

APPENDIX H – NOISE ANALYSIS



Beltramo Ranch Noise Impact Analysis

March 2022

Prepared By:

**Katie Wilson, M.S.
EcoTierra Consulting, Inc.**



EcoTierra
c o n s u l t i n g

TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	1
	1. Purpose of Analysis and Study Objectives	1
	2. Project Location	1
	3. Project Description	1
	4. Sensitive Receptors in Project Vicinity.....	4
	5. Summary of Impacts	4
	A. Construction Noise Impacts	4
	B. Operational Noise Impacts	4
	C. Vibration Impacts	4
	D. Airport Impacts	4
II.	NOISE FUNDAMENTALS.....	5
	1. Noise Descriptions	5
	2. Tone Noise.....	6
	3. Noise Propagation	6
	4. Ground Absorption	6
	5. Traffic Noise Prediction.....	7
	6. Noise Barrier Attenuation	7
III.	GROUND BORNE VIBRATION FUNDAMENTALS.....	8
	1. Vibration Descriptors	8
	2. Vibration Perception.....	8
	3. Vibration Propagation.....	8
	4. Construction-Related Vibration Level Prediction	9
IV.	REGULATORY SETTING	11
	1. Federal Regulations	11
	2. State Regulations	11
	A. California Environmental Quality Act	12
	3. Local Regulations	13
	A. City of Moorpark General Plan	13

- B. City of Moorpark Municipal Code 15
 - C. Federal Standards..... 17
 - V. EXISTING NOISE CONDITIONS..... 18
 - 1. Measurement Procedure and Criteria 18
 - A. Noise Measurement Equipment 18
 - B. Noise Measure Locations..... 18
 - C. Noise Measurement Timing and Climate 18
 - 2. Noise Measurement Results 20
 - A. Traffic Noise Modeling Result 20
- VI. NOISE AND VIBRATION IMPACT ANALYSES..... 22
 - 1. Exceedance of Noise Standards..... 22
 - A. Construction Noise 22
 - 2. Groundborne Vibration..... 25
 - A. Construction Vibration 26
 - B. Operation Vibration..... 27
 - 3. Operational Noise..... 27
 - A. Parking Noise 27
 - B. Sationary Noise Sources 28
 - C. Traffic Noise 28
 - 4. Airport Noise 29
- VII. NOISE MITIGATION MEASURES 30
 - 1. Construction Measures 30
 - 2. Operational Measures 30
- VIII. REFERENCES..... 31

APPENDICES

- Appendix A: Study Area Photographic Index and Noise Measurement Data
- Appendix B: Noise Meter Printouts
- Appendix C: RCNM Construction Noise Calculations
- Appendix D: Construction Noise BMPs

LIST OF FIGURES

Figure 1: Project Location Map	2
Figure 2: Conceptual Site Plan	3
Figure 3: Noise Monitoring Locations	19

LIST OF TABLES

Table 1: Vibration Source Levels for Construction Equipment.....	9
Table 2: Construction Vibration Damage Criteria.....	10
Table 3: City of Moorpark Noise Compatibility Guidelines	13
Table 4: Construction Equipment Noise Standards	15
Table 5: Significance of Changes in Roadway Noise Exposure	17
Table 6: Existing Noise Level Measurements (dBA).....	20
Table 7: Typical Construction Equipment Noise Levels.....	24
Table 8: Estimated Construction Noise Levels at Sensitive Receptors	25
Table 9: Project-Related Increase in Traffic Noise	29

I. INTRODUCTION AND SUMMARY

1. PURPOSE OF ANALYSIS AND STUDY OBJECTIVES

This Noise Impact Study has been prepared by EcoTierra Consulting to determine the offsite and onsite noise impacts associated with the proposed Beltramo Residential project. The following is provided in this report:

- A description of the study area and the proposed project.
- Information regarding the fundamentals of noise.
- Information regarding the fundamentals of vibration.
- A description of the local noise guidelines and standards.
- An evaluation of the current noise environment.
- An analysis of the potential short-term construction-related noise and vibration impacts from the proposed project.
- An analysis of long-term operations-related noise and vibration impacts from the proposed project.
- An evaluation of airport-related noise impacts to the proposed project.

2. PROJECT LOCATION

The project site is located on the south side of Los Angeles Avenue (State Route 118) between Tierra Rejada Road and Maureen Lane, in the City of Moorpark. The Project is located on an approximately 7.4-acre site that is occupied by the Four Square Church and two single family residential homes. A vicinity map showing the project location is provided on **Figure 1, Project Location Map**.

3. PROJECT DESCRIPTION

The Project is proposing to redevelop the site and construct 47 single family housing units. **Figure 2, Site Plan**, illustrates the proposed site plan. The Project would include the demolition of approximately 4,274 square feet (SF) of existing residences/church uses, 3,128 SF of mobile homes, 74,225 SF of asphalt/paving, and earth work excavation with approximately 2,553 cubic yards (CY) of import, in order to make way for construction of the new streets, utilities, residential homes, and associated amenities. An existing triple-wide mobile home (currently on-site) will be returned to the rental agency located approximately 93.8 miles from the project site, in Mira Loma, CA.

The project is anticipated to be built out in several phases; however, to be conservative, the project has been analyzed as being built out in one phase, with project construction to start no sooner than January 2023 and take approximately 19 months to complete. The project is anticipated to be operational in 2024.



 Project Site

Source: Google Earth, June 2021.

Figure 1
Regional Vicinity and Project Location Map

Parcel Addresses & APNs
 Beltramo Ranch Road
 APN: 504-0-021-195

11930-11934 West Los Angeles Ave.
 APN: 506-0-030-220
 APN: 506-0-030-210
 APN: 506-0-030-235
 APN: 506-0-030-045

Existing Zoning
 RE-1
 RE-20
 RO

R-1* Developmental Standards:
 Density: 7 du/ac
 Front Yard Setback: 20'
 Interior Side Yard Setback: 5'
 Street Side Yard Setback: 10'
 Rear Yard Setback: 15'
 Lot Coverage: 50%
 Building Height: 35'
 Resident Parking: 2.5 sp/unit

*Conceptual Site Plan is compliant with R-1 zoning standards, however project is seeking RPD zoning and High Density Residential (R-1) zoning throughout

Site Plan Summary
 Site Area: ±7.4 ac. (±323,000sf)
 Home Mix:
 47 homes - 60'x53'-6" SFD Lots (2000-2200sf)
 Site Density: ±6.4 du/ac

Parking Provided:
 94 spaces - Garage Spaces
 94 spaces - Driveway
 76 spaces - Guest On-Street Parking
 264 spaces - Total (±5.64 sp/unit)

Building Coverage: ±23%
 Proposed Building Height: SFD ±26'

Open Space Provided:
 ±88,000sf - Private Yards
 ±56,000sf - Open Area
 ±144,000sf - Total Open Space Provided (45% of site)

Proposed Zoning: RPD*



Source: EcoTierra Consulting, 2021.

4. SUMMARY OF IMPACTS

A. Construction Noise Impacts

Construction noise levels were modeled for each phase using methodology presented in the Road Construction Noise Model (RCNM) User's Guide. Modeled noise levels will reach up to 75.4 dBA at the closest sensitive receptor location, to the west of the project boundary. Section 17.53.100.E of the MMC exempts repair, remodeling or grading of real property from the operational exterior noise limits detailed in MMC Section 17.53.080 and the interior noise limits detailed in MMC Section 17.53.090 provided that construction occurs during the hours of 7:00 a.m. to 7:00 p.m. on Monday through Saturday. No construction is permitted on Sundays and national holidays. As construction is anticipated to occur only during allowable hours, construction noise levels are considered to be less than significant.

B. Operational Noise Impacts

The proposed project would not result in a perceptible increase in noise due to the increase of project-related traffic on roadways in the project vicinity. The calculated noise levels show that the project would contribute a maximum of 0.1 dBA to existing noise levels. As the project-related increase in traffic noise does not exceed 1 dBA, the project would not contribute to a substantial permanent increase in ambient noise levels in the project vicinity. Impacts are considered less than significant.

On-site noise sources (HVAC and parking structure noise) associated with the proposed project will not result in a significant increase in ambient noise levels at closest receptor locations. Impacts related to project operational noise would be less than significant.

C. Vibration Impacts

Groundborne vibration levels associated with vibratory equipment that may be utilized during project construction were found to be potentially significant. However, with incorporation of mitigation measure **MM NOI-1** (see Section VII Noise mitigation measures for details), the construction-related vibration impacts will be less than significant. The project will not be a source of operational vibration.

D. Airport Impacts

The project is not located within an airport noise contour and airport-related noise impacts are considered to be less than significant.

II. NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear.

1. NOISE DESCRIPTIONS

Noise equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in dBA. The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour L_{eq} is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Sound Level (L_{dn}) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the L_{dn} , except that it has another addition of 4.77 dB to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these times because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason, the sound is perceived to be louder in the evening and nighttime hours and is weighted accordingly. Many cities rely on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

Another noise descriptor that is used primarily for the assessment of aircraft noise impacts is the Sound Exposure Level, which is also called the Single Event Level (SEL). The SEL descriptor represents the acoustic energy of a single event (i.e., an aircraft overflight) normalized to one-second event duration. This is useful for comparing the acoustical energy of different events involving different durations of the noise sources. The SEL is based on an integration of the noise during the period when the noise first rises within 10 dBA of its maximum value and last falls below 10 dBA of its maximum value. The SEL is often 10 dBA greater, or more, than the L_{MAX} since the SEL logarithmically adds the L_{eq} for each second of the duration of the noise.

2. TONE NOISE

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown the humans are more perceptible to changes in noise levels of a pure tone (Caltrans 1998). For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by: 5 dB for center frequencies of 500 Hertz (Hz) and above; by 8 dB for center frequencies between 160 and 400 Hz; and by 15 dB for center frequencies of 125 Hz or less (Department of Health Services 1977).

3. NOISE PROPAGATION

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, radiate 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.

4. GROUND ABSORPTION

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone, and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. To be conservative, hard-site conditions were used in this analysis where applicable.

5. TRAFFIC NOISE PREDICTION

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is “barely perceptible,” for reference a doubling of perceived noise levels would require an increase of approximately 10 dBA. However, the 1992 findings of Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations, found that noise increases as low as 1.5 dB can cause annoyance, when the existing noise levels are already greater than 65 dB. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

6. NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. For a noise barrier to work, it must be high enough and long enough to block the view of a road. A noise barrier is most effective when placed close to the noise source or receiver. A noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight. When the noise barrier is a berm instead of a wall, the noise attenuation can be increased by another 3 dBA.

III. GROUND BORNE VIBRATION FUNDAMENTALS

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

1. VIBRATION DESCRIPTORS

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (RMS) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as L_v and is based on the RMS velocity amplitude. A commonly used abbreviation is VdB, which in this text, is when vibration level (L_v) is based on the reference quantity of 1 microinch per second.

2. VIBRATION PERCEPTION

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Offsite sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration.

3. VIBRATION PROPAGATION

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform median, while groundborne vibrations travel through the earth, which may contain significant geological differences. 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. P-waves, or compression 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. S-waves, or shear 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 vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4. CONSTRUCTION-RELATED VIBRATION LEVEL PREDICTION

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. **Table , Vibration Source Levels for Construction Equipment**, gives approximate vibration levels for particular construction activities. The data in Table provides a reasonable estimate for a wide range of soil conditions.

Table 1
Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level (L _v) at 25 feet
Pile driver (impact)	1.518 (upper range) 0.644 (typical)	112 104
Pile driver (sonic)	0.734 upper range 0.170 typical	105 93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil 0.017 in rock	66 75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
<i>Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, Table 7-4. September 2018.</i>		

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects such as the proposed Project. However, the Federal Transit Administration (FTA) has adopted vibration criteria for use in evaluating vibration impacts from construction activities.¹ The vibration damage criteria adopted by the FTA are shown in **Table 2, Construction Vibration Damage Criteria**.

Table 2
Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.50
II. Engineered concrete and masonry (no plaster)	0.30
III. Non-engineered timber and masonry buildings	0.20
IV. Buildings extremely susceptible to vibration damage	0.12
<i>Source: FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018.</i>	

¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual, Table 7-5, page 186, 2018.*

IV. REGULATORY SETTING

The proposed project is located in the City of Moorpark and noise regulations are addressed through the efforts of various federal, State, and local government agencies. The agencies responsible for regulating noise are discussed below.

1. FEDERAL REGULATIONS

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce.
- Assisting state and local abatement efforts.
- Promoting noise education and research.

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

2. STATE REGULATIONS

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 any special acoustical is defined as the highest noise level that should be considered for the construction of the buildings which do not incorporate treatment or noise mitigation. The “conditionally acceptable” or “normally unacceptable” ranges include conditions calling for detailed acoustical study prior to the construction or operation of the proposed project. The City of Moorpark 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 3).

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

A. California Environmental Quality Act

The California Environmental Quality Act Guidelines (Appendix G) establishes thresholds for noise impact analysis. This noise study includes analysis of noise and vibration impacts necessary to assess the project in light of the following Appendix G Checklist Thresholds.

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?

b) *Generate 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 project area to excessive noise levels?*

3. LOCAL REGULATIONS

The City of Moorpark General Plan and Municipal Code establish the following applicable goals policies related to noise and vibration.

A. City of Moorpark General Plan

The Noise Element of the City’s General Plan (March 1998) incorporates noise standards for various land uses, which are based on the California Office of Planning and Research’s (OPR) Noise Element Guidelines. **Table 3, City of Moorpark Noise Compatibility Guidelines**, presents the City’s noise guidelines for land use planning. The objective of the noise compatibility guidelines is to provide a means of identifying acceptable noise exposure levels for a proposed use in relation to the existing noise environment. Since the proposed project is a residential use, the clearly compatible noise level would be below 60 dBA CNEL, the normally acceptable noise levels would be between 60-65 dBA CNEL, the conditionally acceptable noise levels would be less than 70 dBA CNEL.

The Noise Element establishes noise standards for single-family and multiple-family residential land uses as 65 CNEL for the exterior environment, 55 CNEL for the interior environment with windows open, and 45 CNEL for the interior environment with windows closed (City of Moorpark 1998).

**Table 3
City of Moorpark Noise Compatibility Guidelines**

Land Use Category		Exterior Noise Level (CNEL dBA)						
Categories	Uses	<50	<55	<60	<65	<70	<75	<80
Residential	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
Residential	Mobile Home	A	A	B	C	C	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office building, Research and Developments, Professional Offices, City Offices Building	A	A	A	B	B	C	D

**Table 3
City of Moorpark Noise Compatibility Guidelines**

Land Use Category		Exterior Noise Level (CNEL dBA)						
Categories	Uses	<50	<55	<60	<65	<70	<75	<80
Commercial Recreation Institutional Civic Center	Amphitheater Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children’s Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special Industrial, Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, School’s Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	B	C	C	D	D
Open Space	Golf courses, cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agricultural	Agriculture	A	A	A	A	A	A	A
Zone A	Clearly Compatible	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.						
Zone B	Normally Compatible	New construction or development should be undertaken after an analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.						
Zone C	Normally Incompatible	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.						
Zone D	Clearly Incompatible	New construction or development should generally not be undertaken, unless it can be demonstrated that an interior level of 45 dBA can be achieved.						

Source:
City of Moorpark General Plan Noise Element. Table 1.

B. City of Moorpark Municipal Code

In addition to any measures to reduce noise levels recommended in this report, project operations will be subject to City ordinances.

Construction Noise

Section 17.53.070.F prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work so as to violate the noise standards set forth in Table 4 between weekday (Saturdays and legal holidays observed by the city included) hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays.

Table 4 shows noise standards at residential and business properties for the nonscheduled, intermittent, short-term operation (less than ten days) of mobile construction equipment and for the repetitively scheduled and relatively long-term operation (periods of ten days or more) of stationary construction equipment.

**Table 4
Construction Equipment Noise Standards**

	dBA Leq					
	Single Family Residential		Multi-family Residential		Business Properties	
	Mobile ¹	Stationary	Mobile ¹	Stationary	Mobile	Stationary
Daily, except Sundays and legal holidays, 7:00 am to 7:00 pm	75	75	80	80	75	65
Daily, 7:00 pm to 7:00 am	60	n/a	65	n/a	75	65
<i>n/a = not applicable</i>						
<i>¹ Mobile construction equipment noise is also permitted on Sundays and legal holidays up to 60 dBA in single-family residential areas and up to 65 dBA in multifamily residential areas.</i>						
<i>Source: Moorpark Municipal Code Section 17.53.070, Tables 1, 2, and 2A</i>						

Section 17.53.100.E of the Moorpark Municipal Code (MMC) exempts repair, remodeling or grading of real property from the operational exterior noise limits detailed in MMC Section 17.53.080 and the interior noise limits detailed in MMC Section 17.53.090 provided that construction occurs during the hours of 7:00 a.m. to 7:00 p.m. on Monday through Saturday. No construction is permitted on Sundays and national holidays.

Operational Noise

MMC Section 17.53.070.E of the MMC prohibits the loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. any day of the week in such a manner as to cause a noise disturbance across a residential property line or at any time to violate the provisions of Section 17.53.050.

Section 17.53.070.N of the MMC also includes noise standards for residential HVAC equipment. HVAC equipment operating within a residential area (installed on or after 1-1-80) may not exceed:

- 55 dBA at any point on the neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.
- 50 dBA at the center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.
- 50 dBA at any point outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface.

MMC Section 17.53.080 sets exterior noise limits for existing receiving land uses. The allowable exterior noise levels for single-family and multifamily residential uses are 55 dBA from 10:00 p.m. to 7:00 a.m. and 60 dBA from 7:00 a.m. to 10:00 p.m. The allowable exterior noise levels for general commercial and planned development land uses are 60 dBA from 10:00 p.m. to 7:00 a.m. and 65 dBA from 7:00 a.m. to 10:00 p.m. No person may cause the noise level on another property to exceed these noise limits by:

- Any level for a cumulative period of more than 30 minutes in any hour
- 5 dBA for a cumulative period of more than 15 minutes in any hour
- 10 dBA for a cumulative period of more than 5 minutes in any hour
- 15 dBA for a cumulative period of more than 1 minute in any hour
- 20 dBA for any period of time

MMC Section 17.50.090 sets interior noise limits for single-family and multifamily residential land uses to 45 dBA/55 dBA (windows open) between the hours of 7:00 am and 10:00 pm.

MMC Section 17.53.090 expands upon the interior noise limits in Section 17.50.090 for receiving single-family and multifamily residential land uses. MMC Section 17.53.090 states that no person may cause the noise level on another property to exceed:

- The noise standard for a cumulative period of more than 5 minutes in any hour
- The noise standard plus 5 dbA for a cumulative period of more than 1 minute in any hour

- The noise standard plus 10 dbA or the maximum measured ambient noise level for any period of time

C. Federal Standards

Roadway Noise

Because the City of Moorpark does not have noise standards for operational mobile sources, this analysis relies on the recommendations of the FTA for the allowable increase in roadway noise exposure due to a project as set forth in the FTA's *Transit Noise and Vibration Impact Assessment (2018)*, summarized in **Table 5** below.

Table 5
Significance of Changes in Roadway Noise Exposure

Existing Noise Exposure (dBA Ldn or Leq)	Noise Exposure Increase Significance Threshold (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0
<i>Source: FTA 2018</i>	

Vibration

The City of Moorpark does not have an adopted significant threshold to assess vibration impacts during construction. Based on the FTA vibration criteria, vibration annoyance impacts are considered significant when average vibration levels produced by vehicles or equipment would produce perceptible levels of vibration (78 VdB) during the daytime at offsite vibration-sensitive structures. In addition, the vibration level at which there is a risk of architectural damage is based on the FTA structural damage criteria (0.12 in/sec for historic structures, 0.2 in/sec for typical wood-framed buildings, or 0.5 in/sec for reinforced concrete, steel, or timber).

V. EXISTING NOISE CONDITIONS

To determine the existing noise level environment, short-term noise measurements were taken in the project study area at three locations in the project vicinity. The following describes the measurement procedures, measurement locations, and the noise measurement results.

1. MEASUREMENT PROCEDURE AND CRITERIA

To ascertain the existing noise at and adjacent to the project site, field monitoring was conducted on May 19, 2021. The field survey noted that noise within the proposed project area is generally characterized by traffic noise. The closest public and public use airports to the project site are the Santa Paula Airport, which is approximately 10.4 miles northwest of the project site, and the Camarillo Airport, which is approximately 11 miles southwest of the project site. The project site falls well outside of the 65 dBA airport noise contours, and is not considered as a source that contributes to the ambient noise levels on the project site.

A. Noise Measurement Equipment

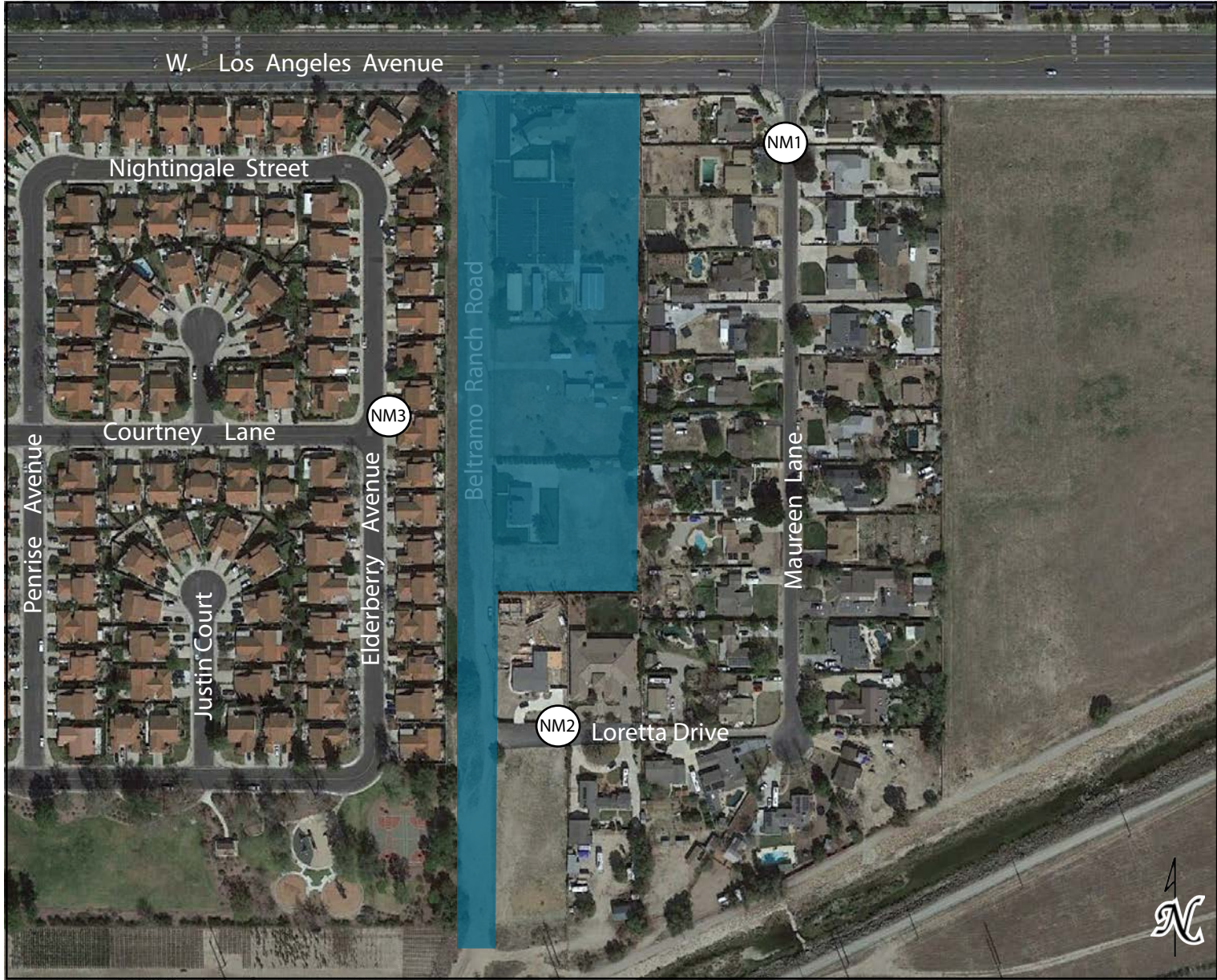
Noise monitoring was performed using an American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model SoundTrack LxT2 sound level meter. The sound level meter was programmed in “slow” mode to record the sound pressure level at one second intervals for in A-weighted form. The sound level meter and microphone were mounted approximately five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before monitoring using Larson Davis Cal 250. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

B. Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise measurements of the current noise sources impacting the vicinity of the project site and to provide a baseline for any potential noise impacts that may be created by development of the proposed project. The sites are shown in Error! Reference source not found., **Noise Monitoring Locations**, on the following page. **Appendix A** (of this analysis technical report) includes a photographic index of the study area and noise level measurement locations.

C. Noise Measurement Timing and Climate

The noise measurements were recorded for 15 minutes each between 10:59 AM and 12:27 PM on Wednesday, May 19, 2021. At the start of the noise monitoring, the temperature was 67°F, 60 percent humidity, sunny, clear skies, and calm wind conditions (~5-10 mph).



■ Project Site

Source: EcoTierra Consulting, June 2021.

Figure 3
Noise Monitoring Locations

2. NOISE MEASUREMENT RESULTS

The results of the noise level measurements are provided below in **Table 6, Existing Noise Level Measurements (dBA)**. The dominant noise source in the area was traffic from Los Angeles Avenue and other surrounding roadways, with secondary noise from birds and low-altitude aircraft.

Table 6
Existing Noise Level Measurements (dBA)

Site Location	Description	L _{eq}	L _{MAX}	L _{MIN}
NM 1	On the sidewalk adjacent to the residential receptors located at 4981 and 4967 Maureen Lane, east of the project site.	66.9	87.2	46.1
NM 2	On the sidewalk adjacent to the residential receptors located at 11921 and 11935 Loretta Drive.	49.1	63.0	41.2
NM 3	On the sidewalk adjacent to the residential receptors located at 4802 and 4784 Elderberry Avenue.	48.0	57.5	41.2

As shown in **Table 6**, receptors in the project vicinity are subject to average noise levels ranging from 48.0 dBA *leq* to 66.9 dBA *leq*, with maximum noise levels reaching as high as 87.2 dBA at residential uses located near Los Angeles Avenue, east of the project site.

A. Traffic Noise Modeling Results

The Noise impacts related to vehicular traffic were modeled using a version of the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108), as modified for CNEL and the “Calveno” energy curves. Site-specific information is entered, such as roadway traffic volumes, roadway active width, source-to-receiver distances, travel speed, noise source and receiver heights, and the percentages of automobiles, medium trucks, and heavy trucks that the traffic is made up of throughout the day, amongst other variables.

The FHWA Traffic Noise Prediction Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: total average daily traffic volumes, roadway classification, width, speed and truck mix, roadway grade and site conditions (hard or soft ground surface). All modeled roadways were assumed to have a “hard site” to predict worst-case, conservative noise levels. A hard site, such as pavement, is highly reflective and does not attenuate noise as quickly as grass or other soft sites. Any reductions in noise levels due to intervening topography and buildings were not accounted for in this analysis.

Existing and Existing Plus Project average daily traffic (ADT) were calculated from the Beltramo Ranch Residential Project Traffic and Circulation Study (Associated Transportation Engineers, 2021).

Roadway parameters utilized to model future traffic noise levels to the Project include location, traffic volume, speed and vehicle mix (autos, medium trucks, and heavy trucks). The various scenarios that are described above were modeled to determine project-specific increases in noise levels at an arbitrary distance of 50 feet from roadway centerline. The uniform distance allows for direct comparisons of potential increases or decreases in noise levels based upon various traffic scenarios; however, at this distance, no specific noise standard necessarily applies. Therefore, the change in a noise level between scenarios is the focus of this portion of the analysis, rather than the resulting independent noise level for any one segment. FHWA calculation spreadsheets are included in Appendix C.

The calculated noise levels in Table 9 (in Section VI of this report) shows that the existing traffic noise in the project area is as high as 68.9 dBA at a distance of 50 feet from the centerline.

VI. NOISE AND VIBRATION IMPACT ANALYSES

Consistent with the California Environmental Quality Act (CEQA) and the CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- *Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies.*
- *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.*
- *Exposure of persons residing or working in the project area to excessive noise levels from aircraft.*

According to the CEQA checklist, to determine whether impacts to noise resources are significant environmental effects, the following thresholds are analyzed and evaluated:

- Exceedance of noise standards for construction and operational noise.
- Construction noise.
- Groundborne vibration.
- Operational noise.
- Airport noise.

Each of these thresholds is analyzed below.

1. EXCEEDANCE OF NOISE STANDARDS

This impact discussion analyzes the potential for temporary project construction noise to cause an exposure of persons to or generation of noise levels in excess of established City of Moorpark noise standards or applicable standards of other agencies.

Noise levels in the project area would be influenced by construction activities.

A. Construction Noise

As stated previously, Section 17.53.070.F of the Moorpark Municipal Code (MMC) prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work so as to violate the noise standards set forth in Table 4 between weekday (Saturdays and legal holidays observed by the city included) hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays.

Section 17.53.100.E of the MMC exempts repair, remodeling or grading of real property from the operational exterior noise limits detailed in MMC Section 17.53.080 and the interior noise limits detailed

in MMC Section 17.53.090 provided that construction occurs during the hours of 7:00 a.m. to 7:00 p.m. on Monday through Saturday. No construction is permitted on Sundays and national holidays.

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. The closest receptors to the project site include the existing residential uses located adjacent to the western, eastern and southern boundaries of the project site.

Short-term noise impacts could occur during construction activities from either the noise impacts created from the transport of workers and movement of construction materials to and from the project site, or from the noise generated onsite during: demolition, grading, building construction, and paving activities.

Construction noise levels will vary significantly based upon the size and topographical features of the active construction zone, duration of the work day, and types of equipment employed, as indicated in **Table 7, Typical Construction Equipment Noise Levels**. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Although there would be a relatively high single event noise exposure potential, resulting in potential short-term intermittent annoyances, the effect in long-term ambient noise levels would be small when averaged over longer time. As shown by the ambient noise level measurements in **Table 6, Existing Noise Levels Measurements** (see section V. Existing Noise Conditions of this report), the project vicinity is already exposed to a maximum noise level of 87.2 dBA.

Construction noise associated with the Project was calculated utilizing methodology presented in the 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 (see Appendix C for details). Distances to receptors were based on the acoustical center of the proposed construction activity. Construction noise levels were calculated for each phase. To be conservative, the noise generated by each piece of equipment was added together for each phase of construction; however, it is unlikely (and unrealistic) that every piece of equipment will be used at the same time, at the same distance from the receptor, for each phase of construction.

As shown in **Table 8, Estimated Construction Noise Levels at Sensitive Receptors**, during demolition of the existing uses on the project site, the highest level of construction noise would reach 75.4 dBA L_{eq} at the façade of the nearest residential receptor (NM3) located west of the project site.

However, it is anticipated that construction activities will occur construction occurs during the hours of 7:00 a.m. to 7:00 p.m. on Monday through Saturday, and will therefore be exempt per Section 17.53.100.E of the Moorpark Municipal Code.

**Table 7
Typical Construction Equipment Noise Levels**

EQUIPMENT		NOISE LEVEL (dBA) AT 50 FEET																				
		60	70	80	90	100	110															
EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	EARTH MOVING	Compacters (Rollers)																				
		Front Loaders																				
		Backhoes																				
		Tractors																				
		Scrapers, Graders																				
		Pavers																				
		Trucks																				
	MATERIAL HANDLING	Concrete Mixers																				
		Concrete Pumps																				
		Cranes (Moveable)																				
		Cranes (Derrick)																				
	STATIONARY	Pumps																				
		Generators																				
		Compressors																				
	IMPACT EQUIPMENT	Pneumatic Wrenches																				
Jack Hammers and Rock Drills																						
Pile Drivers																						
OTHER	Vibrators																					
	Saws																					

Source: United States Environmental Protection Agency, 1971, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300-1.

Table 8
Estimated Construction Noise Levels at Sensitive Receptors

Construction Phase	Receptor Location	Existing Ambient Noise Levels (dBA Leq) ¹	Construction Noise Levels at Receptor Locations (dBA Leq) ²
Demolition	East (NM1)	66.9	72.3
	South (NM2)	49.1	74.6
	West (NM3)	48.0	75.4
Grading	East (NM1)	66.9	70.7
	South (NM2)	49.1	72.9
	West (NM3)	48.0	73.8
Building Construction	East (NM1)	66.9	65.6
	South (NM2)	49.1	67.9
	West (NM3)	48.0	68.7
Paving	East (NM1)	66.9	66.3
	South (NM2)	49.1	68.6
	West (NM3)	48.0	69.4
Architectural Coating	East (NM1)	66.9	59.7
	South (NM2)	49.1	62.0
	West (NM3)	48.0	62.8
<i>Notes:</i> 1 Noise measurement locations are shown on Figure 3, Noise Monitoring Locations. 2 Construction noise calculated in Tables A, B, and C in Appendix C of this Technical Report Source: EcoTierra Consulting, Inc June, 2021.			

Furthermore, construction noise is likely to be at least partially attenuated by the existing wall located at the boundary of the residential receptors located west of the project site; when the wall blocks the line-of-sight between the receptor and the construction equipment being used. Therefore, the noise level at these receptor locations would be reduced to less than 75 dBA.

Therefore, impacts from construction noise are considered to be less than significant, no mitigation measures are required. However, to reduce construction-related noise levels, construction-related BMP measures have been included in Appendix D of this report and can be incorporated (to the extent feasible) to reduce construction noise even further.

2. GROUNDBORNE VIBRATION

This impact discussion analyzes the potential for the proposed project to cause an exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Vibration levels in the project area would be influenced by construction activities and from the ongoing operations of the proposed project.

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual*, groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.¹ In contrast to airborne noise, groundborne vibration is not a common environmental problem, as it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, heavy trucks traveling on rough roads, and certain construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.² Ground-borne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance away from the source of the vibration.

The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural.

A. Construction Vibration

Construction activities can produce vibration that may be felt by adjacent uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The highest degree of groundborne vibration would be generated during the paving construction phase due to the operation of a vibratory roller. Based on the Federal Transit Administration (FTA) data (FTA 2018), vibration velocities from vibratory roller operations are estimated to be approximately 0.1980 inch-per-second PPV at 26 feet from the source of activity.³ As such, structures located greater than 26 feet from vibratory roller operations would not experience groundborne vibration above the FTA significance threshold (i.e., 0.2 inch-per-second PPV for wood-framed structures).

Structural

The nearest vibration-sensitive receptor would be the residential uses to the west, located approximately 12 feet from western edge of the project boundary. At this distance, the vibration from a vibratory roller felt at the building façade would be approximately 0.63 inches-per-second and a large bulldozer would generate a vibration level of 0.268 inches-per-second, which exceeds 0.2 inches-per-second. Therefore, mitigation would be required to ensure construction vibration levels do not create an impact to nearby residential structures.

¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Section 7, 2018.

² Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Section 7, 2018.

³ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Human Annoyance

At a distance of 12 feet, a vibratory roller would generate a vibration level of 103.6 VdB, which would exceed the perception level of 78 VdB. At a distance of 86 feet, the vibration level from the roller would be reduced to 77.9 VdB, which no longer exceeds the perception level. At a distance of 12 feet, a large bulldozer would generate a vibration level of 96.6 VdB, which would exceed the perception level of 78 VdB. At a distance of 50 feet, the vibration level from the bulldozer would be reduced to 77.9 VdB, which no longer exceeds the perception level. Therefore, a mitigation measure that calls for a buffer distance for use of construction equipment that generates a high degree of groundborne vibration is required. Please see Section VII Noise Mitigation Measures for details.

Construction activity that must occur within these buffer distances to the residential building façades would need to be performed with smaller equipment types that do not exceed the vibration thresholds applied herein. As shown in above, the estimated maximum vibration levels for the construction of the Proposed Project with the use of required setback distance mitigation measures (**MM NOI-1**) would be less than significant. Furthermore, the compliance with the setback distance detailed in **MM NOI-1** will also reduce the potential for architectural damage to adjacent structures from construction-related vibration, as the buffer distances required to reduce annoyance-related vibration impacts are greater than the buffer distance needed to reduce architectural-related vibration impacts.

B. Operational Vibration

As the proposed project consists of a proposed residential use, the project does not include any significant sources of operational vibration; no impacts are anticipated.

3. OPERATIONAL NOISE

This impact discussion analyzes the potential for a substantial permanent increase in ambient noise levels in the project vicinity associated with operation of the proposed project, including impacts related to offsite vehicular noise and exposure of neighboring land uses to onsite noise.

A. Parking Noise

The proposed parking areas have the potential to generate noise due to cars entering and exiting the subdivision, engines accelerating, braking, car alarms, squealing tires, and other general activities associated with people using the parking areas (i.e., talking, opening/closing doors, etc.). Noise levels within the parking areas would fluctuate with the amount of automobile and human activity. Activity levels would be highest in the early morning and evening when the largest number of people would enter and exit the subdivision. However, these events would occur at low exiting and entering speeds, which would not generate high noise levels. During these times, the noise levels can range from 44 to 63 dBA

Leq at 50 feet from the source⁴. Project design includes a 6-to-8-foot perimeter wall surrounding the residential uses. The wall would reduce on-site noise levels by approximately 5 dBA, which would reduce parking noise levels down to 39 to 58 dBA Leq, additionally, the proposed residential driveways will be over 70 feet from the façade of the closest existing residential uses located west of the site, and at that distance, the noise levels would be reduced down to 36 to 55 dBA Leq. Therefore, noise levels from on-site parking activities would not exceed the City's exterior daytime standard of 60 dBA or the exterior nighttime standard of 55 dBA for residential uses. Furthermore, parking activities are intermittent and when average over an hour, they would not be expected to exceed any allowable exterior noise standards. Therefore, through project design, and compliance with existing MMC regulations, noise impacts associated with on-site parking activities would be less than significant and no mitigation measures are required.

B. Stationary Noise Sources

As part of the Project, HVAC units are anticipated to be installed for the proposed residential uses. Noise from HVAC equipment ranges from 60 to 70 dBA Leq at 15 feet from the source (Illingworth & Rodkin 2009). For a conservative estimate, this analysis assumes that HVAC equipment generates a noise level of 70 dBA Leq at 15 feet from the source. The closest existing residential uses would be located over 85 feet from the closest proposed residential use. At this distance, the noise generated by any HVAC equipment would be less than 55 dBA leq, which would not exceed the City's noise standard for HVAC that limits noise levels to 55 dBA. Therefore, impacts related to stationary noise sources are considered to be less than significant.

C. Traffic Noise

For off-site project generated noise, as the ambient noise levels are as high as 66.9 dBA, increases in ambient noise along affected roadways due to project generated vehicle traffic is considered substantial if they result in an increase of at least 1 dBA CNEL (see Table 5). However, in order for a new noise source to be audible, there would need to be a 3 dBA or greater CNEL noise increase⁵.

Potential noise impacts associated with the operations of the proposed project are a result of project-generated vehicular traffic on the project vicinity roadways. As stated previously, the noise impacts related to vehicular traffic were modeled using a version of the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108), as modified for CNEL and the "Calveno" energy curves.

⁴ Source: Gordon Bricken & Associates, 1996. Estimates are based on actual noise measurements taken at various parking lots.

⁵ FTA Highway Traffic Noise: Analysis and Abatement Guidance, page 9.

The existing and existing plus project average daily traffic (ADT) were calculated from the PM peak hour volumes given in the TIA. FHWA calculation spreadsheets are included in Appendix C.

The calculated noise levels in **Table 9, Project-Related Increase in Traffic Noise** below show that there would be a marginal increase in noise due to the increase of project-related traffic on roadways in the project vicinity. The highest increase in traffic noise would be 0.1 dB at the road segments of West Los Angeles Avenue west of Maureen Lane. As the project-related increase in traffic noise does not exceed 1 dBA, the project would not contribute to a substantial permanent increase in ambient noise levels in the project vicinity. Impacts are considered to be less than significant.

Table 9
Project-Related Increase in Traffic Noise

Road Segments	Existing		Existing Plus Project		
	ADT	dB CNEL*	ADT	Total dB CNEL*	Project-Specific Increase
Tierra Rejada Road/Gabbart Road					
n/o W. Los Angeles Ave	2,110	60.9	2,110	60.9	0.0
s/o W. Los Angeles Ave	7,370	66.4	7,400	66.4	0.0
Maureen Lane					
n/o W. Los Angeles Ave	430	54.0	430	54.0	0.0
s/o W. Los Angeles Ave	280	52.2	280	52.2	0.0
W. Los Angeles Ave					
w/o Tierra Rejada Rd/Gabbart Rd	9,890	67.7	9,910	67.7	0.0
e/o Tierra Rejada Rd/Gabbart Rd	11,100	68.2	11,190	68.2	0.0
w/o Maureen Ln	10,940	68.1	11,200	68.2	0.1
e/o Maureen Ln	13,090	68.9	13,210	68.9	0.0
<i>*Noise levels at 50 feet from the roadway centerline. The uniform distance of 50 feet allows for direct comparisons of potential increases or decreases in noise levels based upon various traffic scenarios; however, at this distance, no specific noise standard necessarily applies.</i>					

4. AIRPORT NOISE

This impact discussion analyzes the potential for nearby airports or private airstrips to expose people residing or working in the project area to excessive noise levels.

The closest public and public use airports to the project site are the Santa Paula Airport, which is approximately 10.4 miles northwest of the project site, and the Camarillo Airport, which is approximately 11 miles southwest of the project site. The project site is not located within an airport influence area or an airport runway protection zone. There are no nearby private airstrips within the vicinity of the project site. Therefore, no impact related to airport and airstrip noise would occur.

VII. NOISE MITIGATION MEASURES

1. CONSTRUCTION MEASURES

The following mitigation measure is recommended to reduce the annoyance to sensitive receptors from construction-related vibration levels to the maximum extent feasible.

MM NOI-1 The construction contractor shall avoid using a vibratory roller within 86 feet or large bulldozer within 50 feet of the façades of residential uses located adjacent to the west, south and east of the Project Site.

2. OPERATIONAL MEASURES

None required.

VIII. REFERENCES

- Associated Transportation Engineers. 2021. Beltramo Ranch Residential Project Traffic and Circulation Study. May 19.
- Anon. 1977. Model Community Noise Control Ordinance. Berkley, CA: California Department of Health Services, Office of Noise Control.
- California, State of. Department of Transportation (Caltrans). 2004. Transportation- and Construction-Induced Vibration Guidance Manual. June. Website: <http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf>
- California, State of. Department of Transportation (Caltrans). 2009 and 1998. Technical Noise Supplement. November. Website: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf
- Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment. September. Website: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.
- Moorpark, City of. 1998. General Plan Noise Element. March
- Moorpark, City of. 2018. Municipal Code
- U.S. Department of Transportation. 2006. FHWA Roadway Construction Noise Model User's Guide. January. Website: <http://www.fhwa.dot.gov/environment/noise/rcnm/rcnm.pdf>.

APPENDICES

Appendix A: Study Area Photographic Index and Noise Measurement Data

Appendix B: Noise Meter Printouts

Appendix C: RCNM Construction Noise Calculations

Appendix D: Construction Noise BMPs

APPENDIX A

Study Area Photographic Index and Noise Measurement Data

15-Minute Noise Measurement Datasheet

Project: Beltramo Ranch Project, City of Moorpark.. **Site Observations:**
Site Address/Location: 11930 W Los Angeles Ave, Moorpark, CA 93021.
Date: 5/19/2021
Field Tech/Engineer: Ian Edward Gallagher

General Location: 11930 & 11944 W Los Angeles Ave, Moorpaek, Ca 93021
Sound Meter: Larson Davis Sound Track LxT2 **SN:** 1152
Settings: A-weighted, slow, 1-min, 15-minute interval
Meteorological Con.: 67 deg F, 10 mph wind, 60% humidity, clear skies, sunny.
Site ID: NM-1, 2 & 3

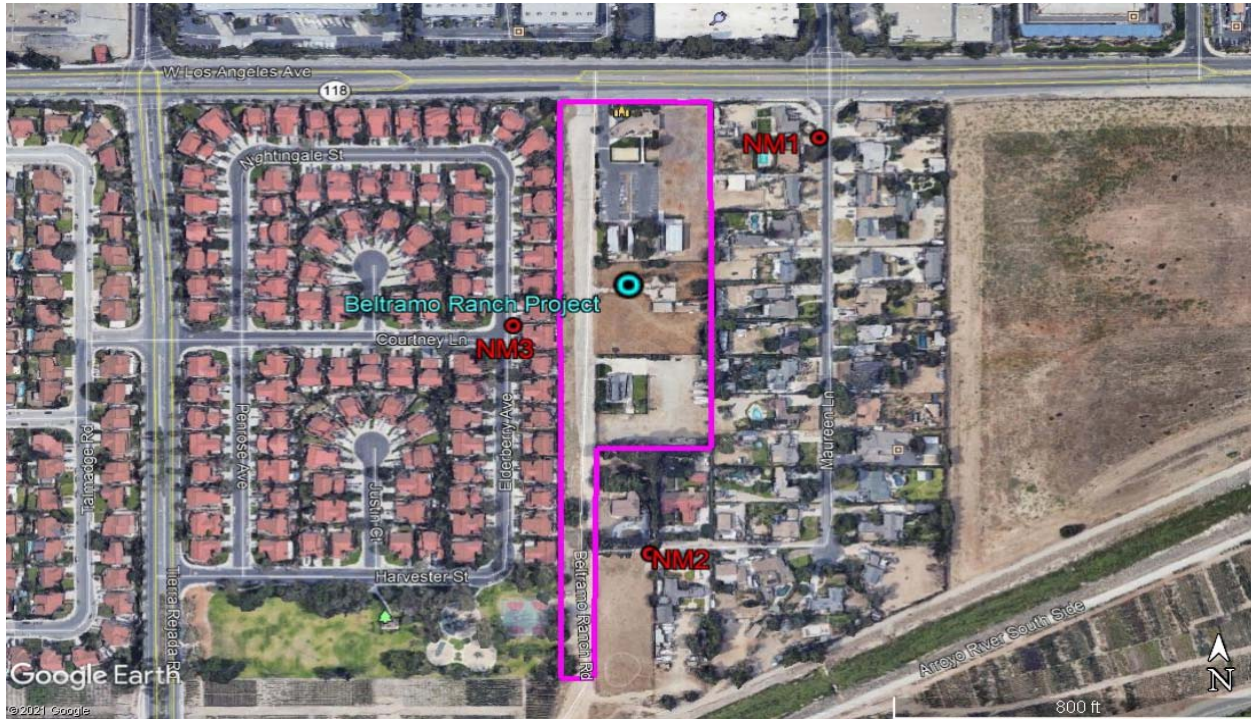
Main noise sources are from vehicular traffic travelling along West Los Angeles Ave, Tierra Rejada Road & other surrounding roads . The local buildings reflect much of the sound. Other noise sources include bird song, occasional high altitude aircraft both propeller & jet. Residential ambiance such as distant dogs barking, music, gardeners at work, gas powered lawn mowers, weed whackers & leaf blowers. Leaf rustle from trees due to 10 mph breeze. Distant train horn.

Site Topo: Suburbia, commercial to the N. Residential elsewhere.
Ground Type: Medium site conditions, acoustically reflective,refractive, some absorption.

NM locations, lat , long :

NM1 Meter: 34°16'42.73"N 118°53'45.73"W NM3 Meter: 34°16'38.22"N 118°53'53.68"W
 NM2 Meter: 34°16'32.72"N 118°53'50.12"W

Figure 1: Monitoring Locations



15-Minute Noise Measurement Datasheet - Cont.

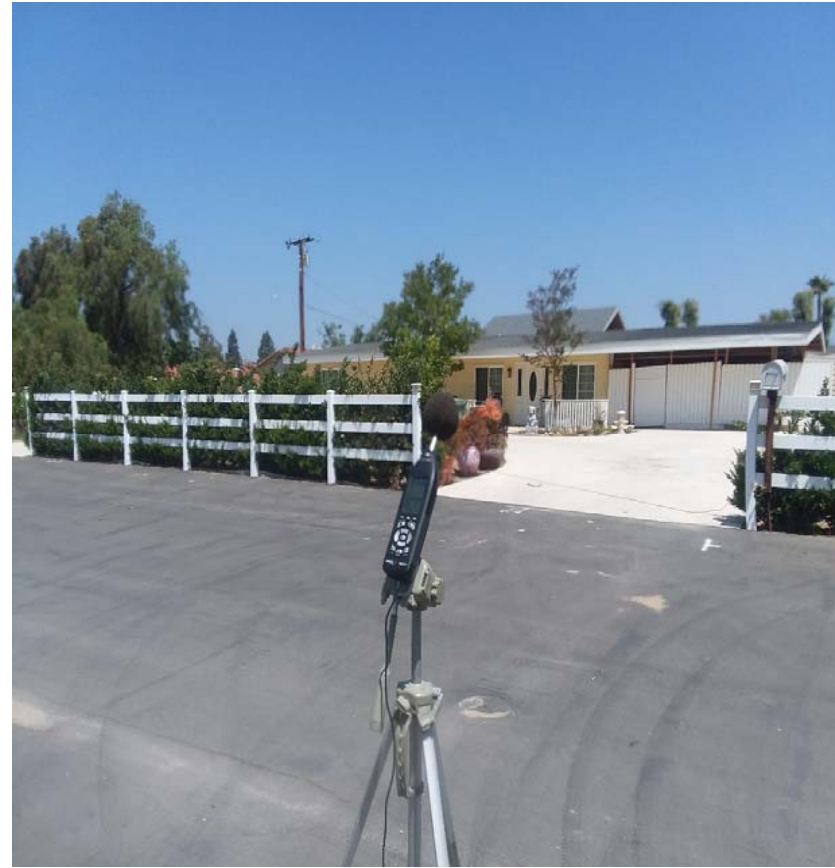
Project: Beltramo Ranch Project, City of Moorpark..
 Site Address/Location: 11930 W Los Angeles Ave, Moorpark, CA 93021.
 Site ID: NM-1, 2 & 3

Figure 2: STNM1 Photo



NM1 looking NNE along Maureen Lane towards W Los Angeles Avenue intersection (35 yds). Residence 4981 Maureen Lane. Moorpark on the left. 407 vehicles passed thru intersection during 15 min measurement.

Figure 3: STNM2 Photo



NM2 looking NNW across Loretta Drive towards front yard & driveway to residence 11921 Loretta Drive, Moorpark (13 yards).

15-Minute Noise Measurement Datasheet - Cont.

Project: Beltramo Ranch Project, City of Moorpark..
Site Address/Location: 11930 W Los Angeles Ave, Moorpark, CA 93021.
Site ID: NM-1, 2 & 3

Figure 4: STNM3 Photo



**NM3 looking SW across Elderberry Avenue & Courtney Lane intersection towards residence
4791 Elderberry Avenue, Moorpark (30 yards).**

15-Minute Noise Measurement Datasheet - Cont.

Project: Beltramo Ranch Project, City of Moorpark..
Site Address/Location: 11930 W Los Angeles Ave, Moorpark, CA 93021.
Site ID: NM-1, 2 & 3

Table 1: Noise Measurement Summary

Location	Start	Stop	Leq/ dB	Lmax/ dB	Lmin/ dB	L2/ dB	L8/ dB	L25/ dB	L50/ dB	L90/ dB
NM 1	10:59 AM	11:14 AM	66.9	87.2	46.1	74.2	70.5	65.8	61.1	51.7
NM 2	11:32 AM	11:47 AM	49.1	63.0	41.2	56.9	51.7	48.4	46.7	44.1
NM 3	12:12 PM	12:27 PM	48.0	57.5	41.2	53.7	51.3	48.5	46.9	43.8

APPENDIX B

Noise Meter Printouts

NM1 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Record #	Record Type	Date	Time	LAeq	Lzpeak	LASmax	LA5min	1t. Temp (*LCeq-LAec	1/1 Lzeq 8.0	/1 Lzeq 16/1 Lzeq 31/1 Lzeq 63	1/1 Lzeq 11/1 Lzeq 250	/1 Lzeq 50 1/1 Lzeq	1/1 Lzeq	1/1 Lzeq
1	Calibration Change	5/19/2021	10:59:02 AM											
2	Calibration Change	5/19/2021	10:59:18 AM											
3	Run	5/19/2021	10:59:47 AM											
4		5/19/2021	10:59:48 AM	55.4	81.0	55.8	54.0	86.9	6.7	50.1	53.2	56.7	57.5	56.5
5		5/19/2021	10:59:50 AM	67.3	94.9	73.2	55.8	87.2	6.7	56.7	60.5	62.6	71.6	67.1
6		5/19/2021	11:00:00 AM	60.7	90.9	64.9	57.9	87.3	8.4	67.4	66.3	64.8	63.4	63.6
7		5/19/2021	11:00:10 AM	61.7	87.7	66.5	57.3	87.7	7.6	56.5	61.7	64.7	65.4	61.1
8		5/19/2021	11:00:20 AM	68.6	91.8	71.9	65.2	87.7	7.8	61.9	67.7	71.3	72.3	69.4
9		5/19/2021	11:00:30 AM	67.4	99.5	72.5	60.8	88.1	10.3	64.5	75.8	78.1	70.8	69.3
10		5/19/2021	11:00:40 AM	60.3	89.4	66.2	51.9	88.3	9.9	59.7	70.4	68.8	67.9	60.8
11		5/19/2021	11:00:50 AM	54.3	93.3	59.9	50.4	88.5	10.7	71.3	68.8	60.5	59.3	56.4
12		5/19/2021	11:01:00 AM	68.2	95.2	74.4	59.6	88.8	4.6	73.1	67	63.4	66.2	66.4
13		5/19/2021	11:01:10 AM	60.9	93.9	63.6	58.7	89.1	10.7	69.5	66.1	63.8	69.9	64.5
14		5/19/2021	11:01:20 AM	62.0	89.3	65.4	57.1	89.2	8.6	69.6	65.8	64.8	64.6	64.5
15		5/19/2021	11:01:30 AM	64.5	93.7	66.7	61.1	89.4	9	71.9	69.4	69.9	69.9	65
16		5/19/2021	11:01:40 AM	67.7	95.9	70.1	63.0	89.6	10.6	69.7	75.8	75.2	74.4	69.8
17		5/19/2021	11:01:50 AM	60.5	92.8	67.6	57.6	90.0	13.7	71.2	72.1	73.6	72	62.8
18		5/19/2021	11:02:00 AM	63.1	88.3	67.8	55.2	90.1	6.8	62.8	63.4	65.1	65.5	61.8
19		5/19/2021	11:02:10 AM	62.0	97.4	66.2	57.2	90.6	20.9	61.6	68.7	78.1	83	63.2
20		5/19/2021	11:02:20 AM	67.1	95.5	71.5	57.8	90.8	11.1	59.7	61.6	70.6	77.6	71.9
21		5/19/2021	11:02:30 AM	57.8	81.7	60.5	53.7	90.9	8.9	56.6	61.8	63.6	64.2	57.7
22		5/19/2021	11:02:40 AM	68.6	101.3	75.8	57.9	91.1	9.1	58.1	66.2	73.1	74.9	70.3
23		5/19/2021	11:02:50 AM	68.2	92.9	70.6	56.7	91.1	7.6	61.3	70.1	70.8	71.2	67.3
24		5/19/2021	11:03:00 AM	71.3	96.3	74.7	68.2	91.5	7.1	71.1	76.1	77.1	71.9	69.5
25		5/19/2021	11:03:10 AM	67.4	96.1	74.0	61.3	91.6	8.2	62.0	71.1	69.6	72.6	68.6
26		5/19/2021	11:03:20 AM	69.4	94.6	75.2	60.7	92.0	6.8	68.4	69	66.2	73.8	67.5
27		5/19/2021	11:03:30 AM	66.9	99.5	71.6	58.6	92.0	12.6	73.3	75.4	77.3	77.5	70.4
28		5/19/2021	11:03:40 AM	62.6	91.9	66.3	59.5	92.5	5.9	66.9	63.1	62.5	63.4	63.1
29		5/19/2021	11:03:50 AM	62.2	92.4	64.9	57.8	92.5	8.9	60.5	70.4	67.7	65.8	61.3
30		5/19/2021	11:04:00 AM	64.2	96.6	67.5	56.7	92.9	10	68.8	79.1	72.4	66.6	65
31		5/19/2021	11:04:10 AM	55.5	86.6	56.8	54.5	93.0	9.3	64.7	63.3	59.7	60	58.7
32		5/19/2021	11:04:20 AM	81.2	107.4	87.2	54.4	93.3	2.7	67.2	61.6	61.4	64.7	72.6
33		5/19/2021	11:04:30 AM	68.3	96.2	84.9	52.8	93.3	5.1	66.2	68.5	65.7	64.7	66.5
34		5/19/2021	11:04:40 AM	48.9	79.4	52.8	47.6	93.4	11.6	57.2	58.4	56	58.3	51.2
35		5/19/2021	11:04:50 AM	59.7	85.7	64.6	48.2	93.6	8.6	57.7	59.7	58.5	60.9	66
36		5/19/2021	11:05:00 AM	62.8	85.4	65.4	59.7	93.9	6.9	61.4	65.4	62.7	66.6	61.8
37		5/19/2021	11:05:10 AM	71.3	97.4	72.9	61.2	94.3	9.5	68.4	80.1	76	77.6	70.8
38		5/19/2021	11:05:20 AM	67.9	97.4	73.7	64.1	94.3	9.7	68.2	76	75.3	73.5	70.6
39		5/19/2021	11:05:30 AM	64.4	94.8	67.4	61.0	94.6	10.6	66.5	76.4	72.6	70	67.6
40		5/19/2021	11:05:40 AM	62.9	89.9	67.3	55.6	94.8	6.7	64.6	64.8	62.5	66.7	61.8
41		5/19/2021	11:05:50 AM	73.0	93.7	78.5	62.3	94.8	3.5	65.3	64.9	67	70.5	67.3
42		5/19/2021	11:06:00 AM	62.7	87.0	67.0	56.9	95.3	5.3	59.4	59.5	62.8	63.5	61.2
43		5/19/2021	11:06:10 AM	61.4	82.6	62.8	56.3	95.4	6.2	54.5	57.4	61.7	62.6	60.1
44		5/19/2021	11:06:20 AM	54.3	85.7	61.8	49.9	95.5	9.9	56.8	55.5	59	61.5	58.4
45		5/19/2021	11:06:30 AM	57.3	94.4	64.2	49.5	95.8	9.6	73.3	67.4	60.8	63.1	55
46		5/19/2021	11:06:40 AM	58.2	93.9	65.5	48.5	95.8	10.3	76.6	67.1	62.2	66.3	58.6
47		5/19/2021	11:06:50 AM	52.5	92.7	53.7	48.7	96.1	11.5	75.5	67	58.5	59.1	53.8
48		5/19/2021	11:07:00 AM	54.4	86.7	58.7	51.3	96.2	7.7	65.6	58.7	55.8	58.5	54.2
49		5/19/2021	11:07:10 AM	66.4	95.6	70.0	58.8	96.7	10.1	70.4	62.2	69	75	69.9
50		5/19/2021	11:07:20 AM	66.4	97.4	70.8	60.5	96.7	8.3	75.2	72.1	65.6	70.6	62
51		5/19/2021	11:07:30 AM	70.7	100.6	75.6	60.5	96.7	9.3	69.6	80.6	77.5	77.1	67
52		5/19/2021	11:07:40 AM	66.8	88.7	71.8	63.0	97.0	6.5	63.1	64.8	65.6	68.3	66.3
53		5/19/2021	11:07:50 AM	64.6	91.4	68.1	60.0	97.2	8.5	63.5	63.3	65.5	68.8	69.1
54		5/19/2021	11:08:00 AM	66.4	94.0	72.2	50.3	97.3	6	72.4	66.5	66.8	67.4	63.7
55		5/19/2021	11:08:10 AM	54.8	94.5	60.6	47.4	97.7	11.1	76.1	69	62	59.3	52.5
56		5/19/2021	11:08:20 AM	54.6	101.2	59.9	48.7	97.7	15.2	81.5	74.8	65.7	60.8	51.3
57		5/19/2021	11:08:30 AM	62.1	91.2	66.7	52.9	97.7	6.7	69.0	68.3	65.2	62.9	60.5
58		5/19/2021	11:08:40 AM	57.6	90.6	60.0	52.7	98.0	10.6	72.4	66.9	65.6	61.8	62.5
59		5/19/2021	11:08:50 AM	55.9	89.7	60.1	51.8	98.1	13.4	69.4	63.6	66.2	65.5	64
60		5/19/2021	11:09:00 AM	64.5	91.1	69.6	51.4	98.1	9	66.5	65	64.2	70.8	66.1
61		5/19/2021	11:09:10 AM	69.6	95.8	72.2	64.3	98.4	10.9	66.5	76.2	73.1	78.7	73.9
62		5/19/2021	11:09:20 AM	65.8	95.4	68.0	62.7	98.7	7.7	65.5	68.5	68.5	68.5	64
63		5/19/2021	11:09:30 AM	62.9	92.3	67.5	56.3	98.6	7.1	67.6	73.9	69.3	64.9	62.4
64		5/19/2021	11:09:40 AM	58.9	85.8	63.2	54.2	98.9	8.7	59.9	67.3	66.4	60.8	55.7
65		5/19/2021	11:09:50 AM	66.1	95.3	71.0	57.9	99.1	7	69.6	73.4	72.2	66	60.8
66		5/19/2021	11:10:00 AM	61.5	90.3	64.6	53.4	99.2	7.7	66.5	63.9	64.6	63.1	65.8
67		5/19/2021	11:10:10 AM	49.0	93.9	53.4	47.2	99.2	11.8	66.6	63.1	59.1	53.7	51.5
68		5/19/2021	11:10:20 AM	62.9	92.9	66.0	50.8	99.6	5.3	70.3	62.4	60.9	63	59.6
69		5/19/2021	11:10:30 AM	62.5	93.9	67.7	52.4	99.5	5.8	72.1	66.2	62.7	62.8	59.8
70		5/19/2021	11:10:40 AM	61.5	93.1	66.3	51.7	99.6	6.3	71.1	62.5	63.4	63.7	58.4
71		5/19/2021	11:10:50 AM	53.0	88.8	63.0	50.0	99.7	10.4	67.7	61.3	60.7	60.5	53.8
72		5/19/2021	11:11:00 AM	55.4	89.7	58.6	51.8	100.0	8.7	64.6	59.7	60.2	61.8	55
73		5/19/2021	11:11:10 AM	63.4	90.2	68.5	55.9	100.0	8	59.7	59.4	61.6	65.5	67.3
74		5/19/2021	11:11:20 AM	72.5	97.6	79.0	66.3	100.0	3.4	69.2	68.8	63.8	68.8	68.5
75		5/19/2021	11:11:30 AM	62.3	89.8	67.6	58.5	100.3	8.3	70.4	63.5	60.5	67.9	65.2
76		5/19/2021	11:11:40 AM	65.8	89.1	69.8	60.9	100.5	6.4	63.3	62.5	65.2	68.5	64.1
77		5/19/2021	11:11:50 AM	65.1	96.3	70.5	57.9	100.5	9.3	73.4	71	70.7	71.3	65.6

NM1 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Table with 48 columns and 80 rows of numerical data. The first row is a header row containing 48 '1/1 LZsm' labels. The following 80 rows contain numerical values for each of these categories.

NM1 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Table with 35 columns and 100 rows of numerical data. The columns represent various data points for a project, and the rows represent individual data entries.

NM1 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm 1/3 LZSm

23	23.6	50.5	50.6	47.5	47.5	48.2	48.4	49.9	53.7	51.3	50.7	53	48.2	52.5	50.6	47.5	44.4
39.4	32.7	41.8	44.8	46.6	47.2	46	48.3	49.4	51.3	47.6	48.6	49.8	49.8	50.5	50.6	50.8	45.8
25.7	24.2	47	51.6	54.3	53.5	55.4	51.4	51.5	53.9	53.7	54.3	53.2	57.4	54.5	52	50.2	49.6
23.4	23.8	48.4	45.8	46.4	50.9	50.1	51.1	51.2	54.1	56.7	56.7	52	54.6	53.1	50.7	48.8	49.2
25.9	24.2	47	50.7	52.8	55.5	61.4	57.7	56.1	55.9	63.3	65.3	59.4	62.5	59.5	62.2	59.3	55.8
23.2	23.7	49.8	49.9	55.5	62.7	62.4	60.2	60.9	59.8	60.4	61.5	60.2	57.9	56.6	58.7	54.5	55.4
23.3	23.7	46	46.9	54.6	53.3	52.4	59.3	54.9	52.5	52.4	50.9	59.4	48.4	46.8	48.9	47.6	46
23	23.7	47.7	49.1	51.3	49.6	50.2	50.7	50.9	49.8	47.8	48.5	53	46.8	45.8	45.9	45.1	44.4
36.1	27.2	62.1	62.5	62.4	59.1	59.2	56.2	57.7	55.6	53.6	57.8	56.4	56.7	55.6	53.6	52.8	51.9
23.7	23.8	53.8	54.8	57.4	55.9	54.7	56.1	56.4	55.9	55.8	58.6	56.4	55.9	56.4	53	51.1	49.3
29.5	25.7	62.2	58.7	58.5	57.3	57.7	53.2	56	55.6	55.3	56.7	54	55.4	54	52.8	50.6	47.6
32.6	26.5	57.8	63.1	60.1	59.4	60.3	59.5	60.6	61.2	62.7	61.7	58.9	60.6	58.6	55.7	54.6	53.1
27.8	24.6	58.6	56.6	57.4	61	61.3	58.2	59.5	61.5	63.4	65.7	65.5	65.5	62.9	60.4	58.1	58.4
27.2	24.2	63.5	62.5	61.7	58	61.9	57.4	60.1	60.4	62.1	66.6	60.9	54.2	53.1	52.8	49.5	46.1
28	25.2	49	48.4	52.3	56	56.8	53.1	53.5	58.4	55.9	58.2	56.1	52.1	51.2	50.9	49.3	44.7
32.4	27	46.1	47.6	55.4	58.2	59.6	53.7	63.1	59.7	60.5	61.9	59.5	58.3	56.4	54.5	51.2	48.1
32.1	26.9	42.3	46.8	55	55.4	52	54.4	56.3	61.4	60.6	65.7	63.4	58.4	59.6	60.3	58.9	54.7
22.9	23.7	43.6	48.5	50.3	51.8	52.9	51.5	56.6	56	57.8	58.7	56.6	51	51.3	52	50.2	46.6
29.3	24.6	44.9	46.4	49.4	55.3	54.9	54.8	58.9	58.1	59.2	60.9	58.2	55.5	53	53.6	50.4	49.8
25	23.8	45.6	48.5	53.8	58.2	54.6	55.2	60.6	59.3	57.7	58.2	57.6	56.6	53.8	53.5	52.9	50.2
28	24.4	47.5	56.6	59.8	67.5	64.9	61.5	67.3	66.6	62.2	63.6	65.9	61.9	61.6	61.7	59.2	58.6
29	25.5	49.3	51.7	56.4	60.7	62.8	59.4	60.7	57.7	60.9	60.8	64	59.2	56.1	55.9	53.8	51.4
28.6	24.3	48.5	52	56.8	62.1	58.8	55.5	57.2	57.6	56.6	62.5	61.6	60.5	58.5	54.7	55.1	51.8
27	24.2	58.5	55.3	57.8	62.2	60.4	55.9	58.9	56.5	56.4	64.6	59.2	56.1	57.1	54.5	52.2	48.4
23.3	23.7	59.9	56.5	55.8	57.3	55	53.4	55.1	56	53.8	55.3	54.8	56.1	52.7	52.2	53	49.5
23.2	23.7	50.1	49.5	52.8	55.9	55.8	53.7	53.8	56.1	54.4	54.7	56.9	55.8	53.5	53.4	51.4	48.2
23	23.7	46.6	50.8	56.1	65.4	66.1	59.4	58.3	59.9	56.3	55.7	56.3	56.6	52.4	53.5	52.1	49.4
23	23.7	54.4	50.3	55.8	56.6	52.7	52.4	51.8	53.1	50.7	50.1	50.6	54	50	48.9	48.9	48.2
40.7	30.9	51.6	49.6	55.3	53.6	52.5	50	52.5	54.3	49.9	50.4	56	52.7	48.5	52.9	55.1	50.9
36.5	27.7	55.6	57	55.8	58.2	53.8	55	55.6	55.6	52.4	55.7	55.5	50.1	50.7	53.3	48.4	49.4
22.8	23.8	44.3	49.5	52.2	51.4	50	50.8	51.3	49.6	45.8	55.2	49.9	45.5	43.1	45.2	42.1	42.8
23.4	23.7	42.1	46	51.3	51.9	50.4	50.2	50.7	48.1	47.5	54.6	47.3	45.8	42.8	45.7	42.5	44.2
23.1	23.7	42.4	48.4	55.5	55.2	53.7	52.4	55	53.9	52.6	57.6	60.9	57.3	55.7	53.1	53.6	53.2
31.7	26.1	47.9	49.8	55.6	61.8	61.9	59.9	61.5	61.7	55.5	59.5	59.7	61.9	58.8	57.6	57	53.8
31.4	26	52.2	54	63.9	67.4	67.3	66.2	66.6	65.5	60.7	65	61.8	59.6	63.4	56.3	59.2	57.8
23.5	23.7	47.9	49.6	59.9	66.8	64.2	63.7	64.6	62.3	60.6	61.8	60.8	59.6	58.4	58.3	57.1	53.1
24.1	23.7	47.6	54.3	55.1	57	58	53.5	55.5	54.6	53.4	58.5	55.5	54.9	51	51.4	50.9	47.5
30.7	25.2	53.4	52.8	55.2	57.6	58.6	54.3	56.9	58.6	56	58.2	60.5	60	56.4	57.3	55.8	52.4
23.2	23.8	48.8	50.8	52.3	53.3	51.8	49.1	55.5	56	53.6	56.6	54.7	53.6	52.5	50.8	48.7	47.1
26	24.2	45.9	45.2	46.6	48.9	49.3	47.4	53.2	53	49.2	55.4	51.3	51.5	49.3	49.6	47.4	46.7
25.3	24.1	42.9	44.9	47.3	47.7	46.6	48.3	50.1	50.2	48.3	54.5	50.3	50.9	47.3	48.1	49.6	46.2
23.9	24	54.1	53.8	49.2	49.9	47.2	48.8	51.9	49.1	47.4	53.9	47.8	49.1	43.8	45.1	43.1	43.2
23.7	23.8	68.2	66.2	62.3	59.5	55.3	53	54.6	54.9	48.8	52.5	49.1	54.6	43.6	44.4	46.3	42
22.9	23.8	63.1	59.6	55.5	53.5	53.6	49.7	50.8	49.9	46.5	51	48.6	48.4	43.9	45.3	45.5	41.9
22.8	23.8	58.9	54	51.1	50.5	49.7	50.9	47.8	48	47.6	49.7	48.3	47.3	47.3	46.1	43.5	45.2
36	30.4	56.3	57.6	54.9	53.1	51.9	55.2	51.8	52.4	51	54.7	52.6	55.1	51.6	53	50.3	47.6
33.8	29.7	58	57	52.1	57.5	62.6	59.7	56	56.9	57	57.8	59.4	57	56.1	53.4	52.3	50.3
27.6	24.2	60.1	57.9	60.8	63.4	66.4	65.5	63.7	60.2	60.3	62.5	63.5	56.8	53.1	53.2	55.1	50.9
25.9	23.9	57.3	54.9	53.9	57.2	55.6	56.1	55.5	57.3	57.1	58.4	64	55.6	53.7	56.2	56	53.3
30.9	29.4	56.3	52.3	53.4	54.4	54.4	53.7	57	58	58.5	58.5	60.6	58.5	55.1	55.2	52.7	52.6
27	26	54.2	53.4	52.1	54.4	53.1	53	54.6	54.3	53.3	54.1	57.8	50	48.6	49.4	47.3	44.4
25.3	24.6	57.4	57.4	63.2	60.8	56.8	56.9	55.3	54.1	52.1	51	53.5	45.4	43.3	46.2	39.8	41.4
24.2	24.2	62.3	65.3	62.5	58.4	56	55.7	55.5	55.1	50.8	50.1	52.3	45.8	43.6	43.2	38.7	40
28	24.9	59	61.5	57.4	58.7	58.9	55.9	59.7	53.3	51.6	54.2	52.9	47.5	46	46.5	45.2	41.9
24.6	24.5	56.7	59.8	60.2	58.9	56.6	56	58.4	53.7	50.3	51.7	55	49.4	48.7	47.5	44.4	43.4
24.1	24	59.1	61.2	57.3	55.5	54.8	52.3	56.6	53.1	58	52.9	53.7	52	58.9	47.5	42.3	42.4
23.3	23.7	61.1	57.4	56.8	56.3	56	52.2	54.9	52.3	54.2	53.9	54.8	52.5	57.8	47	46.3	46.9
25.8	24.1	52	51.5	59.6	62.7	60	58.8	60.3	63.2	59.6	61.5	67.2	61.4	61.1	60.5	58.8	56.3
27.6	24.4	53.8	55	57.3	58.7	59	56.4	60.6	58.8	58.9	59.3	60.7	62.1	58.5	57	55.2	51.3
23.4	23.8	52	53.7	60.3	60.9	56.7	53.7	60.6	58.1	54.9	56.5	56.5	52	52.8	49.7	47.7	49.8
23.1	23.8	54.5	50	53.6	59.2	56.8	52.4	59.4	54.1	51.8	54.4	52.8	50.4	47.7	47.8	46.3	45.5
24.8	23.9	46.8	46.6	53.8	62.7	59.8	57.2	61.5	55.7	55.3	54.7	53.7	51.5	49.5	51.2	49.3	47.6
23.3	23.8	49.3	48	53.3	55.5	54.3	52.9	57.8	54.5	52.7	52.9	53.7	50.3	48.2	49.5	48.6	43.8
22.8	23.8	58.5	56.6	56.4	53.2	49.1	46.1	54.1	50.2	46.5	49.5	47.1	47.7	44.2	44.2	38.7	35.6
23.3	23.8	59.1	54.3	53.6	53.5	54	52.4	54.9	52.1	49	50.8	48	48.7	49.8	45.5	44.5	41.6
25.3	24.5	56.1	54	58	56.6	53.6	51.7	56.3	53.7	54.5	54.6	54.5	52.5	48	47.4	46.5	45
27.8	25.2	55.8	55.5	52.1	52.8	50.9	48.1	57.5	56.5	48.7	52.5	53.6	51.4	47	46.2	44.4	44.9
26.1	24.5	61.7	58.7	56.7	53.3	52.1	51.3	53.1	55.5	49.9	50.7	54.3	54.2	46.7	45.5	44.8	44.6
26.4	24.9	49.4	50.2	49.5	48.2	47.6	49.3	55.4	51.3	49.9	53.6	52.1	51.1	48.9	47.4	45.1	44.3
35.2	30.2	51.2	51.6	50.2	46.2	48.3	50	50.1	53.4	50.8	54.9	53.4	53.6	52.5	50	49.6	48.6
38.1	29.6	48.5	49.6	51.6	53	55.8	53.4	53.2	56.6	54.3	56.2	59.5	62.2	58.2	59.4	59.5	59
24.2	23.8	60.9	55.5	57.7	54.5	55.4	53	51.3	53.2	53.2	55.9	57.5	59.8	54.4	55.9	53.3	53.4
24.4	24.3	49.9	51.2	56.4	54.2	54.4	54.2	53	54.3	55.2	5						

NM1 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Table with 30 columns of numerical data and 2 columns of categorical data (Laleq-LAeOVID and OBA OVLI Marker). Rows contain numerical values ranging from approximately 37 to 55.2.

NM2_KWAQN Beltramo Ranch Project, City of Moorpark

Record #		Record Type	Date	Time	LAeq	LZpeak	LASmax	LASmin	rt. Temp (*LCeq-LAeq	1/1 LZeq 8.0	/1 LZeq 16/1 LZeq 31/1 LZeq 63/1/1 LZeq 11/1 LZeq 250/1/1 LZeq 50 1/1 LZeq	1/1 LZeq	1/1 LZeq	1/1 LZeq	
1	2	Calibration Change	5/19/2021	11:32:02 AM											
2	3	Run	5/19/2021	11:32:31 AM	47.8	94.9	50.1	46.2	106.1	15.5	75.0	67.5	60.3	52.6	45.7
3	4		5/19/2021	11:32:40 AM	47.3	92.0	48.4	46.3	106.2	15	73.6	68.1	58.7	52.4	46.7
4	5		5/19/2021	11:32:50 AM	47.8	92.5	49.1	47.1	106.2	16.1	72.4	67.7	59.5	53.4	47.6
5	6		5/19/2021	11:33:00 AM	48.5	100.5	50.0	46.4	106.2	18.3	76.7	72.7	65.1	55	46.8
6	7		5/19/2021	11:33:10 AM	45.8	94.7	47.3	44.0	106.3	15.3	75.9	67.6	56.9	51.3	44.5
7	8		5/19/2021	11:33:20 AM	45.4	87.7	48.8	42.7	106.3	9.3	65.8	59.2	51.1	48.9	44.2
8	9		5/19/2021	11:33:30 AM	45.2	93.1	46.0	44.6	106.6	18.9	73.1	69.2	62.4	51.8	46.3
9	10		5/19/2021	11:33:40 AM	44.3	88.2	45.8	43.3	106.6	13.2	72.1	62.2	53	52.1	45.7
10	11		5/19/2021	11:33:50 AM	43.9	95.4	46.4	42.0	106.6	20.8	76.4	70	61.7	52.6	45.1
11	12		5/19/2021	11:34:00 AM	44.8	89.2	46.3	43.5	106.7	13.6	69.4	62.9	54.1	50.8	46
12	13		5/19/2021	11:34:10 AM	42.2	84.0	43.5	41.2	106.7	13	67.6	57.6	51.5	50.3	45
13	14		5/19/2021	11:34:20 AM	44.4	87.2	45.7	42.6	106.9	12.4	65.0	59.8	52.2	52	46.1
14	15		5/19/2021	11:34:30 AM	45.2	88.9	47.7	42.9	106.9	13.7	67.9	62	55.3	53.7	47.4
15	16		5/19/2021	11:34:40 AM	44.5	89.3	46.4	42.9	106.9	17.9	70.9	67.4	60.1	54.5	46.2
16	17		5/19/2021	11:34:50 AM	45.1	84.8	46.5	44.3	107.0	12.5	65.2	58.4	55.1	53.6	46.3
17	18		5/19/2021	11:35:00 AM	45.8	83.4	47.4	44.3	107.2	10.8	61.9	55.3	52.2	53.4	47.5
18	19		5/19/2021	11:35:10 AM	45.7	87.6	47.0	43.8	107.3	14.4	65.0	60.1	55.5	57.5	49.7
19	20		5/19/2021	11:35:20 AM	46.7	84.9	47.8	45.2	107.3	11.8	61.2	57.3	53.4	56.3	49.5
20	21		5/19/2021	11:35:30 AM	45.2	85.7	47.2	43.5	107.2	13.2	60.2	60.4	53.1	55.6	47.6
21	22		5/19/2021	11:35:40 AM	46.4	82.7	48.2	43.7	107.4	13.1	64.9	59.9	52.2	58.2	45.6
22	23		5/19/2021	11:35:50 AM	45.6	81.5	47.4	43.4	107.3	11	60.9	56	50.4	55.3	45.3
23	24		5/19/2021	11:36:00 AM	44.5	82.7	48.7	42.5	107.5	10.9	61.8	55.3	49.9	53.4	45.4
24	25		5/19/2021	11:36:10 AM	51.3	80.8	54.0	42.8	107.5	6.5	58.7	54	52.5	53.3	45.5
25	26		5/19/2021	11:36:20 AM	48.3	91.4	54.0	44.7	107.5	10.6	67.0	60.4	54.5	53.6	45.8
26	27		5/19/2021	11:36:30 AM	50.3	91.1	56.9	43.1	107.8	10	69.1	63.4	56.8	52.9	46
27	28		5/19/2021	11:36:40 AM	58.1	93.8	62.7	46.8	107.8	7.3	72.0	68.1	59.6	54.9	45
28	29		5/19/2021	11:36:50 AM	53.4	94.6	59.9	48.3	107.8	10.3	74.7	68.9	60.2	53.9	45.6
29	30		5/19/2021	11:37:00 AM	59.2	84.3	63.0	48.6	107.6	3.1	66.3	56.6	51.2	51.9	47.3
30	31		5/19/2021	11:37:10 AM	49.7	89.5	54.2	47.7	107.8	7.8	64.4	56.9	52	52.7	47.5
31	32		5/19/2021	11:37:20 AM	47.2	76.8	50.2	44.3	108.0	11.2	61.7	54.3	52.6	56.6	50.7
32	33		5/19/2021	11:37:30 AM	49.6	84.0	54.1	45.6	108.0	11.7	57.0	55.3	54	60.4	51.2
33	34		5/19/2021	11:37:40 AM	48.8	78.5	53.7	46.1	108.1	13	57.8	57.2	56.1	60.9	50.2
34	35		5/19/2021	11:37:50 AM	49.8	79.9	53.9	46.9	108.1	11.6	56.6	59.5	55.6	59.9	51.4
35	36		5/19/2021	11:38:00 AM	46.4	84.9	50.5	43.7	108.1	11.2	62.3	59.4	53.8	52.4	48.9
36	37		5/19/2021	11:38:10 AM	45.3	85.5	46.2	43.8	108.2	11	66.8	58	51.8	52.5	48
37	38		5/19/2021	11:38:20 AM	45.3	85.6	46.2	44.4	108.1	11.8	67.1	60.2	52.3	50.9	48.6
38	39		5/19/2021	11:38:30 AM	46.3	95.4	48.1	45.2	108.4	17	74.3	67.6	60.2	53.1	48.3
39	40		5/19/2021	11:38:40 AM	46.4	95.2	47.3	45.2	108.4	15.6	73.4	67.1	57.2	52.1	47.7
40	41		5/19/2021	11:38:50 AM	47.5	96.3	48.8	45.6	108.4	18.3	74.2	68	62.5	54.8	50.8
41	42		5/19/2021	11:39:00 AM	49.7	98.2	50.7	48.8	108.4	16.3	78.3	72.4	64.5	56.2	52.6
42	43		5/19/2021	11:39:10 AM	46.7	94.4	49.0	46.1	108.6	18.7	75.1	71	61.7	55	55
43	44		5/19/2021	11:39:20 AM	46.6	95.7	48.4	44.1	108.7	16.3	74.3	67	59.6	53.8	55.9
44	45		5/19/2021	11:39:30 AM	44.6	85.7	46.0	43.0	108.7	13.8	67.9	60	54.2	52	52.2
45	46		5/19/2021	11:39:40 AM	47.3	83.7	48.5	45.6	108.6	11.8	64.3	58.5	53.1	52.7	55.8
46	47		5/19/2021	11:39:50 AM	46.8	87.4	48.6	45.3	108.7	11.7	65.0	56.8	51.2	50.3	55
47	48		5/19/2021	11:40:00 AM	45.4	93.6	47.9	44.5	108.9	13.2	68.0	61.4	53.7	51.1	53.1
48	49		5/19/2021	11:40:10 AM	46.7	88.0	48.6	44.2	108.6	14.2	63.5	61.4	54.1	55.9	55.4
49	50		5/19/2021	11:40:20 AM	46.8	88.5	48.6	44.3	108.9	13.8	66.5	62.7	54.2	56.4	54.1
50	51		5/19/2021	11:40:30 AM	47.7	98.9	51.3	44.0	109.1	18.5	75.2	70.8	62.9	57.2	52.2
51	52		5/19/2021	11:40:40 AM	49.7	92.0	52.4	48.4	108.9	14.5	76.9	66.5	58.6	61.1	52.4
52	53		5/19/2021	11:40:50 AM	48.3	93.7	49.9	46.6	108.9	14	71.6	66.5	58.6	56.9	49.8
53	54		5/19/2021	11:41:00 AM	46.2	96.3	47.9	45.7	109.1	19.7	76.5	71.5	62.2	57	48
54	55		5/19/2021	11:41:10 AM	47.8	95.0	49.0	45.4	109.1	14.5	69.8	64.6	58.3	55.9	47.5
55	56		5/19/2021	11:41:20 AM	47.6	92.5	48.5	46.9	109.1	15.9	73.5	69.7	59.1	55	48
56	57		5/19/2021	11:41:30 AM	49.6	95.5	52.9	47.0	109.2	19.1	78.8	73.8	66.6	59	51.1
57	58		5/19/2021	11:41:40 AM	47.9	92.4	49.2	46.2	109.2	15.2	73.4	69.4	61.5	53.5	51.3
58	59		5/19/2021	11:41:50 AM	44.7	89.3	48.5	43.5	109.3	15.9	72.6	64.9	57	51.8	51.9
59	60		5/19/2021	11:42:00 AM	43.9	89.6	45.6	42.3	109.1	15.1	67.3	61.2	58.3	51.4	52.3
60	61		5/19/2021	11:42:10 AM	43.4	90.2	44.9	42.2	109.2	14.3	67.7	61.2	54.4	50	49.7
61	62		5/19/2021	11:42:20 AM	46.8	84.8	49.8	42.6	109.2	9.8	62.6	56.9	51.7	50.7	50.7
62	63		5/19/2021	11:42:30 AM	48.8	83.0	53.2	45.3	109.1	8.2	63.2	55.6	51	49.2	53.6
63	64		5/19/2021	11:42:40 AM	45.0	76.9	48.7	42.5	109.1	10	51.3	51.8	51.5	48.7	50.9
64	65		5/19/2021	11:42:50 AM	46.4	87.8	48.2	44.4	109.2	11.4	62.8	57.3	52.2	50	51.8
65	66		5/19/2021	11:43:00 AM	46.3	94.4	49.3	44.5	109.2	17.7	72.7	68.7	59.5	56.2	51
66	67		5/19/2021	11:43:10 AM	46.9	93.1	47.7	46.4	109.2	15.5	76.1	66.7	58.4	56.6	51.9
67	68		5/19/2021	11:43:20 AM	48.5	93.2	49.2	46.5	109.2	14.2	74.4	66.2	60	54.3	52.7
68	69		5/19/2021	11:43:30 AM	50.8	85.4	52.9	47.6	109.2	10	62.1	56.1	53	50.6	57.1
69	70		5/19/2021	11:43:40 AM	54.6	86.9	57.2	52.0	109.2	9.7	62.0	55.2	54.4	52.7	61.2
70	71		5/19/2021	11:43:50 AM	57.0	89.1	58.9	54.1	109.1	9.8	66.8	60.8	55.2	55.9	64.2
71	72		5/19/2021	11:44:00 AM	52.4	83.2	56.8	49.3	109.2	12.7	66.8	55.8	52.3	55.6	64.5
72	73		5/19/2021	11:44:10 AM	46.5	84.5	49.6	45.1	109.2	13.3	63.6	56.8	53.2	55.2	54.2
73	74		5/19/2021	11:44:20 AM	46.5	81.8	48.2	44.5	109.3	12.7	60.3	58.4	54.7	54.2	54.8
74	75		5/19/2021	11:44:30 AM	46.2	75.3	48.2	45.7	109.2	12.9	55.9	58.3	54.8	55.9	54.1
75	76		5/19/2021	11:44:40 AM	46.4	80.6	48.4	44.9	109.5	13.3	56.0	61.3	59.2	54.4	49.8
76	77		5/19/2021	11:44:50 AM	46.3	87.0	48.1	45.1	109.5	12.4	63.4	62	55.6	50.7	53
77	78		5/19/2021	11:45:00 AM	47.7	80.8	49.6	45.2	109.2	11.8	62.0	56.7	52.3	49.9	58.2
78	79		5/19/2021	11:45:10 AM	47.9	101.4	49.4	45.4	109.5	21.6	80.8	73.5	67	57.8	52.4
79	80		5/19/2021	11:45:20 AM	49.3	91.3	51.9	47.2	109.3	12.7	73.4	67.8	60.2	52.6	49.7
80	81		5/19/2021	11:45:30 AM	50.7	92.9	51.6	49.9	109.5	11.3	73.7	66.5	57.6	53.4	51.4
81	82		5/19/2021	11:45:40 AM	51.3	93.0	53.6	47.7	109.7	9.6	69.9	63.6	56.6	54.4	53
82	83		5/19/2021	11:45:50 AM	46.9	85.9	49.9	43.6	109.7	11.8	66.7	59	53	53.9	53.7

NM2_KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Table with 25 columns representing 1/3 Lzeq values and 50 rows of numerical data points.

NM2 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm	1/3 LZSm
23.1	23.9	55.1	54.8	52.2	48.8	49.4	46	45.5	45	44.8	44.8	46.7	44.6	40.8	39.7	36.3	36.4
24.5	24.2	62.1	61.3	58.5	56.8	52.7	50.7	49.5	48.1	46.1	45.1	45	45.7	42.1	38.6	36.3	36.3
24.7	24.3	64.7	61.2	58	59.9	58.2	55.7	52.4	49.4	47.6	47.6	46.2	45	43.2	39.8	37.3	37.4
25.5	24.5	64.3	64.1	62.7	62.8	57.8	57.4	55.3	52.4	49.2	48.4	46.8	45.5	42.3	39.9	36.4	36.9
24.4	24.1	66.2	65.3	59.3	60.9	58.2	56.5	52.7	49.2	47.7	46	44.7	42.4	40.4	37.7	35.1	35.3
23	23.8	60.1	54.5	51.9	52.2	47.9	48	45.8	41.9	43.6	42.6	42.2	42.6	40.4	36.2	34.5	34.6
23.8	24.1	54.2	51.4	51.2	49.8	49	45.5	42.7	43.2	42.6	41.8	41.6	42	41	37.5	34.9	34.6
23.3	23.8	61.8	58.2	52.9	51.9	48.2	46.4	43.5	44	42.8	43	43.9	46.1	41.4	37.1	35.8	33.2
23.1	23.8	55.7	51.7	53.1	50.6	48.5	45.2	44.6	44.6	42.4	45.3	43.4	46.6	41.1	37.6	35.5	33.6
23.1	23.8	61.9	62.1	59	56.4	53.3	52.9	48.9	47.2	44.6	44.9	42.9	43.8	41	37.9	34.8	34.4
23.1	23.8	56.5	55.2	53.5	49.8	48.5	48.9	45.1	45.3	45.2	42	42.2	45.5	40.4	37.1	34.2	32.9
23.2	23.8	57.1	54.7	51	47.9	45.2	46.3	44.5	45.4	43.2	42.3	43.9	45.2	41.1	37.7	35.6	33.3
23.1	23.8	52.9	51.5	51.4	48.2	45.4	47	45.2	43.9	44.4	44.8	46.9	46.9	42.8	37	35.7	34.6
23.8	24.3	60	57.9	52.1	53.1	53	53.2	49.6	49.7	45.2	44.3	47.4	44.9	42.2	38.3	37.4	35.7
23.3	23.8	58.7	58.8	53.3	52.3	50.8	51.3	48.8	48.3	47.3	47	45.7	44.3	41.7	37.7	37.4	37.1
22.9	23.8	51.8	52.8	52.4	48	47.1	45.5	46.5	45.3	44.6	44.3	45.2	47.1	40.6	37.9	40.4	36.3
22.9	23.8	52	51.1	47.9	48.2	47	48.4	47.1	44.9	42.9	44.2	46	50.1	42.5	38.4	40	35.8
23.4	23.9	54.1	51.1	51.6	51.8	49.9	48.2	44.2	47.2	45.1	47.9	46.3	51.6	40.8	40.1	42.6	36.4
23	23.8	43.7	46.3	47.5	48.6	48.2	46.4	44.2	43.9	43.6	44.6	45.7	50.3	39.5	39.5	42.1	37.7
22.8	23.8	52.2	54	55.9	52.4	53.1	48.4	45.6	42.4	44.8	42.4	48.2	49.2	38.8	38.6	37.7	37.5
22.8	23.8	55.7	54.5	50	49.9	47.5	44.1	44	41.8	43.4	41.8	50.1	46.5	38.4	38.1	35.9	35.9
22.8	23.8	51.3	51.3	48.8	49.8	46.2	45.4	43.7	40.5	41.6	42.4	47.6	45.8	39.9	37.8	36	34.7
22.9	23.8	48.5	46.7	46.9	46.6	43.7	43.4	45.9	43	42.5	45	47.9	45.2	39.9	39.1	36.1	34.6
22.9	23.8	47.4	51.7	51.5	50.9	49.9	47.7	47.6	46.6	43.5	43.6	44.9	47.4	41	39.1	35.6	34
23.1	23.8	57.4	59	53.5	50.9	50	47.8	46.5	47.4	50	45.8	45.7	46.5	40.5	39.6	35.8	35.1
23.4	23.9	59.8	60.6	58.8	58	56.1	53.4	51.4	48.7	46.6	44.9	48.8	45	40.8	39	35.1	35.2
23.4	23.9	65.3	65.1	65.8	61.7	58.8	55.4	53.5	50	46.5	46.9	47.4	46.4	39.6	38.9	36	34.9
24	24.1	58.9	55.1	52.4	49.8	48	46.4	45.4	43.4	44.1	44.2	45.6	44.7	41.5	38.9	36.2	34.5
23.5	24	47.2	50.5	44.9	45	46.2	45.3	43.5	43.9	43.7	44.6	45.1	44.3	40.8	40.9	38.9	35.5
22.9	23.8	53.2	51.1	46.7	48.3	44.9	44.5	43.7	44	47.7	46.2	46.6	46	43.6	39.6	37.8	34.5
24	23.9	42.9	45.8	44.4	45.9	43.2	44.7	47.5	44.4	44.5	45.2	50.7	49.1	44.5	42.8	38.9	39.3
23.1	23.8	46.6	49.5	51.6	49.8	47.2	49.1	49.2	47.8	45.3	50.5	53.7	49.2	43	42.3	38.2	37.4
22.9	23.7	42.2	46.4	51.1	50.7	51	51.3	48.1	48.6	47.6	49.7	49.8	43.8	44.4	45	40.9	39.2
22.9	23.8	42.1	45.5	51.6	50.3	51	49.3	48	45.2	46.6	44.8	46	43.6	43.9	40	39.3	37.3
23	23.8	52.4	49.5	53.3	50.4	50.2	48.4	46.5	42.8	43.1	45.9	45.5	45	42.2	39.4	38.9	36.4
23.1	23.8	53.5	52.3	54	50.9	49.7	48.6	44.7	42.4	42.3	44.6	44.2	44.3	41.7	39	41.1	37.1
25.6	24.4	56	54.7	54.2	51	48.2	46.5	46.3	44.5	41.3	44	44.2	46.2	41.9	39.6	42.1	38.4
23.1	23.8	64.4	61.7	61.1	54.9	54.2	52.7	48.3	46.4	44.1	43.8	44.6	45.1	41.7	38.1	39.2	38.6
23.7	24	66.3	63.2	61.5	59.4	57.2	54.6	51.6	48	45.4	46.2	47.5	43.8	41.6	45.4	36.6	39.1
23.9	24.1	65.7	65.1	63.7	64.8	61.8	58.1	55	52.8	50.2	48.3	49.5	46.3	43.8	47.5	39.4	41.3
23.1	23.8	65.9	64.2	65.2	64.3	62.1	59.7	54.6	52	51.1	49.3	46.3	46.7	42.7	45.4	39.8	38.7
24.5	24.5	67.5	65.7	62	57.2	53.3	54	51.6	47.4	47.4	46.6	46.6	47	48.8	47.7	39.8	39.3
23.1	23.9	62.4	56	55.2	52.9	49.4	48.4	49.8	45.7	44.5	44.6	44.7	45.2	46.9	43.4	37.1	39.6
22.9	23.8	59	54.8	53.8	50.4	49.7	47.1	45.5	44.2	45.4	45.5	46.4	46.8	46.8	48.6	38.6	39.9
23.3	24	57.2	52.9	50.4	48.3	48.6	45.7	44	43.9	42.5	44.5	43.1	43	46	45.2	36.8	39.1
22.9	23.9	59.7	58.4	53.8	49.2	47.8	46.1	44.9	45.2	42.7	43.2	44.8	44.7	49	40.1	39.3	40.7
22.9	23.9	53.7	54.2	52.2	49.7	47.3	44	46	45	43.3	43.2	43.9	49.6	49.5	39.1	39.5	40.1
23	23.8	51.1	54.9	54.7	54.5	51.6	49.9	47	46.2	42.9	43.4	44.9	52.1	46.5	41.5	42.8	37.8
23.9	24.4	59.3	57.6	55.6	52.5	48.1	46.2	46.6	43.9	44	44.3	44.4	50.2	44.3	43.6	42.5	37.4
23.7	24	58.1	56.9	63.5	59.8	59.2	55	51.9	50.7	47.5	46.7	46.3	55.8	44.4	41.8	42.4	39.4
24.5	24	65.6	59.1	58.6	58	57.4	51.6	49.5	47.3	46.5	47.6	49.3	50.8	45.5	40.6	39.9	38
23.7	23.9	64.7	58	55.6	58.7	56.8	53.7	49.5	47.8	48.8	48.6	48	47	43.7	40.2	40.3	37.5
24.1	24	56.2	57.1	55.3	51.6	50.9	48.6	48.6	45.8	45.6	46.9	44.1	50.7	42.1	39.5	39.9	36.8
23.2	23.9	59.3	61.2	62.7	57.5	59.1	54.8	51.5	50.7	47.6	50.1	46.9	44.7	43.5	40.5	39.7	39
27.8	25.5	64.9	66.4	65.5	66.4	60.8	59.3	56.7	54.9	52.2	53	51.3	46.3	43.9	42	41.1	39.5
24.8	24.3	68	65.4	61.9	58.8	57.3	56.7	55	53.1	47.8	47.4	46.7	43.8	45.1	43.5	44.6	38.8
23	23.8	63.7	59.2	58.9	57.7	56.3	52.9	49.2	48.8	47	44.8	45.8	44.1	43.3	42.6	44.2	36.7
22.9	23.8	55.8	55.5	54.2	53.6	49.9	51.3	52.6	49.9	46.5	45.5	44.6	43.3	43.2	45	40.1	36.2
25	25.3	50.9	51	47.7	51.6	51.2	50.7	50.1	46	44.3	43.5	42.6	43	43.1	42.7	39.9	34.6
30.4	34.5	55.8	54.4	53.1	49.7	49.2	47.5	45.7	43.8	44.3	42.3	45.5	44	43.7	40.6	40.9	36
37.5	39.3	57.6	51.6	50.1	49	44.4	45.5	44.6	43.3	43.5	41.3	43.1	41.5	46.1	43	41.6	36.1
26.1	26.9	44.6	41.2	44.6	43.9	42.5	44.5	44.7	44.2	43.6	41.6	43.7	41.8	45.1	43.3	41.8	35.9
23.1	23.8	45.7	47.3	43.5	44.4	44.6	45.5	44.1	43.2	41.9	43	41.5	42.4	45.7	43.9	41.2	36.6
23.2	23.9	57.4	56.2	57.8	54.7	51.1	50	48.2	46.6	46.1	45.6	46.4	43.4	45.5	42.8	40.8	37.2
23.1	23.9	67.1	65.3	61.4	59.2	55.5	54.7	51.1	51.1	48.2	46.9	48	45.5	47.6	40.3	40.8	38.1
22.9	23.8	68.3	62.5	61	60	54.6	53.5	51.1	49.5	48.4	46.6	46.3	44.5	47.6	40.2	42	38.2
23.7	23.8	51	49.7	48.3	45.6	45.2	46.1	44.2	45.3	46.4	45.8	43.9	43.6	44	42.6	45.7	43.6
22.9	23.8	52.3	49.9	49.1	46.3	46.2	45.7	46	46.6	44.1	44.5	43.6	46.4	56	51.2	50.3	
22.8	23.8	54.4	51.7	51.4	46.5	48	48.1	47.5	46	48.1	44.1	45.3	49.3	43.1	56	55.7	42.5
22.8	23.8	52.6	49.6	48.9	47.2	47.9	45.5	45.3	44.5	44.5	43.9	43.8	49.9	42.9	49.5	60.3	39.8
22.9	23.8	47.3	45.5	48	49.2	49.8	45.1	46.9	44.7	44.4	43.3	45.5	47.9	46.9	44	44.8	45.3
22.8	23.7	52.6	50.4	50.5	51.3	49.6	46.7	48.4	46.3	44.3	44.2	46.7	45.8	44.5	43.9	45.7	41.6
23.6	24	44.7	45.5	49.9	52.3	50.3	48	48.8	46.9	44.6	43.7	46.4	45.9	44	44.6	46.3	39.4
22.9	23.8	40.8	43.1	49.9	53.6	50.5	48.8	51.4	46.5	46.5	47.4	46.3	45	44.8	41.7	37.3	36.1
22.9	23.8	47.1	47.5	46.5	53.5	52.6											

NM3 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Record #	Record Type	Date	Time	LAeq	LZpeak	LASmax	LASmin	nt. Temp (*LCeq-LAec	1/1 LZeQ 8.0	/1 LZeQ 16/1	LZeQ 31/1	LZeQ 63.1/1	LZeQ 11/1	LZeQ 250 /1	LZeQ 501	LZeQ 10/1	LZeQ 1/1	LZeQ 1/1	
1	Calibration Change	5/19/2021	12:11:15 PM																
2	Calibration Change	5/19/2021	12:11:31 PM																
3	Run	5/19/2021	12:12:00 PM																
4		5/19/2021	12:12:00 PM	48.4	93.8	49.0	47.4	104.8	16.5	73.9	67	60.4	56.1	59	19:12:00	42.8	43.9	38.7	35.1
5		5/19/2021	12:12:10 PM	48.1	97.8	48.9	47.2	105.3	19.6	77.8	69.6	64.2	56.2	58.3	4:48:00	42.5	43.2	40.2	35.2
6		5/19/2021	12:12:20 PM	47.7	96.7	48.8	46.8	105.1	21.4	78.0	74.9	67.3	59.7	57.6	9:36:00	42.7	42.4	38.9	36
7		5/19/2021	12:12:30 PM	51.4	98.6	57.5	47.4	105.0	16.9	79.1	72.4	65	57.3	57	14:24:00	44.9	44.3	45.3	43.9
8		5/19/2021	12:12:40 PM	51.1	99.2	54.6	46.6	105.1	17.8	79.6	73	68.6	59.1	58.3	21:36:00	49.9	44	40.2	38.2
9		5/19/2021	12:12:50 PM	45.8	91.0	46.8	45.1	105.4	15.1	72.8	63.8	57.5	52.7	52.1	9:36:00	41.1	41.8	37.7	32.1
10		5/19/2021	12:13:00 PM	45.3	95.1	46.0	44.1	105.3	19.4	76.8	68.6	61.8	54.5	51.3	19:12:00	41.3	41.4	37.1	31.3
11		5/19/2021	12:13:10 PM	44.9	92.3	46.5	42.8	105.4	16.2	73.8	65.5	58.5	52.2	47.8	21:36:00	41.3	41.6	35.7	31.1
12		5/19/2021	12:13:20 PM	47.1	86.4	48.9	45.5	105.3	10.1	62.9	56.7	55.3	50.9	48.4	16:48:00	43.5	43.9	38	34
13		5/19/2021	12:13:30 PM	46.0	96.1	49.3	44.1	105.6	19	69.5	67.9	62.2	55.3	50.5	19:12:00	41.2	41.5	37.2	35.6
14		5/19/2021	12:13:40 PM	47.0	91.3	48.6	44.8	105.6	15	77.1	68.7	60.4	53.9	50	16:48:00	42.1	42.9	38.6	36.9
15		5/19/2021	12:13:50 PM	47.2	91.3	49.5	44.3	105.6	11.8	71.5	65	55.2	50.7	47.7	4:48:00	41.6	44.5	38.7	33.8
16		5/19/2021	12:14:00 PM	46.1	90.3	52.3	43.6	105.7	13.7	68.1	63.8	54.4	50.4	47	19:12:00	42.2	41.7	40.2	32.4
17		5/19/2021	12:14:10 PM	43.3	92.2	44.2	42.3	105.6	18	72.7	67.4	58.9	50.2	43.9	12:00:00	38.7	39.6	35.3	31.3
18		5/19/2021	12:14:20 PM	43.6	91.1	45.9	42.5	105.7	14.7	65.9	61.5	54.5	51.3	48.1	4:48:00	39.1	39.8	34.7	30.3
19		5/19/2021	12:14:30 PM	47.3	90.6	48.2	43.0	105.7	14.6	73.2	66.7	59.4	51.9	47.8	4:48:00	43.6	43.9	38.2	32
20		5/19/2021	12:14:40 PM	48.9	90.1	50.1	47.3	105.7	11.1	62.1	60.5	55.7	53	49.5	19:12:00	45.7	45.4	38.8	31.9
21		5/19/2021	12:14:50 PM	47.9	93.2	49.7	46.8	105.9	13.8	72.7	67.2	59.2	52.2	47.6	16:48:00	45.8	44.8	38	32
22		5/19/2021	12:15:00 PM	45.2	90.2	47.8	43.4	105.9	12.7	68.5	62.8	52.6	47.3	48.1	14:24:00	42.7	40.8	35.2	31.1
23		5/19/2021	12:15:10 PM	47.8	100.3	54.5	43.3	106.0	17.2	70.8	71.2	60.7	53.3	50.2	4:48:00	43.7	41.7	39.3	39.2
24		5/19/2021	12:15:20 PM	47.3	101.2	51.8	45.1	105.9	23.9	81.2	77.2	68.8	57	50.9	14:24:00	42.2	42.4	40	35.5
25		5/19/2021	12:15:30 PM	45.6	98.3	47.2	44.7	106.0	20.5	79.9	71.9	63	54.9	49.9	19:12:00	40.7	41.1	37.7	33.5
26		5/19/2021	12:15:40 PM	43.5	93.2	45.6	42.7	106.0	17.8	74.0	65.2	57	50.8	46.9	14:24:00	38.6	39.4	35	32
27		5/19/2021	12:15:50 PM	42.9	90.1	44.9	41.3	106.2	16.8	70.0	62.9	55.3	48.8	46	7:12:00	38.3	37.2	35.1	34.4
28		5/19/2021	12:16:00 PM	42.8	98.1	43.7	41.2	106.1	22.9	77.3	69.9	63.9	53.3	44.7	21:36:00	37.4	37.4	35.5	34
29		5/19/2021	12:16:10 PM	42.4	92.8	43.5	41.8	106.1	21.2	74.5	68.6	60.7	50.6	47.6	0:00:00	38.6	37.1	33.6	32.8
30		5/19/2021	12:16:20 PM	44.1	95.2	45.0	42.4	106.1	19.3	75.2	70	59.7	52.5	51.5	4:48:00	40.7	39.5	34.2	31.3
31		5/19/2021	12:16:30 PM	46.5	89.2	48.7	44.4	106.2	17.1	72.6	68.5	59	55.8	52.1	14:24:00	43.9	41.9	36	31.9
32		5/19/2021	12:16:40 PM	48.7	96.4	49.7	48.1	106.2	20.4	78.3	74.5	66.1	58.3	57.7	16:48:00	45.2	43.9	37.5	32.7
33		5/19/2021	12:16:50 PM	48.2	103.7	49.4	47.0	106.2	25.3	83.9	77.3	70.4	61.8	52.1	19:12:00	45	43.3	38.4	35.5
34		5/19/2021	12:17:00 PM	46.8	105.5	48.5	45.3	106.2	22.1	82.8	76.1	69.7	58	50.8	0:00:00	43.9	42.1	37.3	34.8
35		5/19/2021	12:17:10 PM	44.8	95.5	45.7	44.0	106.2	20.5	79.5	72.5	62.5	52.1	47.3	0:00:00	40.4	40.4	36.6	33.7
36		5/19/2021	12:17:20 PM	44.4	96.6	45.8	43.6	106.2	22.2	77.4	71.1	62.5	52.4	48.4	4:48:00	40	39.7	37.7	32.4
37		5/19/2021	12:17:30 PM	43.9	95.5	45.3	42.5	106.2	17.5	76.7	68	59.1	50.5	47.1	14:24:00	39	40.5	35.5	31.4
38		5/19/2021	12:17:40 PM	44.9	87.2	45.8	44.2	106.3	12.4	63.5	60.8	55	50.1	46.3	21:36:00	40.8	41.7	36.2	31.3
39		5/19/2021	12:17:50 PM	45.3	87.0	46.5	44.0	106.3	16.5	62.4	66.8	58.6	50.3	46.3	12:00:00	41.1	42.2	36.4	30.2
40		5/19/2021	12:18:00 PM	47.0	96.3	48.1	45.4	106.5	18.1	73.6	71.4	61.7	52.9	48.7	21:36:00	43.6	43.8	36.9	34
41		5/19/2021	12:18:10 PM	44.7	91.6	47.4	43.4	106.2	16.9	72.4	66.6	59.5	51.9	48.7	2:24:00	41.8	40.8	35.4	31.1
42		5/19/2021	12:18:20 PM	44.4	92.0	45.8	42.6	106.3	13.2	70.1	62.6	52.8	47.8	48	14:24:00	41.4	40.9	35.2	29.8
43		5/19/2021	12:18:30 PM	46.7	92.6	47.5	45.8	106.2	14.1	64.3	62.9	56.1	49.3	47.5	19:12:00	44.9	42.9	37.4	31.4
44		5/19/2021	12:18:40 PM	47.5	98.2	48.0	46.7	106.5	21.6	77.8	76	65.9	57.1	55.2	19:12:00	43.9	42.2	36.7	35.6
45		5/19/2021	12:18:50 PM	48.7	92.7	51.3	46.9	106.5	13.5	71.7	65.4	57.6	55.9	55.5	7:12:00	46	43.2	39.2	38.8
46		5/19/2021	12:19:00 PM	46.1	95.6	48.3	44.6	106.6	21	77.9	71.5	65.9	55.5	48.9	9:36:00	41.9	40.6	37.9	37.8
47		5/19/2021	12:19:10 PM	46.9	98.7	48.6	44.9	106.7	21	76.7	71.9	65	59	51.5	2:24:00	41.3	40.8	38.1	38.7
48		5/19/2021	12:19:20 PM	47.0	99.0	49.0	45.3	106.5	21.2	78.5	73.6	66.3	58.3	59.7	4:48:00	39.5	38.3	37.4	38.6
49		5/19/2021	12:19:30 PM	47.3	95.9	48.6	45.5	106.7	15.2	71.5	64.1	57.3	56.5	52.8	19:12:00	39.2	38.6	38.5	40.1
50		5/19/2021	12:19:40 PM	49.1	96.4	51.5	46.7	106.7	16.3	73.2	70.1	61.2	54.3	55.5	7:12:00	42.2	42.4	40.8	38.6
51		5/19/2021	12:19:50 PM	50.5	97.9	52.4	46.9	106.7	15.9	77.3	71	63.2	56.4	58.5	0:00:00	44.8	41.8	39.8	38.4
52		5/19/2021	12:20:00 PM	46.8	89.6	48.7	45.6	106.7	11.1	68.8	60.6	52.5	50.2	50.5	0:00:00	42.3	42.2	37.9	37.1
53		5/19/2021	12:20:10 PM	46.4	88.2	48.7	44.0	106.6	12.5	69.3	62.8	54.6	51.8	48.1	21:36:00	41.9	42.5	37.1	38.4
54		5/19/2021	12:20:20 PM	45.0	92.8	46.0	43.4	106.7	13.7	67.8	62.6	53.4	52.6	48.4	2:24:00	41.6	40.4	36.7	33.4
55		5/19/2021	12:20:30 PM	46.4	102.3	47.5	45.3	106.7	22.3	78.8	73.9	65.4	58.9	51.6	19:12:00	41.9	41	38.1	37.5
56		5/19/2021	12:20:40 PM	46.6	89.9	47.7	45.6	106.7	14.8	70.5	66.5	57.5	55.9	52.7	16:48:00	42.3	41.8	38.4	35
57		5/19/2021	12:20:50 PM	47.5	92.9	48.0	46.7	106.8	14.7	66.9	66.2	58.7	54.6	50.8	14:24:00	43.5	43.8	39.1	34.2
58		5/19/2021	12:21:00 PM	47.3	94.5	48.2	46.5	106.8	16.6	72.0	68.5	61.2	53.3	49.8	12:00:00	43.3	43.4	39.1	34.8
59		5/19/2021	12:21:10 PM	48.1	94.4	49.6	46.9	106.7	17.3	75.7	71.5	62.8	55.9	50.2	19:12:00	44.2	43.9	40	34.3
60		5/19/2021	12:21:20 PM	48.3	89.9	53.2	47.1	106.8	11.8	73.0	65.5	58.8	54	52.2	16:48:00	44.3	45	42.4	38.3
61		5/19/2021	12:21:30 PM	45.9	87.6	47.6	44.6	106.7	10.7	64.3	55	56	49.4	47.4	7:12:00	42.8	42.1	37	31.4
62		5/19/2021	12:21:40 PM	45.4	92.9	47.4	44.4	106.9	16	71.8	65.6	58.3	50	47.6	7:12:00	40.9	41.3	36.8	35.5
63		5/19/2021	12:21:50 PM	45.8	93.1	47.1	44.2	106.8	14.7	73.3	64.7	58.5	50.5	47	7:12:00	41.6	42.3	36.8	33.6
64		5/19/2021	12:22:00 PM	44.2	93.2	46.5	42.9	107.0	17.1	71.9	66	59.3	50.7	47.9	14:24:00	39.8	40.3	36.6	30.8
65		5/19/2021	12:22:10 PM	45.8	96.8	47.3	4												

NM3 KWAQN Beltramo Ranch Project, City of Moorpark

Raw Data

Table with 30 columns and 825 rows of numerical data. The columns represent different data points or measurements, and the rows represent individual data entries. The values range from approximately 36.5 to 60.5.

APPENDIX C

RCNM Construction Noise Calculations

Table A
Construction Noise by Phase - Receptor East of the Project Site (NM1)

A	B	C	D	E	F	G	H	I
Equipment Type	# of Equipment	Equipment Lmax at 50 feet, dBA ^{1,2}	Distance to Receptor ³	Equipment Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Noise Level Leq (dBA) at Receptor
Demolition								
Concrete/Industrial Saw	1	89.6	260	20	0.20	-14.3	-7.0	68.3
Rubber Tired Dozers	2	82	260	40	0.80	-14.3	-1.0	66.7
Excavators	3	81	260	40	1.20	-14.3	0.8	67.5
							Log Sum	72.3
Grading								
Excavators	1	81	260	40	0.40	-14.3	-4.0	62.7
Graders	1	85	260	40	0.40	-14.3	-4.0	66.7
Rubber Tired Dozers	1	82	260	40	0.40	-14.3	-4.0	63.7
Tractors/Loaders/Backhoes	3	80	260	25	0.75	-14.3	-1.2	64.4
							Log Sum	70.7
Building Construction								
Cranes	1	81	260	16	0.16	-14.3	-8.0	58.7
Forklifts	3	64	260	50	1.50	-14.3	1.8	51.4
Generator Sets	1	81	260	40	0.40	-14.3	-4.0	62.7
Welders	1	73	260	40	0.40	-14.3	-4.0	54.7
Tractors/Loaders/Backhoes	3	80	260	25	0.75	-14.3	-1.2	64.4
							Log Sum	65.6
Paving								
Pavers	2	77	260	50	1.00	-14.3	0.0	62.7
Paving Equipment	1	77	260	50	0.50	-14.3	-3.0	59.7
Rollers	2	80	260	20	0.40	-14.3	-4.0	61.7
							Log Sum	66.3
Architectural Coating								
Air Compressors	1	78	260	40	0.40	-14.3	-4.0	59.7
							Log Sum	59.7

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018).
- (2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKkoEKUjv5VZM0tw_KO977Em1A
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to the structural façade of the nearest sensitive use.

Table B
Construction Noise by Phase - Receptor South of the Project Site (NM2)

A	B	C	D	E	F	G	H	I
Equipment Type	# of Equipment	Equipment Lmax at 50 feet, dBA ^{1,2}	Distance to Receptor ³	Equipment Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Noise Level Leq (dBA) at Receptor
Demolition								
Concrete/Industrial Saw	1	89.6	200	20	0.20	-12.0	-7.0	70.6
Rubber Tired Dozers	2	82	200	40	0.80	-12.0	-1.0	69.0
Excavators	3	81	200	40	1.20	-12.0	0.8	69.8
							Log Sum	74.6
Grading								
Excavators	1	81	200	40	0.40	-12.0	-4.0	65.0
Graders	1	85	200	40	0.40	-12.0	-4.0	69.0
Rubber Tired Dozers	1	82	200	40	0.40	-12.0	-4.0	66.0
Tractors/Loaders/Backhoes	3	80	200	25	0.75	-12.0	-1.2	66.7
							Log Sum	72.9
Building Construction								
Cranes	1	81	200	16	0.16	-12.0	-8.0	61.0
Forklifts	3	64	200	50	1.50	-12.0	1.8	53.7
Generator Sets	1	81	200	40	0.40	-12.0	-4.0	65.0
Welders	1	73	200	40	0.40	-12.0	-4.0	57.0
Tractors/Loaders/Backhoes	3	80	200	25	0.75	-12.0	-1.2	66.7
							Log Sum	67.9
Paving								
Pavers	2	77	200	50	1.00	-12.0	0.0	65.0
Paving Equipment	1	77	200	50	0.50	-12.0	-3.0	61.9
Rollers	2	80	200	20	0.40	-12.0	-4.0	64.0
							Log Sum	68.6
Architectural Coating								
Air Compressors	1	78	200	40	0.40	-12.0	-4.0	62.0
							Log Sum	62.0

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018).
- (2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKkoEKUjv5VZM0tw_KO977Em1A
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to the structural façade of the nearest sensitive use.

Table C
Construction Noise by Phase - Receptor South of the Project Site (NM3)

A	B	C	D	E	F	G	H	I
Equipment Type	# of Equipment	Equipment Lmax at 50 feet, dBA ^{1,2}	Distance to Receptor ³	Equipment Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Noise Level Leq (dBA) at Receptor
Demolition								
Concrete/Industrial Saw	1	89.6	182	20	0.20	-11.2	-7.0	71.4
Rubber Tired Dozers	2	82	182	40	0.80	-11.2	-1.0	69.8
Excavators	3	81	182	40	1.20	-11.2	0.8	70.6
							Log Sum	75.4
Grading								
Excavators	1	81	182	40	0.40	-11.2	-4.0	65.8
Graders	1	85	182	40	0.40	-11.2	-4.0	69.8
Rubber Tired Dozers	1	82	182	40	0.40	-11.2	-4.0	66.8
Tractors/Loaders/Backhoes	3	80	182	25	0.75	-11.2	-1.2	67.5
							Log Sum	73.8
Building Construction								
Cranes	1	81	182	16	0.16	-11.2	-8.0	61.8
Forklifts	3	64	182	50	1.50	-11.2	1.8	54.5
Generator Sets	1	81	182	40	0.40	-11.2	-4.0	65.8
Welders	1	73	182	40	0.40	-11.2	-4.0	57.8
Tractors/Loaders/Backhoes	3	80	182	25	0.75	-11.2	-1.2	67.5
							Log Sum	68.7
Paving								
Pavers	2	77	182	50	1.00	-11.2	0.0	65.8
Paving Equipment	1	77	182	50	0.50	-11.2	-3.0	62.8
Rollers	2	80	182	20	0.40	-11.2	-4.0	64.8
							Log Sum	69.4
Architectural Coating								
Air Compressors	1	78	182	40	0.40	-11.2	-4.0	62.8
							Log Sum	62.8

Notes:

- (1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018).
- (2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKkoEKUjv5VZM0tw_KO977Em1A
- (3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to the structural façade of the nearest sensitive use.

Table D
Estimated Construction Noise Levels at Sensitive Receptors

Construction Phase	Receptor Location	Existing Ambient Noise Levels (dBA Leq) ¹	Construction Noise Levels at Receptor Locations (dBA Leq) ²
Demolition	East (NM1)	66.9	72.3
	South (NM2)	49.1	74.6
	West (NM3)	48.0	75.4
Grading	East (NM1)	66.9	70.7
	South (NM2)	49.1	72.9
	West (NM3)	48.0	73.8
Building Construction	East (NM1)	66.9	65.6
	South (NM2)	49.1	67.9
	West (NM3)	48.0	68.7
Paving	East (NM1)	66.9	66.3
	South (NM2)	49.1	68.6
	West (NM3)	48.0	69.4
Architectural Coating	East (NM1)	66.9	59.7
	South (NM2)	49.1	62.0
	West (NM3)	48.0	62.8

Notes:

(1) Noise measurement locations are shown in Figure 3.

VdB Calculations

Based on reference equation 7-3 from Transit Noise and Vibration Impact Assessment Manual, Federal Trans

$$Lv(\text{distance}) = Lv(\text{ref}) - 30 * \log(D/25)$$

roller @ 12 feet

Lv 103.56

roller @ 86 feet

Lv 77.90

large bulldozer @ 12 feet

Lv 96.56

large bulldozer @ 50 feet

Lv 77.97

GROUNDBORNE VIBRATION ANALYSIS

Project: Beltramo Ranch Date: 6/18/21
Source: Roller
Scenario: Unmitigated
Location: Project Site
Address: Residential use 12 feet
PPV = $PPV_{ref}(25/D)^n$ (in/sec)

INPUT

Equipment = 1 Vibratory Roller INPUT SECTION IN GREEN
Type
PPVref = 0.21 Reference PPV (in/sec) at 25 ft.
D = 12.00 Distance from Equipment to Receiver (ft)
n = 1.50 Vibration attenuation rate through the ground

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2013, pgs 35-40.

RESULTS

PPV = 0.631 IN/SEC OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project: Beltramo Residential Date: 6/18/21
Source: Bulldozer
Scenario: Unmitigated
Location: Project Site
Address: 15-Jan-00
PPV = $PPV_{ref}(25/D)^n$ (in/sec)

INPUT

Equipment = 2 Large Bulldozer INPUT SECTION IN GREEN
Type
PPVref = 0.089 Reference PPV (in/sec) at 25 ft.
D = 12.00 Distance from Equipment to Receiver (ft)
n = 1.50 Vibration attenuation rate through the ground

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2013, pgs 35-40.

RESULTS

PPV = 0.268 IN/SEC OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project: Beltramo Ranch Date: 6/18/21
Source: Roller
Scenario: Mitigated
Location: Project Site
Address: Residential use 110 feet
PPV = $PPV_{ref}(25/D)^n$ (in/sec)

INPUT

Equipment = 1 Vibratory Roller INPUT SECTION IN GREEN
Type
PPVref = 0.21 Reference PPV (in/sec) at 25 ft.
D = 26.00 Distance from Equipment to Receiver (ft)
n = 1.50 Vibration attenuation rate through the ground

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2013, pgs 35-40.

RESULTS

PPV = 0.198 IN/SEC OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project: Beltramo Residential Date: 6/18/21
Source: Bulldozer
Scenario: Mitigated
Location: Project Site
Address: Residential Use @ 15 feet
PPV = $PPV_{ref}(25/D)^n$ (in/sec)

INPUT

Equipment = 2 Large Bulldozer INPUT SECTION IN GREEN
Type
PPVref = 0.089 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 Vibration Guidance Manual, California Department of Transportation, 2013, pgs 35-40.

RESULTS

PPV = 0.191 IN/SEC OUTPUT IN BLUE

NOISE CONTOUR WORKSHEET

(calculations based on the FHWA-RD-77-108 Highway Noise Prediction Model)

PROJECT INFORMATION

Project: --	W.O. #: --
City/County: --	Date Entered:
Comments: --	Entered By: --

SITE INFORMATION

Planning Area(s): --	Land Use(s): --
Obs. Location: (see below)	Scenario: LOS 'C' Volumes

ROADWAY SEGMENT, VEHICULAR AND OBSERVER CHARACTERISTICS

Roadway: "standard roadway"	Roadway Class: --																									
Segment: --	Right of Way: --																									
ADT: 10,000	Travel Speed: 40 MPH																									
Pad Elev. (opt.): 0.0 feet	Obs. Height: 5.0 feet																									
Roadway Elev.: 0.0 feet	Roadway Grade: 0.1%																									
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%;"></td> <td style="text-align: center;"><u>Autos</u></td> <td style="text-align: center;"><u>Med Trucks</u></td> <td style="text-align: center;"><u>Heavy Trucks</u></td> </tr> <tr> <td>Ext. Mitigation:</td> <td style="text-align: center;">0.00 feet</td> <td style="text-align: center;">2.30 feet</td> <td style="text-align: center;">8.01 feet</td> </tr> <tr> <td colspan="4" style="text-align: center;">(above roadway)</td> </tr> </table>			<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>	Ext. Mitigation:	0.00 feet	2.30 feet	8.01 feet	(above roadway)																
	<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>																							
Ext. Mitigation:	0.00 feet	2.30 feet	8.01 feet																							
(above roadway)																										
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%;"></td> <td style="text-align: center;"><u>Autos</u></td> <td style="text-align: center;"><u>Med Trucks</u></td> <td style="text-align: center;"><u>Heavy Trucks</u></td> </tr> <tr> <td>Exposure:</td> <td style="text-align: center;">90°</td> <td style="text-align: center;">90°</td> <td style="text-align: center;">180°</td> </tr> </table>			<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>	Exposure:	90°	90°	180°																	
	<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>																							
Exposure:	90°	90°	180°																							
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%;"></td> <td style="text-align: center;"><u>Autos</u></td> <td style="text-align: center;"><u>Med Trucks</u></td> <td style="text-align: center;"><u>Heavy Trucks</u></td> </tr> <tr> <td>Hard/Soft Site:</td> <td style="text-align: center;">Hard</td> <td style="text-align: center;">Hard</td> <td style="text-align: center;">Hard</td> </tr> </table>			<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>	Hard/Soft Site:	Hard	Hard	Hard																	
	<u>Autos</u>	<u>Med Trucks</u>	<u>Heavy Trucks</u>																							
Hard/Soft Site:	Hard	Hard	Hard																							
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Veh. Distribution:</td> <td style="width: 5%;"></td> <td style="width: 12.5%;"><u>Daytime</u></td> <td style="width: 12.5%;"><u>Evening</u></td> <td style="width: 12.5%;"><u>Nighttime</u></td> <td style="width: 12.5%;"><u>Daily</u></td> </tr> <tr> <td>Automobiles</td> <td></td> <td style="text-align: center;">77.50%</td> <td style="text-align: center;">12.90%</td> <td style="text-align: center;">9.59%</td> <td style="text-align: center;">97.42%</td> </tr> <tr> <td>Medium Trucks</td> <td></td> <td style="text-align: center;">84.78%</td> <td style="text-align: center;">4.89%</td> <td style="text-align: center;">10.33%</td> <td style="text-align: center;">1.84%</td> </tr> <tr> <td>Heavy Trucks</td> <td></td> <td style="text-align: center;">86.49%</td> <td style="text-align: center;">2.70%</td> <td style="text-align: center;">10.81%</td> <td style="text-align: center;">0.74%</td> </tr> </table>		Veh. Distribution:		<u>Daytime</u>	<u>Evening</u>	<u>Nighttime</u>	<u>Daily</u>	Automobiles		77.50%	12.90%	9.59%	97.42%	Medium Trucks		84.78%	4.89%	10.33%	1.84%	Heavy Trucks		86.49%	2.70%	10.81%	0.74%	Notes: Standard Road at 50 feet from the centerline
Veh. Distribution:		<u>Daytime</u>	<u>Evening</u>	<u>Nighttime</u>	<u>Daily</u>																					
Automobiles		77.50%	12.90%	9.59%	97.42%																					
Medium Trucks		84.78%	4.89%	10.33%	1.84%																					
Heavy Trucks		86.49%	2.70%	10.81%	0.74%																					

CALCULATED CNEL NOISE IMPACTS

Noise impact under various scenarios:

67.7

Exterior Umitigated

Noise is a function of both speed and ADTs. Since speed is assumed constant at 40 mph for this analysis, noise is a function of ADT only, and can be calculated by the following equation:

$$\text{CNEL (dB)} = 67.7 + 10 \times \log (\text{ADT}/10,000)$$

Table E						
Noise Levels 50 feet from Roadway Centerline*						
Road Segments	Existing		Existing Plus Project			Is the Increase Significant ?
	ADT	dB CNEL	ADT	Total	Project-Specific Increase	
Tierra Rejada Road/Gabbart Road						
n/o W. Los Angeles Ave	2,110	60.9	2,110	60.9	0.0	No
s/o W. Los Angeles Ave	7,370	66.4	7,400	66.4	0.0	No
Maureen Lane						
n/o W. Los Angeles Ave	430	54.0	430	54.0	0.0	No
s/o W. Los Angeles Ave	280	52.2	280	52.2	0.0	No
W. Los Angeles Ave						
w/o Tierra Rejada Rd/Gabbart Rd	9,890	67.7	9,910	67.7	0.0	No
e/o Tierra Rejada Rd/Gabbart Rd	11,100	68.2	11,190	68.2	0.0	No
w/o Maureen Ln	10,940	68.1	11,200	68.2	0.1	No
e/o Maureen Ln	13,090	68.9	13,210	68.9	0.0	No
*The uniform distance of 50 feet allows for direct comparisons of potential increases or decreases in noise levels based upon various traffic scenarios; however, at this distance, no specific noise standard necessarily applies						

APPENDIX D

Construction Noise BMPs

APPENDIX D: CONSTRUCTION NOISE BMPS

In addition to adherence to the City of Moorpark Municipal Code which limits the construction hours of operation, the following BMPs are recommended (to the extent feasible) to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
3. Equipment shall be shut off and not left to idle when not in use.
4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
5. The project proponent shall request that the construction contractor prohibit the use of music or sound amplification on the project site during construction.
6. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.
7. Limit the use of heavy equipment or vibratory rollers and soil compressors along the project boundaries to the greatest degree possible. It is acknowledged that some soil compression may be necessary along the project boundaries.
8. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.
9. For the duration of construction activities, the construction manager shall serve as the contact person should noise levels become disruptive to local residents. A sign should be posted at the project site with the contact phone number.