Galaxy Management Medical Village

Noise Study

June 2017 (13517)

Prepared for:

Galaxy Management, Inc.
5067 Walnut Grove Avenue
San Gabriel, California 91776

Prepared by:

MIG
1500 Iowa Avenue, Suite 110
Riverside, California 92507

This document is formatted for double-sided printing to conserve natural resources.

Galaxy Management Medical Village

Noise Study

June 2017

City of Moreno Valley, California

Table of Contents

Tables

Figures

Exhibits

Appendix

1 EXECUTIVE SUMMARY

Construction-related and operational noise impacts were modeled and analyzed for the proposed project located at the southeast corner of Nason Street and Brodiaea Avenue in the city of Moreno Valley, California. This noise impact analysis contains documentation of existing noise levels as well as analysis of the impacts generated by project traffic and analysis of construction noise and vibration impacts. This report analyzes the project's consistency with applicable federal, State, and local regulations. The results of this report find construction-related and operational noise levels are consistent with applicable regulations.

1.1 Project Description

The proposed project is located on approximately 18.14 acres and is currently vacant. The project includes the construction of a medical village consisting of five buildings, on-grade un-covered parking, and associated drive aisles and landscaping. The proposed development will include a 53,000-square foot medical office building, 50,000-square foot wellness center with a 3,000-square foot urgent care attached, 91,800 square feet of assisted living space with a total of 207 beds, and a 70,000-square foot Skilled Nursing Program (SNP) building with a total of 158 beds. Approximately 333,568 square feet of the site area will consist of driveway pavement area, an emergency fire access lane, and parking to accommodate 696 parking spaces. The project will also include approximately 264,675 square feet of landscape and hardscape area. Approximately 25,317 cubic yards of soil will be exported.

1.2 Construction-Related Noise

Temporary noise increases will be greatest during the grading phase of construction. The model indicates that the use of construction equipment such as tractors, dozers, and concrete saws could expose the commercial use located approximately 450 feet to the south of the center of the project site to a combined noise level of 65.9 dBA $L_{max.}$. Construction activity could result in noise levels in excess of the allowable noise levels at all studied receptors. With implementation of Mitigation Measure N-1, described herein, no substantial impacts will occur.

1.3 Operational Noise

The proposed project will not cause traffic noise levels to exceed allowable exterior noise levels. In addition, the proposed project will not result in a perceptible increase in noise levels at studied receptors. Operation of stationary equipment on the rooftops of the project will not exceed allowable exterior noise levels at adjacent residential uses. Operation of the proposed project will include noise sources similar to those occurring under existing conditions. Therefore, no substantial impacts will occur.

1.4 Vibration

Based on the threshold criteria established by the Federal Transit Administration (FTA) and the California Department of Transportation (Caltrans), vibration from use of heavy construction equipment to construct the proposed project would be below the thresholds to cause damage to nearby structures and result in *barely perceptible* vibration at residential uses to the west, south, and east of the project site. Therefore, no impacts related to excessive vibration will occur.

1.5 Airport Noise

The project site is not located within two miles of a public or private use airport. One private-use helipad is located across the Nason Street from the project site. Helipad operations coordinate with nearby airports to ensure conflicts in flight will not occur. Therefore, no substantial impacts will occur.

1.6 Mitigation Measures

The following mitigation measures are required to ensure that project-related short and long-term noise levels are consistent with applicable federal, State, and local regulations.

N-1 The following measures are required to ensure that project-related short-term construction noise levels are reduced to less-than-significant levels.

a) Stationary construction noise sources such as generators or pumps must be located at least 100 feet from sensitive land uses, as feasible, or at maximum distance when necessary to complete work near sensitive land uses, to be verified by submittal of a construction staging plan. Implementation of this measure shall occur throughout construction through periodic monitoring by the Planning Director, or designee during routine inspections.

b) Construction staging areas must be located as far from noise sensitive land uses as feasible, to be verified by submittal of a construction staging plan. Implementation of this measure shall occur throughout construction through periodic monitoring by the Planning Director, or designee during routine inspections.

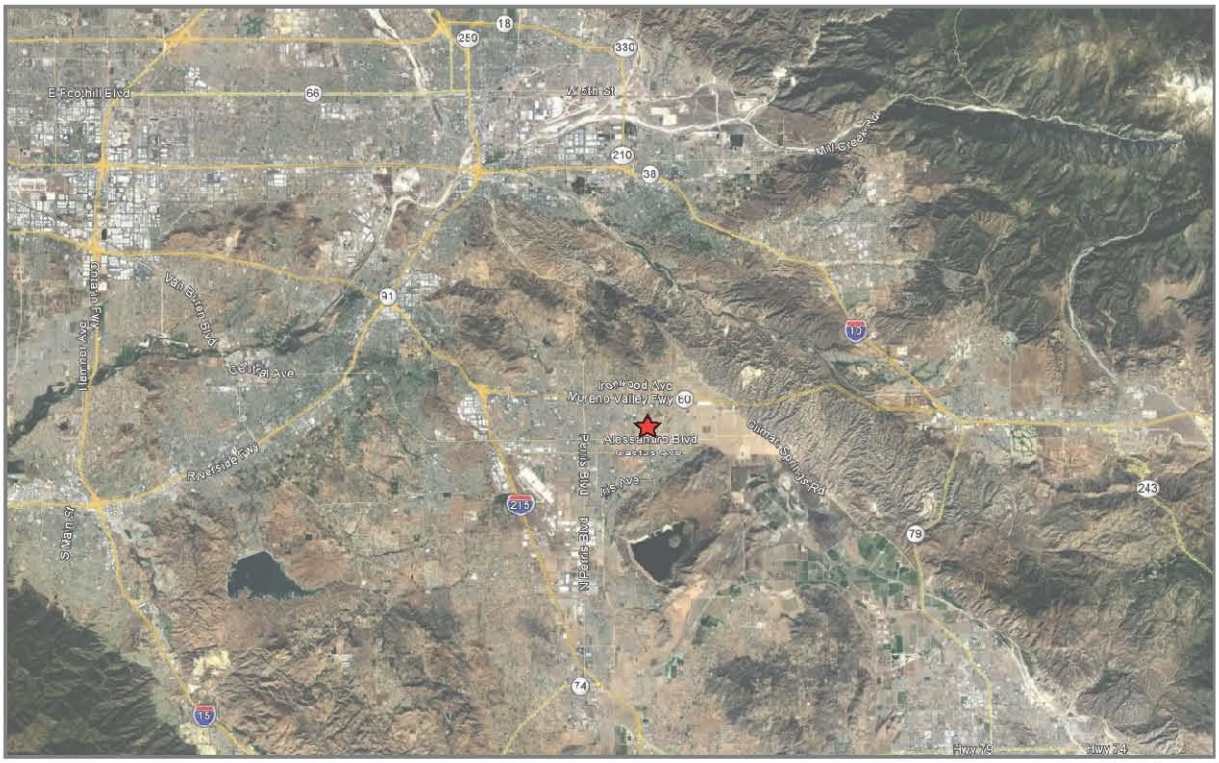
c) Throughout construction, the contractor shall ensure all construction equipment is equipped with included noise attenuating devices and are properly maintained. This mitigation measure shall be periodically monitored by the Planning Director, or designee during routine inspections.

d) Idling equipment must be turned off when not in use. This mitigation measure may be periodically monitored by the Planning Director, or designee during routine inspections.

e) Equipment must be maintained so that vehicles and their loads are secured from rattling and banging. This mitigation measure may be periodically monitored by the Planning Director, or designee during routine inspections.

N-2 Temporary construction noise control barriers shall be installed where residential uses are located adjacent to the project site (south and west). The type and location of the noise control barriers shall be shown on all grading and building plans and subject to approval by the Planning Director, or designee.

N-3 All construction activities shall comply with the City of Moreno Valley Noise Ordinance (Chapter 11.80 of the City of Moreno Valley Municipal Code). This requirement shall be noted on all grading and building plans and in bid documents issued to construction contractors.



Regional

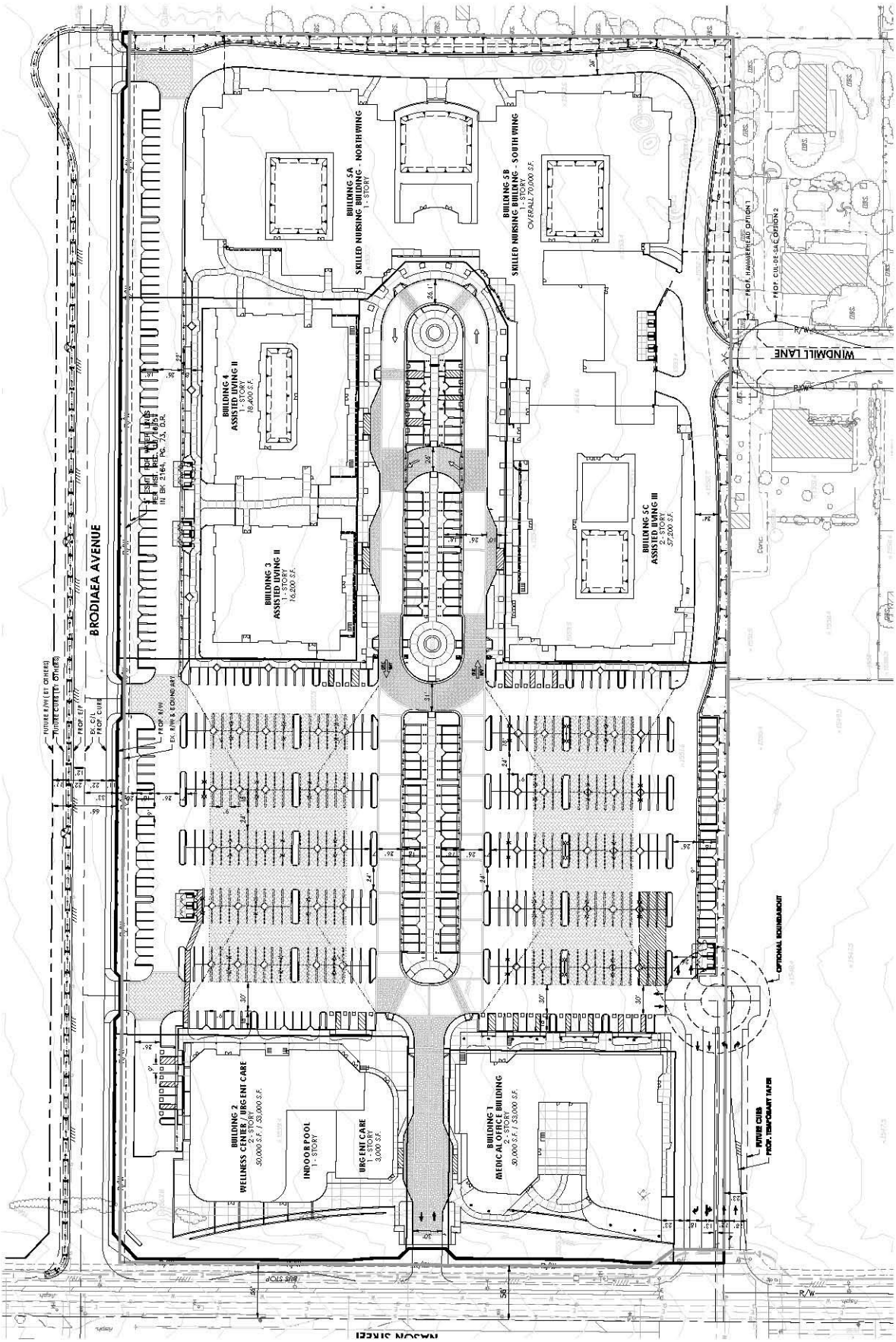
Vicinity

Not to Scale

Exhibit 1 Regional Context and Vicinity Map

Galaxy Management Medical Village
City of Moreno Valley, California

This Page Intentionally Left Blank



not to scale

Exhibit 2 Site Plan

Galaxy Management Medical Village
City of Moreno Valley, California

This Page Intentionally Left Blank

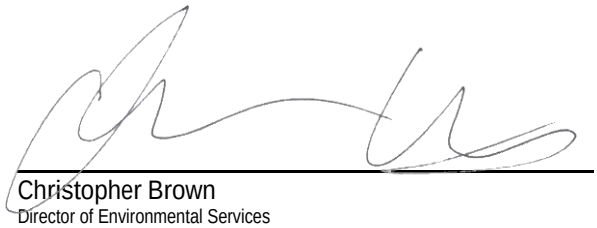
2 INTRODUCTION

This report includes modeling and analysis of construction- and operation-related noise generated from the proposed project on surrounding land uses. Vibration effects and airport noise are also discussed herein. The project includes construction of a medical village consisting of five buildings with associated parking, drive aisles, and landscaping in Moreno Valley, California. The proposed development will include a medical office building, wellness center, urgent care, assisted living facilities, and a Skilled Nursing Program (SNP) building.

This report has been prepared utilizing project-specific characteristics where available. In those instances where project-specific data is not available, the analysis has been supplemented by model defaults or other standardized sources of comparable data. In any case where non-project defaults or other data have been used, a "worst-case" scenario was developed to ensure a conservative estimate of noise impacts.

This report has been prepared for use by the Lead Agency to assess potential project-related noise impacts to the environment in compliance with federal, State, or local guidelines, particularly with respect to the noise issues identified in Appendix G of the State CEQA Guidelines. This report does not make determinations of significance pursuant to CEQA because such determinations are required to be made solely in the purview of the Lead Agency.

This report has been prepared by Christopher Brown (Director of Environmental Services) and Olivia Chan (Associate Analyst) of MIG, Inc. under contract with Galaxy Management, Inc.



Christopher Brown
Director of Environmental Services

Olivia Chan
Associate Analyst

This Page Intentionally Left Blank

3.1 Defining Noise

"Sound" is a vibratory disturbance created by a moving or vibrating source and is capable of being detected. "Noise" is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance and, in the extreme, hearing impairment.

THE PRODUCTION OF SOUND

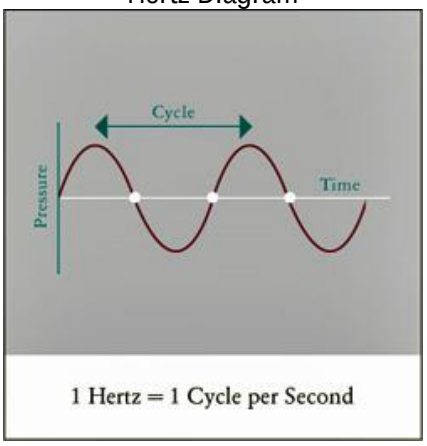
Sound has three properties: amplitude and amplitude variation of the acoustical wave (loudness), frequency (pitch), and duration of the noise. Despite the ability to measure sound, human perceptibility is subjective, and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

MEASURING SOUND

Sound pressure levels are described in logarithmic units of ratios of sound pressures to a reference pressure, squared. These units are called bels. To provide a finer description of sound, a bel is subdivided into 10 decibels, abbreviated dB. Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by three dB. Conversely, halving the traffic volume or speed will reduce the traffic noise level by three dB. A three dB change in sound is the beginning at which humans generally notice a *barely perceptible* change in sound and a five dB change is generally *readily perceptible.*[1]

Sound pressure level alone is not a reliable indicator of loudness. The frequency or pitch of a sound also has a substantial effect on how humans will respond. While the intensity of the sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear. Human hearing is limited not only to the range of audible frequencies but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hertz (Hz) and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity. Hertz is a unit of frequency that defines any periodic event. In the case of sound pressure, a Hertz defines one cycle of a sound wave per second (see Figure 1, Hertz Diagram). To approximate the frequency response of the human ear, a series of sound pressure level adjustments is usually applied to the sound measured by a sound level meter.

Figure 1
Hertz Diagram



STANDARDS FOR NOISE EQUIVALENT

Noise consists of pitch, loudness, and duration; therefore, a variety of methods for measuring noise have been developed. According to the California General Plan Guidelines for Noise Elements, the following are common metrics for measuring noise:[2]

L_{eq} (Equivalent Energy Noise Level): The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over given sample periods. L_{eq} is typically computed over 1-, 8-, and 24-hour sample periods.

CNEL (Community Noise Equivalent Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 PM to 10:00 PM and after addition of ten decibels to sound levels in the night from 10:00 PM to 7:00 AM.

L_{dn} (Day-Night Average Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of ten decibels to sound levels in the night after 10:00 PM and before 7:00 AM.

CNEL and L_{dn} are utilized for describing ambient noise levels because they account for all noise sources over an extended period of time and account for the heightened sensitivity of people to noise during the night. L_{eq} is better utilized for describing specific and consistent sources because of the shorter reference period.

Federal and State agencies have established noise and land use compatibility guidelines that use averaging approaches to noise measurement. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the community noise equivalent level (CNEL).

3.2 Vibration and Groundborne Noise

Vibration is the movement of mass over time. It is described in terms of frequency and amplitude and unlike sound; there is no standard way of measuring and reporting amplitude. Vibration can be described in units of velocity (inches per second) or discussed in decibel (dB) units in order to compress the range of numbers required to describe vibration. Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV) that describes particle movement over time (in terms of physical displacement of mass). For purposes of this analysis, PPV will be used to describe all vibration for ease of reading and comparison. Vibration can impact people, structures, and sensitive equipment.[3] The primary concern related to vibration and people is the potential to annoy those working and residing in the area. Vibration with high enough amplitudes can damage structures (such as crack plaster or destroy windows). Groundborne vibration can also disrupt the use of sensitive medical and scientific instruments such as electron microscopes. Common sources of vibration within communities include construction activities and railroads.

Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used.

4.1 Sensitive Receptors

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, and residential uses make up the majority of these areas. Specific sensitive receptors within one-quarter mile of the project site include the Riverside County Regional Medical Center to the west and residential uses to the west, south, and east of the project site.

4.2 Existing Noise Levels

Short-term noise measurements at the project site were conducted to identify the ambient noise in the project vicinity. An American National Standards Institute (ANSI Section SI4 1979, Type 1) Larson Davis model LxT sound level meter was used to monitor existing ambient noise levels in the project area. The noise meter was programmed in "slow" mode to record noise levels in A-weighted form. The microphone height was set at five feet. Two ten-minute daytime noise measurement was taken between 12:9 on Tuesday February 28, 2017.

Ambient noise levels are a composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location. The measurement locations are shown in Exhibit 3 (Noise Measurement Location). The ambient noise level is presented in Table 1 (Ambient Noise Levels) and measurement output data is included as Appendix A. Vehicular traffic along Nason Street is the dominant noise source at Measurement Location #1.

Table 1
Ambient Noise Levels

Location	Time Period	Measurement Period	Description	Existing Ambient Noise Levels (dBA Leq)
1	9:18 AM – 9:28 AM	10 minutes	Southwest corner of Nason Street and Brodiaea Avenue	68.3
2	9:33 AM – 9:43 AM	10 minutes	Northern terminus of Windmill Lane	44.9

This Page Intentionally Left Blank

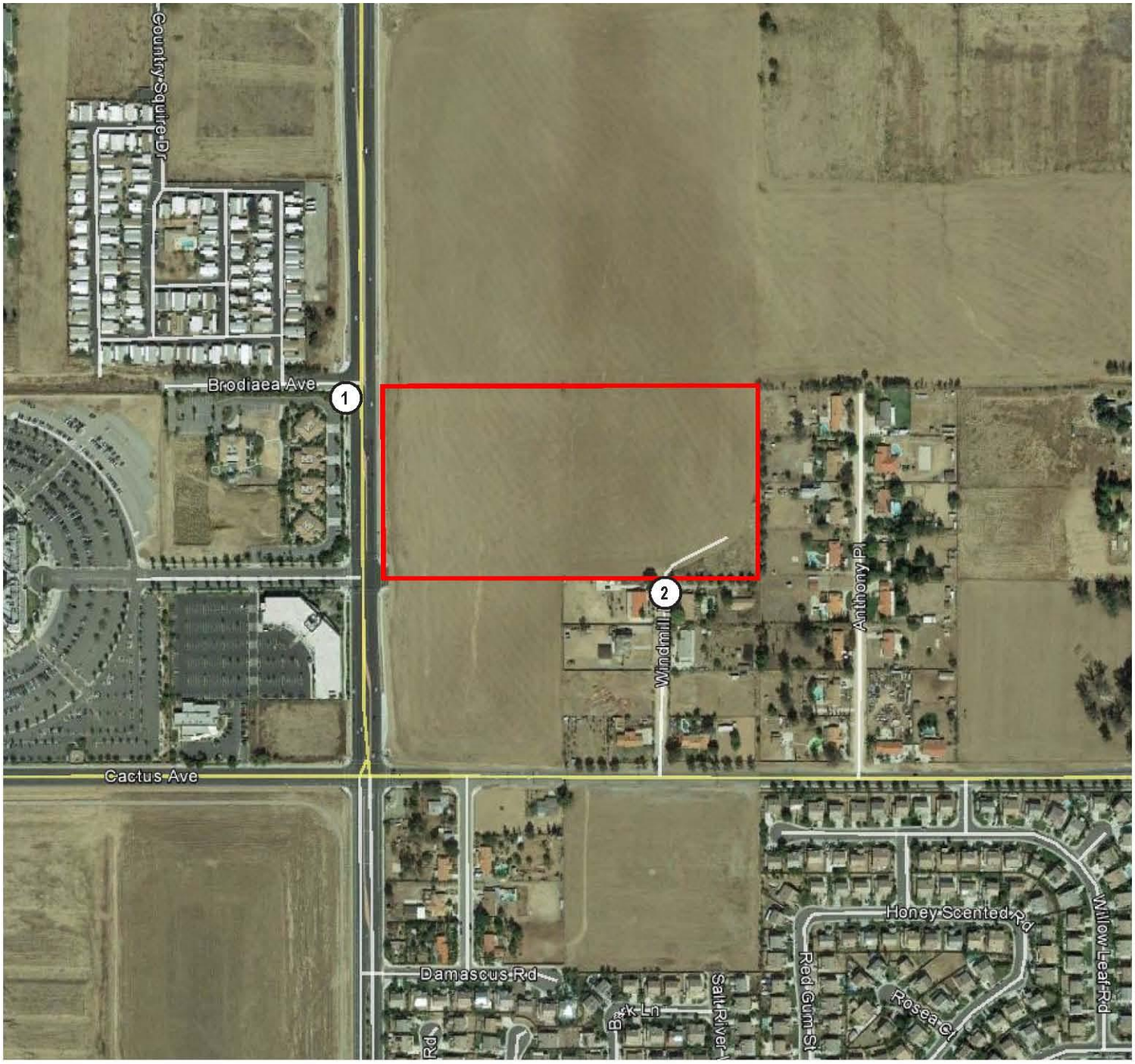


Exhibit 3 Noise Measurement Locations

Galaxy Management Medical Village
City of Moreno Valley, California

This Page Intentionally Left Blank

5.1 Federal Regulations

FEDERAL NOISE CONTROL ACT OF 1972

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

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

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

FEDERAL TRANSIT ADMINISTRATION

The Federal Transit Administration (FTA) has developed methodology and significance criteria to evaluate incremental noise impacts from surface transportation modes (i.e., on road motor vehicles and trains) as presented in Transit Noise Impact and Vibration Assessment (FTA Guidelines). These incremental noise impact criteria are based on EPA findings and subsequent studies of annoyance in communities affected by transportation noise. The FTA extended the EPA's five dBA incremental impact criterion to higher ambient levels. As baseline ambient levels increase, smaller and smaller increments are allowed to limit expected increases in community annoyance. For example, in residential areas with a baseline ambient noise level of 50 dBA CNEL, a less-than-five dBA increase in noise levels would produce a minimal increase in community annoyance levels, while at 70 dBA CNEL, only one dBA increase could be accommodated before a significant annoyance increase would occur.

VIBRATION STANDARDS

The FTA provides guidelines for maximum-acceptable vibration criteria for different types of land uses. Groundborne vibration and noise levels associated with various types of construction equipment and activities are summarized in Table 2 (Reference Vibration Source Amplitudes for Construction Equipment). Table 3 (Groundborne Vibration and Noise Impact Criteria) shows the Federal Transit Administration's maximum acceptable vibration standard for human annoyance in residences where people normally sleep is 80 VdB (less than 70 vibration events per day).

Table 2
Reference Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft (in/sec) at 25 Feet	Approximate Vibration Level (VL) at 25 Feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 (upper range)	105
	0.170 (typical)	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
Slurry wall	0.017 in rock	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

Notes: PPV is the peak particle velocity. Pile driver amplitude varies greatly based on equipment type and size.
Source: Federal Transit Administration. Transit Noise and Vibration Impact Assessment. 2006.

Table 3
Groundborne Vibration and Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB)		Groundborne Noise Impact Levels (dBA)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior vibrations	65 VdB[3]	65 VdB[3]	N/A	N/A
Category 2: Residences and buildings where people normally sleep	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	83 VdB	40 dBA	48 dBA

[1] *Frequent Events – more than 70 vibration events per day*
[2] *Infrequent Events – fewer than 70 vibration events per day*
[3] *This criterion limit is based on levels that are acceptable for more moderately sensitive equipment such as optical microscopes.*
Source: United States Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Assessment, 1995

The FTA and Caltrans have compiled the data from numerous studies related to vibration and have developed standards for human perception and building damage. The FTA's maximum acceptable vibration standard for human annoyance is 78 VdB at nearby vibration-sensitive land uses.[4] The Caltrans maximum vibration level standard is 0.2 in/sec PPV for the prevention of structural damage to typical residential buildings.[5]

5.2 State Regulations

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

CEQA requires lead agencies to consider noise impacts. Under CEQA, lead agencies are directed to assess conformance to locally established noise standards or other agencies' noise standards; measure and identify the potentially significant exposure of people to or generation of excessive noise levels; measure and identify potentially significant permanent or temporary increase in ambient noise levels; and measure and identify potentially significant impacts associated with air traffic.

CALIFORNIA NOISE CONTROL ACT OF 1973

Sections 46000-46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, find that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

CALIFORNIA NOISE INSULATION STANDARDS (CCR TITLE 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or L_{dn}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of 45 dBA or below [California's Title 24 Noise Standards, Chap. 2-35].

STATE OF CALIFORNIA GENERAL PLAN GUIDELINES 2003

Though not adopted by law, the State of California General Plan Guidelines 2003, 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 development 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., L_{dn} or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses.

The OPR Guidelines include a Noise and Land Use Compatibility Matrix which identifies acceptable and unacceptable community noise exposure limits for various land use categories. Where the "normally acceptable" range is used, it is defined as the highest noise level that should be considered for the construction of the buildings which do not incorporate any special acoustical treatment or noise mitigation. The "conditionally acceptable" or "normally acceptable" ranges include conditions calling for detailed acoustical study or construction mitigation to reduce interior exposure levels prior to the construction or operation of the building under the listed exposure levels.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

According to the Caltrans vibration manual, large bulldozers, vibratory rollers (used to compact earth), and loaded trucks utilized during grading activities can produce vibration, and depending on the level of vibration, could cause annoyance at uses within the project vicinity or damage structures. Caltrans has developed a screening tool to determine of vibration from construction equipment is substantial enough to impact surrounding uses.

The Caltrans vibration manual establishes thresholds for vibration impacts on buildings and humans. These thresholds are summarized in Tables 4 (Vibration Damage Potential Threshold Criteria) and 5 (Vibration Annoyance Potential Threshold Criteria).

Table 4
Vibration Damage Potential Threshold Criteria

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Historic and some older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans 2013		

Table 5
Vibration Annoyance Potential Threshold Criteria

Human Response	PPV Threshold (in/sec)	
	Transient	Continuous
Barely perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severely perceptible	2.00	0.40
Source: Caltrans 2013		

5.3 Local Regulations

CITY OF MORENO VALLEY MUNICIPAL CODE

Noise Standards

Pursuant to Section 11.80.030 of the Moreno Valley Municipal Code, no person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits below during daytime hours (between the hours of 8:00 AM and 10:00 PM):

- Residential – 60 dBA
- Commercial – 65 dBA

Construction Noise Levels

Pursuant to Section 11.80.030(D)(7), construction work conducted between the hours of 8:00 PM and 7:00 AM is prohibited.

The thresholds identified in Appendix G of the State CEQA Guidelines, as implemented by the City of Moreno Valley, have been utilized to assess the significance of the potential environmental effects of the project.

6.1 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project could result in potentially significant impacts related to noise if it results in:

A. Exposure of persons or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
B. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
C. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
D. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
E. For a project located within 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, exposure of people residing or working in the project area to excessive noise levels.
F. For a project within a vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

To assess construction impacts, a worst-case construction scenario was modeled using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). Modeling parameters and output are provided in Appendix B. RCNM utilizes standard noise emission levels for different types of equipment and includes utilization percentage, impact, and shielding parameters.

To assess Buildout Year and Year 2022 traffic noise levels, vehicle trips associated with surrounding roadways were modeled utilizing the Federal Highway Administration (FHWA) Traffic noise Model (TNM) Version 2.5. Traffic noise levels identified represent conservative potential noise exposure. In reality, noise levels may vary from those represented as the calculations do not assume natural or artificial shielding nor do they assume reflection from existing or proposed structures or topography. Intervening structures or other noise-attenuating obstacles between a roadway and a receptor may reduce roadway noise levels at the receptor.

To assess impacts associated with on-site stationary noise sources, SoundPLAN software was utilized. SoundPLAN is a three-dimensional noise modeling software that accounts for the shielding and reflective effects associated with intervening topography and nearby buildings.

6.2 Consistency with Applicable Standards

CONSTRUCTION NOISE LEVELS

Construction noise levels were estimated for nearby receptors using the FHWA Roadway Construction Noise Model (RCNM). See Exhibit 4 (Receptors) for receptor locations. Temporary noise increases will be greatest at the residential use to the south of the project site. The model indicates that the use of construction equipment such as tractors, dozers, and concrete saws could expose the residential uses located approximately 61 feet to the south of the center of the project site to a combined noise level of 65.9 dBA L_{max}. Table 6 (Construction Noise Impacts) below summarizes the maximum noise levels at each of the studied receivers. Pursuant to the Moreno Valley Municipal Code, a noise level of 60 dBA is allowable for residential uses. Construction activity could result in noise levels in excess of the allowable noise levels at all studied receptors. Therefore, Mitigation Measures N-1 through N-3 have been incorporated to reduce the impact to neighboring uses during construction.

Table 6
Construction Noise Impacts

Receptor	Grading	Building Construction	Paving	Architectural Coating
1 – Residential (W)	60.9	60.9	60.9	53.6
2 – Residential (S)	65.9	65.9	65.9	58.6
3 – Residential (E)	60.4	60.4	60.4	53.1

Mitigation Measure N-1 requires implementation of engineered controls on construction equipment to reduce temporary noise impacts by a minimum of 5.9 dBA which is a feasible performance standard based on available technology. Engineered controls include retrofitting equipment with improved exhaust and intake muffling, disengaging equipment fans, and installation of sound panels around equipment engines. These types of controls can achieve noise level reductions of approximately 10 dBA.[6] [7] Implementation of Mitigation Measure N-1 will reduce temporary noise impacts by a minimum of 5.9 dBA, resulting in maximum construction noise within allowable levels of 60 dBA for neighboring residential uses. In order to minimize the impact of construction noise on adjacent residential uses, Mitigation Measure N-2, requiring installation of temporary construction noise barriers where residential uses are adjacent to the project site. Further, Mitigation Measure N-3 requires that all construction activities comply with the City of Moreno Valley Noise Ordinance. Therefore, with implementation of Mitigation Measures N-1 through N-3, construction noise will feasibly be reduced to unsubstantial levels.

TRAFFIC NOISE LEVELS

The City of Moreno Valley Municipal Code sets an allowable exterior noise level for residential uses at 60 dBA and 65 dBA for commercial uses. Ambient noise at the project site would generally be defined by traffic on Nason Street. Traffic noise from vehicular traffic generated was provided by the project traffic study prepared by Kunzman Associates.

A substantial increase in ambient noise is an increase that is *barely perceptible* (3 dBA). Operationally, the proposed project will result in periodic landscaping and other occasional noise generating activities such as bus loading and unloading. These activities are common in commercial uses and do not represent a substantial increase in periodic noise in consideration that the project site is located in a commercial, mixed use area.

The Buildout Year 2022 Without Project and With Project noise levels along area roadway segments at 50 feet from the roadway centerline were calculated using TNM Version 2.5 (see Appendix C for output data). Buildout Year 2022 Without and With Project traffic noise levels at 50 feet from the roadway centerline area summarized in Table 7 (Buildout Year 2022 Roadway Noise Levels).

Buildout Year Without and Plus Projected traffic noise levels exceed allowable exterior noise levels at all residential and commercial receptors except for residential uses along Brodiaea Avenue west of Nason Street. The proposed project does not cause the exterior noise levels to exceed the allowable thresholds for receptors that are currently below the allowable noise levels. Therefore, no substantial impacts will result. In addition, increases in traffic due to the proposed project will not result in a perceptible noise increase at any of the studied roadway segments. No substantial impacts will occur.

Table 7
Buildout Year 2022 Roadway Noise Levels

Roadway	Segment	Affected Land Use	2022 Noise Level at 50 Feet from Centerline (CNEL)		Difference	Significant?
			Without Project	Plus Project		
Nason St	North of SR-60 WB Ramps	R	68.9	69.1	0.2	No
	Between SR-60 WB & EB Ramps	R	73.5	73.8	0.3	No
	Between SR-60 EB Ramps & Fir Ave	C/R	73.6	74.1	0.5	No
	Between Fir Ave & Eucalyptus Ave	R	74.1	74.5	0.4	No
	South of Eucalyptus Ave	R/S	74.9	75.3	0.4	No
	North of Cottonwood Ave	R	74.5	75.0	0.5	No
	Between Cottonwood Ave & Alessandro Blvd	R	73.9	74.5	0.6	No
	Between Alessandro Blvd & Brodiaea Ave	R	73.6	74.4	0.8	No
	Between Brodiaea Ave & Hospital Rd	R/M	73.6	74.1	0.5	No
	Between Hospital Rd & Cactus Ave	M	72.8	73.1	0.3	No
	South of Cactus Ave	R	71.8	72.0	0.2	No
Fir Ave	West of Nason St	R	69.5	69.7	0.2	No
Eucalyptus Ave	West of Nason St	R	70.0	70.1	0.1	No
	East of Nason St	R	71.7	71.8	0.1	No
Cottonwood Ave	West of Nason St	R	67.7	68.0	0.3	No
Alessandro Blvd	West of Nason St	R	72.3	72.5	0.2	No
Brodiaea Ave	West of Nason St	R	55.5	55.5	0.0	No
Cactus Ave	West of Nason St	M	72.3	72.4	0.1	No
	East of Nason St	R	70.9	71.0	0.1	No

Affected Land Use: R – Residential; C – Commercial; M - Medical

ON-SITE STATIONARY NOISE SOURCES

Residential uses are located adjacent to the project site to the south and east. The proposed Building 5, as shown on Exhibit 2 (Site Plan), will be located in close proximity to these residential uses. Operation of Building 5 will require the use of mechanical equipment such as a heating, ventilation, and air condition (HVAC) system.

In order to assess impacts related to operation of stationary noise sources (HVAC) associated with the proposed project, worst-case noise levels were modeled utilizing SoundPLAN software. SoundPLAN is a three-dimensional noise modeling software that accounts for the shielding and reflective effects associated with intervening topography and nearby buildings.

HVAC units will be placed on the rooftop of the buildings. Pursuant to Moreno Valley Municipal Code Section 9.16.120(A)(16), all roof-mounted equipment is required to be concealed from public view. Therefore, all HVAC equipment will be screened with architectural screening elements that will match the building. See Exhibit 5 (Building 5 Roof Plan) for locations of HVAC units and screening barriers. The building will have variations in height to provide visual interest. However, the roofline for Building 5 A & B will be at 13.5 feet and Building 5C will be at 27 feet in height. A two-foot high parapet, which is a wall along the edge of the roof, will enclose the rooftop area. Each HVAC unit will be surrounded and screened by a five-foot barrier.

Based on SoundPLAN default maximum noise levels for the roof-mounted HVAC units and with consideration of building parapets and screening materials, noise levels could reach up to 22.7 dBA Ldn at the eastern property line and 22.4 dBA

Ldn at the southern property line. Operation of roof-mounted HVAC units will not exceed allowable exterior noise level of 60 dBA for residential uses. Therefore, no substantial impacts will result.

PERIODIC OPERATIONAL NOISE

Operationally, the proposed project would result in periodic outdoor noise associated with landscaping activities and people talking in the parking area and the outside of the buildings. Noise associated with landscaping and conversations are typical of commercial and residential developments and the project would therefore not create new sources of such noise. The proposed project would also result in periodic noise with pickup of solid waste and recycling. The proposed project would store solid waste in trash enclosures along the northern and southern portions of the project site. As with other commercial and residential land uses in the project vicinity, refuse vehicles are expected to visit the site on a weekly basis. This noise would be similar to noise generated within the project vicinity as regular trash pickup already occurs. Therefore, the project will not introduce any sources of noise that are not currently occurring. Additionally, the eastern and southern boundaries of the project site will be bound by a proposed six-foot high block wall, which will minimize operational noise impacts associated with landscaping, conversations, and trash pickup to adjacent residential uses. No substantial impacts will result.

6.3 Vibration Impacts

CONSTRUCTION VIBRATION

Construction activities that use vibratory rollers and bulldozers are repetitive sources of vibration; therefore, the *continuous* threshold is used. Residential uses are located to the west, south, and east of the project site. As a worst case scenario, the *historic and some older buildings* threshold is used. Based on the threshold criteria summarized in Tables 4 and 5, vibration from use of heavy construction equipment for the proposed project would be below the thresholds to cause damage to nearby structures at the receptors shown in Table 8 (Construction Vibration Impacts).

Construction of the project does not require rock blasting, pile driving, or the use of a jack hammer, but will use a vibratory roller, and small bulldozer, and loaded trucks. All of the receptors will experience *barely perceptible* vibration from the use of a small bulldozer, vibratory roller, and loaded truck. Construction of the proposed project will not result in strongly perceptible vibration and will therefore not expose neighboring receptors to excessive vibration.

With regard to long-term operational impacts, activities associated with the project will not result in any excessive vibration-related impacts to adjacent or on-site properties.

Table 8
Construction Vibration Impacts

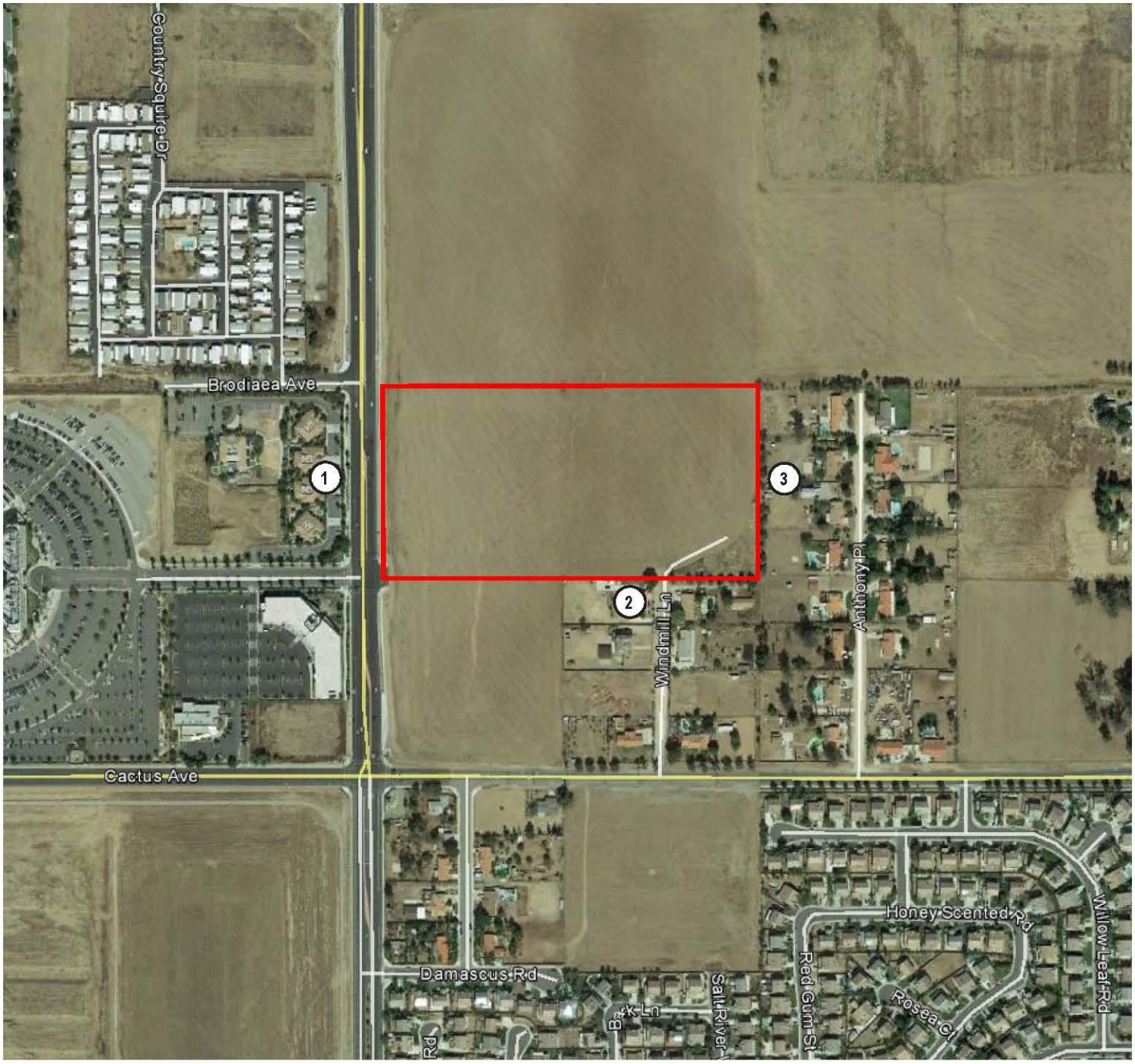
Receptors	Equipment	PPVref	Distance (feet)	PPV
1 – Residential (W)	Vibratory Roller	0.21	800	0.0023
2 – Residential (S)	Vibratory Roller	0.21	450	0.0049
3 – Residential (E)	Vibratory Roller	0.21	850	0.0021
1 – Residential (W)	Small Bulldozer	0.003	800	0.0010
2 – Residential (S)	Small Bulldozer	0.003	450	0.0021
3 – Residential (E)	Small Bulldozer	0.003	850	0.0009
1 – Residential (W)	Loaded Truck	0.076	800	0.0008
2 – Residential (S)	Loaded Truck	0.076	450	0.0018
3 – Residential (E)	Loaded Truck	0.076	850	0.0008

6.4 Airport Noise

The project site is not located within two miles of a public or private use airport. A heliport is located at the Riverside County Regional Medical Center located at the northwest corner of Cactus Avenue and Nason Street, across Nason

Street from the project site.[8] [9] The heliport is for private use only and require permission prior to use. Helipad operations coordinate with nearby March Air Reserve Base, Redlands Municipal Airport, San Bernardino International Airport, Flabob Airport, Riversides Municipal Airport, and Hemet-Ryan Airport to ensure that helipad operation does not conflict with aircraft operations. Therefore, no substantial impacts will occur.

This Page Intentionally Left Blank



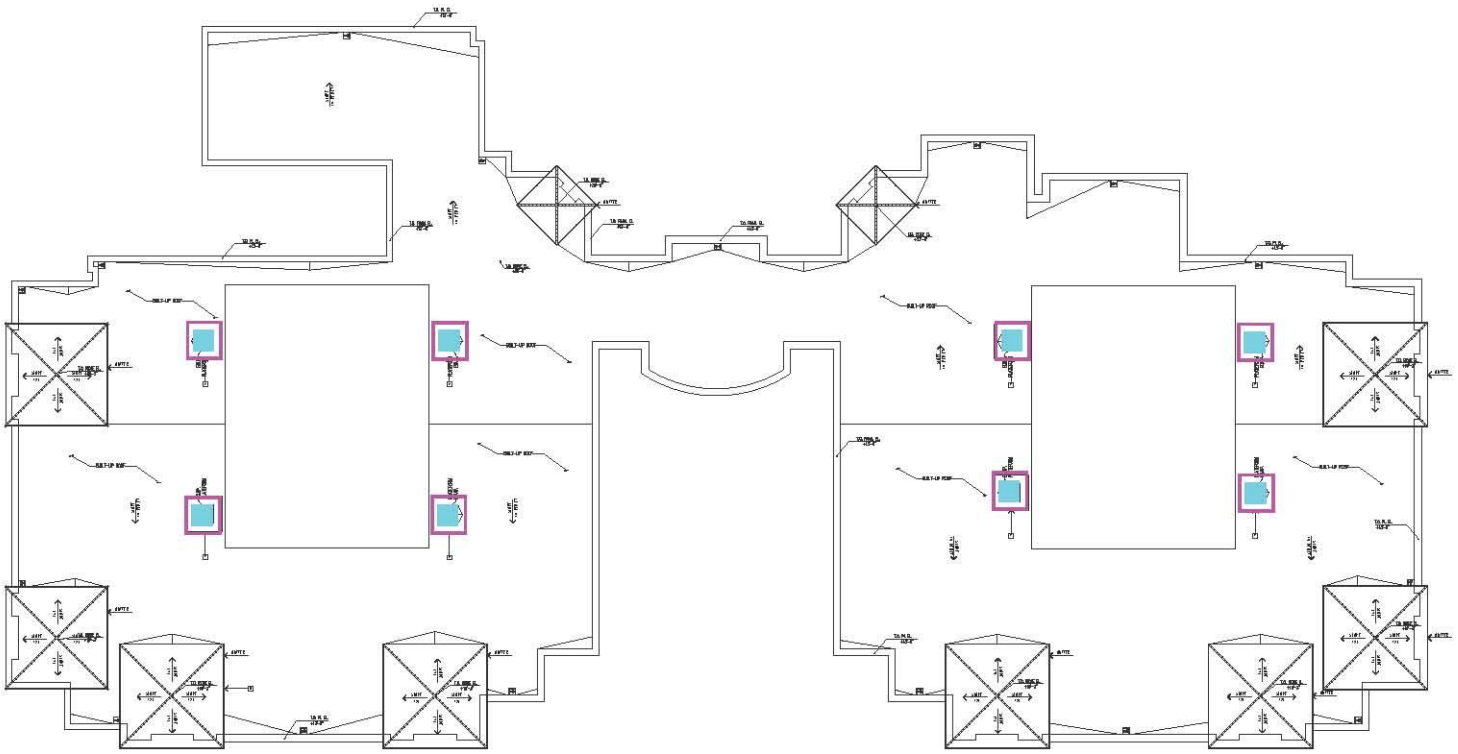
MIG

Exhibit 4 Receptors

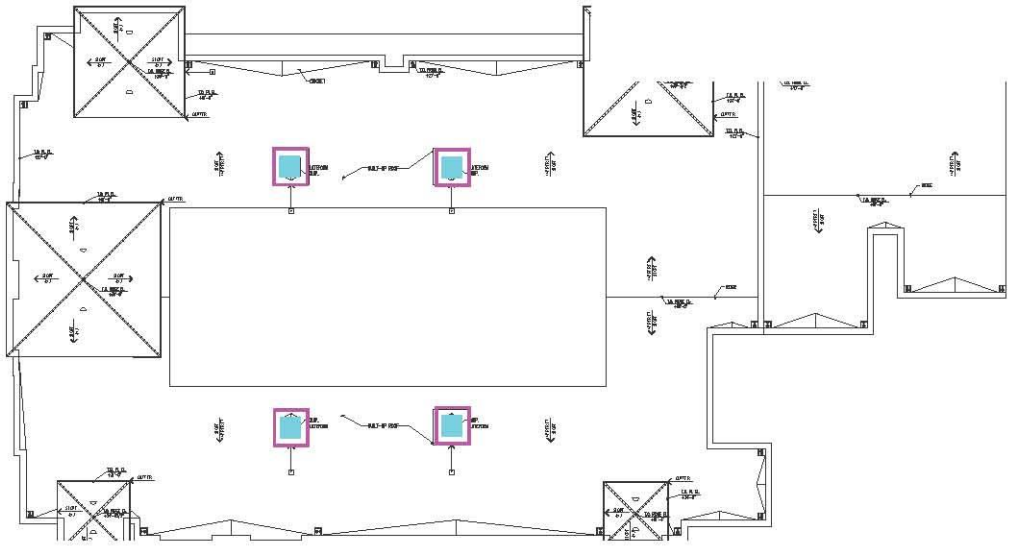
Galaxy Management Medical Village

City of Moreno Valley, California

This Page Intentionally Left Blank



Building 5 A & B



HVAC Unit Location

HVAC Screening

Building 5 C

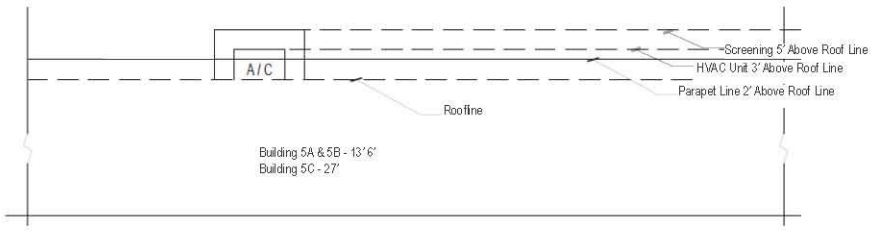


Exhibit 5 Building 5 Roof Plan

Galaxy Management Medical Village

City of Moreno Valley, California

This Page Intentionally Left Blank

7 MITIGATION MEASURES

The following mitigation measures are required to ensure that project-related noise levels will not exceed established thresholds.

N-1 The following measures are required to ensure that project-related short-term construction noise levels are reduced to less-than-significant levels.

a) Stationary construction noise sources such as generators or pumps must be located at least 100 feet from sensitive land uses, as feasible, or at maximum distance when necessary to complete work near sensitive land uses, to be verified by submittal of a construction staging plan. Implementation of this measure shall occur throughout construction through periodic monitoring by the Planning Director, or designee during routine inspections.

b) Construction staging areas must be located as far from noise sensitive land uses as feasible, to be verified by submittal of a construction staging plan. Implementation of this measure shall occur throughout construction through periodic monitoring by the Planning Director, or designee during routine inspections.

c) Throughout construction, the contractor shall ensure all construction equipment is equipped with included noise attenuating devices and are properly maintained. This mitigation measure shall be periodically monitored by the Planning Director, or designee during routine inspections.

d) Idling equipment must be turned off when not in use. This mitigation measure may be periodically monitored by the Planning Director, or designee during routine inspections.

e) Equipment must be maintained so that vehicles and their loads are secured from rattling and banging. This mitigation measure may be periodically monitored by the Planning Director, or designee during routine inspections.

N-2 Temporary construction noise control barriers shall be installed where residential uses are located adjacent to the project site (south and west). The type and location of the noise control barriers shall be shown on all grading and building plans and subject to approval by the Planning Director, or designee.

N-3 All construction activities shall comply with the City of Moreno Valley Noise Ordinance (Chapter 11.80 of the City of Moreno Valley Municipal Code). This requirement shall be noted on all grading and building plans and in bid documents issued to construction contractors.

This Page Intentionally Left Blank

8 REFERENCES

1 California Department of Transportation. Basics of Highway Noise: Technical Noise Supplement. November 2009.

2 California Governor's Office of Planning and Research. General Plan Guidelines. 2003

3 California Department of Transportation. Transportation- and Construction-Induced Vibration Guidance Manual. June 2004

4 Federal Transit Administration. *Transit Noise and Vibration Impact Assessment.* 2006

5 California Department of Transportation. *Transportation and Construction Vibration Guidance Manual. Division of Environmental Analysis. September 2013*

6 United States Bureau of Mines. Mining Machinery Noise Control Guidelines. 1983

7 United States Bureau of Mines. Noise Abatement Techniques for Construction Equipment. August 1979

8 Federal Aviation Administration. Airport Data and Contact Information. http://www.faa.gov/airports/airport_safety/airportdata_5010/ [February 2017]

9 AirNav, LLC. Airport Information. http://www.airnav.com [February 2017]

This Page Intentionally Left Blank

This Page Intentionally Left Blank

General Information

Serial Number	03790
Model	SoundExpert™ LxT
Firmware Version	2.206
Filename	LxT_Data.113
User	MIG
Job Description	13517
Location	Moreno Valley
Measurement Description	
Start Time	Tuesday, 28 February 2017 09:18:57
Stop Time	Tuesday, 28 February 2017 09:28:57
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	Wednesday, 21 December 2016 07:07:41
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LASeq		68.3	dB
LASmax	28 Feb 2017 09:23:11	79.3	dB
LApeak (max)	28 Feb 2017 09:18:59	104.5	dB
LASmin	28 Feb 2017 09:19:21	42.1	dB
LCSeq		75.4	dB
LASeq		68.3	dB
LCSeq - LASeq		7.1	dB
LAIeq		70.5	dB
LAeq		68.3	dB
LAIeq - LAeq		2.2	dB
Ldn		68.3	dB
LDay 07:00-22:00		68.3	dB
LNight 22:00-07:00		---	dB
Lden		68.3	dB
LDay 07:00-19:00		68.3	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LASE		96.1	dB
# Overloads		1	
Overload Duration		2.0	s
# OBA Overloads		11	
OBA Overload Duration		45.1	s

Statistics

LAS1.00	77.9	dBA
LAS10.00	73.2	dBA
LAS25.00	68.5	dBA
LAS50.00	61.8	dBA
LAS66.60	58.8	dBA
LAS90.00	50.8	dBA
LAS > 70.0 dB (Exceedence Counts / Duration)	21 / 145.5	s
LAS > 100.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRMLxT1L	
Microphone Correction	Off	
Integration Method	Exponential	
OBA Range	Low	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	A Weighting	
OBA Max Spectrum	At Lmax	
Under Range Limit	25.0	dB
Under Range Peak	78.0	dB
Noise Floor	14.9	dB
Overload	121.8	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LASeq	6.3	7.9	25.6	41.1	52.2	56.0	59.2	65.0	62.7	52.2	41.1	26.0
LASmax	6.3	15.4	35.8	47.0	63.2	63.1	70.8	76.1	74.1	64.2	55.1	42.0
LASmin	6.3	4.3	14.4	25.6	32.5	32.2	33.5	35.3	31.0	24.0	13.0	5.2

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LASeq	2.1	1.6	0.9	1.0	2.0	6.3	11.8	18.4	24.4	30.0	35.1	39.6
LASmax	2.1	1.6	0.8	2.1	9.4	14.5	21.0	31.9	34.4	38.6	44.4	43.8
LASmin	2.1	1.6	0.8	0.3	-0.6	-1.4	2.4	7.2	12.4	17.0	20.3	22.6

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LASeq	44.1	48.2	48.7	48.3	50.6	53.3	52.5	53.7	56.4	59.3	60.6	60.7
LASmax	62.4	54.2	53.4	56.3	56.4	60.8	62.3	68.3	66.9	69.7	71.6	72.4
LASmin	25.3	26.1	26.9	24.7	28.4	26.2	28.5	27.4	28.3	28.9	31.0	30.5

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LASeq	60.0	57.8	54.2	50.2	46.4	42.4	39.2	35.3	30.4	24.7	18.3	9.9
LASmax	71.8	68.8	65.4	62.2	58.5	55.0	53.0	49.5	45.5	40.9	33.2	26.1
LASmin	28.4	25.3	22.1	20.9	17.4	12.9	9.8	7.9	4.9	2.7	0.1	-3.1

Calibration History

Preamp	Date	dB re. 1V/Pa
PRMLxT1L	21 Dec 2016 07:07:41	-28.0
PRMLxT1L	27 Jan 2016 10:21:19	-28.9
PRMLxT1L	26 Jan 2016 14:23:09	-28.9
PRMLxT1L	26 Jan 2016 14:20:57	-28.1
PRMLxT1L	17 Nov 2015 09:56:46	-28.9
PRMLxT1L	14 Jul 2015 08:29:53	-28.8
PRMLxT1L	30 Jan 2014 00:00:58	-28.0
PRMLxT1L	13 Sep 2014 10:03:02	-27.2
PRMLxT1L	13 Aug 2014 07:59:24	-28.6
PRMLxT1L	21 Jul 2014 14:19:41	-28.1
PRMLxT1L	08 May 2014 10:49:07	-28.1

General Information

Serial Number	03790
Model	SoundExpert™ LxT
Firmware Version	2.206
Filename	LxT_Data.114
User	MIG
Job Description	13517
Location	Moreno Valley
Measurement Description	
Start Time	Tuesday, 28 February 2017 09:33:33
Stop Time	Tuesday, 28 February 2017 09:43:33
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	Wednesday, 21 December 2016 07:07:41
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LASeq		44.9	dB
LASmax	28 Feb 2017 09:33:33	64.9	dB
LApeak (max)	28 Feb 2017 09:36:00	76.5	dB
LASmin	28 Feb 2017 09:41:04	36.0	dB
LCSeq		63.2	dB
LASeq		44.9	dB
LCSeq - LASeq		18.3	dB
LAIeq		49.6	dB
LAeq		44.9	dB
LAIeq - LAeq		4.7	dB
Ldn		44.9	dB
LDay 07:00-22:00		44.9	dB
LNight 22:00-07:00		---	dB
Lden		44.9	dB
LDay 07:00-19:00		44.9	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LASE		72.7	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		2	
OBA Overload Duration		5.9	s

Statistics

LAS1.00		55.7	dBA
LAS10.00		47.6	dBA
LAS25.00		44.3	dBA
LAS50.00		41.5	dBA
LAS66.60		40.0	dBA
LAS90.00		37.9	dBA
LAS > 70.0 dB (Exceedence Counts / Duration)		0 / 0.0	s
LAS > 100.0 dB (Exceedence Counts / Duration)		0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)		0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)		0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)		0 / 0.0	s

Settings

RMS Weight		A Weighting	
Peak Weight		A Weighting	
Detector		Slow	
Preamp		PRMLxT1L	
Microphone Correction		Off	
Integration Method		Exponential	
OBA Range		Low	
OBA Bandwidth		1/1 and 1/3	
OBA Freq. Weighting		A Weighting	
OBA Max Spectrum		At Lmax	
Under Range Limit		25.0	dB
Under Range Peak		78.0	dB
Noise Floor		14.9	dB
Overload		121.8	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LASeq	6.5	9.3	20.6	31.8	40.6	36.7	33.5	37.1	36.6	31.3	20.1	7.0
LASmax	16.1	29.3	39.8	45.4	45.6	46.8	44.3	46.2	49.2	45.6	36.0	28.4
LASmin	6.3	4.3	14.8	25.7	28.7	26.1	24.1	28.7	25.4	20.4	0.0	1.4

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LASeq	2.1	1.6	1.4	1.0	6.0	5.9	10.6	15.4	18.5	23.5	27.0	29.1
LASmax	2.1	1.6	9.9	15.7	23.8	24.0	29.1	35.7	37.1	40.7	40.6	40.5
LASmin	2.1	1.6	0.8	0.3	-0.6	-1.4	2.3	7.7	12.3	16.8	19.6	22.1

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LASeq	32.8	36.8	36.9	31.1	32.1	32.4	28.7	28.2	29.3	31.6	32.2	33.3
LASmax	41.0	41.4	41.4	41.5	41.3	39.7	39.4	40.4	39.9	38.6	41.0	45.1
LASmin	22.7	24.5	22.8	20.9	20.9	17.4	17.0	18.5	20.5	19.4	6.3	9.4

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LASeq	33.7	32.1	27.7	28.7	26.6	21.8	18.5	13.4	8.9	5.0	1.0	-2.9
LASmax	43.0	45.7	44.9	41.2	42.0	37.6	33.9	30.0	27.6	26.1	22.0	19.6
LASmin	11.4	19.4	17.2	17.3	14.3	11.3	7.7	5.8	2.7	-3.7	-3.4	-3.1

Calibration History

Preamp	Date	dB re. 1V/Pa
PRMLxT1L	21 Dec 2016 07:07:41	-28.0
PRMLxT1L	27 Jan 2016 10:21:19	-28.9
PRMLxT1L	26 Jan 2016 14:23:09	-28.9
PRMLxT1L	26 Jan 2016 14:20:57	-28.1
PRMLxT1L	17 Nov 2015 09:56:46	-28.9
PRMLxT1L	14 Jul 2015 08:29:53	-28.8
PRMLxT1L	30 Jan 2014 00:00:58	-28.0
PRMLxT1L	13 Sep 2014 10:03:02	-27.2
PRMLxT1L	13 Aug 2014 07:59:24	-28.6
PRMLxT1L	21 Jul 2014 14:19:41	-28.1
PRMLxT1L	08 May 2014 10:49:07	-28.1

This Page Intentionally Left Blank

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/16/2016
Case Description: Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (W)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	800	0
Dozer	No	40		81.7	800	0
Dozer	No	40		81.7	800	0
Tractor	No	40	84		800	0
Tractor	No	40	84		800	0
Backhoe	No	40		77.6	800	0
Backhoe	No	40		77.6	800	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.9	62.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (S)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	450	0
Dozer	No	40		81.7	450	0
Dozer	No	40		81.7	450	0
Tractor	No	40	84		450	0
Tractor	No	40	84		450	0
Backhoe	No	40		77.6	450	0
Backhoe	No	40		77.6	450	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.9	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.9	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.9	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (E)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	850	0
Dozer	No	40		81.7	850	0
Dozer	No	40		81.7	850	0
Tractor	No	40	84		850	0
Tractor	No	40	84		850	0
Backhoe	No	40		77.6	850	0
Backhoe	No	40		77.6	850	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		57.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		57.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		57.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		59.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		59.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59.4	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/16/2016
Case Description: Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (W)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	800	0
Excavator	No	40		80.7	800	0
Grader	No	40	85		800	0
Dozer	No	40		81.7	800	0
Scraper	No	40		83.6	800	0
Scraper	No	40		83.6	800	0
Backhoe	No	40		77.6	800	0
Tractor	No	40	84		800	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	56.6	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	56.6	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	60.9	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.6	53.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.9	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (S)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	450	0
Excavator	No	40		80.7	450	0
Grader	No	40	85		450	0
Dozer	No	40		81.7	450	0
Scraper	No	40		83.6	450	0
Scraper	No	40		83.6	450	0
Backhoe	No	40		77.6	450	0
Tractor	No	40	84		450	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	61.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	64.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	64.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.9	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.9	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (E)	Residential	60	60	60

			Equipment				
			Spec	Actual	Receptor	Estimated	
	Impact		Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)	
Excavator	No	40		80.7	850	0	
Excavator	No	40		80.7	850	0	
Grader	No	40	85		850	0	
Dozer	No	40		81.7	850	0	
Scraper	No	40		83.6	850	0	
Scraper	No	40		83.6	850	0	
Backhoe	No	40		77.6	850	0	
Tractor	No	40	84		850	0	

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	57.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.4	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/16/2016
Case Description: Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (W)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	800	0
All Other Equipment > 5 HP	No	50	85		800	0
All Other Equipment > 5 HP	No	50	85		800	0
All Other Equipment > 5 HP	No	50	85		800	0
Generator	No	50		80.6	800	0
Backhoe	No	40		77.6	800	0
Backhoe	No	40		77.6	800	0
Tractor	No	40	84		800	0
Welder / Torch	No	40		74	800	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Crane	56.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	56.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	59.9	55.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	49.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.9	64.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (S)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	450	0
All Other Equipment > 5 HP	No	50	85		450	0
All Other Equipment > 5 HP	No	50	85		450	0
All Other Equipment > 5 HP	No	50	85		450	0
Generator	No	50		80.6	450	0
Backhoe	No	40		77.6	450	0
Backhoe	No	40		77.6	450	0
Tractor	No	40	84		450	0
Welder / Torch	No	40		74	450	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Crane	61.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.9	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.9	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (E)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	850	0
All Other Equipment > 5 HP	No	50	85		850	0
All Other Equipment > 5 HP	No	50	85		850	0
All Other Equipment > 5 HP	No	50	85		850	0
Generator	No	50		80.6	850	0
Backhoe	No	40		77.6	850	0
Backhoe	No	40		77.6	850	0
Tractor	No	40	84		850	0
Welder / Torch	No	40		74	850	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		55.9	48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		56	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		53	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		59.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		49.4	45.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	60.4	63.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/16/2016
Case Description: Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (W)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	800	0
Paver	No	50		77.2	800	0
All Other Equipment > 5 HP	No	50	85		800	0
All Other Equipment > 5 HP	No	50	85		800	0
Roller	No	20		80	800	0
Roller	No	20		80	800	0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		56.5	48.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.9	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		56.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	60.9	64.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential (S)	Residential	60	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	450	0
Paver	No	50		77.2	450	0
All Other Equipment > 5 HP	No	50	85		450	0
All Other Equipment > 5 HP	No	50	85		450	0
Roller	No	20		80	450	0
Roller	No	20		80	450	0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.5	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		61.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.9	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (E)	Residential	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	850	0
Paver	No	50		77.2	850	0
All Other Equipment > 5 HP	No	50	85		850	0
All Other Equipment > 5 HP	No	50	85		850	0
Roller	No	20		80	850	0
Roller	No	20		80	850	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		52.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		52.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		60.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		55.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		55.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	60.4	61.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/16/2016
Case Description: Architectural Coating

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (W)	Residential	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
		Impact	Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)		No	40		77.7	800	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (S)	Residential	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
		Impact	Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)		No	40		77.7	450	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.6	54.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	58.6	54.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential (E)	Residential	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
		Impact	Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)		No	40		77.7	850	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Galaxy Management
Construction Vibration Screening

Receptors	Distance (ft)
1 – Residential (W)	800
2 – Residential (S)	450
3 – Residential (E)	850

Equipment	PPVref	D	n	Eref	Eequip	PPV
Vibratory Roller	0.21	800	1.3			0.0023
Vibratory Roller	0.21	450	1.3			0.0049
Vibratory Roller	0.21	850	1.3			0.0021
Large Bulldozer	0.089	800	1.3			0.0010
Large Bulldozer	0.089	450	1.3			0.0021
Large Bulldozer	0.089	850	1.3			0.0009
Loaded Truck	0.076	800	1.3			0.0008
Loaded Truck	0.076	450	1.3			0.0018
Loaded Truck	0.076	850	1.3			0.0008

This Page Intentionally Left Blank

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason n/o SR 60 WB Ramps
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	68.9	0	68.9	0	Snd Lvl	68.9	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn SR60 WB & EB Ramps
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.5	0	73.5	0	Snd Lvl	73.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn SR60 EB Ramps & Fir Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.6	0	73.6	0	Snd Lvl	73.6	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Fir Ave & Eucalyptus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.1	0	74.1	0	Snd Lvl	74.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Majestic Moreno
RUN: Nason s/o Eucalyptus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.9	0	74.9	0	Snd Lvl	74.9	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason n/o Cottonwood Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.5	0	74.5	0	Snd Lvl	74.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Cottonwood & Alessandro
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.9	0	73.9	0	Snd Lvl	73.9	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Alessandro & Brodiaea
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.6	0	73.6	0	Snd Lvl	73.6	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Brodiaea & Hospital
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.6	0	73.6	0	Snd Lvl	73.6	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Hospital & Cactus
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.8	0	72.8	0	Snd Lvl	72.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason s/o Cactus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	71.8	0	71.8	0	Snd Lvl	71.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Fir Ave w/o Nason St
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	69.5	0	69.5	0	Snd Lvl	69.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Avg dB	Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Eucalyptus w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	70.0	0	70.0	0	Snd Lvl	70.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Eucalyptus e/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	71.7	0	71.7	0	Snd Lvl	71.7	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Cottonwood w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	67.7	0	67.7	0	Snd Lvl	67.7	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Alessandro w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.3	0	72.3	0	Snd Lvl	72.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Brodiaea w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	55.5	0	55.5	0	Snd Lvl	55.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Cactus w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.3	0	72.3	0	Snd Lvl	72.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Without Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: Majestic Moreno
RUN: Cactus e/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	70.9	0	70.9	0	Snd Lvl	70.9	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason n/o SR 60 WB Ramps
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	69.1	0	69.1	0	Snd Lvl	69.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn SR60 WB & EB Ramps
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden	No Barrier Lden		Increase over existing		With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.8	0	73.8	0	Snd Lvl	73.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn SR60 EB Ramps & Fir Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.1	0	74.1	0	Snd Lvl	74.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Fir Ave & Eucalyptus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.5	0	74.5	0	Snd Lvl	74.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason s/o Eucalyptus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	75.3	0	75.3	0	Snd Lvl	75.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason n/o Cottonwood Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	75.0	0	75.0	0	Snd Lvl	75.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Cottonwood & Alessandro
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.5	0	74.5	0	Snd Lvl	74.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Alessandro & Brodiaea
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.4	0	74.4	0	Snd Lvl	74.4	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
27 March 2017
MIG
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Brodiaea & Hospital
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	74.1	0	74.1	0	Snd Lvl	74.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason btwn Hospital & Cactus
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	73.1	0	73.1	0	Snd Lvl	73.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Nason s/o Cactus Ave
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.0	0	72.0	0	Snd Lvl	72.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Fir Ave w/o Nason St
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	69.7	0	69.7	0	Snd Lvl	69.7	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Eucalyptus w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	70.1	0	70.1	0	Snd Lvl	70.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min dB	Noise Reduction Avg dB	Noise Reduction Max dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Eucalyptus e/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	71.8	0	71.8	0	Snd Lvl	71.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Cottonwood w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden	No Barrier Lden		Increase over existing		With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	68.0	0	68.0	0	Snd Lvl	68.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Alessandro w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.5	0	72.5	0	Snd Lvl	72.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Brodiaea w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	55.5	0	55.5	0	Snd Lvl	55.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Cactus w/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	72.4	0	72.4	0	Snd Lvl	72.4	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

2022 Plus Project
MIG
27 March 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Majestic Moreno
RUN: Cactus e/o Nason
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing Lden Calculated	No Barrier Lden Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated Lden	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50 Feet from Centerline	1	1	0.0	71.0	0	71.0	0	Snd Lvl	71.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

This Page Intentionally Left Blank

Majestic Moreno
Run Info
Stationary Noise

Project description

Project title:	Majestic Moreno
Project No.:	13517
Engineer:	OChan
Customer:	

Description:

Run description

Calculation:	Single Point Sound
Title:	Stationary Noise
Group:	
Run file:	RunFile.runx
Result number:	1

Local calculation (ThreadCount=4)

Calculation start:	3/1/2017 9:43:30 AM
Calculation end:	3/1/2017 9:43:32 AM
Calculation time:	00:00:747 [m:s:ms]
No. of points:	4
No. of calculated points:	4
Kernel version:	7/22/2015 (32 bit)

Run parameters

Reflection order	3	
Maximal reflection distance to receiver		200 m
Maximal reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Tolerance:	0.100 dB	
Create ground effect areas from road surfaces:		Yes

Standards:

Industry:		ISO 9613-2: 1996
Air absorption:	ISO 9613	

Using alternative method according to chapter 7.3.2: No (except for sources without a spectrum)

Limitation of screening loss:

single/multiple	20.0 dB /25.0 dB

Calculation with side screening: Yes

Use Eqn (Abar=Dz-Max(Agr,0)) instead of Eqn (12) (Abar=Dz-Agr) for insertion loss

Evaluate extra path length in vertical plane defined by source and receiver

Environment:
- Air pressure 1013.3 mbar
- rel. Humidity 70.0 %
- Temperature 10.0 °C
- Meteo. Corr. C0(7-22h)[dB]=0.0; C0(22-7h)[dB]=0.0;
- Ignore Cmet for Lmax-Industry-Calculation: No

Parameter for screening: C2=20.0

Dissection parameters:
- Distance to diameter factor 8
- Minimal Distance [m] 1 m
- Max. Difference GND+Diffraction 1.0 dB
- Max. No. of Iterations 4

Attenuation
- Foliage: ISO 9613-2
- Built up area: ISO 9613-2
- Industrial site: ISO 9613-2

Assessment: Day Night Level LDN

Reflection of "own" facade is suppressed

Geometry data

Situation1.sit 3/1/2017 9:42:58 AM
- contains:
  - Geo-File1.geo 3/1/2017 9:42:56 AM

Majestic Moreno
Assessed receiver levels
Stationary Noise

2

Receiver	Usage	Fl	Dir	Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn dB(A)	Leq,d dB(A)	
Property Line (E)	AU	G					22.7	16.2	
Property Line (E)2	AU	G					22.0	15.6	
Property Line (S)	AU	G					22.4	15.9	
Property Line (S)2	AU	G					21.4	15.0	

Majestic Moreno
Assessed contibution level - Stationary Noise

Source	Group	Source	Lane	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	A dB	
Receiver Property Line	Fl G Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 22. dB(A)	Leq,d 16.			
AC Unit	Default industrial noise	Point		2.1	-4.3	-4.3	0.0	
AC Unit	Default industrial noise	Point		3.1	-3.3	-3.3	0.0	
AC Unit	Default industrial noise	Point		2.1	-4.3	-4.3	0.0	
AC Unit	Default industrial noise	Point		3.1	-3.3	-3.3	0.0	
AC Unit	Default industrial noise	Point		17.5	11.1	11.1	0.0	
AC Unit	Default industrial noise	Point		13.2	6.7	6.7	0.0	
AC Unit	Default industrial noise	Point		12.9	6.5	6.5	0.0	
AC Unit	Default industrial noise	Point		15.3	8.9	8.9	0.0	
AC Unit	Default industrial noise	Point		9.9	3.5	3.5	0.0	
AC Unit	Default industrial noise	Point		8.7	2.3	2.3	0.0	
AC Unit	Default industrial noise	Point		12.1	5.7	5.7	0.0	
AC Unit	Default industrial noise	Point		11.2	4.8	4.8	0.0	
Receiver Property Line	Fl G Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 22. dB(A)	Leq,d 15.			
AC Unit	Default industrial noise	Point		2.0	-4.4	-4.4	0.0	
AC Unit	Default industrial noise	Point		2.3	-4.1	-4.1	0.0	
AC Unit	Default industrial noise	Point		1.0	-5.4	-5.4	0.0	
AC Unit	Default industrial noise	Point		2.8	-3.6	-3.6	0.0	
AC Unit	Default industrial noise	Point		9.2	2.8	2.8	0.0	
AC Unit	Default industrial noise	Point		10.3	3.8	3.8	0.0	
AC Unit	Default industrial noise	Point		8.5	2.1	2.1	0.0	
AC Unit	Default industrial noise	Point		12.2	5.8	5.8	0.0	
AC Unit	Default industrial noise	Point		13.1	6.7	6.7	0.0	
AC Unit	Default industrial noise	Point		16.2	9.8	9.8	0.0	
AC Unit	Default industrial noise	Point		15.3	8.9	8.9	0.0	
AC Unit	Default industrial noise	Point		11.8	5.3	5.3	0.0	
Receiver Property Line	Fl G Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 22. dB(A)	Leq,d 15.			
AC Unit	Default industrial noise	Point		18.4	12.0	12.0	0.0	
AC Unit	Default industrial noise	Point		18.0	11.6	11.6	0.0	
AC Unit	Default industrial noise	Point		10.4	4.0	4.0	0.0	
AC Unit	Default industrial noise	Point		9.7	3.3	3.3	0.0	
AC Unit	Default industrial noise	Point		9.7	3.3	3.3	0.0	
AC Unit	Default industrial noise	Point		5.8	-0.6	-0.6	0.0	
AC Unit	Default industrial noise	Point		2.3	-4.1	-4.1	0.0	
AC Unit	Default industrial noise	Point		1.9	-4.5	-4.5	0.0	
AC Unit	Default industrial noise	Point		-1.4	-7.8	-7.8	0.0	
AC Unit	Default industrial noise	Point		-1.7	-8.1	-8.1	0.0	
AC Unit	Default industrial noise	Point		0.0	-6.4	-6.4	0.0	
AC Unit	Default industrial noise	Point		0.1	-6.3	-6.3	0.0	
Receiver Property Line	Fl G Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 21. dB(A)	Leq,d 15.			
AC Unit	Default industrial noise	Point		5.2	-1.2	-1.2	0.0	
AC Unit	Default industrial noise	Point		7.3	0.9	0.9	0.0	
AC Unit	Default industrial noise	Point		7.8	1.3	1.3	0.0	
AC Unit	Default industrial noise	Point		8.3	1.9	1.9	0.0	

Majestic Moreno
Assessed contibution level - Stationary Noise

Source	Group	Source	Lane	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	A dB	
AC Unit	Default industrial noise	Point		16.4	10.0	10.0	0.0	
AC Unit	Default industrial noise	Point		14.8	8.4	8.4	0.0	
AC Unit	Default industrial noise	Point		12.1	5.7	5.7	0.0	
AC Unit	Default industrial noise	Point		11.6	5.2	5.2	0.0	
AC Unit	Default industrial noise	Point		5.3	-1.1	-1.1	0.0	
AC Unit	Default industrial noise	Point		3.2	-3.2	-3.2	0.0	
AC Unit	Default industrial noise	Point		6.5	0.1	0.1	0.0	
AC Unit	Default industrial noise	Point		6.1	-0.3	-0.3	0.0	

Majestic Moreno
Contribution spectra - Stationary Noise

Source	time slice	Sum dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
Receiver Property Line (E)	Fl G	Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 22.7 dB(A)	Leq,d 16.2 dB(A)				
AC Unit	Ldn	9.9	-13.6	-1.9	6.2	2.7	0.9	2.1	-6.2	-21.3
AC Unit	Leq,d	3.5	-20.0	-8.4	-0.2	-3.7	-5.5	-4.4	-12.6	-27.7
AC Unit	Leq,n	3.5	-20.0	-8.4	-0.2	-3.7	-5.5	-4.4	-12.6	-27.7
AC Unit	Ldn	15.3	-5.6	5.6	10.8	7.8	6.5	7.5	2.0	-6.5
AC Unit	Leq,d	8.9	-12.1	-0.9	4.4	1.4	0.1	1.1	-4.4	-12.9
AC Unit	Leq,n	8.9	-12.1	-0.9	4.4	1.4	0.1	1.1	-4.4	-12.9
AC Unit	Ldn	12.9	-9.2	2.0	8.7	5.0	3.4	6.1	0.3	-10.3
AC Unit	Leq,d	6.5	-15.6	-4.4	2.3	-1.4	-3.0	-0.3	-6.1	-16.8
AC Unit	Leq,n	6.5	-15.6	-4.4	2.3	-1.4	-3.0	-0.3	-6.1	-16.8
AC Unit	Ldn	11.2	-10.4	1.6	7.2	3.3	2.6	3.5	-4.5	-18.0
AC Unit	Leq,d	4.8	-16.8	-4.8	0.8	-3.1	-3.8	-2.9	-10.9	-24.4
AC Unit	Leq,n	4.8	-16.8	-4.8	0.8	-3.1	-3.8	-2.9	-10.9	-24.4
AC Unit	Ldn	12.1	-9.7	2.3	7.8	3.8	4.3	4.6	-3.2	-16.5
AC Unit	Leq,d	5.7	-16.1	-4.1	1.3	-2.7	-2.1	-1.8	-9.7	-22.9
AC Unit	Leq,n	5.7	-16.1	-4.1	1.3	-2.7	-2.1	-1.8	-9.7	-22.9
AC Unit	Ldn	8.7	-12.8	-1.2	4.7	1.1	0.1	0.8	-7.1	-21.6
AC Unit	Leq,d	2.3	-19.2	-7.6	-1.7	-5.3	-6.4	-5.6	-13.5	-28.0
AC Unit	Leq,n	2.3	-19.2	-7.6	-1.7	-5.3	-6.4	-5.6	-13.5	-28.0
AC Unit	Ldn	2.1	-19.4	-7.6	-1.5	-5.1	-6.8	-7.7	-14.3	-31.9
AC Unit	Leq,d	-4.3	-25.9	-14.0	-7.9	-11.6	-13.3	-14.1	-20.7	-38.3
AC Unit	Leq,n	-4.3	-25.9	-14.0	-7.9	-11.6	-13.3	-14.1	-20.7	-38.3
AC Unit	Ldn	3.1	-18.4	-6.6	-0.5	-4.1	-5.8	-6.6	-13.0	-28.2
AC Unit	Leq,d	-3.3	-24.8	-13.0	-6.9	-10.5	-12.2	-13.0	-19.5	-34.6
AC Unit	Leq,n	-3.3	-24.8	-13.0	-6.9	-10.5	-12.2	-13.0	-19.5	-34.6
AC Unit	Ldn	2.1	-19.4	-7.5	-1.5	-5.1	-6.8	-7.7	-14.5	-32.2
AC Unit	Leq,d	-4.3	-25.8	-14.0	-7.9	-11.5	-13.2	-14.1	-20.9	-38.6
AC Unit	Leq,n	-4.3	-25.8	-14.0	-7.9	-11.5	-13.2	-14.1	-20.9	-38.6
AC Unit	Ldn	13.2	-9.0	2.1	8.5	4.9	5.5	6.0	0.5	-9.1
AC Unit	Leq,d	6.7	-15.5	-4.3	2.1	-1.5	-0.9	-0.4	-5.9	-15.5
AC Unit	Leq,n	6.7	-15.5	-4.3	2.1	-1.5	-0.9	-0.4	-5.9	-15.5
AC Unit	Ldn	17.5	-5.0	6.3	14.0	10.4	8.3	7.8	3.2	-4.2
AC Unit	Leq,d	11.1	-11.4	-0.1	7.6	4.0	1.9	1.4	-3.2	-10.6
AC Unit	Leq,n	11.1	-11.4	-0.1	7.6	4.0	1.9	1.4	-3.2	-10.6
AC Unit	Ldn	3.1	-18.4	-6.6	-0.5	-4.1	-5.8	-6.6	-12.9	-29.1
AC Unit	Leq,d	-3.3	-24.8	-13.0	-6.9	-10.5	-12.2	-13.0	-19.3	-35.5
AC Unit	Leq,n	-3.3	-24.8	-13.0	-6.9	-10.5	-12.2	-13.0	-19.3	-35.5
Receiver Property Line (E)2	Fl G	Ldn,lim dB(A)	Lr,lim dB(A)	Lr,lim dB(A)	Ldn 22.0 dB(A)	Leq,d 15.6 dB(A)				
AC Unit	Ldn	13.1	-9.1	2.0	7.7	6.3	5.8	5.7	0.3	-9.2
AC Unit	Leq,d	6.7	-15.5	-4.4	1.3	-0.1	-0.6	-0.7	-6.1	-15.6
AC Unit	Leq,n	6.7	-15.5	-4.4	1.3	-0.1	-0.6	-0.7	-6.1	-15.6
AC Unit	Ldn	12.2	-9.3	2.9	8.4	4.2	3.1	3.9	-3.7	-16.2
AC Unit	Leq,d	5.8	-15.7	-3.5	2.0	-2.2	-3.3	-2.5	-10.1	-22.6
AC Unit	Leq,n	5.8	-15.7	-3.5	2.0	-2.2	-3.3	-2.5	-10.1	-22.6
AC Unit	Ldn	8.5	-13.5	-2.0	4.0	0.4	0.2	1.4	-5.0	-17.8
AC Unit	Leq,d	2.1	-19.9	-8.4	-2.4	-6.0	-6.2	-5.0	-11.4	-24.2
AC Unit	Leq,n	2.1	-19.9	-8.4	-2.4	-6.0	-6.2	-5.0	-11.4	-24.2
AC Unit	Ldn	11.8	-9.2	2.0	7.7	4.0	2.3	3.8	-2.0	-10.9
AC Unit	Leq,d	5.3	-15.6	-4.4	1.3	-2.4	-4.1	-2.6	-8.5	-17.3
AC Unit	Leq,n	5.3	-15.6	-4.4	1.3	-2.4	-4.1	-2.6	-8.5	-17.3
AC Unit	Ldn	15.3	-5.7	5.5	10.9	7.0	6.1	8.2	2.4	-6.1
AC Unit	Leq,d	8.9	-12.1	-0.9	4.5	0.6	-0.3	1.8	-4.0	-12.5
AC Unit	Leq,n	8.9	-12.1	-0.9	4.5	0.6	-0.3	1.8	-4.0	-12.5

Majestic Moreno
Contribution spectra - Stationary Noise

Source	time slice	Sum dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
AC Unit	Ldn	16.2	-5.7	5.4	12.6	8.8	7.0	6.8	2.8	-5.0
AC Unit	Leq,d	9.8	-12.1	-1.0	6.2	2.3	0.6	0.4	-3.6	-11.4
AC Unit	Leq,n	9.8	-12.1	-1.0	6.2	2.3	0.6	0.4	-3.6	-11.4
AC Unit	Ldn	1.0	-20.8	-9.0	-3.0	-6.6	-7.1	-7.3	-14.8	-34.5
AC Unit	Leq,d	-5.4	-27.3	-15.4	-9.4	-13.0	-13.6	-13.7	-21.2	-40.9
AC Unit	Leq,n	-5.4	-27.3	-15.4	-9.4	-13.0	-13.6	-13.7	-21.2	-40.9
AC Unit	Ldn	2.3	-20.7	-8.8	-1.1	-4.8	-6.0	-7.4	-14.9	-34.9
AC Unit	Leq,d	-4.1	-27.1	-15.2	-7.5	-11.2	-12.4	-13.8	-21.3	-41.3
AC Unit	Leq,n	-4.1	-27.1	-15.2	-7.5	-11.2	-12.4	-13.8	-21.3	-41.3
AC Unit	Ldn	2.0	-21.5	-7.5	-1.5	-5.2	-6.5	-8.2	-15.7	-36.6
AC Unit	Leq,d	-4.4	-27.9	-13.9	-7.9	-11.6	-12.9	-14.6	-22.1	-43.0
AC Unit	Leq,n	-4.4	-27.9	-13.9	-7.9	-11.6	-12.9	-14.6	-22.1	-43.0
AC Unit	Ldn	10.3	-13.3	-1.6	6.4	3.3	1.5	2.3	-5.8	-21.0
AC Unit	Leq,d	3.8	-19.7	-8.0	-0.1	-3.1	-4.9	-4.1	-12.2	-27.4
AC Unit	Leq,n	3.8	-19.7	-8.0	-0.1	-3.1	-4.9	-4.1	-12.2	-27.4
AC Unit	Ldn	9.2	-12.3	-0.7	5.1	1.9	0.4	1.2	-5.7	-19.6
AC Unit	Leq,d	2.8	-18.8	-7.1	-1.3	-4.5	-6.0	-5.2	-12.2	-26.0
AC Unit	Leq,n	2.8	-18.8	-7.1	-1.3	-4.5	-6.0	-5.2	-12.2	-26.0
AC Unit	Ldn	2.8	-20.4	-8.6	-0.5	-4.2	-6.3	-6.6	-13.7	-32.4
AC Unit	Leq,d	-3.6	-26.8	-15.0	-7.0	-10.6	-12.7	-13.0	-20.1	-38.8
AC Unit	Leq,n	-3.6	-26.8	-15.0	-7.0	-10.6	-12.7	-13.0	-20.1	-38.8
Receiver Property Line (S) Fl G	Ldn,lim	dB(A)	Lr,lim	dB(A)	Lr,lim	dB(A)	Ldn 22.4 dB(A)	Leq,d 15.9 dB(A)		
AC Unit	Ldn	-1.4	-22.4	-11.8	-5.8	-9.6	-9.5	-8.6	-15.5	-34.3
AC Unit	Leq,d	-7.8	-28.8	-18.2	-12.3	-16.0	-15.9	-15.0	-21.9	-40.7
AC Unit	Leq,n	-7.8	-28.8	-18.2	-12.3	-16.0	-15.9	-15.0	-21.9	-40.7
AC Unit	Ldn	1.9	-20.6	-9.4	-3.5	-7.2	-8.1	-2.9	-9.7	-26.0
AC Unit	Leq,d	-4.5	-27.0	-15.8	-9.9	-13.6	-14.5	-9.3	-16.2	-32.4
AC Unit	Leq,n	-4.5	-27.0	-15.8	-9.9	-13.6	-14.5	-9.3	-16.2	-32.4
AC Unit	Ldn	2.3	-19.6	-8.3	-2.5	-6.2	-7.0	-3.8	-9.0	-23.4
AC Unit	Leq,d	-4.1	-26.1	-14.8	-8.9	-12.6	-13.4	-10.2	-15.4	-29.8
AC Unit	Leq,n	-4.1	-26.1	-14.8	-8.9	-12.6	-13.4	-10.2	-15.4	-29.8
AC Unit	Ldn	0.1	-21.3	-10.4	-4.5	-8.2	-7.5	-7.3	-13.3	-30.8
AC Unit	Leq,d	-6.3	-27.7	-16.8	-10.9	-14.6	-13.9	-13.8	-19.7	-37.2
AC Unit	Leq,n	-6.3	-27.7	-16.8	-10.9	-14.6	-13.9	-13.8	-19.7	-37.2
AC Unit	Ldn	0.0	-21.5	-10.7	-4.8	-8.5	-7.1	-7.0	-13.4	-31.9
AC Unit	Leq,d	-6.4	-27.9	-17.1	-11.2	-14.9	-13.5	-13.4	-19.8	-38.3
AC Unit	Leq,n	-6.4	-27.9	-17.1	-11.2	-14.9	-13.5	-13.4	-19.8	-38.3
AC Unit	Ldn	-1.7	-22.6	-12.0	-6.1	-9.8	-9.9	-9.1	-15.9	-35.7
AC Unit	Leq,d	-8.1	-29.0	-18.4	-12.5	-16.2	-16.4	-15.5	-22.3	-42.1
AC Unit	Leq,n	-8.1	-29.0	-18.4	-12.5	-16.2	-16.4	-15.5	-22.3	-42.1
AC Unit	Ldn	10.4	-10.8	-0.1	5.3	2.6	1.8	3.2	-0.5	-9.2
AC Unit	Leq,d	4.0	-17.3	-6.6	-1.1	-3.8	-4.6	-3.2	-6.9	-15.6
AC Unit	Leq,n	4.0	-17.3	-6.6	-1.1	-3.8	-4.6	-3.2	-6.9	-15.6
AC Unit	Ldn	18.0	-2.7	9.0	14.0	10.5	7.5	8.8	5.7	-0.7
AC Unit	Leq,d	11.6	-9.1	2.6	7.6	4.1	1.1	2.4	-0.7	-7.2
AC Unit	Leq,n	11.6	-9.1	2.6	7.6	4.1	1.1	2.4	-0.7	-7.2
AC Unit	Ldn	18.4	-2.7	9.0	15.0	10.4	7.6	9.0	5.5	-1.0
AC Unit	Leq,d	12.0	-9.1	2.6	8.6	4.0	1.1	2.6	-0.9	-7.4
AC Unit	Leq,n	12.0	-9.1	2.6	8.6	4.0	1.1	2.6	-0.9	-7.4
AC Unit	Ldn	5.8	-15.8	-4.6	1.3	-2.3	-2.4	-1.5	-7.7	-21.1
AC Unit	Leq,d	-0.6	-22.3	-11.0	-5.1	-8.8	-8.8	-7.9	-14.1	-27.5
AC Unit	Leq,n	-0.6	-22.3	-11.0	-5.1	-8.8	-8.8	-7.9	-14.1	-27.5
AC Unit	Ldn	9.7	-13.1	-1.3	5.9	2.1	1.4	1.4	-6.1	-22.8

Majestic Moreno
Contribution spectra - Stationary Noise

Source	time slice	Sum dB(A)	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)
AC Unit	Leq,d	3.3	-19.5	-7.7	-0.5	-4.3	-5.0	-5.0	-12.5	-29.3
AC Unit	Leq,n	3.3	-19.5	-7.7	-0.5	-4.3	-5.0	-5.0	-12.5	-29.3
AC Unit	Ldn	9.7	-10.8	-0.1	5.4	1.6	-0.2	2.2	-1.6	-10.1
AC Unit	Leq,d	3.3	-17.2	-6.5	-1.1	-4.8	-6.6	-4.2	-8.0	-16.5
AC Unit	Leq,n	3.3	-17.2	-6.5	-1.1	-4.8	-6.6	-4.2	-8.0	-16.5
Receiver Property Line (S)2 Fl G	Ldn,lim	dB(A)	Lr,lim	dB(A)	Lr,lim	dB(A)	Ldn	21.4 dB(A)	Leq,d	15.0 dB(A)
AC Unit	Ldn	5.3	-17.9	-6.5	1.8	-1.8	-2.9	-4.0	-10.0	-25.5
AC Unit	Leq,d	-1.1	-24.3	-12.9	-4.6	-8.2	-9.3	-10.4	-16.5	-31.9
AC Unit	Leq,n	-1.1	-24.3	-12.9	-4.6	-8.2	-9.3	-10.4	-16.5	-31.9
AC Unit	Ldn	11.6	-10.0	1.3	7.1	4.7	3.7	2.6	-1.8	-10.9
AC Unit	Leq,d	5.2	-16.4	-5.1	0.7	-1.7	-2.7	-3.9	-8.2	-17.4
AC Unit	Leq,n	5.2	-16.4	-5.1	0.7	-1.7	-2.7	-3.9	-8.2	-17.4
AC Unit	Ldn	12.1	-10.2	1.1	7.0	5.4	5.2	3.8	-2.3	-12.9
AC Unit	Leq,d	5.7	-16.6	-5.3	0.6	-1.0	-1.3	-2.6	-8.7	-19.3
AC Unit	Leq,n	5.7	-16.6	-5.3	0.6	-1.0	-1.3	-2.6	-8.7	-19.3
AC Unit	Ldn	6.1	-16.4	-4.7	1.4	-1.6	-1.8	-1.5	-6.6	-21.5
AC Unit	Leq,d	-0.3	-22.8	-11.1	-5.0	-8.0	-8.2	-7.9	-13.0	-27.9
AC Unit	Leq,n	-0.3	-22.8	-11.1	-5.0	-8.0	-8.2	-7.9	-13.0	-27.9
AC Unit	Ldn	6.5	-16.5	-4.7	1.4	0.6	-0.7	-2.3	-8.9	-22.5
AC Unit	Leq,d	0.1	-22.9	-11.1	-5.0	-5.8	-7.1	-8.7	-15.3	-28.9
AC Unit	Leq,n	0.1	-22.9	-11.1	-5.0	-5.8	-7.1	-8.7	-15.3	-28.9
AC Unit	Ldn	3.2	-17.9	-6.5	-0.4	-4.0	-5.6	-6.5	-13.1	-29.5
AC Unit	Leq,d	-3.2	-24.3	-12.9	-6.8	-10.4	-12.0	-12.9	-19.5	-35.9
AC Unit	Leq,n	-3.2	-24.3	-12.9	-6.8	-10.4	-12.0	-12.9	-19.5	-35.9
AC Unit	Ldn	7.8	-15.2	-1.9	4.1	0.4	-0.9	-1.4	-9.8	-26.0
AC Unit	Leq,d	1.3	-21.7	-8.3	-2.4	-6.0	-7.4	-7.8	-16.2	-32.4
AC Unit	Leq,n	1.3	-21.7	-8.3	-2.4	-6.0	-7.4	-7.8	-16.2	-32.4
AC Unit	Ldn	7.3	-13.2	-1.8	3.9	0.1	-2.1	-3.2	-10.0	-22.4
AC Unit	Leq,d	0.9	-19.6	-8.2	-2.5	-6.3	-8.6	-9.6	-16.4	-28.8
AC Unit	Leq,n	0.9	-19.6	-8.2	-2.5	-6.3	-8.6	-9.6	-16.4	-28.8
AC Unit	Ldn	5.2	-15.5	-4.3	1.3	-2.4	-2.9	-4.1	-10.4	-24.6
AC Unit	Leq,d	-1.2	-21.9	-10.7	-5.1	-8.8	-9.3	-10.5	-16.8	-31.0
AC Unit	Leq,n	-1.2	-21.9	-10.7	-5.1	-8.8	-9.3	-10.5	-16.8	-31.0
AC Unit	Ldn	14.8	-5.9	5.5	10.7	6.6	6.2	6.4	0.9	-7.4
AC Unit	Leq,d	8.4	-12.3	-0.9	4.3	0.2	-0.2	0.0	-5.5	-13.8
AC Unit	Leq,n	8.4	-12.3	-0.9	4.3	0.2	-0.2	0.0	-5.5	-13.8
AC Unit	Ldn	16.4	-4.6	7.1	12.3	8.7	8.2	7.2	1.9	-5.9
AC Unit	Leq,d	10.0	-11.0	0.6	5.9	2.3	1.8	0.8	-4.6	-12.3
AC Unit	Leq,n	10.0	-11.0	0.6	5.9	2.3	1.8	0.8	-4.6	-12.3
AC Unit	Ldn	8.3	-13.9	-2.4	4.6	0.9	-0.5	-0.1	-7.0	-23.0
AC Unit	Leq,d	1.9	-20.3	-8.8	-1.8	-5.5	-7.0	-6.5	-13.4	-29.5
AC Unit	Leq,n	1.9	-20.3	-8.8	-1.8	-5.5	-7.0	-6.5	-13.4	-29.5

Majestic Moreno
Octave spectra of the sources in dB(A) - Stationary Noise

3

Name	Source type	l or A	Li	R'w	L'w	Lw	KI	KT	LwMax	D-Omega-	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB(A)			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9
AC Unit	Point				70.3	70.3	0.0	0.0		0	100%/24h	Axial-flow fan	37.8	55.4	64.4	63.8	62.0	63.2	60.5	56.9