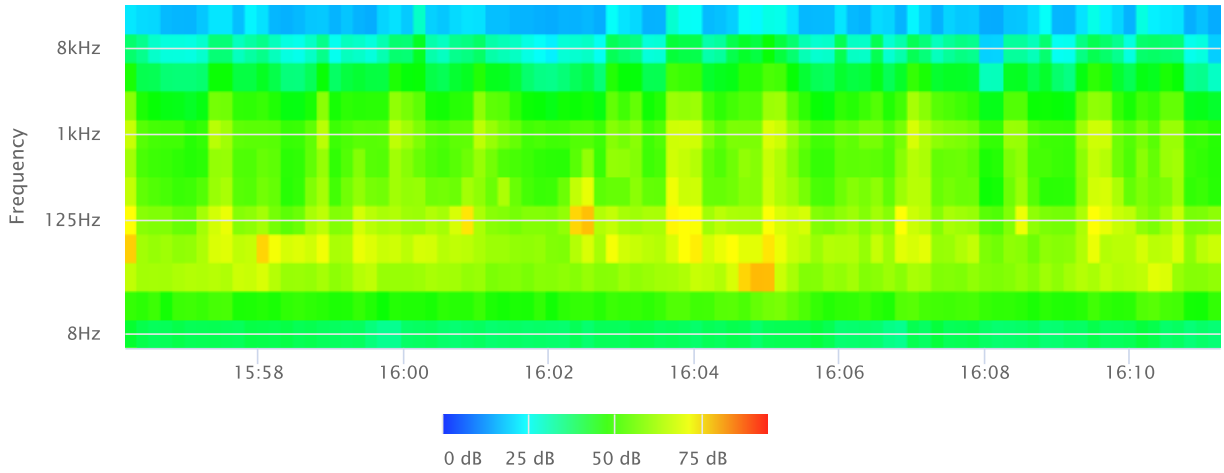
OBA 1/1 Leq



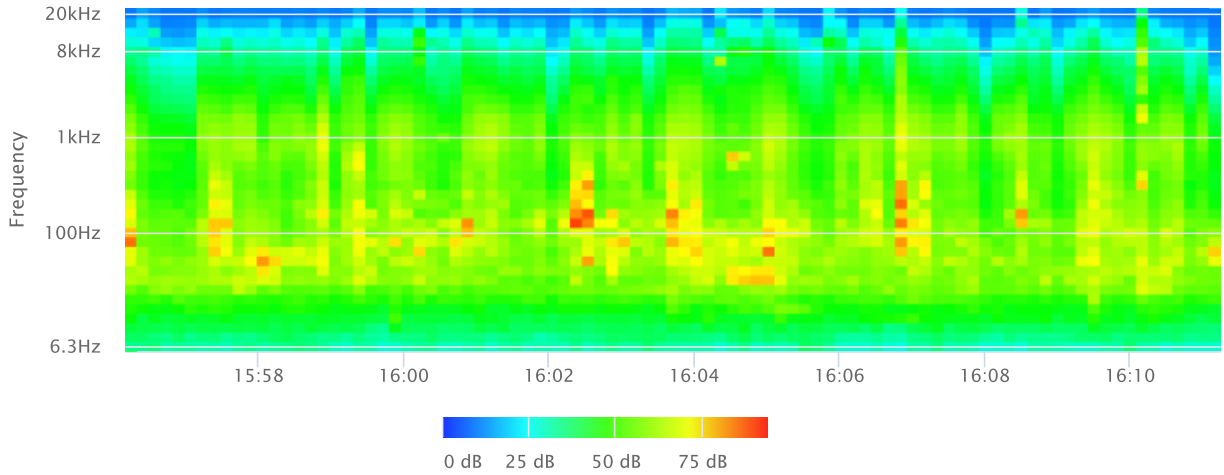
OBA 1/1 Lmax



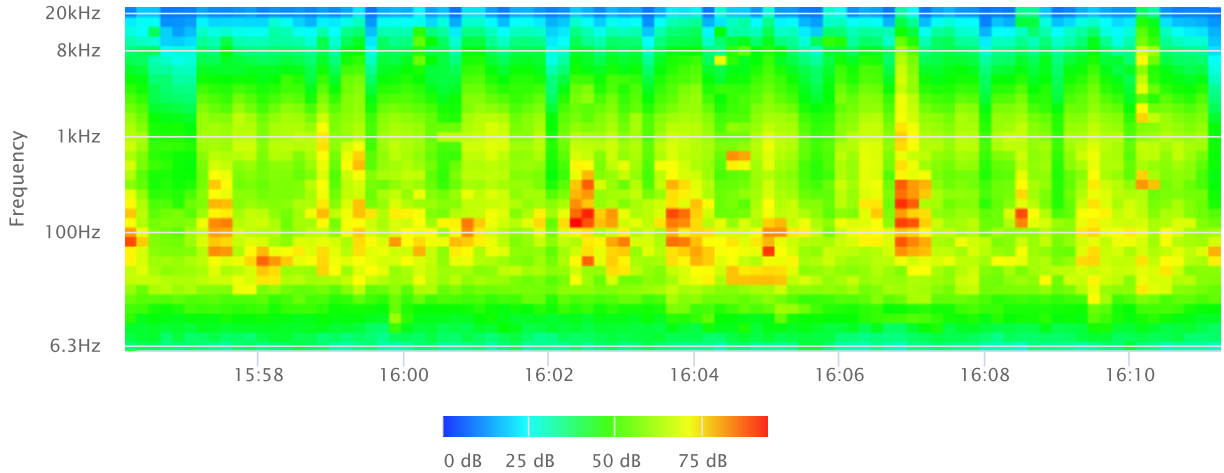
OBA 1/1 Lmin



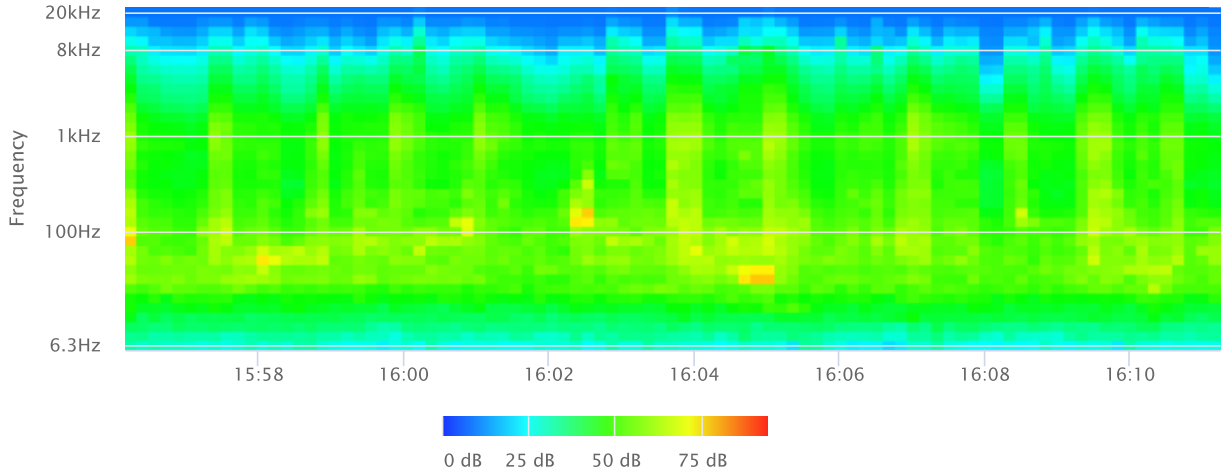
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
15:58
16:00
16:02
16:04
16:06
16:08
16:10
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: Beyond Food Mart (NEC Tumble & Ethanac), City of Perris **Date:** November 7to 8, 2023

Project #: 19674

Noise Measurement #: STNM5 Run Time: 24 hours (24 x 1 hours) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 27271 Ethanac Road, Menifee, CA 92585

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Near southern boundary of of vacant project site just north of Ethanac Road. Adjacent: Ethanac Rd (running E-W) ~40' S with commercial uses further south, Trumble Rd (running N-S) ~180', & vacant land to north and east.

Weather: ~ 20% cloud, filtered sun by day. Sunset/rise 4:52PM/6:14AM. **Settings:** SLOW FAST

Temperature: 51-72 deg F **Wind:** 0-5 mph **Humidity:** 69-80% **Terrain:** Flat

Start Time: 6:00 PM **End Time:** 6:00 PM **Run Time:**

Leq: 66.4 dB **Primary Noise Source:** Traffic noise from vehicles passing microphone traveling along Ethanac Rd.

Lmax 88.2 dB Traffic ambiance from vehicles on Trumble Rd, 215 Fwy & other roads.

L2 76.2 dB **Secondary Noise Sources:** Distant overhead air traffic. Bird song.

L8 71.6 dB

L25 64.3 dB

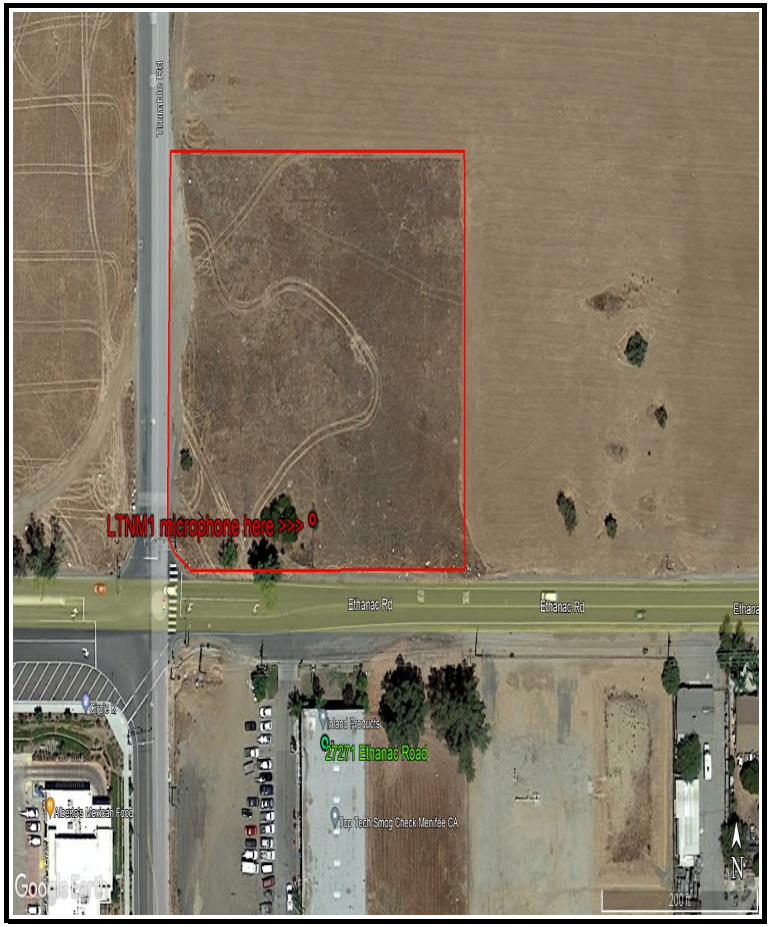
L50 58.1 dB

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:	11/7/2023		

Noise Measurement
Field Data

PHOTOS:

LTNM1 looking S towards Ethanac Road (~40') and 27271 Etnanac Road, Menifee (~130' S) on the other side of the road.



LTNM1 looking down showing location of microphone relative to surrounding area.

Summary	
File Name on Meter	LxT_Data.355.s
File Name on PC	LxT_0003099-20231107 180000-LxT_Data.355.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	LTNM1 33°44'35.29"N 117°11'3.03"W
Job Description	24 hour noise measurement (24 x 1 hours)
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.

Measurement	
Start	2023-11-07 18:00:00
Stop	2023-11-08 18:00:00
Duration	24:00:00.0
Run Time	24:00:00.0
Pause	00:00:00.0
Pre-Calibration	2023-11-07 16:55:24
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	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.6 dB

Results			
LA_{eq}	66.4		
LAE	115.8		
EA	42.199	mPa^2h	
EA8	14.066	mPa^2h	
EA40	70.331	mPa^2h	
$LA_{peak\ (max)}$	2023-11-08 06:21:44	113.4	dB
LAS_{max}	2023-11-08 06:21:45	88.2	dB
LAS_{min}	2023-11-08 03:09:16	36.5	dB

		Statistics	
LC_{eq}	82.5 dB	**LA2.00**	76.2 dB
LA_{eq}	66.4 dB	**LA8.00**	71.6 dB
LC_{eq} - LA_{eq}	16.1 dB	**LA25.00**	64.3 dB
LAI_{eq}	71.7 dB	**LA50.00**	58.1 dB
LA_{eq}	66.4 dB	**LA90.00**	46.3 dB
LAI_{eq} - LA_{eq}	5.3 dB	**LA99.00**	40.4 dB
Overload Count	1		
Overload Duration	2.0 s		

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2023-11-07	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.3	47.5	18:59:14	74.7	18:59:46	67.4	65.0	62.6	59.4	52.0	48.7
2	2023-11-07	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.3	45.7	19:59:09	72.5	19:06:43	67.0	64.6	61.7	57.3	50.3	48.2
3	2023-11-07	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.4	42.0	20:52:40	80.8	20:45:11	66.9	63.9	60.0	54.4	46.2	43.6
4	2023-11-07	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.4	41.5	21:24:29	87.6	21:49:03	66.5	63.2	58.3	51.9	45.5	43.3
5	2023-11-07	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.3	40.0	22:24:40	81.1	22:45:02	66.5	62.5	56.3	49.6	43.8	41.7
6	2023-11-07	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.2	40.9	23:03:41	83.3	23:24:14	65.5	61.6	54.9	51.4	47.1	42.9
7	2023-11-08	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.3	41.6	00:40:40	72.7	00:29:49	63.8	58.8	51.7	49.2	45.8	42.6
8	2023-11-08	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.8	40.3	01:54:22	76.2	01:09:06	64.3	58.2	50.2	47.5	44.0	41.7
9	2023-11-08	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.9	36.9	02:37:44	75.7	02:47:15	63.9	56.9	48.6	44.9	40.3	38.4
10	2023-11-08	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.1	36.5	03:09:16	70.4	03:45:52	64.2	59.0	49.8	44.5	40.0	38.1
11	2023-11-08	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.9	46.3	04:00:00	87.1	04:35:50	69.8	65.4	59.5	54.1	49.7	47.6
12	2023-11-08	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.2	43.0	05:27:57	87.6	05:04:43	69.6	66.3	62.1	56.2	47.9	44.6
13	2023-11-08	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.9	42.6	06:29:06	88.2	06:21:45	70.8	66.9	63.5	58.8	50.1	46.3
14	2023-11-08	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.8	44.1	07:14:29	84.3	07:27:27	71.2	67.5	64.3	60.4	51.2	46.6
15	2023-11-08	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.8	47.2	08:07:50	80.9	08:34:34	70.2	66.3	62.9	58.9	51.9	48.7
16	2023-11-08	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.1	47.1	09:13:27	77.0	09:29:11	69.3	65.1	61.4	57.4	50.8	48.5
17	2023-11-08	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.0	48.9	10:22:58	79.3	10:21:13	68.6	64.5	61.2	57.7	52.8	50.5
18	2023-11-08	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.7	52.1	11:48:28	79.3	11:43:07	70.5	66.0	62.7	59.7	55.1	53.2
19	2023-11-08	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	69.6	52.0	12:06:32	87.0	12:52:09	77.7	73.8	69.8	65.4	57.1	53.4
20	2023-11-08	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	71.8	52.3	13:21:50	85.1	13:47:56	79.1	76.4	72.5	68.6	61.1	56.2
21	2023-11-08	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	73.2	57.1	14:12:48	84.6	14:39:32	79.2	77.0	74.3	71.7	64.9	60.1
22	2023-11-08	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	73.0	56.4	15:49:16	84.1	15:07:05	79.1	76.8	73.8	71.2	66.1	60.5
23	2023-11-08	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	72.2	54.2	16:59:53	85.9	16:41:32	79.0	76.6	73.4	69.6	61.6	56.5
24	2023-11-08	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.1	51.9	17:47:34	83.4	17:23:50	70.3	67.3	64.8	62.3	57.0	54.0

Measurement Report

Report Summary

Meter's File Name	LxT_Data.355.s	Computer's File Name	LxT_0003099-20231107 180000-LxT_Data.355.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	LTNM1 33°44'35.29"N 117°11'3.03"W
Job Description	24 hour noise measurement (24 x 1 hours)		
Note	Ganddini Project#19674 BFM (NEC Trumble & Ethanac), City of Perris.		
Start Time	2023-11-07 18:00:00	Duration	24:00:00.0
End Time	2023-11-08 18:00:00	Run Time	24:00:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	66.4 dB		
LAE	115.8 dB	SEA	--- dB
EA	42.2 mPa²h	LAFTM5	73.6 dB
EA8	14.1 mPa²h		
EA40	70.3 mPa²h		
LA_{peak}	113.4 dB	2023-11-08 06:21:44	
LAS_{max}	88.2 dB	2023-11-08 06:21:45	
LAS_{min}	36.5 dB	2023-11-08 03:09:16	
LA_{eq}	66.4 dB		
LC_{eq}	82.5 dB	LC_{eq} - LA_{eq}	16.1 dB
LAI_{eq}	71.7 dB	LAI_{eq} - LA_{eq}	5.3 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	1617	6:14:31.9
LAS > 85.0 dB	10	0:00:18.9
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 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}	66.4 dB		82.5 dB		--- dB	
$L_{S(max)}$	88.2 dB	2023-11-08 06:21:45	--- dB		--- dB	
$L_{S(min)}$	36.5 dB	2023-11-08 03:09:16	--- dB		--- dB	
$L_{Peak(max)}$	113.4 dB	2023-11-08 06:21:44	--- dB		--- dB	

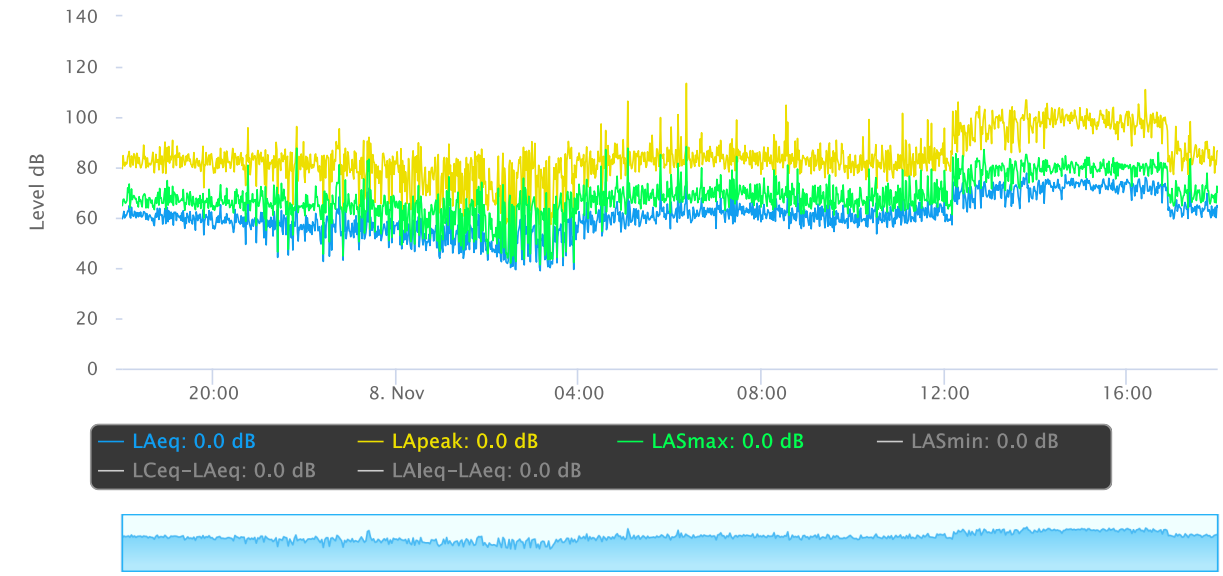
Overloads

Count	Duration	OBA Count	OBA Duration
1	0:00:02.0	1	0:00:02.0

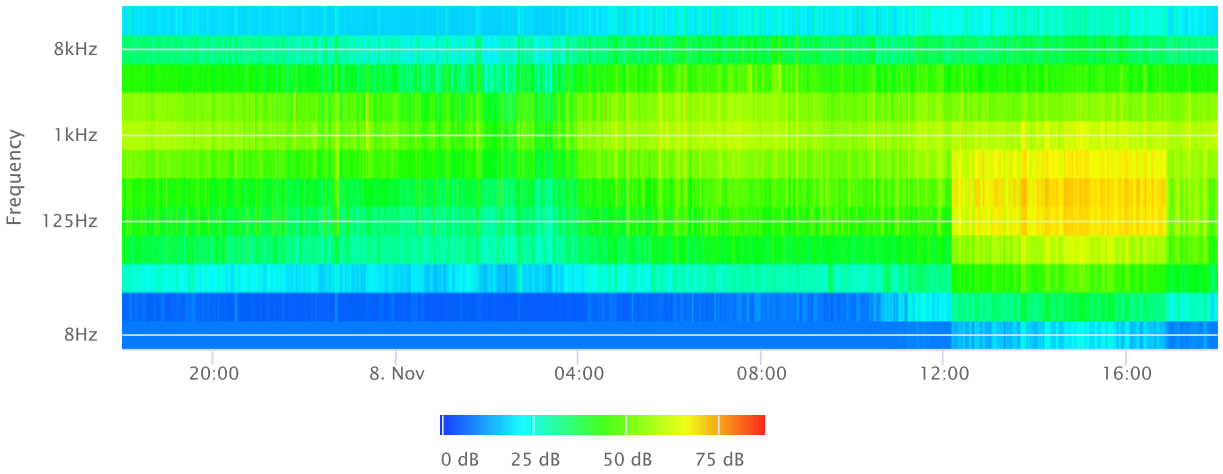
Statistics

LAS 2.0	76.2 dB
LAS 8.0	71.6 dB
LAS 25.0	64.3 dB
LAS 50.0	58.1 dB
LAS 90.0	46.3 dB
LAS 99.0	40.4 dB

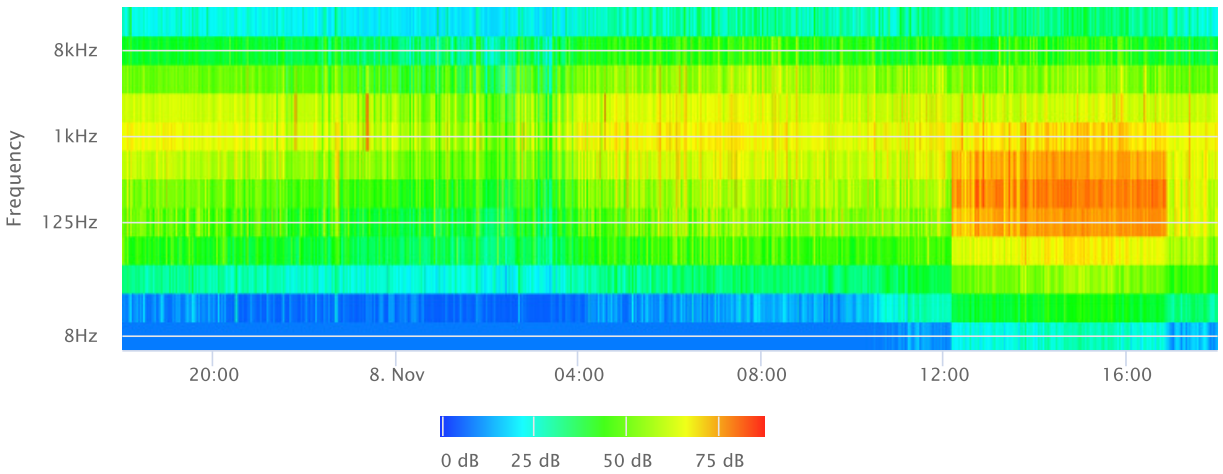
Time History



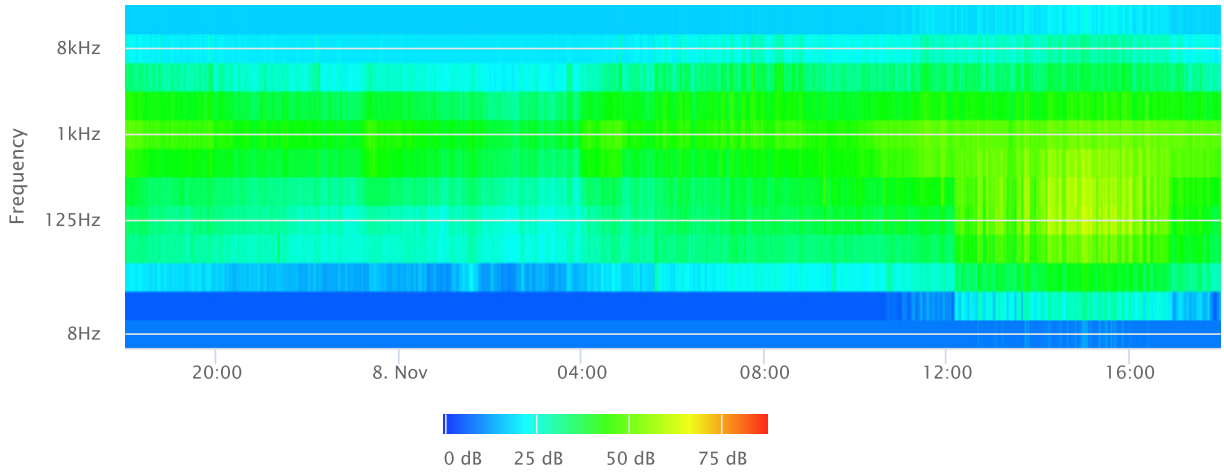
OBA 1/1 Leq



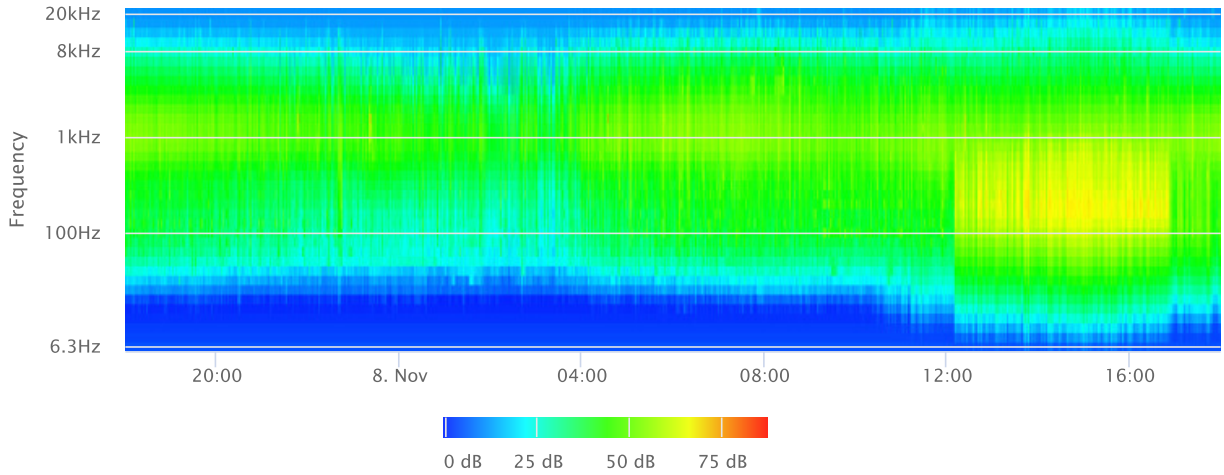
OBA 1/1 Lmax



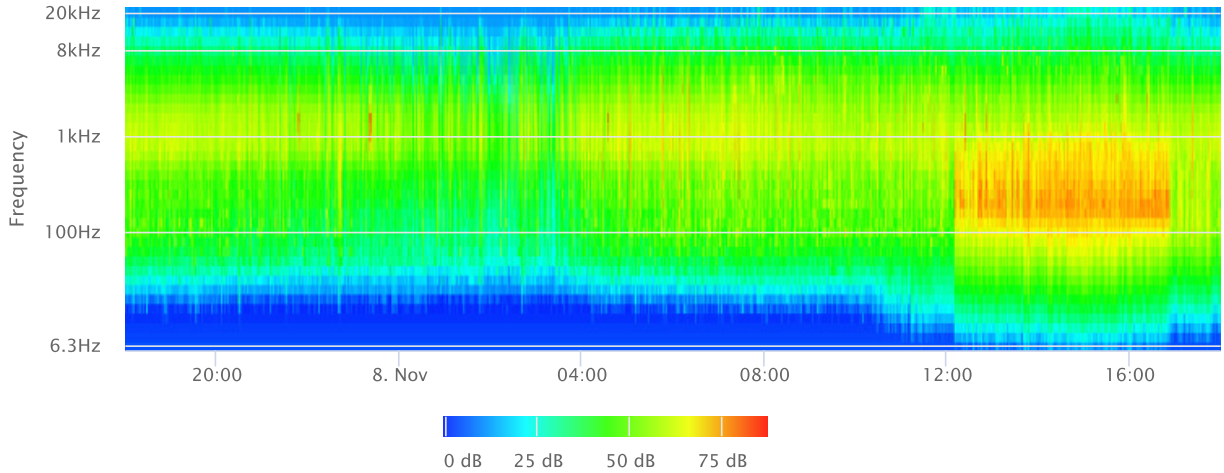
OBA 1/1 Lmin



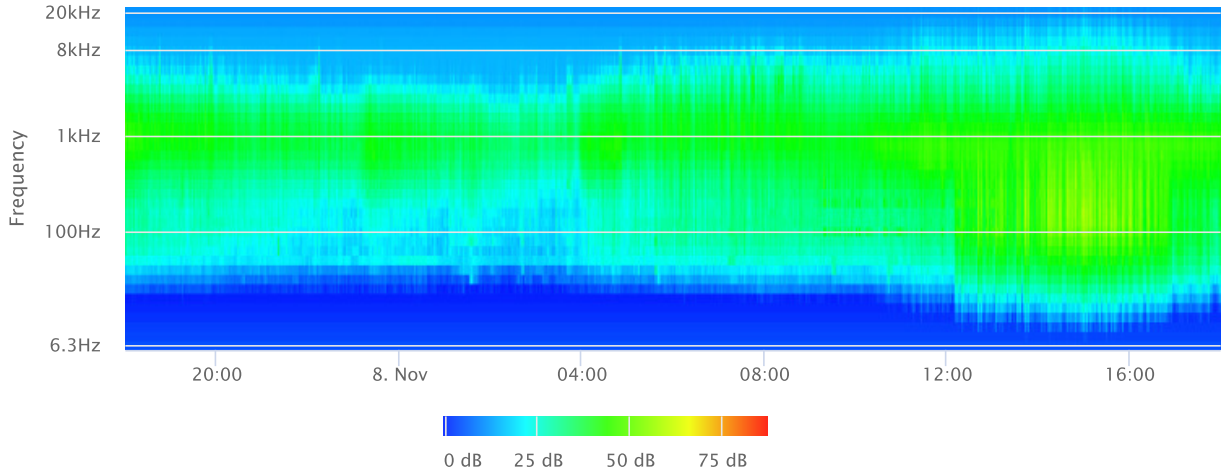
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
20:00
8. Nov
04:00
08:00
12:00
16:00
0 dB
25 dB
50 dB
75 dB

APPENDIX D

CONSTRUCTION NOISE MODELING

Receptor - Existing Residential to Southeast (27381 Ethanac Road, Perris)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Graders	1	85	497	40	0.40	-19.9	-4.0	65.1	61.1
Tractors/Loaders/Backhoes	1	84	497	40	0.40	-19.9	-4.0	64.1	60.1
Rubber Tired Dozers	1	82	497	40	0.40	-19.9	-4.0	62.1	58.1
								Log Sum	64.7
Grading									
Rubber Tired Dozers	1	82	497	40	0.40	-19.9	-4.0	62.1	58.1
Tractors/Loaders/Backhoes	2	84	497	40	0.80	-19.9	-1.0	64.1	63.1
Graders	1	85	497	40	0.40	-19.9	-4.0	65.1	61.1
								Log Sum	66.0
Building Construction									
Cranes	1	81	497	16	0.16	-19.9	-8.0	61.1	53.1
Forklifts[2]	1	48	497	40	0.40	-19.9	-4.0	28.1	24.1
Generator Sets	1	81	497	50	0.50	-19.9	-3.0	61.1	58.0
Welders	3	74	497	40	1.20	-19.9	0.8	54.1	54.8
Tractors/Loaders/Backhoes	1	84	497	40	0.40	-19.9	-4.0	64.1	60.1
								Log Sum	63.4
Paving									
Cement and Mortar Mixers	1	79	497	40	0.40	-19.9	-4.0	59.1	55.1
Pavers	1	77	497	50	0.50	-19.9	-3.0	57.1	54.0
Paving Equipment	1	77	497	50	0.50	-19.9	-3.0	57.1	54.0
Tractors/Loaders/Backhoes	1	84	497	40	0.40	-19.9	-4.0	64.1	60.1
Rollers	1	80	497	20	0.20	-19.9	-7.0	60.1	53.1
								Log Sum	63.1
Architectural Coating									
Air Compressors	1	78	497	40	0.40	-19.9	-4.0	58.1	54.1
								Log Sum	54.1

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 - Existing Residential to East (25962 Sherman Road, Perris)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Graders	1	85	1146	40	0.40	-27.2	-4.0	57.8	53.8
Tractors/Loaders/Backhoes	1	84	1146	40	0.40	-27.2	-4.0	56.8	52.8
Rubber Tired Dozers	1	82	1146	40	0.40	-27.2	-4.0	54.8	50.8
								Log Sum	57.4
Grading									
Rubber Tired Dozers	1	82	1146	40	0.40	-27.2	-4.0	54.8	50.8
Tractors/Loaders/Backhoes	2	84	1146	40	0.80	-27.2	-1.0	56.8	55.8
Graders	1	85	1146	40	0.40	-27.2	-4.0	57.8	53.8
								Log Sum	58.7
Building Construction									
Cranes	1	81	1146	16	0.16	-27.2	-8.0	53.8	45.8
Forklifts[2]	1	48	1146	40	0.40	-27.2	-4.0	20.8	16.8
Generator Sets	1	81	1146	50	0.50	-27.2	-3.0	53.8	50.8
Welders	3	74	1146	40	1.20	-27.2	0.8	46.8	47.6
Tractors/Loaders/Backhoes	1	84	1146	40	0.40	-27.2	-4.0	56.8	52.8
								Log Sum	56.1
Paving									
Cement and Mortar Mixers	1	79	1146	40	0.40	-27.2	-4.0	51.8	47.8
Pavers	1	77	1146	50	0.50	-27.2	-3.0	49.8	46.8
Paving Equipment	1	77	1146	50	0.50	-27.2	-3.0	49.8	46.8
Tractors/Loaders/Backhoes	1	84	1146	40	0.40	-27.2	-4.0	56.8	52.8
Rollers	1	80	1146	20	0.20	-27.2	-7.0	52.8	45.8
								Log Sum	55.9
Architectural Coating									
Air Compressors	1	78	1146	40	0.40	-27.2	-4.0	50.8	46.8
								Log Sum	46.8

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 - Existing Residential to North (25870 Trumble Road, Perris)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Graders	1	85	906	40	0.40	-25.2	-4.0	59.8	55.9
Tractors/Loaders/Backhoes	1	84	906	40	0.40	-25.2	-4.0	58.8	54.9
Rubber Tired Dozers	1	82	906	40	0.40	-25.2	-4.0	56.8	52.9
								Log Sum	59.5
Grading									
Rubber Tired Dozers	1	82	906	40	0.40	-25.2	-4.0	56.8	52.9
Tractors/Loaders/Backhoes	2	84	906	40	0.80	-25.2	-1.0	58.8	57.9
Graders	1	85	906	40	0.40	-25.2	-4.0	59.8	55.9
								Log Sum	60.8
Building Construction									
Cranes	1	81	906	16	0.16	-25.2	-8.0	55.8	47.9
Forklifts[2]	1	48	906	40	0.40	-25.2	-4.0	22.8	18.9
Generator Sets	1	81	906	50	0.50	-25.2	-3.0	55.8	52.8
Welders	3	74	906	40	1.20	-25.2	0.8	48.8	49.6
Tractors/Loaders/Backhoes	1	84	906	40	0.40	-25.2	-4.0	58.8	54.9
								Log Sum	58.1
Paving									
Cement and Mortar Mixers	1	79	906	40	0.40	-25.2	-4.0	53.8	49.9
Pavers	1	77	906	50	0.50	-25.2	-3.0	51.8	48.8
Paving Equipment	1	77	906	50	0.50	-25.2	-3.0	51.8	48.8
Tractors/Loaders/Backhoes	1	84	906	40	0.40	-25.2	-4.0	58.8	54.9
Rollers	1	80	906	20	0.20	-25.2	-7.0	54.8	47.8
								Log Sum	57.9
Architectural Coating									
Air Compressors	1	78	906	40	0.40	-25.2	-4.0	52.8	48.9
								Log Sum	48.9

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).

APPENDIX E

SOUNDPLAN INPUT AND OUTPUT

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level Lden dB(A)	Conflict Lden dB
1	4	-	GF	-	51.5	-
2	5	-	GF	-	44.4	-
3	6	-	GF	-	56.8	-

Contribution levels of the receivers

Source name		Traffic lane	Level Lden dB(A)
4	GF		51.5
Car Wash Queue		-	3.8
Carwash Parking Lot		-	38.9
Carwash Speaker		-	18.0
Drive Through Queue		-	-2.3
Drive Through Speaker		-	-1.6
Dryer		-	48.9
Fueling Area		-	15.0
HVAC 1		-	20.6
HVAC 2		-	24.7
HVAC 3		-	21.6
HVAC 4		-	25.5
HVAC 5		-	26.2
HVAC 6		-	26.6
Parking Lot 1		-	36.2
Parking Lot 2		-	28.5
Parking Lot 3		-	35.7
Parking Lot 4		-	33.5
Vacuum 1		-	20.4
Vacuum 2		-	19.3
Vacuum 3		-	19.9
Vacuum 4		-	22.6
Vacuum 5		-	39.0
Vacuum 6		-	39.2
Vacuum 7		-	39.3
Vacuum 8		-	39.5
Vacuum 9		-	39.6
5	GF		44.4
Car Wash Queue		-	-6.1
Carwash Parking Lot		-	29.6
Carwash Speaker		-	8.9
Drive Through Queue		-	-10.1
Drive Through Speaker		-	7.1
Dryer		-	43.0
Fueling Area		-	7.2
HVAC 1		-	12.6
HVAC 2		-	11.5
HVAC 3		-	13.0
HVAC 4		-	10.9
HVAC 5		-	13.7
HVAC 6		-	10.1
Parking Lot 1		-	28.1
Parking Lot 2		-	15.1
Parking Lot 3		-	26.1
Parking Lot 4		-	23.1
Vacuum 1		-	29.7
Vacuum 2		-	14.1
Vacuum 3		-	12.7
Vacuum 4		-	13.0
Vacuum 5		-	29.8
Vacuum 6		-	29.8
Vacuum 7		-	29.8
Vacuum 8		-	29.8
Vacuum 9		-	29.8
6	GF		56.8
Car Wash Queue		-	-9.0
Carwash Parking Lot		-	33.6
Carwash Speaker		-	1.7
Drive Through Queue		-	-3.6
Drive Through Speaker		-	13.5
Dryer		-	56.6
Fueling Area		-	0.2
HVAC 1		-	22.1

Contribution levels of the receivers

Source name	Traffic lane	Level Lden dB(A)
HVAC 2	-	20.6
HVAC 3	-	22.1
HVAC 4	-	20.6
HVAC 5	-	22.1
HVAC 6	-	20.6
Parking Lot 1	-	32.5
Parking Lot 2	-	28.5
Parking Lot 3	-	21.5
Parking Lot 4	-	29.4
Vacuum 1	-	31.9
Vacuum 2	-	31.8
Vacuum 3	-	31.6
Vacuum 4	-	31.5
Vacuum 5	-	31.1
Vacuum 6	-	30.9
Vacuum 7	-	30.7
Vacuum 8	-	30.6
Vacuum 9	-	30.5

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour			Road surface	Separated method	Lw,ref
			Day	Evening	Night			dB(A)
Parking Lot 1	Visitors and staff	13 Parking bays	4.400	4.400	4.400	Asphaltic driving lanes	no	75.6
Parking Lot 2	Visitors and staff	6 Parking bays	4.400	4.400	4.400	Asphaltic driving lanes	no	70.8
Parking Lot 3	Visitors and staff	10 Parking bays	4.400	4.400	4.400	Asphaltic driving lanes	no	73.0
Parking Lot 4	Visitors and staff	7 Parking bays	4.400	4.400	4.400	Asphaltic driving lanes	no	71.5
Carwash Parking Lot	Visitors and staff	11 Parking bays	7.100	7.100	7.100	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	4	-	GF	-	11.3	-
2	5	-	GF	-	4.4	-
3	6	-	GF	-	7.1	-

Contribution levels of the receivers

Source name		Traffic lane	Level Day dB(A)
4	GF		11.3
Carwash Speaker		-	11.3
Drive Through Speaker		-	-8.3
5	GF		4.4
Carwash Speaker		-	2.2
Drive Through Speaker		-	0.4
6	GF		7.1
Carwash Speaker		-	-5.0
Drive Through Speaker		-	6.8

Noise emissions of industry sources

Source name	Reference	Level		Frequency spectrum [dB(A)] 500 Hz	Corrections Cwall dB	CI dB	CT dB
			dB(A)				
Drive Through Speaker	Lw/unit	Day	65.0	65.0	-	-	-
		Night	65.0	65.0	-	-	-
Carwash Speaker	Lw/unit	Day	65.0	65.0	-	-	-
		Night	65.0	65.0	-	-	-

APPENDIX F

FHWA WORKSHEETS

Existing Traffic Noise

1	:Id	
Ethanac Road	:Road	
West of Interstate 215	: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	24300
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1407.31	29.16	48.60	1044.77	4.86	8.10	259.08	40.50	67.50
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
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	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	23.77	6.94	9.16	22.48	-0.84	1.38	16.42	8.37	10.58
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	70.71	61.00	67.18	69.42	53.22	59.40	63.36	62.43	68.61
	DAY LEQ	72.62		EVENING LEQ	69.92		NIGHT LEQ	70.48	

F	CNEL	77.40	
	DAY LEQ	72.62	

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 heavy truck mix.

Existing Plus Project Traffic Noise

1	:Id
Ethanac Road	:Road
West of Interstate 215	: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	24620
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1425.84	29.54	49.24	1058.53	4.92	8.21	262.49	41.03	68.39
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
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	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	23.83	7.00	9.21	22.54	-0.79	1.43	16.48	8.42	10.64
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	70.77	61.06	67.24	69.47	53.28	59.46	63.42	62.49	68.67
	DAY LEQ	72.67		EVENING LEQ	69.98		NIGHT LEQ	70.54	

CNEL	77.46
DAY LEQ	72.67

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 heavy truck mix.

Existing Traffic Noise

2	:Id
Ethanac Road	:Road
Interstate 215 to Encanto Drive	: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	16600
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	961.37	19.92	33.20	713.71	3.32	5.53	176.99	27.67	46.11
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	22.99	6.15	8.37	21.70	-1.63	0.59	15.64	7.58	9.80
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	66.55	57.99	64.73	65.25	50.21	56.94	59.20	59.41	66.15
	DAY LEQ	69.09		EVENING LEQ	65.97		NIGHT LEQ	67.66	

CNEL	74.39
DAY LEQ	69.09

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 heavy truck mix.

Existing Plus Project Traffic Noise

2	:Id
Ethanac Road	:Road
Interstate 215 to Encanto Drive	: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	17550
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1016.39	21.06	35.10	754.56	3.51	5.85	187.11	29.25	48.75
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	23.23	6.40	8.62	21.94	-1.38	0.83	15.88	7.82	10.04
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	64.97	65.49	50.45	57.19	59.44	59.66	66.39
	DAY LEQ	69.33		EVENING LEQ	66.21		NIGHT LEQ	67.90	

CNEL	74.63
DAY LEQ	69.33

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 heavy truck mix.

Existing Traffic Noise

3	:Id
Ethanac Road	:Road
Encanto Drive to Trumble 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	15400
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	891.88	18.48	30.80	662.12	3.08	5.13	164.19	25.67	42.78
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	22.67	5.83	8.05	21.37	-1.95	0.27	15.32	7.26	9.47
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	66.22	57.66	64.40	64.93	49.88	56.62	58.87	59.09	65.83
	DAY LEQ	68.77		EVENING LEQ	65.64		NIGHT LEQ	67.33	

CNEL	74.06
DAY LEQ	68.77

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 heavy truck mix.

Existing Plus Project Traffic Noise

3	:Id
Ethanac Road	:Road
Encanto Drive to Trumble 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	16510
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	956.16	19.81	33.02	709.84	3.30	5.50	176.03	27.52	45.86
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	22.97	6.13	8.35	21.67	-1.65	0.57	15.62	7.56	9.78
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	66.52	57.96	64.70	65.23	50.18	56.92	59.17	59.39	66.13
	DAY LEQ	69.07		EVENING LEQ	65.94		NIGHT LEQ	67.63	

CNEL	74.37
DAY LEQ	69.07

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 heavy truck mix.

Existing Traffic Noise

4	:Id
Ethanac Road	:Road
Trumble Road to Sherman 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	12800
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	741.30	15.36	25.60	550.33	2.56	4.27	136.47	21.33	35.56
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	21.86	5.03	7.24	20.57	-2.76	-0.54	14.51	6.45	8.67
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	65.42	56.86	63.60	64.12	49.08	55.82	58.07	58.29	65.02
	DAY LEQ	67.96		EVENING LEQ	64.84		NIGHT LEQ	66.53	

CNEL	73.26
DAY LEQ	67.96

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	:Id
Ethanac Road	:Road
Trumble Road to Sherman 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	14080
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	815.43	16.90	28.16	605.36	2.82	4.69	150.12	23.47	39.11
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	22.28	5.44	7.66	20.98	-2.34	-0.12	14.93	6.87	9.09
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	65.83	57.27	64.01	64.54	49.49	56.23	58.48	58.70	65.44
	DAY LEQ	68.38		EVENING LEQ	65.25		NIGHT LEQ	66.94	

CNEL	73.67
DAY LEQ	68.38

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	:Id
Ethanac Road	:Road
East of Sherman 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	9700
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	561.77	11.64	19.40	417.05	1.94	3.23	103.42	16.17	26.94
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	20.66	3.82	6.04	19.36	-3.96	-1.74	13.31	5.25	7.47
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	64.21	55.65	62.39	62.92	47.87	54.61	56.86	57.08	63.82
	DAY LEQ	66.76		EVENING LEQ	63.63		NIGHT LEQ	65.32	

CNEL	72.06
DAY LEQ	66.76

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	:Id
Ethanac Road	:Road
East of Sherman 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	10340
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	598.83	12.41	20.68	444.56	2.07	3.45	110.24	17.23	28.72
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	20.94	4.10	6.32	19.64	-3.68	-1.46	13.59	5.53	7.74
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	64.49	55.93	62.67	63.20	48.15	54.89	57.14	57.36	64.10
	DAY LEQ	67.04		EVENING LEQ	63.91		NIGHT LEQ	65.60	

CNEL	72.33
DAY LEQ	67.04

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	:Id
Encanto Drive	:Road
South of Ethanac 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	75.56	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	3700
Speed	35
Distance	33
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	226.92	2.77	1.08	167.70	0.49	0.49	42.00	3.70	1.44
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	17.81	-1.31	-5.42	16.50	-8.82	-8.81	10.49	-0.06	-4.17
Distance	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
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	59.66	50.25	51.37	58.34	42.74	47.97	52.33	51.50	52.61
	DAY LEQ	60.67		EVENING LEQ	58.83		NIGHT LEQ	56.94	

CNEL	64.38
DAY LEQ	60.67

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 light truck mix.

Existing Plus Project Traffic Noise

6	:Id
Encanto Drive	:Road
South of Ethanac 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	75.56	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	3860
Speed	35
Distance	33
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	236.73	2.89	1.13	174.95	0.51	0.52	43.82	3.86	1.50
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	18.00	-1.13	-5.23	16.68	-8.64	-8.63	10.67	0.12	-3.98
Distance	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
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	59.84	50.43	51.55	58.53	42.92	48.15	52.51	51.68	52.80
	DAY LEQ	60.85		EVENING LEQ	59.02		NIGHT LEQ	57.13	

CNEL	64.56
DAY LEQ	60.85

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 light truck mix.

Existing Traffic Noise

7	:Id
Trumble Road	:Road
North of Ethanac 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	75.56	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	2600
Speed	45
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	159.46	1.95	0.76	117.84	0.35	0.35	29.52	2.60	1.01
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	15.19	-3.94	-8.04	13.87	-11.45	-11.44	7.86	-2.69	-6.79
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
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	60.77	49.92	50.34	59.46	42.41	46.94	53.44	51.17	51.59
	DAY LEQ	61.46		EVENING LEQ	59.77		NIGHT LEQ	56.96	

CNEL	64.68
DAY LEQ	61.46

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 light truck mix.

Existing Plus Project Traffic Noise

7	:Id
Trumble Road	:Road
North of Ethanac 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	75.56	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	2920
Speed	45
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	179.08	2.19	0.85	132.34	0.39	0.39	33.15	2.92	1.14
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	15.69	-3.43	-7.54	14.38	-10.94	-10.93	8.37	-2.18	-6.29
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
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	61.27	50.43	50.84	59.96	42.92	47.45	53.95	51.68	52.09
	DAY LEQ	61.97		EVENING LEQ	60.28		NIGHT LEQ	57.46	

CNEL	65.18
DAY LEQ	61.97

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 light truck mix.

Existing Traffic Noise

8	:Id
Bear Valley Road	:Road
South of Ethanac 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	75.56	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	2000
Speed	45
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	122.66	1.50	0.58	90.65	0.27	0.27	22.71	2.00	0.78
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	14.05	-5.08	-9.18	12.74	-12.59	-12.57	6.72	-3.83	-7.93
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
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	59.63	48.78	49.20	58.32	41.27	45.80	52.31	50.03	50.45
	DAY LEQ	60.32		EVENING LEQ	58.64		NIGHT LEQ	55.82	

CNEL	63.54
DAY LEQ	60.32

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	:Id
Bear Valley Road	:Road
South of Ethanac 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	75.56	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	2480
Speed	45
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	152.10	1.86	0.72	112.40	0.33	0.33	28.15	2.48	0.96
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	14.98	-4.14	-8.24	13.67	-11.65	-11.64	7.66	-2.89	-6.99
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
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	60.57	49.72	50.13	59.25	42.21	46.74	53.24	50.97	51.38
	DAY LEQ	61.26		EVENING LEQ	59.57		NIGHT LEQ	56.75	

CNEL	**64.47**
DAY LEQ	61.26

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	:Id
Sherman Road	:Road
North of Ethanac 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	3300
Speed	40
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	191.12	3.96	6.60	141.88	0.66	1.10	35.18	5.50	9.17
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	16.49	-0.35	1.87	15.19	-8.13	-5.91	9.14	1.08	3.30
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	58.06	50.17	57.24	56.76	42.39	49.46	50.71	51.60	58.67
	DAY LEQ	61.05		EVENING LEQ	57.64		NIGHT LEQ	59.99	

CNEL	66.64
DAY LEQ	61.05

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	:Id
Sherman Road	:Road
North of Ethanac 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	3780
Speed	40
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	218.91	4.54	7.56	162.52	0.76	1.26	40.30	6.30	10.50
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	17.08	0.24	2.46	15.78	-7.54	-5.32	9.73	1.67	3.89
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	58.65	50.76	57.83	57.35	42.98	50.05	51.30	52.19	59.26
	DAY LEQ	61.64		EVENING LEQ	58.23		NIGHT LEQ	60.58	

F	CNEL	67.22	
	DAY LEQ	61.64	

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 Traffic Noise

10	:Id
Sherman Road	:Road
South of Ethanac 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	600
Speed	40
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	34.75	0.72	1.20	25.80	0.12	0.20	6.40	1.00	1.67
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	9.08	-7.75	-5.53	7.79	-15.53	-13.32	1.73	-6.33	-4.11
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	50.65	42.77	49.84	49.36	34.99	42.05	43.30	44.20	51.26
	DAY LEQ	53.65		EVENING LEQ	50.23		NIGHT LEQ	52.59	

CNEL	59.23
DAY LEQ	53.65

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	:Id
Sherman Road	:Road
South of Ethanac 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	760
Speed	40
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	44.01	0.91	1.52	32.68	0.15	0.25	8.10	1.27	2.11
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	10.11	-6.73	-4.51	8.82	-14.51	-12.29	2.76	-5.30	-3.08
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
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	51.68	43.80	50.86	50.39	36.02	43.08	44.33	45.22	52.29
	DAY LEQ	54.67		EVENING LEQ	51.26		NIGHT LEQ	53.61	

CNEL	60.26
DAY LEQ	54.67

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.

APPENDIX G

VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS

Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial to Southwest		
Address:	Shell & Circle K Gas Station, 1765 Ethanac Road, Perris		

PPV = PPVref(25/D)^n (in/sec)

INPUT

Equipment Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	188.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.010	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)		Date: 10/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to Southwest		
Address:	Shell & Circle K Gas Station, 1765 Ethanac Road, Perris		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	188.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.004	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial to South		
Address:	Inland Products & Top Tech Smog Check, 27271 Ethanac Road, Menifee		

PPV = PPVref(25/D)^n (in/sec)

INPUT

Equipment Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	90.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.031	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to South		
Address:	Inland Products & Top Tech Smog Check, 27271 Ethanac Road, Menifee		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	90.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.013	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Commercial to Southeast		
Address:	27381 Ethanac Road, Menifee		

PPV = PPVref(25/D)^n (in/sec)

INPUT

Equipment Type =	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	285.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.005	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)		Date: 10/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Commercial to Southeast		
Address:	27381 Ethanac Road, Menifee		
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	285.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.002	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Architectural Damage - Distance to modern industrial/commercial buildings		
Address:			

PPV = PPVref(25/D)^n (in/sec)

INPUT

Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	15.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.452	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)		Date: 10/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Architectural Damage - Distance to modern industrial/commercial buildings		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	8.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.492	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)	Date:	10/9/23
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Annoyance - Distance to Threshold		
Address:			

PPV = PPVref(25/D)^n (in/sec)

INPUT

Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	17.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.

RESULTS

PPV =	0.375	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19674 Beyond Food Mart (NEC Trumble and Ethanac)		Date: 10/9/23
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Annoyance - Distance to Threshold		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	10.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from the Transportation and Construction Vibration Guidance Manual, California Department of Transportation, April 2020, pg 37.			
RESULTS			
PPV =	0.352	IN/SEC	OUTPUT IN BLUE

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