WINCHESTER AT JEAN NICHOLAS COMMERCIAL RETAIL CENTER NOISE IMPACT ANALYSIS

County of Riverside

October 30, 2020

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

WINCHESTER AT JEAN NICHOLAS COMMERCIAL RETAIL CENTER NOISE IMPACT ANALYSIS

County of Riverside

October 30, 2020

prepared by
Roma Stromberg INCE, MS
Catherine Howe, MS

GANDDINI GROUP INC.
550 Parkcenter Drive, Suite 202
Santa Ana, CA 92705
(714) 795-3100 | ganddini.com

19-0221

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the noise impacts associated with development and operation of the proposed Winchester at Jean Nicholas Commercial project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state and local policies, including those of the County of Riverside.

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

PROJECT LOCATION

The proposed project is located at the northwest corner of Winchester Road (SR-79) and Jean Nicholas Road in the unincorporated French Valley community of Riverside County. The site is currently vacant. The existing land use designation is Light Industrial; therefore, a General Plan Amendment is assumed to be required.

PROJECT DESCRIPTION

The approximately 2.9-acre project site is proposed to be developed with 2,627 square feet of coffee shop with drive-thru land use and a 16 fueling position super convenience market/gas station.

PROJECT IMPACTS

Construction Impacts

Modeled unmitigated construction noise levels when combined with existing measured noise levels could reach 61.2 dBA L_{eq} at the nearest residential property lines to the north, 56.2 dBA L_{eq} at the nearest residential property lines to the northeast, 58.4 dBA L_{eq} at the nearest residential property lines to the east and southeast, 67.1 dBA L_{eq} at the nearest residential property lines to the south, and up to 74.2 dBA L_{eq} at the nearest residential property lines to the west and southwest of the project site.

Construction noise sources are regulated within the County of Riverside Ordinance 847 which prohibits construction activities other than between the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May.

The County of Riverside has not adopted a numerical threshold that identifies what a substantial increase would be. For purposes of this analysis, the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (2006) criteria will be used to establish significance thresholds. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over an 8-hour period ($L_{eq\ (8\text{-}hr)}$; and the nighttime noise threshold is 70 dBA $L_{eq\ (8\text{-}hr)}$. For commercial uses, the daytime and nighttime noise threshold is 85 dBA $L_{eq\ (8\text{-}hr)}$. In compliance with the County's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Impacts related to construction noise will be further minimized with adherence to applicable Municipal Ordinances and implementation of the measures presented in Section 8 of this report. Impacts would be less than significant.

Noise Impacts to Off-Site Receptors Due to Project Generated Trips

Existing and Existing Plus project noise levels along acoustically significant area roadways were modeled utilizing the FHWA Traffic Noise Prediction Model FHWA-RD-77-108 in order to quantify the proposed project's contribution to increases in ambient noise levels.

For off-site project generated noise, increases in ambient noise along affected roadways due to project generated vehicle traffic is considered substantial if they result in an increase of at least 5 dBA CNEL and: (1) the existing noise levels already exceed the applicable land use compatibility standard for the affected sensitive receptors set forth in the Noise Element of the County's General Plan; or (2) the project increases noise levels by at least 5 dBA CNEL and raises the ambient noise level from below the applicable standard to above the applicable standard.

Per the noise modeling, all of the modeled roadway segments are anticipated to change the noise a nominal amount (approximately 0.05 to 1.84 dBA CNEL). Therefore, a change in noise level would not be audible and would be considered less than significant.

Transportation Noise Impacts to the Proposed Project

Roadways that may generate enough traffic noise under buildout conditions to affect the proposed commercial uses include Highway 79 and Jean Nicholas Road.

Per the County of Riverside General Plan Noise Element, commercial land uses are considered to be "normally acceptable" in environments where the exterior noise level reaches up to 70 dBA CNEL and "conditionally acceptable" in environments where the exterior noise level reaches up to 77.5 dBA CNEL.

The exterior noise levels at the proposed project site are anticipated to fall within the County's conditionally acceptable exterior noise standards for commercial uses. Impacts related to future traffic noise impacts to the proposed project would be less than significant.

Noise Impacts to Off-Site Receptors Due to On-Site Operational Noise

The SoundPLAN noise model was utilized to estimate project peak hour operational noise at first floor/yard and second floor receptors in order to determine if it is likely to exceed the County's noise thresholds at sensitive receptors. A description of each noise source and model parameters are discussed in Section 5 of this report. As shown on Figures 6 and 7. Peak hour project operation is expected to range between 47.4 and 62.3 dBA Leq at the nearest sensitive receptors and is not expected to exceed the County's exterior daytime noise threshold of 65 dBA L_{eq}.

Nighttime noise levels associated with the proposed project were also modeled assuming no car wash or vacuuming activities would occur between 10:00 PM and 7:00 AM. Nighttime operational noise levels are expected to range between 30.5 and 48.6 dBA L_{eq} at modeled sensitive receptors. Second floor noise levels at proposed adjacent residential land uses to the east may exceed the nighttime exterior noise standard of 45 dBA L_{eq}. However, residential construction typically provides an exterior to interior noise reduction of 20 dB with a windows closed condition. The proposed adjacent residential units are expected to be provided with air conditioning which will allow a closed window condition, considering their proximity to State Route 79. Project operational noise levels would be considered less than significant. No mitigation is required.

Groundborne Vibration Impacts

Construction equipment is anticipated to be located at a distance of at least 135 feet or more from any receptor. Temporary vibration levels associated with project construction would be less than significant. Therefore, impacts associated with construction activities would be less than significant. No mitigation is required.

Impacts to the Proposed Residential Uses to the North

The proposed residential development TR37078 is located adjacent to the north of the proposed project. Per the County of Riverside General Plan Land Use Map the current land use designations at this proposed residential use are Commercial Retail and Light Industrial. Although this project has not yet been approved by the County and the current County land use designations for this project site are not residential, in order to anticipate any potential future noise related impacts an additional noise analysis at this proposed use has been provided.

Construction Impacts

This construction analysis assumes the proposed residential project to the north is approved by the County and is already constructed and operational.

Modeled unmitigated construction noise levels when combined with existing measured noise levels could reach 79.3 dBA L_{eq} at the nearest proposed residential property line to the north of the project site.

Construction noise sources are regulated within the County of Riverside Ordinance 847 which prohibits construction activities other than between the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May.

The County of Riverside has not adopted a numerical threshold that identifies what a substantial increase would be. For purposes of this analysis, the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (2006) criteria will be used to establish significance thresholds. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over an 8-hour period ($L_{eq\ (8\text{-}hr)}$; and the nighttime noise threshold is 70 dBA $L_{eq\ (8\text{-}hr)}$. In compliance with the County's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Impacts related to construction noise will be further minimized with adherence to applicable Municipal Ordinances and implementation of the measures presented in Section 8 of this report. Impacts would be less than significant.

Noise Impacts to Off-Site Receptors Due to On-Site Operational Noise

The SoundPLAN noise model was utilized to estimate project peak hour operational noise at the proposed residential first floor/yard and second floor receptors in order to determine if it is likely to exceed the County's noise thresholds at the proposed sensitive receptors to the north. As shown above on Figures 6 and 7, peak hour project operation is expected to range between 48.8 and 63.7 dBA Leq at the proposed sensitive receptors to the north and is not expected to exceed the County's exterior daytime noise threshold of 65 dBA L_{eq}. Nighttime noise levels associated with the proposed project were also modeled assuming no car wash or vacuuming activities would occur between 10:00 PM and 7:00 AM. As shown above on Figures 9 and 10, nighttime operational noise levels are expected to range between 38.7 and 47.3 at modeled proposed sensitive receptors to the north and would be expected to exceed the nighttime exterior noise standard of 45 dBA L_{eq}. However, as shown in Table 2, the lowest measured nighttime noise level was 49.9 dBA L_{eq}. Therefore, the nighttime noise associated with the proposed project would not be anticipated to be noticeable over nighttime ambient conditions. Residential construction typically provides an exterior to interior noise reduction of 20 dB with a windows closed condition. Project operation is not expected to exceed the County's interior noise level standards of 45 dBA L_{eq} (daytime) and 40 dBA L_{eq} (nighttime). Project operational noise levels would be considered less than significant. No mitigation is required.

Groundborne Vibration Impacts

This vibration analysis assumes the proposed residential project to the north is approved by the County and already constructed.

Use of a vibratory roller or other similar vibratory equipment would clearly be highly annoying to these adjacent residential receptors. However, annoyance is expected to be short-term, occurring only during site grading and preparation. Temporary vibration levels associated with project construction would not be anticipated to result in architectural damage and would be less than significant. Therefore, impacts associated with construction activities would be less than significant.

CONSTRUCTION NOISE REDUCTION MEASURES

In addition to adherence to the County of Riverside Municipal Code which limits the construction hours of operation, the following measures are recommended to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

3. Equipment shall be shut off and not left to idle when not in use.

4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

6. The project proponent shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.

7. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.

1. INTRODUCTION

This section describes the purpose of this noise impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this report is to provide an assessment of the noise impacts resulting from development of the proposed Winchester at Jean Nicholas Commercial project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state and local policies, including those of the County of Riverside.

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

PROJECT LOCATION

The proposed project is located at the northwest corner of Winchester Road (SR-79) and Jean Nicholas Road in the unincorporated French Valley community of Riverside County. The site is currently vacant. The existing land use designation is Light Industrial; therefore, a General Plan Amendment is assumed to be required. A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The approximately 2.9-acre project site is proposed to be developed with 2,627 square feet of coffee shop with drive-thru land use and a 16 fueling position super convenience market/gas station. Figure 2 illustrates the project site plan.

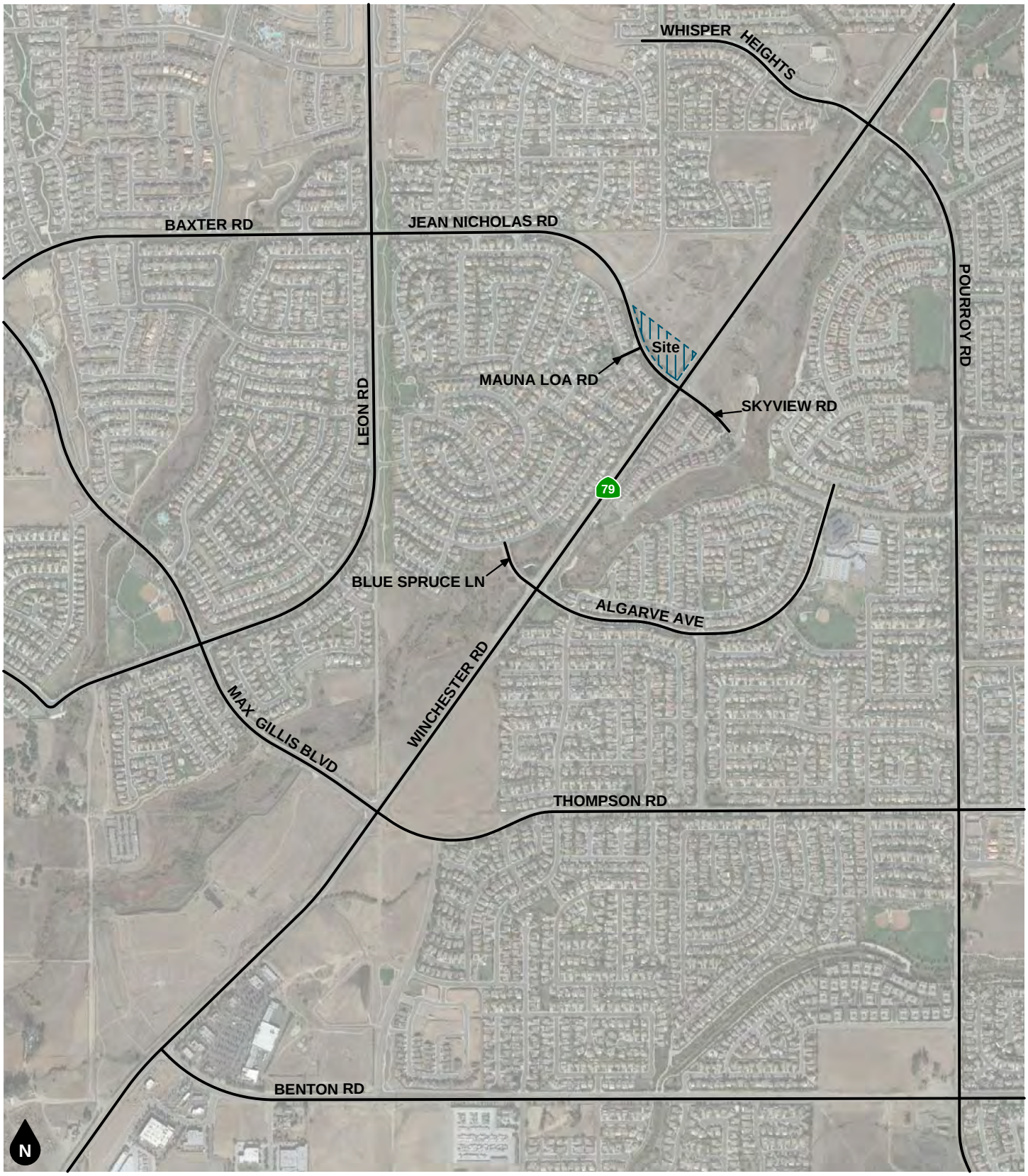


Figure 1
Project Location Map

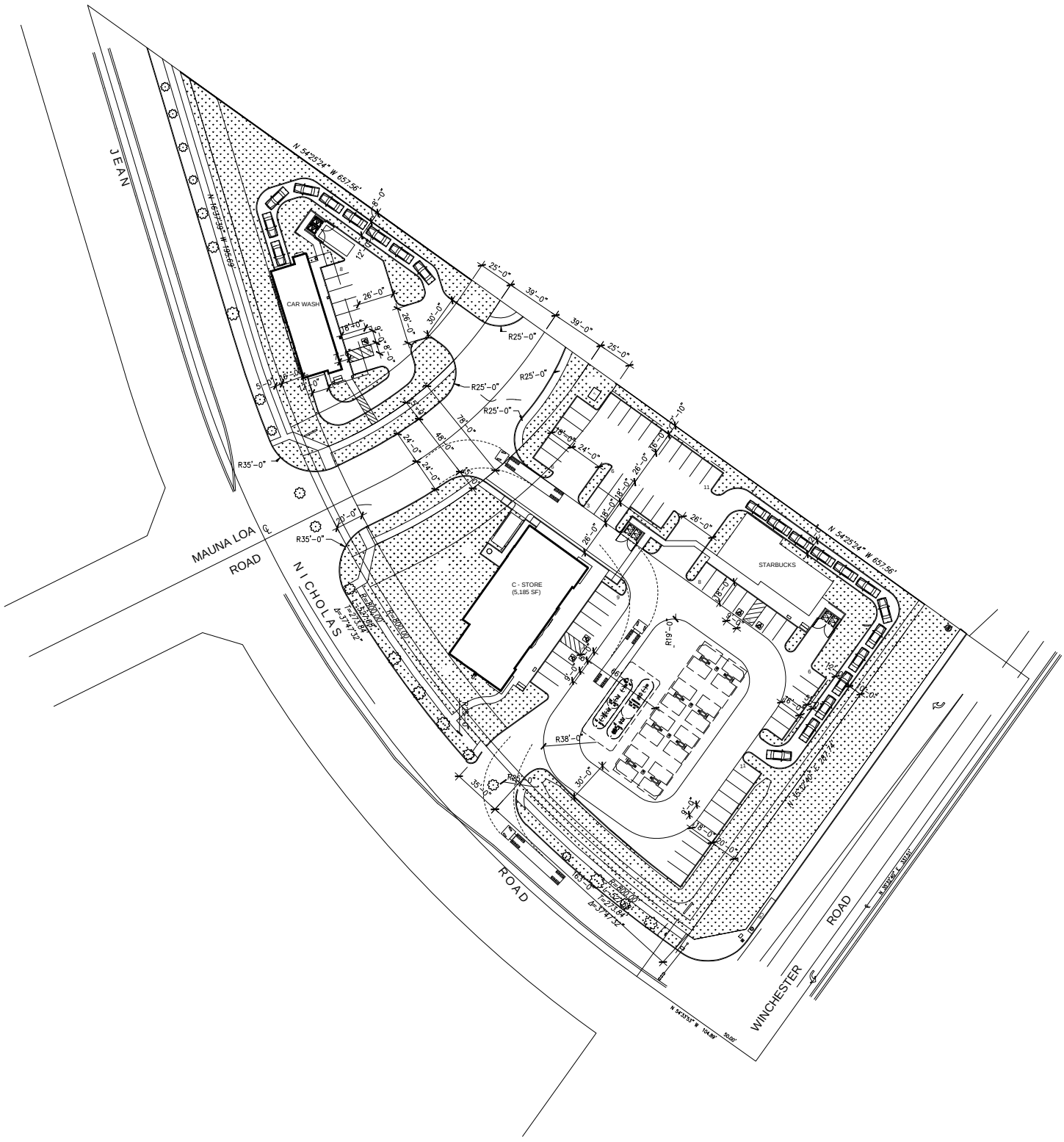


Figure 2
Site Plan

2. NOISE AND VIBRATION FUNDAMENTALS

NOISE FUNDAMENTALS

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

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

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

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

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

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

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

VIBRATION FUNDAMENTALS

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water.

Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

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

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

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

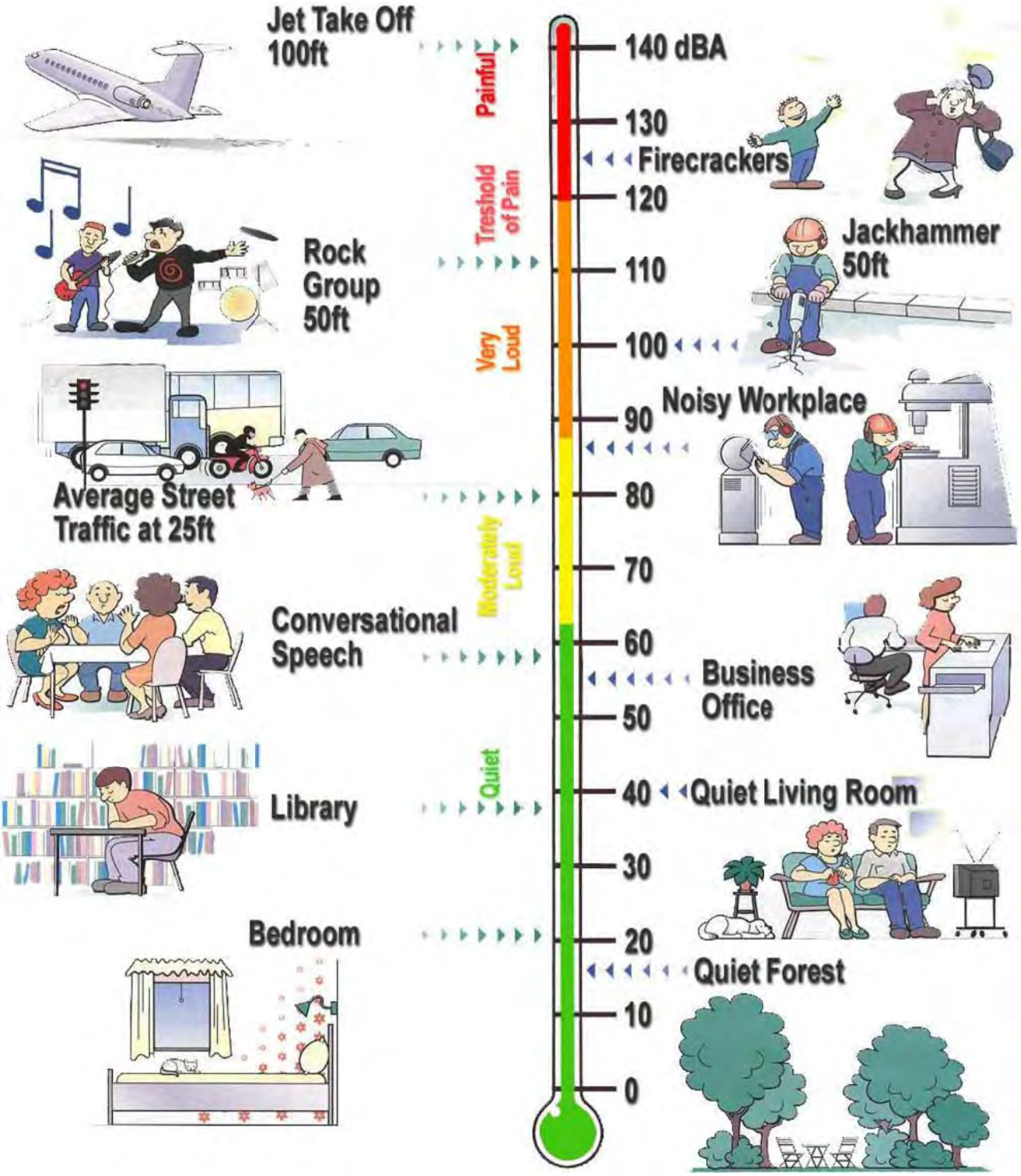
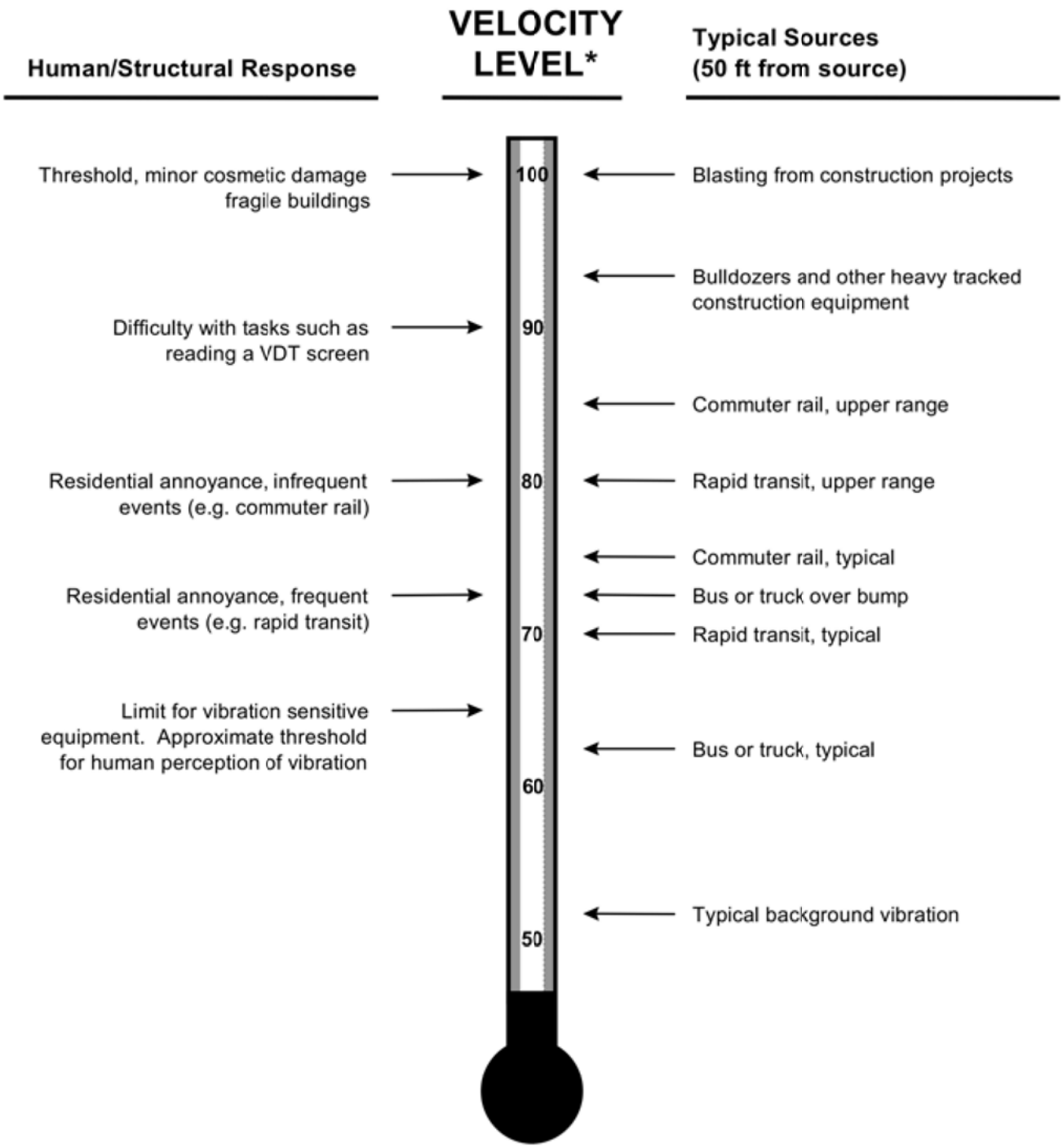


Figure 3
Weighted Sound Levels and Human Response

Source: Bruel & Kjaer 2001



** RMS Vibration Velocity Level in dB relative to 10 $^{-6}$ inches/second*

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

Figure 4
Typical Levels of Groundborne Vibration

3. EXISTING NOISE ENVIRONMENT

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by vacant land to the north and east, Winchester Road (SR-79) to the south and east, and Jean Nicholas Road to the west.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Sensitive land uses that may be affected by project noise include the existing single-family detached residential dwelling units located approximately 115 feet southwest (across Jean Nicholas Road), 285 feet south (across the intersection of Jean Nicholas Road/Skyview Road and Winchester Road (SR-79), 710 feet north, and 960 feet east of the project site.

There is also a residential subdivision currently under consideration for approval (TR37078) located adjacent to the north of the proposed project. Although this residential project has not yet been approved by the County and the current County designations of the site are not residential, this study includes analysis of this potential sensitive receptor as a courtesy.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S1.4 2014 Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, five (5) 15-minute daytime noise measurements were taken between 10:40 AM and 1:49 PM on January 27, 2020. In addition, one (1) long-term 24-hour noise measurement was also taken from January 27, 2020 to January 28, 2020. Field worksheets and noise measurement output data are included in Appendix C.

As shown on Figure 5, the noise measurements were taken near the multi-family and single-family residential uses to the northeast of the project site (across Highway 79) (NM1), near the single-family detached residential dwelling units to the east of the project site (along Via Del Paso) (NM2), near the single-family residential dwelling units located to the south of the project site (at the southern side of Skyview Road) (NM3), near the single-family residential dwelling units located to the northwest of the project site (southern side of Jean Nicholas Road) (NM4), near the single-family detached residential dwelling units located to the north of the project site (north of Ron Roberts Way) (STNM5), and at the western project boundary (adjacent to Jean Nicholas Road) (LTNM1). Table 1 provides a summary of the short-term ambient noise data. Table 2 provides hourly interval ambient noise data from the long-term noise measurement. Short-term ambient noise levels were measured between 43.1 and 64.5 dBA L_{eq}. Long-term hourly noise measurement ambient noise levels ranged from 49.9 to 62.7 dBA L_{eq}. The dominant noise sources were vehicles traveling along Highway 79 (Winchester Road), Jean Nicholas Road, Elliot Road, and other surrounding roadways.

Table 1
Short-Term Noise Measurement Summary (dBA)

Daytime Measurements[1,2]								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	10:40 AM	51.6	61.0	36.1	57.5	55.1	52.9	50.1
NM2	11:18 AM	43.1	57.6	33.9	49.1	46.1	43.5	41.3
NM3	12:05 PM	63.7	75.0	45.3	70.9	67.4	64.8	61.7
NM4	1:04 PM	64.5	83.9	40.1	72.9	67.0	62.5	55.2
NM5	1:34 PM	52.8	68.4	34.8	63.9	57.0	48.4	44.0

Notes:
(1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.
(2) Noise measurements performed on January 27, 2020.

Table 2
Long-Term Noise Measurement Summary (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	5:00 PM	59.2	87.0	28.3	66.9	63.9	59.4	54.1
1	5:00 PM	62.2	81.6	42.4	68.8	66.1	63.1	59.0
2	6:00 PM	60.7	75.8	44.1	66.9	64.8	61.5	58.4
3	7:00 PM	59.1	74.3	41.6	65.7	63.4	60.2	56.6
4	8:00 PM	59.6	80.2	38.9	66.9	63.4	59.0	55.5
5	9:00 PM	56.8	74.2	39.6	64.5	60.9	56.6	53.3
6	10:00 PM	54.7	70.7	36.0	62.6	58.8	54.8	51.6
7	11:00 PM	53.5	74.8	32.5	61.9	57.4	53.2	49.4
8	12:00 AM	52.1	71.2	30.5	61.3	55.9	51.2	45.7
9	1:00 AM	51.0	69.4	28.3	60.1	54.6	50.0	44.5
10	2:00 AM	49.9	66.3	29.8	57.9	54.1	49.8	45.4
11	3:00 AM	52.3	67.8	29.1	60.2	56.8	53.0	48.7
12	4:00 AM	57.8	74.3	39.0	65.0	62.2	58.7	54.7
13	5:00 AM	60.0	78.3	42.3	66.0	63.8	60.7	57.5
14	6:00 AM	62.2	77.2	46.4	68.4	65.9	63.1	60.2
15	7:00 AM	62.7	79.4	49.3	68.7	66.5	63.8	60.5
16	8:00 AM	61.9	81.9	43.3	68.6	66.4	62.9	57.8
17	9:00 AM	57.9	74.4	36.3	66.1	63.0	57.4	52.5
18	10:00 AM	57.3	74.4	40.5	65.3	62.3	56.9	51.3
19	11:00 AM	57.3	71.4	36.3	65.5	62.6	57.7	50.8
20	12:00 PM	58.5	77.7	35.1	66.2	63.0	58.0	52.0
21	1:00 PM	57.5	70.7	38.9	65.4	62.6	57.6	52.4
22	2:00 PM	60.2	73.6	39.5	67.8	64.7	61.2	55.7
23	3:00 PM	61.7	78.8	43.0	68.5	65.8	62.7	58.4
24	4:00 PM	62.4	87.0	42.9	68.5	65.7	62.3	57.3

Notes:

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

(2) Noise measurement performed from January 27, 2020 to January 28, 2020.

Legend

NM 1 Noise Measurement Location

ST NM Short-Term Noise Measurement

LT NM Long-Term Noise Measurement

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

FEDERAL REGULATION

Federal Noise Control Act of 1972

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

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

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

STATE REGULATIONS

State of California General Plan Guidelines 2017

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

The OPR Guidelines include a Noise and Land Use Compatibility Matrix which identifies acceptable and unacceptable community noise exposure limits for various land use categories. Where the "normally acceptable" range is used, it is defined as the highest noise level that should be considered for the construction of the buildings which do not incorporate any special acoustical treatment or noise mitigation. The "conditionally acceptable" or "normally unacceptable" ranges include conditions calling for detailed acoustical study prior to the construction or operation of the proposed project. The County of Riverside has adopted their own version of the State Land Use Compatibility Guidelines for land use planning and to assess potential transportation noise impacts to proposed land uses (see Table 3).

California Environmental Quality Act

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

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Substantial increases in ambient noise levels are usually associated with project construction noise (temporary) and project operational noise (permanent).

Project Construction Noise: Construction noise sources are regulated within the County of Riverside Ordinance 847 which prohibits construction activities other than between the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May.

Although construction activity may be exempt from the noise standards in the County's Code, CEQA requires that potential noise impacts still be evaluated for significance.

The County of Riverside has not adopted a numerical threshold that identifies what a substantial increase would be. For purposes of this analysis, the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (2018) criteria will be used to establish significance thresholds. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over an 8-hour period ($L_{eq\ (8\text{-}hr)}$; and the nighttime noise threshold is 70 dBA $L_{eq\ (8\text{-}hr)}$. For commercial uses, the daytime and nighttime noise threshold is 85 dBA $L_{eq\ (8\text{-}hr)}$. In compliance with the County's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Project Operational Noise (permanent): The proposed project has the potential to generate on-site and off-site noise. For on-site generated noise, Policy N 2.3 of the County of Riverside General Plan applies. This policy establishes that the project may not cause exterior noise levels at residential land uses to exceed 65 dBA Leq (10-minute) and interior noise levels to exceed 55 dBA Leq (10-minute) during the hours of 7:00 AM to 10:00 PM. Further, exterior noise levels may not exceed 45 dBA Leq (10-minute) and interior noise levels may not exceed 40 dBA Leq (10-minute) during the hours of 10:00 PM to 7:00 AM (see Table 4).

For off-site project generated noise, increases in ambient noise along affected roadways due to project generated vehicle traffic is considered substantial if they result in an increase of at least 5 dBA CNEL and: (1) the existing noise levels already exceed the applicable land use compatibility standard for the affected sensitive receptors set forth in the Noise Element of the County's General Plan; or (2) the project increases noise levels by at least 5 dBA CNEL and raises the ambient noise level from below the applicable standard to above the applicable standard.

b) Generate excessive groundborne vibration or groundborne noise levels?

As shown in Table 10, the threshold at which there is a risk to "architectural" damage to historic and some older buildings is a peak particle velocity (PPV) of 0.25, at older residential structures a PPV of 0.3, and at new residential structures a PPV of 0.5. Table 11 shows that a PPV of 0.04 is the threshold at which groundborne vibration becomes distinctly perceptible in regards to annoyance. Impacts would be significant if construction activities result in groundborne vibration of 0.25 PPV or higher at a sensitive receptor.

California Department of Transportation (Caltrans)

The California Department of Transportation has published one of the seminal works for the analysis of ground-borne noise and vibration relating to transportation- and construction-induced vibrations and although the project is not subject to these regulations, it serves as useful tools to evaluate vibration impacts. These guidelines recommend that a standard of 0.25 inches per second (in/sec) PPV not be exceeded for the protection of historic and some old buildings (California Department of Transportation, 2020).

LOCAL REGULATIONS

County of Riverside General Plan

The County of Riverside has adopted a modified version of the State of California Noise Land Use Compatibility Matrix (see Table 3). This Matrix establishes standards for outdoor noise levels that are normally acceptable, conditionally acceptable, normally unacceptable and clearly unacceptable for a variety of land uses. For commercial uses noise levels of up to 70 dBA CNEL are "normally acceptable" and levels up to 77.5 dBA CNEL are "conditionally acceptable". These standards apply to the proposed project itself. Additional County of Riverside General Plan Policies which apply to the proposed project are presented below.

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

Policy N 1.3: Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL: schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship.

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

Policy N 1.6: Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise sensitive uses.

Policy N 2.3: Mitigate exterior and interior noises to the levels listed in Table 4, to the extent feasible, for stationary sources.

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

a. 45 dBA-10-minute L_{eq} between 10:00 PM and 7:00 AM [nighttime standard].
b. 65 dBA-10-minute L_{eq} between 7:00 AM and 10:00 PM [daytime standard].

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

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

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

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

Policy N 9.3: Require development that generates increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses to provide for appropriate mitigation measures.

Policy N 9.4: Require that the loading and shipping facilities of commercial and industrial land uses, which abut residential parcels be located and designed to minimize the potential noise impacts upon residential parcels.

Policy N 8.6: Require that all future exterior noise forecasts use Level of Service C, and be based on designed road capacity or 20-year projection of development (whichever is less) for future noise forecasts.

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

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

Policy N 13.3: Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

a. Temporary noise attenuation fences;
b. Preferential location of equipment; and
c. Use of current noise suppression technology and equipment.

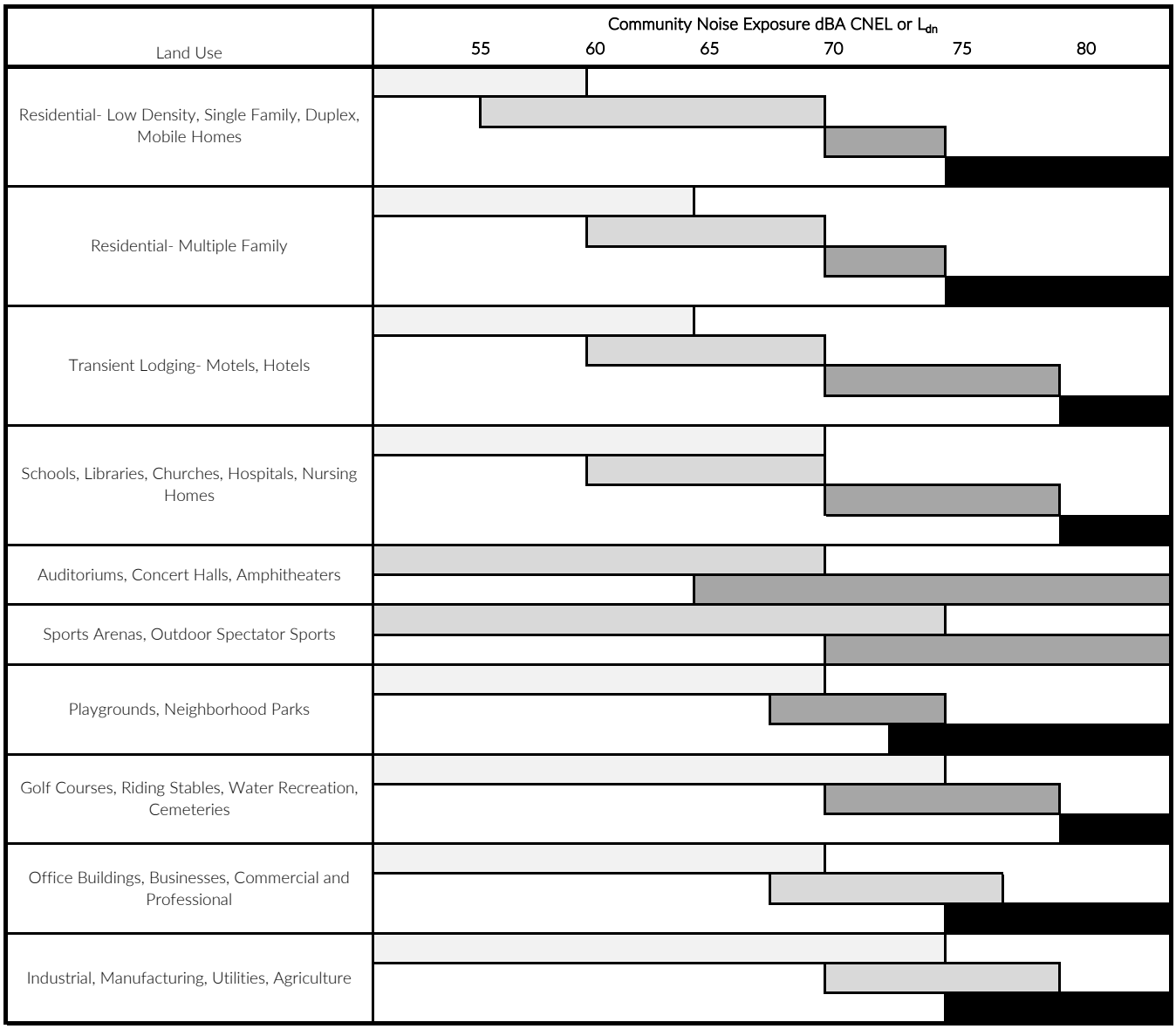
Policy N 13.4: Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

Policy N 16.2: Consider the following land uses sensitive to vibration: hospitals, residential areas, concert halls, libraries, sensitive research operations, schools, and offices.

County of Riverside Code

Ordinance 847 exempts construction noise from County noise standards as long as long as it is limited to the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May (Sec 2.i.1,2).

Table 3
County of Riverside Land Use Compatibility for Community Noise Exposure



Notes:

Source: County of Riverside General Plan Noise Element Table N-1, 2015.

	Normally Acceptable:	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable:	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.
	Normally Unacceptable:	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.
	Clearly Unacceptable:	New construction or development should generally not be undertaken. Construction cost to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Table 4
County of Riverside Stationary Source Land Use Noise Standards[1,2]

Residential Land Use	Interior Standards	Exterior Standards
10:00 PM to 7:00 AM	40 Leq (10 minute)	45 Leq (10 minute)
7:00 AM to 10:00 PM	55 Leq (10 minute)	65 Leq (10 minute)

Notes:
(1) Source: County of Riverside General Plan Noise Element.
(2) These are only preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

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

CONSTRUCTION NOISE MODELING

Construction noise associated with the proposed project was calculated at the sensitive receptor locations, utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the project site. The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the CalEEMod modeling in the Air Quality, Global Climate Change, TAC, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, Inc., 2020). For construction noise purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the project site to the property line of residential properties with existing residential buildings. Construction noise worksheets are provided in Appendix D.

FEDERAL HIGHWAY ADMINISTRATION (FHWA) TRAFFIC NOISE PREDICTION MODEL

Existing and Existing Plus project traffic noise levels were modeled for roadways affected by project generated traffic utilizing the FHWA Traffic Noise Prediction Model FHWA-RD-77-108 in order to quantify the proposed project's contribution to increases in ambient noise levels. Future traffic noise levels were modeled to assess potential traffic related impacts to the proposed project.

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

Roadway parameters utilized in the noise model include location, traffic volume, speed and vehicle mix (autos, medium trucks, and heavy trucks). It is important to evaluate potential impacts of the noisiest possible future conditions. These conditions occur when the maximum amount of vehicles pass at the greatest speed. This scenario usually corresponds to Level of Service C (LOS C) Conditions, or about 75% of buildout capacity. The County of Riverside General Plan Southwest Area Plan identifies Winchester Road (SR-79) as an Expressway (128 foot to 220 foot right-of-way) roadway and Jean Nicholas Road as a Secondary (100 foot right-of-way) roadway. Per the County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County of Riverside General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways" revised March 2001, future buildout noise levels associated with these roadways were modeled using average daily traffic volume Level of Service "C" design capacities (also known as future build-out daily traffic volumes). Winchester Road (SR-79) is expected to accommodate up to 32,700 vehicles per day at Level of Service C and Jean Nicholas Road is expected to accommodate up to 20,700 vehicles per day at Level of Service C. The D/E/N splits for use in acoustical studies published by the Riverside County Department of Industrial Hygiene were utilized for noise modeling. Existing Plus project vehicle mixes were calculated by adding the proposed project trips to existing conditions.

Existing and Existing Plus Project vehicle mix were obtained from the project's traffic study (Ganddini Group 2020). Existing Plus Project vehicle mixes were calculated by adding the proposed project trips to existing conditions. FHWA spreadsheets are included in Appendix E.

SOUNDPLAN NOISE MODEL

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

Peak hour operational noise levels were modeled utilizing representative sound levels in the SoundPLAN model. Modeled noise sources include car wash equipment, vacuum equipment, queuing, fueling area and parking lot noise, drive-thru speaker, and HVAC equipment. All noise sources were modeled to be in full operation for an entire hour. This is a conservative modeling effort, given that in actuality, several of the noise sources are not in operation continuously for an entire hour. A nighttime version of project operation was also modeled. This version of the model run assumed that no car wash or vacuuming activity would occur between the hours of 10:00 PM and 7:00 AM.

Car Wash Equipment Noise

The car wash drying system is by far the loudest noise source associated with the car wash tunnel. A representative sound level of 93.1dBA L_{eq}[1] at the tunnel exit was utilized to model the propagation of car wash noise in the SoundPLAN noise model. A point noise source was placed 5 feet from the opening of the end of the car wash tunnel at a height of 8 feet to represent dryer noise.

Vacuum Equipment Noise

Producers are the loudest elements of a vacuum system. Producers will be located in the equipment room. Manufacturer data for two Vacutech 20 HP producers show that noise levels can be expected to reach 77.8 in a closed door condition at a distance of 10 feet. The specific location of the system has not been identified so a representative sound level of 77.8 dBA L_{eq}[2] was applied to the entire exterior surface of the equipment room. This is a very conservative assumption.

A hose system will extend from these housed systems and hose ends will be available within the parking/vacuum area. A point noise source with a sound pressure level of 76.8 dB was assigned to each vacuum station to represent noise associated with general vacuuming activities. This noise level was collected at a Fast Five Car Wash in the City of Murrieta, California on November 7th, 2017. The measured 76.8 dB at 3 feet noise level is an average of three (3) five-minute noise measurements taken while cleaning the front seat area of a car[3]. This modeling methodology is very conservative as it assumes that all vacuum stations are being utilized at the same time continuously for an entire hour.

Queuing, Parking Lot Noise and Fueling Area

Parking lot noise was calculated using SoundPLAN methodology. Specifically, the traffic volume of the parking lot is entered with the number of moves per parking, the hour and the number of parking bays. The user defines whether the parking lots are for automobiles, motorcycles, or trucks, and the emission level of a

[1] Representative Noise Measurement of 12 MacNeil Tech-21 15 HP Dryers at tunnel exit taken at Scrub Bot Express Wash 3965 W. Ray Rd. Chandler, AZ 85226 provided by the equipment manufacturer.

[2] Representative Noise Measurements of 2 Autovac 20 HP Producers at a distance of 10 feet from enclosure provided by the equipment manufacturer.

[3] 2017 Noise Measurements, Fast Five Car Wash. City of Murrieta, November 7. Kunzman Associates.

parking lot is automatically adjusted accordingly. The values for the number of parking moves for each time slice is the number of parking moves per reference unit (most often per parking bay), averaged for the hour[4].

SoundPLAN utilizes parking lot noise emission levels from the 6th revised edition of the parking lot study "Recommendations for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus Stations as well as of Multi-Story Car Parks and Underground Car Parks" published by the Bavarian Landesamt für Umwelt provides calculation methods to determine the emissions of parking lots.

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

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

With the following parameters:

Lw0 = Basic sound power, sound power level of one motion / per hour on P+R areas = 63 dB(A)
KPA = Surcharge parking lot type
KI = Surcharge for impulse character
KD = Surcharge for the traffic passaging and searching for parking bays in the driving lanes 2,5 * lg (f * B - 9)
f = Parking bays per unit of the reference value
B = Reference value
KStrO = Surcharge for the road surface
B = Reference value

A line noise source with a sound pressure level of 50 dB L_{eq} every square meter was utilized to represent vehicle drive-thru queuing.

The fueling area was modeled as an area noise source with a sound power level of 65 dBA L_{eq} per square meter to represent normal to loud speech.

In order to model anticipate nighttime operational conditions, the car wash and vacuums were assumed to be non-operational, parking movements were reduced by 50% and the fueling area sound reference level was modeled at 55 dBA/square meter.

Drive Thru Speaker Noise

Modern drive-thru speakers are adjustable to be readily audible over existing ambient noise levels. A sound level of 75 dBA Leq at a distance of 3 feet was utilized for modeling purposes.

Mechanical Equipment (HVAC Units) Noise

A noise reference level of 67.7 dBA at 3 feet (sound power level of 78.7 dB) was utilized to represent rooftop 5 Ton Carrier HVAC units[5]. A rooftop HVAC plan is not available at the time of this analysis so the exact location and number of units per building were estimated. A total of 17 rooftop units were modeled on the proposed rooftops. The noise source height for each HVAC unit was assumed at 1 meter above the roof top. Roof top is assumed to be approximately 6 meters (~18.3 feet) above grade.

[4] SoundPLAN Essential 4.0 Manual. SoundPLAN International, LLC. May 2016.
[5] MD Acoustics, LLC Noise Measurement Data for RTU –Carrier 50TFQ0006 and car alarm.

6. IMPACT ANALYSIS

This impact discussion analyzes the potential for noise and/or groundborne vibration impacts to cause the exposure of a person to, or generation of, noise levels in excess of established County of Riverside standards related to: construction, operation, and transportation noise related impacts to, or from, the proposed project.

IMPACTS RELATED TO CONSTRUCTION NOISE

The existing single-family detached residential dwelling units located to the southwest, south, north, and east of the project site may be affected by short-term noise impacts associated with construction noise. Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

The construction phases for the proposed project are anticipated to include: grading, building construction, paving and architectural coating. A summary of noise level data for a variety of construction equipment compiled by the U.S. Department of Transportation is presented in Table 5. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Construction noise associated with the proposed project was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the proposed construction activity. Construction noise levels were calculated for each phase. Anticipated noise levels during each construction phase are presented in Table 6. Worksheets for each phase are included as Appendix D.

A comparison of existing noise levels and existing plus project construction noise levels are presented in Table 6. STNM5 was chosen to represent noise levels at the property line of the single-family residential uses to the north, STNM1 was chosen to represent noise levels at the multi-family residential property line to the northeast of the project site, STNM2 was chosen to represent the single-family residential property lines of properties to the east and southeast of the project site, STNM3 was chosen to represent the single-family residential property lines of the properties to the south of the project site, and STNM4 was chosen to represent the single-family residential property lines of properties to the west and southwest of the project site.

Modeled unmitigated construction noise levels when combined with existing measured noise levels reached 61.2 dBA L_{eq} at the nearest residential property lines to the north, 56.2 dBA L_{eq} at the nearest residential property lines to the northeast, 58.4 dBA L_{eq} at the nearest residential property lines to the east and southeast, 67.1 dBA L_{eq} at the nearest residential property lines to the south, and up to 74.2 dBA L_{eq} at the nearest residential property lines to the west and southwest of the project site.

As discussed earlier, construction noise sources are regulated within the County of Riverside Ordinance 847 which prohibits construction activities other than between the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May.

As stated previously, per FTA daytime construction noise levels should not exceed 80 dBA L_{eq} for an 8-hour period at residential uses and 85 dBA L_{eq} for an 8-hour period at commercial uses. Therefore, project construction would not be anticipated to exceed the FTA thresholds for residential uses. Further, with compliance with the County's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Impacts related to construction noise will be further minimized with adherence to the above Municipal Ordinances and implementation of the measures presented in Section 8 of this report.

NOISE IMPACTS TO OFF-SITE RECEPTORS DUE TO PROJECT GENERATED TRIPS

During operation, the proposed project is expected to generate approximately 5,185 average daily trips with 290 trips during the AM peak-hour and 218 trips during the PM peak-hour. A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated at the right of way from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. Roadway input parameters including average daily traffic volumes (ADTs), speeds, and vehicle distribution data is shown in Table 7. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions and is demonstrated in Table 7.

Existing Year (With Project): This scenario refers to existing year plus project traffic noise conditions and is demonstrated in Table 7.

As shown in Table 8, modeled Existing traffic noise levels range between 57-78 dBA CNEL at the right-of-way of each modeled roadway segment; and the modeled Existing Plus Project traffic noise levels range between 57-78 dBA CNEL at the right-of-way of each modeled roadway segment.

As stated previously, for purposes of this project, increases in ambient noise along affected roadways due to project generated vehicle traffic is considered substantial if they result in an increase of at least 5 dBA CNEL and: (1) the existing noise levels already exceed the applicable land use compatibility standard for the affected sensitive receptors set forth in the Noise Element of the County's General Plan; or (2) the project increases noise levels by at least 5 dBA CNEL and raises the ambient noise level from below the applicable standard to above the applicable standard.

All modeled roadway segments are anticipated to change the noise a nominal amount (between approximately 0.05 to 1.84 dBA CNEL). Therefore, a change in noise level would not be audible and would be considered less than significant. No mitigation is required.

TRANSPORTATION NOISE IMPACTS TO THE PROPOSED PROJECT

Per the County of Riverside General Plan, noise levels of up to 70 dBA CNEL are "normally acceptable" and levels up to 77.5 dBA CNEL are "conditionally acceptable" for commercial uses (see Table 3).

Roadway parameters utilized in the noise model include location, traffic volume, speed and vehicle mix (autos, medium trucks, and heavy trucks). It is important to evaluate potential impacts of the noisiest possible future conditions. These conditions occur when the maximum amount of vehicles pass at the greatest speed. This scenario usually corresponds to Level of Service C (LOS C) Conditions, or about 75% of buildout capacity. The County of Riverside General Plan Southwest Area Plan identifies Winchester Road (SR-79) as an Expressway (128 foot to 220 foo right-of-way) roadway and Jean Nicholas Road as a Secondary (100 foot right-of-way) roadway. Per the County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County of Riverside General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways" revised March 2001, future buildout noise levels associated with these roadways were modeled using average daily traffic volume Level of Service "C" design capacities (also known as future build-out daily traffic volumes). Winchester Road (SR-79) is

expected to accommodate up to 32,700 vehicles per day at Level of Service C and Jean Nicholas Road is expected to accommodate up to 20,700 vehicles per day at Level of Service C. The D/E/N splits for use in acoustical studies published by the Riverside County Department of Industrial Hygiene were utilized for noise modeling. Existing Plus project vehicle mixes were calculated by adding the proposed project trips to existing conditions.

Future buildout traffic noise levels from each of these roadways were modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Future buildout traffic noise levels could reach up to approximately 74.5 dBA CNEL at the nearest proposed commercial building to Winchester Road (SR-79), approximately 155 feet west of the centerline of the roadway, and up to approximately 70.8 dBA CNEL at the nearest proposed commercial building to Jean Nicholas Road, approximately 71 feet northeast of the centerline of the roadway. Modeling spreadsheets are presented in Appendix E.

Therefore, exterior noise levels at the proposed project site are anticipated to fall within the County's conditionally acceptable exterior noise standards for commercial uses. Impacts related to future traffic noise impacts to the proposed project would be less than significant.

NOISE IMPACTS TO OFF-SITE RECEPTORS DUE TO ON-SITE OPERATIONAL NOISE

As discussed previously, sensitive land uses that may be affected by project noise include the existing single-family detached residential dwelling units located approximately 115 feet southwest (across Jean Nicholas Road), 285 feet south (across the intersection of Jean Nicholas Road/Skyview Road and Winchester Road (SR-79), 710 feet north, and 960 feet east of the project site.

The SoundPLAN noise model was utilized to estimate project peak hour operational noise at first floor/yard and second floor receptors in order to determine if it is likely to exceed the County's noise thresholds at sensitive receptors. A description of each noise source and model parameters are discussed in Section 5 of this report. As shown on Figures 6, 7, and 8, daytime peak hour project operation is expected to range between 47.4 and 64.5 dBA Leq at the nearest sensitive receptors and is not expected to exceed the County's exterior daytime noise threshold of 65 dBA L_{eq}. Nighttime noise levels associated with the proposed project were also modeled assuming no car wash or vacuuming activities would occur between 10:00 PM and 7:00 AM. Nighttime operational noise levels are expected to range between 30.5 and 48.6 dBA Leq at modeled sensitive receptors. Second floor noise levels at proposed adjacent residential land uses to the east may exceed the nighttime exterior noise standard of 45 dBA L_{eq}. However, residential construction typically provides an exterior to interior noise reduction of 20 dB with a windows closed condition. The proposed adjacent residential units are expected to be provided with air conditioning which will allow a closed window condition, considering their proximity to State Route 79. Project operational noise levels would be considered less than significant. No mitigation is required.

GROUNDBORNE VIBRATION IMPACTS

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

Annoyance to Persons

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

As shown in Table 10, vibration becomes distinctly perceptible to people in buildings at a PPV of 0.04.

At 135 feet, which is the distance to the closest off-site building, use of a vibratory roller would be expected to generate a PPV of 0.017 and a bulldozer would be expected to generate a PPV of 0.007. Use of either a vibratory roller or a bulldozer would not be considered annoying to nearby sensitive receptors.

Architectural Damage

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

Table 11 identifies a PPV level of 0.25 as the threshold at which there is a risk to "architectural" damage to historic and some old buildings. Temporary vibration levels associated with project construction would be less than significant. No mitigation is required. Vibration worksheets are provided in Appendix G.

Table 5 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift[2,3]	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17

Table 5 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

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

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014 http://www.noisetesting.info/blog/carl-strautins/page-3/

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

Table 6
Construction Noise Levels (L_{eq})

Phase	Receptor Location	Existing Ambient Noise Levels (Leq)[1]	Construction Noise Levels (Leq)[2]	Combined Noise Levels (Leq)	Increase (dB)
Grading	North	52.8	60.5	61.2	8.4
	Northeast	51.6	54.4	56.2	4.6
	Southeast/East	43.1	58.3	58.4	15.3
	South	63.7	64.4	67.1	3.4
	Southwest/West	64.5	73.7	74.2	9.7
Building Construction	North	52.8	59.2	60.1	7.3
	Northeast	51.6	53.2	55.5	3.9
	Southeast/East	43.1	57.0	57.2	14.1
	South	63.7	63.2	66.5	2.8
	Southwest/West	64.5	72.4	73.1	8.6
Paving	North	52.8	59.4	60.3	7.5
	Northeast	51.6	53.4	55.6	4.0
	Southeast/East	43.1	57.2	57.4	14.3
	South	63.7	63.4	66.6	2.9
	Southwest/West	64.5	72.6	73.2	8.7
Architectural Coating	North	52.8	49.9	54.6	1.8
	Northeast	51.6	43.9	52.3	0.7
	Southeast/East	43.1	47.7	49.0	5.9
	South	63.7	53.9	64.1	0.4
	Southwest/West	64.5	63.2	66.9	2.4

Notes:

(1) Per measured existing ambient noise levels. STNM5 used for receptors to the north, STNM1 for receptors to the northeast, STNM2 for receptors to the east and southeast, STNM3 for receptors to the south, and STNM4 for recetpors to the west and southwest.

(2) Construction noise worksheets are provided in Appendix D.

Table 7
Project Average Daily Traffic Volumes and Roadway Parameters

Roadway	Segment	Average Daily Traffic Volume[1]		Posted Travel Speeds (MPH)	Site Conditions
		Existing	Existing Plus Project		
Leon Rd	North of Baxter Rd/Jean Nicholas Rd	5,600	5,700	55	Hard
	South of Baxter Rd/Jean Nicholas Rd	7,800	8,600	55	Hard
Winchester Rd	North of Whisper Heights/Pourroy Rd	33,800	34,200	55	Hard
	Whisper Heights/Pourroy Rd to Jean Nicholas Rd/Skyview Rd	30,200	31,300	55	Hard
	Jean Nicholas Rd/Skyview Rd to Blue Spruce Lane/Algarve Ave	32,300	34,200	55	Hard
	Blue Spruce Lane/Algarve Ave to Max Gillis Blvd/Thompson Rd	33,900	35,400	55	Hard
	Max Gillis Blvd/Thompson Rd to Benton Rd	42,900	43,700	55	Hard
	South of Benton Rd	37,400	37,800	55	Hard
Pourroy Rd	East of Winchester Rd	10,400	11,200	45	Hard
Baxter Rd	West of Leon Rd	2,000	2,500	45	Hard
Jean Nicholas Rd	Leon Rd to Mauna Loa Rd	5,600	7,300	45	Hard
	Mauna Loa Rd to Winchester Rd	5,700	8,700	45	Hard
Mauna Loa Rd	South of Jean Nicholas Rd	900	1,200	35	Hard
Blue Spruce Ln	West of Winchester Rd	700	800	35	Hard
Algarve Ave	East of Winchester Rd	2300	2,300	35	Hard
Thompson Rd	East of Winchester Rd	11600	12,300	45	Hard
Benton Rd	East of Winchester Rd	20700	21,100	45	Hard

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

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

Notes:

(1) Existing and project average daily traffic volumes obtained from the Winchester at Jean Nicholas Commercial Retail Center Traffic Impact Analysis, Ganddini Group Inc. (May 19, 2020).

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

Table 8
Change in Existing Noise Levels Along Roadways as a Result of Project (dBA CNEL)

Roadway	Segment	Distance from roadway centerline to right-of-way (feet)[2]	Modeled Noise Levels (dBA CNEL)[1]				
			Existing Without Project at right-of-way	Existing Plus Project at right-of-way	Change in Noise Level	Exceeds Standards[3]	Increase of 5 dB or More?
Leon Rd	North of Baxter Rd/Jean Nicholas Rd	59	71.02	71.10	0.08	Yes	No
	South of Baxter Rd/Jean Nicholas Rd	59	72.46	72.89	0.43	Yes	No
Winchester Rd	North of Whisper Heights/Pourroy Rd	92	76.90	76.95	0.05	Yes	No
	Whisper Heights/Pourroy Rd to Jean Nicholas Rd/Skyview Rd	92	76.41	76.57	0.16	Yes	No
	Jean Nicholas Rd/Skyview Rd to Blue Spruce Lane/Algarve Ave	92	76.71	76.95	0.24	Yes	No
	Blue Spruce Lane/Algarve Ave to Max Gillis Blvd/Thompson Rd	92	76.92	77.10	0.18	Yes	No
	Max Gillis Blvd/Thompson Rd to Benton Rd	92	77.94	78.02	0.08	Yes	No
	South of Benton Rd	92	77.34	77.39	0.05	Yes	No
Pourroy Rd	East of Winchester Rd	50	69.39	69.71	0.32	Yes	No
Baxter Rd	West of Leon Rd	50	65.92	66.89	0.97	Yes	No
Jean Nicholas Rd	Leon Rd to Mauna Loa Rd	50	66.70	67.85	1.15	Yes	No
	Mauna Loa Rd to Winchester Rd	50	66.78	68.62	1.84	Yes	No
Mauna Loa Rd	South of Jean Nicholas Rd	37	57.74	58.99	1.25	No	No
Blue Spruce Ln	West of Winchester Rd	37	56.65	57.23	0.58	No	No
Algarve Ave	East of Winchester Rd	37	61.82	62.35	0.53	Yes	No
Thompson Rd	East of Winchester Rd	59	72.83	73.09	0.26	Yes	No
Benton Rd	East of Winchester Rd	76	74.25	74.33	0.08	Yes	No

Notes:

(1) Exterior noise levels calculated 5 feet above pad elevation, perpendicular to subject roadway.

(2) Right of way per the County of Riverside General Plan Circulation Element.

(3) Per the County of Riverside normally acceptable standard for single-family detached residential dwelling units (see Table 3).

Table 9
Construction Equipment Vibration Source Levels

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

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

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

Table 10
Guideline Vibration Annoyance Potential Criteria

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

Notes:

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

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

Table 11
Guideline Vibration Damage Potential Threshold Criteria

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

Notes:

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

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

Figure 6
Daytime Operational Noise Levels (Leq)

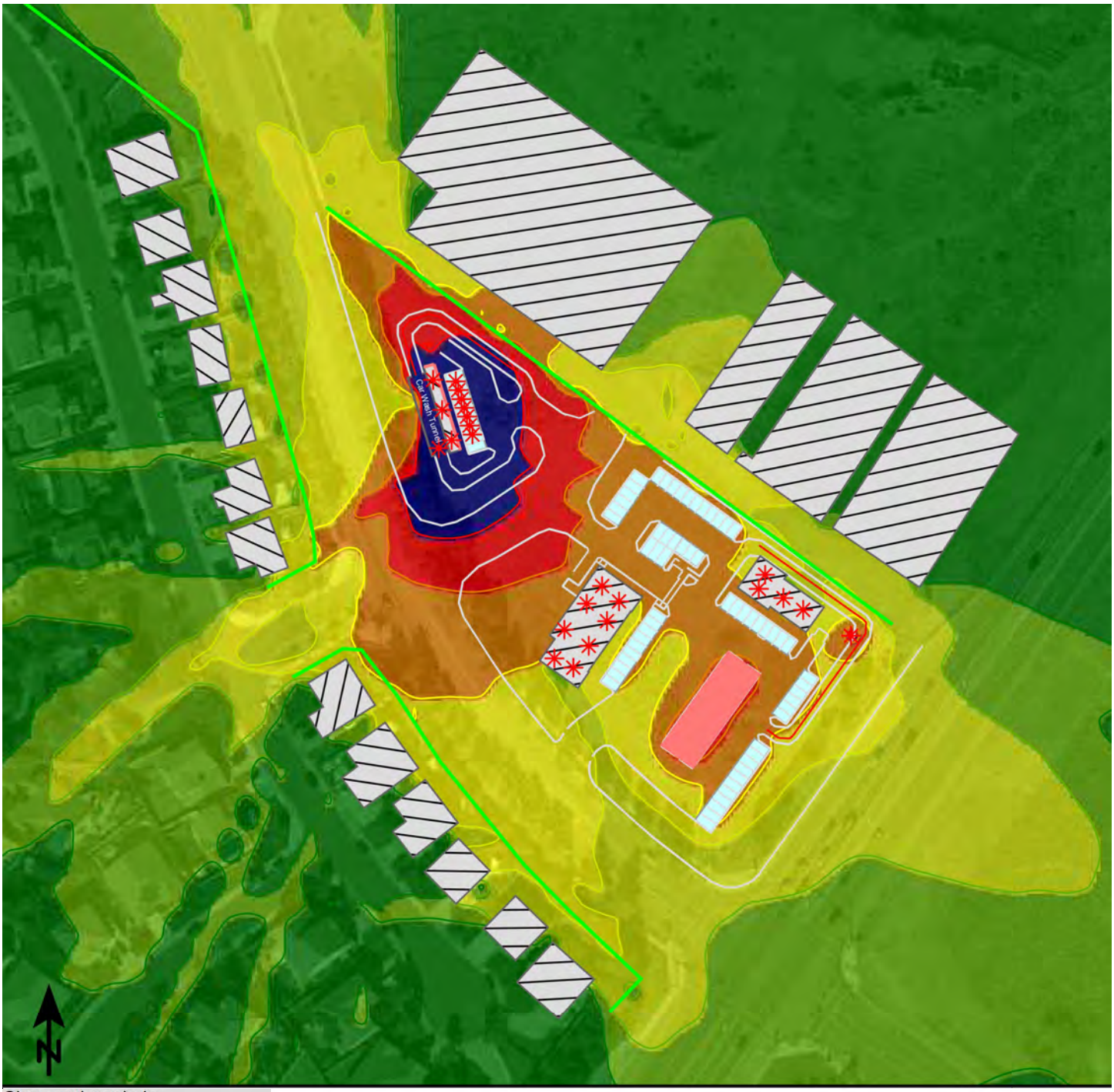


Figure 7
Daytime Operational Noise Level Contours (Leq) First Story

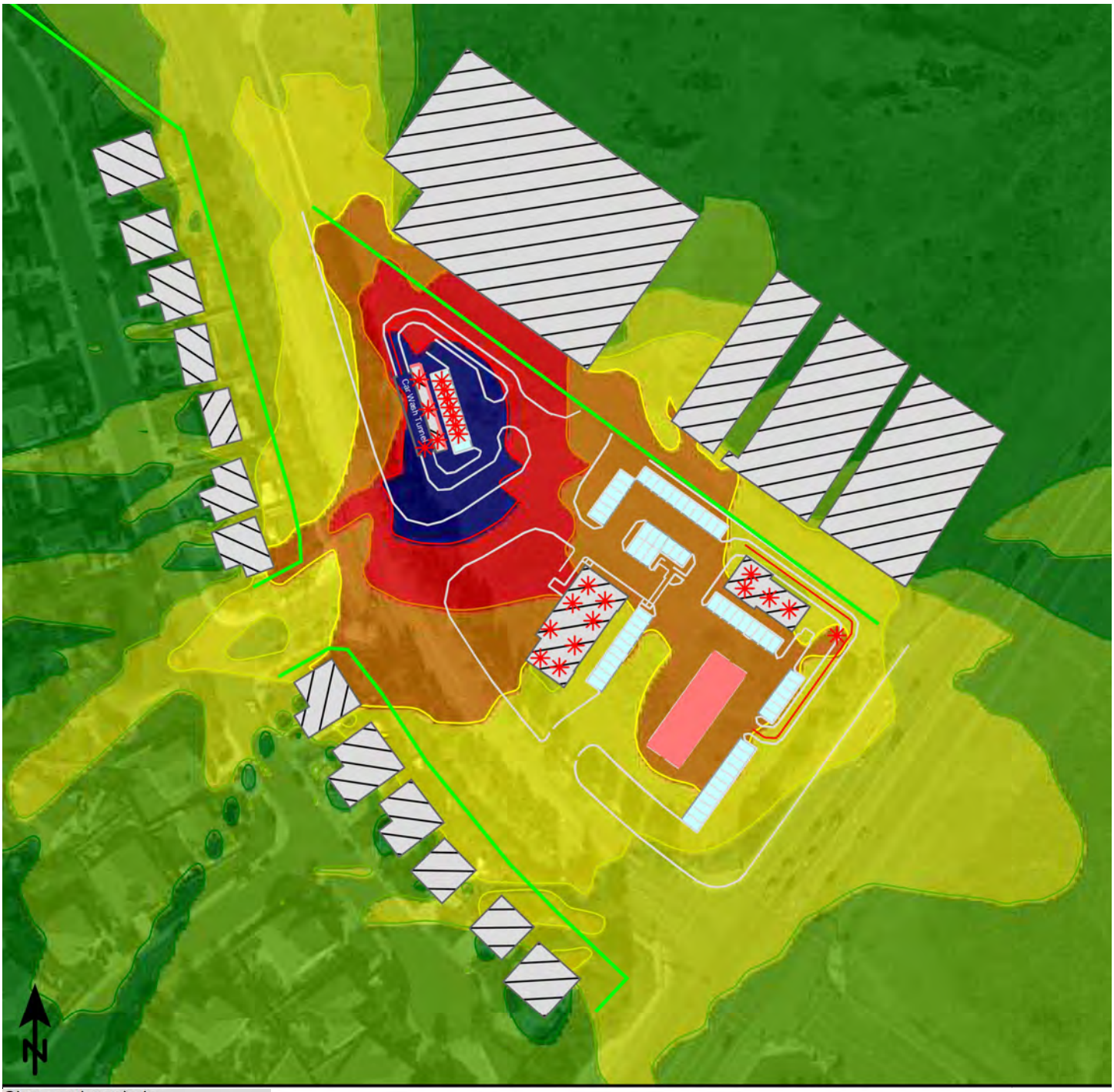


Figure 8
Daytime Operational Noise Level Contours (Leq) Second Story

Figure 9
Nighttime Operational Noise Levels (Leq)

Figure 10
Nighttime Operational Noise Level Contours (Leq) First Floor

Figure 11
Nighttime Operational Noise Level Contours (Leq) Second Floor

7. IMPACT ANALYSIS TO THE PROPOSED RESIDENTIAL USE

The proposed residential development TR37078 is located adjacent to the north of the proposed project. Per the County of Riverside General Plan Land Use Map the current land use designations at this proposed residential use are Commercial Retail and Light Industrial. Although this project has not yet been approved by the County and the current County land use designations for this project site are not residential, in order to anticipate any potential future noise related impacts an additional noise analysis at this proposed use has been provided below.

IMPACTS RELATED TO CONSTRUCTION NOISE

This construction analysis assumes the proposed residential project to the north is approved by the County and is already constructed and operational.

The proposed residential dwelling units located to the north of the project site may be affected by short-term noise impacts associated with construction noise. Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

As stated above, the construction phases for the proposed project are anticipated to include: grading, building construction, paving and architectural coating. A summary of noise level data for a variety of construction equipment compiled by the U.S. Department of Transportation is presented in Table 5. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

As discussed above, construction noise associated with the proposed project was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the proposed construction activity. Construction noise levels were calculated for each phase. Anticipated noise levels during each construction phase are presented in Table 12. Worksheets for each phase are included as Appendix D.

A comparison of existing noise levels and existing plus project construction noise levels are presented in Table 12. LTNM1 was chosen to represent noise levels at the property line of the proposed residential use to the north. Modeled unmitigated construction noise levels when combined with existing measured noise levels reached 79.3 dBA L_{eq} at the nearest proposed residential property line to the north of the project site.

As discussed earlier, construction noise sources are regulated within the County of Riverside Ordinance 847 which prohibits construction activities other than between the hours of 6:00 AM to 6:00 PM during the months of June through September and between the hours of 7:00 AM and 6:00 PM during the months of October through May.

As stated previously, per FTA daytime construction noise levels should not exceed 80 dBA L_{eq} for an 8-hour period at residential uses. Therefore, project construction would not be anticipated to exceed the FTA threshold for residential uses. Further, with compliance with the County's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Impacts related to construction noise will be further minimized with adherence to the above Municipal Ordinances and implementation of the measures presented in Section 8 of this report.

Therefore, if the proposed residential project to the north is approved and operational during project construction, no additional construction mitigation would be required.

NOISE IMPACTS TO PROPOSED OFF-SITE RECEPTORS DUE TO ON-SITE OPERATIONAL NOISE

If the proposed adjacent residential use located to the north is approved it may be affected by noise generated by the proposed project. Per the proposed residential development's site plan a 6-foot barrier is to be located along the southern property line adjacent to the proposed project (i.e., along the proposed project's northern property line). As shown on Figures 6 through 11, this proposed barrier has been incorporated into the modeling for the proposed project and it has been assumed that it is a solid barrier with no holes or cracks.

The SoundPLAN noise model was utilized to estimate project peak hour operational noise at the proposed residential first floor/yard and second floor receptors in order to determine if it is likely to exceed the County's noise thresholds at proposed sensitive receptors. A description of each noise source and model parameters are discussed in Section 5 of this report. As shown on Figures 6, 7 and 8, peak hour project operation is expected to range between 50.0 and 64.5 dBA L_{eq} at the proposed sensitive receptors to the east and is not expected to exceed the County's exterior daytime noise threshold of 65 dBA L_{eq}. Nighttime noise levels associated with the proposed project were also modeled assuming no car wash or vacuuming activities would occur between 10:00 PM and 7:00 AM. As shown above on Figures 9, 10, and 11, nighttime operational noise levels are expected to range between 37.8 and 48.6 dBA Leq at modeled proposed sensitive receptors to the east. Second floor noise levels at proposed adjacent residential land uses to the east may exceed the nighttime exterior noise standard of 45 dBA L_{eq}. Residential construction typically provides an exterior to interior noise reduction of 20 dB with a windows closed condition. The proposed adjacent residential units are expected to be provided with air conditioning which will allow a closed window condition, considering their proximity to State Route 79. Project operational noise levels would be considered less than significant. No mitigation is required.

GROUNDBORNE VIBRATION IMPACTS

This vibration analysis assumes the proposed residential project to the north is approved by the County and already constructed.

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

Annoyance to Persons

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

As shown in Table 10, vibration becomes distinctly perceptible to people in buildings at a PPV of 0.04.

At 20 feet, which is the approximate distance to the closest proposed off-site residential building to the north, use of a vibratory roller would be expected to generate a PPV of 0.273 and a bulldozer would be expected to generate a PPV of 0.116. Therefore, use of either a vibratory roller or a bulldozer would clearly be highly annoying to these adjacent sensitive receptors. Annoyance is expected to be short-term, occurring only during site grading and preparation. Mitigation measures to reduce potential impacts related to annoyance are presented in Section 8 of this report.

Architectural Damage

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

Table 11 identifies a PPV level of 0.5 as the threshold at which there is a risk to "architectural" damage to new residential buildings. Temporary vibration levels associated with project construction would be less than significant. No mitigation is required. Vibration worksheets are included in Appendix G.

Table 12
Construction Noise Levels at the Proposed Residential Use to the North (L_{eq})

Phase	Receptor Location	Existing Ambient Noise Levels (Leq)[1]	Construction Noise Levels (Leq)[2]	Combined Noise Levels (Leq)	Increase (dB)
Grading	Proposed Residential to North	59.2	79.3	79.3	20.1
Building Construction	Proposed Residential to North	59.2	78.1	78.2	19.0
Paving	Proposed Residential to North	59.2	78.3	78.4	19.2
Architectural Coating	Proposed Residential to North	59.2	68.8	69.3	10.1

Notes:
(1) Per measured existing ambient noise levels. LTNM1 used for receptors to the north.
(2) Construction noise worksheets are provided in Appendix D.

8. MEASURES TO REDUCE IMPACTS

CONSTRUCTION NOISE REDUCTION MEASURES

In addition to adherence to the County of Riverside Municipal Code which limits the construction hours of operation, the following measures are recommended to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

3. Equipment shall be shut off and not left to idle when not in use.

4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

6. The project proponent shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.

7. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.

9. REFERENCES

Bolt, Beranek & Newman
1987 Noise Control for Buildings and Manufacturing Plants.

California Department of Transportation
2002 Transportation Related Earthborne Vibrations (California Department of Transportation Experiences), Technical Advisory, Vibration TAV-02-01-R9601. February 20.

2020 Transportation and Construction Vibration Guidance Manual. April.

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

Federal Transit Administration
2006 Transit Noise and Vibration Impact Assessment. Typical Construction Equipment Vibration Emissions. FTAVA-90-1003-06.

2018 Transit Noise and Vibration Impact Assessment Manual. Typical Construction Equipment Vibration Emissions.

Gandinni Group, Inc.
2020 Winchester at Jean Nicholas Commercial Retail Center Traffic Impact Analysis. May 19.
2020 Winchester at Jean Nicholas Commercial Retail Center Air Quality, Global Climate Change, TAC, and Energy Impact Analysis. June.

Harris, Cyril M.
1991 Handbook of Acoustical Measurement and Noise Control. Acoustical Society of America. Woodbury, N.Y.

Jones & Stokes
2004 Transportation and Construction Induced Vibration Guidance Manual, prepared for the California Department of Transportation - Noise, Vibration, and Hazardous Waste Management Office

Kunzman Associates
2017 Noise Measurements, Fast Five Car Wash. City of Murrieta, November 7.

Office of Planning and Research
2003 State of California General Plan Guidelines

Riverside, County of
2001 General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways".
2009 County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County.
2015 County or Riverside General Plan
2015 County of Riverside Municipal Code.
2019 Southwest Area Plan. Revised April 16.

U.S. Department of Transportation.
2006 FHWA Roadway Construction Noise Model User's Guide. January.

APPENDICES

APPENDIX A

LIST OF ACRONYMS

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

APPENDIX B

DEFINITIONS OF ACOUSTICAL TERMS

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

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEET

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27, 2020

Project #: JN 19-0221

Noise Measurement #: NM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 35007 Corte de Oro, Winchester, California.

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicolas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Multi-family residential to NE, single-family residential to SE, vacant land to west with Highway 79 further west.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 59 deg F **Wind:** 5-10 mph **Humidity:** 60% **Terrain:** Hilly

Start Time: 10:40 AM **End Time:** 10:55 AM **Run Time:**

Leq: 51.6 dB **Primary Noise Source:** Traffic ambiance from Highway 79 (Winchester Road).

Lmax 61 dB

L2 57.5 dB **Secondary Noise Sources:** Overhead choppers, aircraft both jet and propeller, bird song, residential

L8 55.1 dB ambiance, sporadic electric power tool (drill) being used off in the distance.

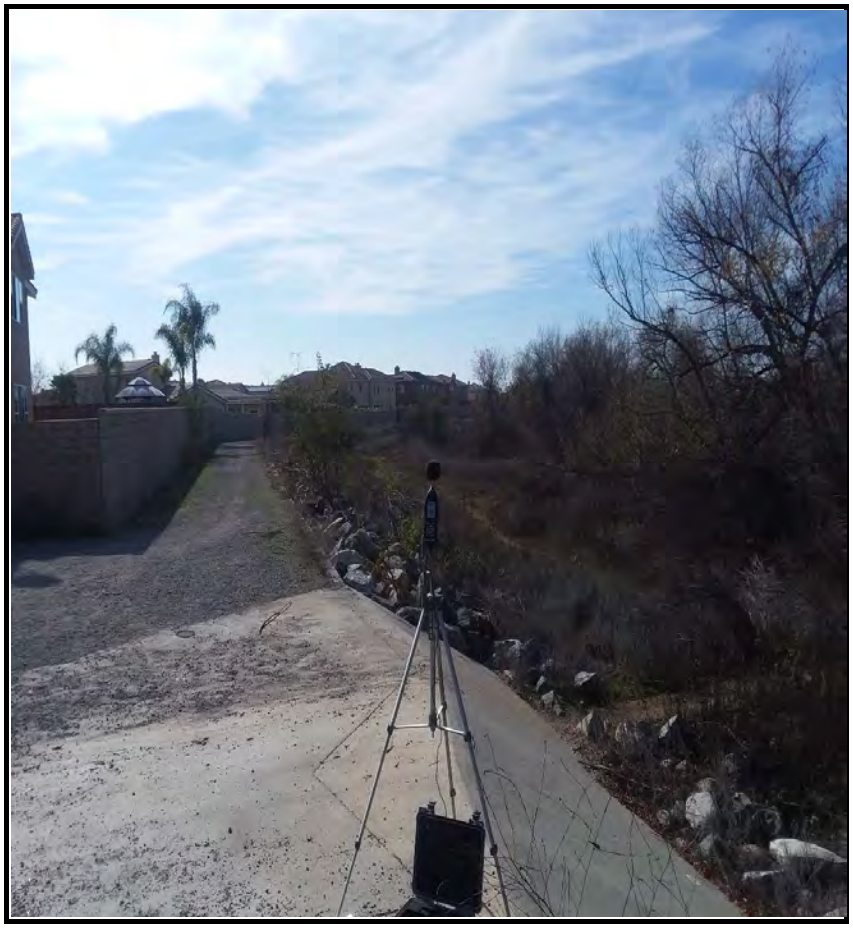
L25 52.9 dB

L50 50.1 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:



NM1 looking S down dirt road along back of residences W of Corte de Oro. Residence 35007 Corte de Oro on LHS of photo.

NM1 looking E through rail fence accross dirt road towards end of Corte de Oro. Residence 35007 Corte de Oro on RHS of photo.

Summary	
File Name on Meter	LxT_Data.327
File Name on PC	SLM_0003099_LxT_Data_327.00.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	NM1 JN 19-0221 Winchester 33°36'45.52"N 117° 6'16.51"W
Job Description	15 minute noise measurement (1 x 15 minutes)

Measurement	
Start	2020-01-27 10:40:01
Stop	2020-01-27 10:55:01
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2020-01-27 10:39:23
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.6 dB

Results				
L_{Aeq}	51.6			
LAE	81.1			
EA	14.409	µPa²h		
EA8	461.094	µPa²h		
EA40	2.305	mPa²h		
$LZ_{peak\ (max)}$	2020-01-27 10:54:30	93.1	dB	
LAS_{max}	2020-01-27 10:41:24	61.0	dB	
LAS_{min}	2020-01-27 10:48:17	36.1	dB	
SEA	-99.9	dB		
			Statistics	
LC_{eq}	63.9	dB	**LAI2.00**	57.5 dB
LA_{eq}	51.6	dB	**LAI8.00**	55.1 dB
LC_{eq} - LA_{eq}	12.4	dB	**LAI25.00**	52.9 dB
LAI_{eq}	53.3	dB	**LAI50.00**	50.1 dB
LA_{eq}	51.6	dB	**LAI66.60**	48.5 dB
LAI_{eq} - LA_{eq}	1.7	dB	**LAI90.00**	42.8 dB
# Overloads	0			

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27, 2020

Project #: JN 19-0221

Noise Measurement #: NM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 31572 Via Del Paso, Winchester, California.

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicolas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Single-family residential surrounding site and Via Del Paso to south.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 62 deg F **Wind:** 5-10 mph **Humidity:** 46% **Terrain:** Hilly

Start Time: 11:18 AM **End Time:** 11:33 AM **Run Time:**

Leq: 43.1 dB **Primary Noise Source:** Traffic ambiance from Highway 79 (Winchester Road).

Lmax 57.6 dB

L2 49.1 dB **Secondary Noise Sources:** Overhead choppers, aircraft both jet and propeller, residential ambiance,

L8 46.1 dB bird song, humming birds, honey bees on plant.

L25 43.5 dB

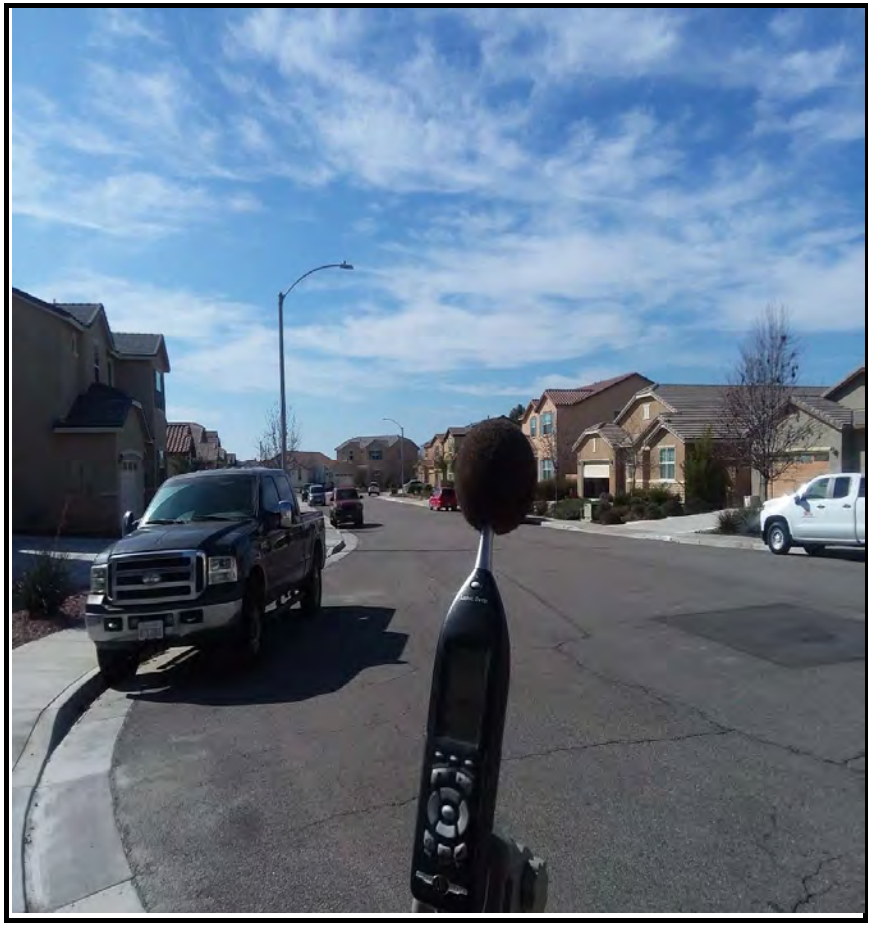
L50 41.3 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:

NM2 looking NE at residence 31572 Via Del Paso, Winchester (house on the right).



NM2 looking SW down residential street Via Del Paso, Winchester.

Summary	
File Name on Meter	LxT_Data.328
File Name on PC	SLM_0003099_LxT_Data_328.00.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	NM2 JN 19-0221 Winchester 33°36'30.12"N 117° 6'19.27"W
Job Description	15 minute noise measurement (1 x 15 minutes)

Measurement	
Start	2020-01-27 11:18:08
Stop	2020-01-27 11:33:08
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2020-01-27 11:17:46
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.6 dB

Results			
L_{Aeq}	43.1		
LAE	72.7		
EA	2.054	µPa²h	
EA8	65.730	µPa²h	
EA40	328.652	µPa²h	
$LZ_{peak\ (max)}$	2020-01-27 11:19:18	90.5	dB
LAS_{max}	2020-01-27 11:22:13	57.6	dB
LAS_{min}	2020-01-27 11:31:42	33.9	dB
SEA	-99.9	dB	

			Statistics	
LC_{eq}	57.3	dB	**LAI2.00**	49.1 dB
LA_{eq}	43.1	dB	**LAI8.00**	46.1 dB
LC_{eq} - LA_{eq}	14.2	dB	**LAI25.00**	43.5 dB
LAI_{eq}	45.8	dB	**LAI50.00**	41.3 dB
LA_{eq}	43.1	dB	**LAI66.60**	39.9 dB
LAI_{eq} - LA_{eq}	2.7	dB	**LAI90.00**	37.2 dB
# Overloads	0			

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27, 2020

Project #: JN 19-0221

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

Nearest Address or Cross Street: Skyview Road & Winchester Road (Highway 79)

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicolas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Skyview Road to northand east, vacant land further east, residential to south, & Highway 79 to west.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 65 deg F **Wind:** 5-10 mph **Humidity:** 40% **Terrain:** Hilly

Start Time: 12:05 PM **End Time:** 12:20 PM **Run Time:**

Leq: 63.7 dB **Primary Noise Source:** Traffic noise from Highway 79 (Winchester Road) and other roads.

Lmax 75 dB 416 vehicles passed by microphone along Winchester Road during measurement.

L2 70.9 dB **Secondary Noise Sources:** Overhead choppers, aircraft both jet and propeller, residential ambiance,

L8 67.4 dB

L25 64.8 dB

L50 61.7 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:

NM3 looking NW across Skyview Road towards Winchester Road (Hwy 79) intersection.

NM3 looking SE towards end of Skyview Road.

Summary	
File Name on Meter	LxT_Data.329
File Name on PC	SLM_0003099_LxT_Data_329.00.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	NM3 JN 19-0221 Winchester 33°36'29.86"N 117° 6'32.91"W
Job Description	15 minute noise measurement (1 x 15 minutes)

Measurement	
Start	2020-01-27 12:05:22
Stop	2020-01-27 12:20:22
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2020-01-27 12:01:55
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.7 dB

Results			
L_{Aeq}	63.7		
LAE	93.2		
EA	232.093	µPa²h	
EA8	7.427	mPa²h	
EA40	37.135	mPa²h	
$LZ_{peak\ (max)}$	2020-01-27 12:10:54	96.8	dB
LAS_{max}	2020-01-27 12:09:18	75.0	dB
LAS_{min}	2020-01-27 12:07:37	45.3	dB
SEA	-99.9	dB	

			Statistics		
L_{Ceq}	73.2	dB	**LAI2.00**	70.9	dB
L_{Aeq}	63.7	dB	**LAI8.00**	67.4	dB
L_{Ceq} - L_{Aeq}	9.6	dB	**LAI25.00**	64.8	dB
LAI_{eq}	65.0	dB	**LAI50.00**	61.7	dB
L_{Aeq}	63.7	dB	**LAI66.60**	58.2	dB
LAI_{eq} - L_{Aeq}	1.3	dB	**LAI90.00**	51.9	dB
# Overloads	0				

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27, 2020

Project #: JN 19-0221

Noise Measurement #: NM4 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 35078 Waimea Way, Winchester, California

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicolas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Vacant land and Jean Nicolas Road to north, Jean Nicolas Road to east, & single-family residential to south and west.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 5-10 mph **Humidity:** 37% **Terrain:** Hilly

Start Time: 1:04 PM **End Time:** 1:19 PM **Run Time:**

Leq: 64.5 dB **Primary Noise Source:** Traffic noise from Jean Nicholas Road, 72 vehicles passed microphone traveling along Jean Nicholas Road during measurement.

Lmax 83.9 dB

L2 72.9 dB **Secondary Noise Sources:** Overhead choppers, aircraft both jet and propeller, residential ambiance.

L8 67.0 dB Street sweeper (Lmax) passes microphone at 1:10 PM & 1:16 PM. Bird song.

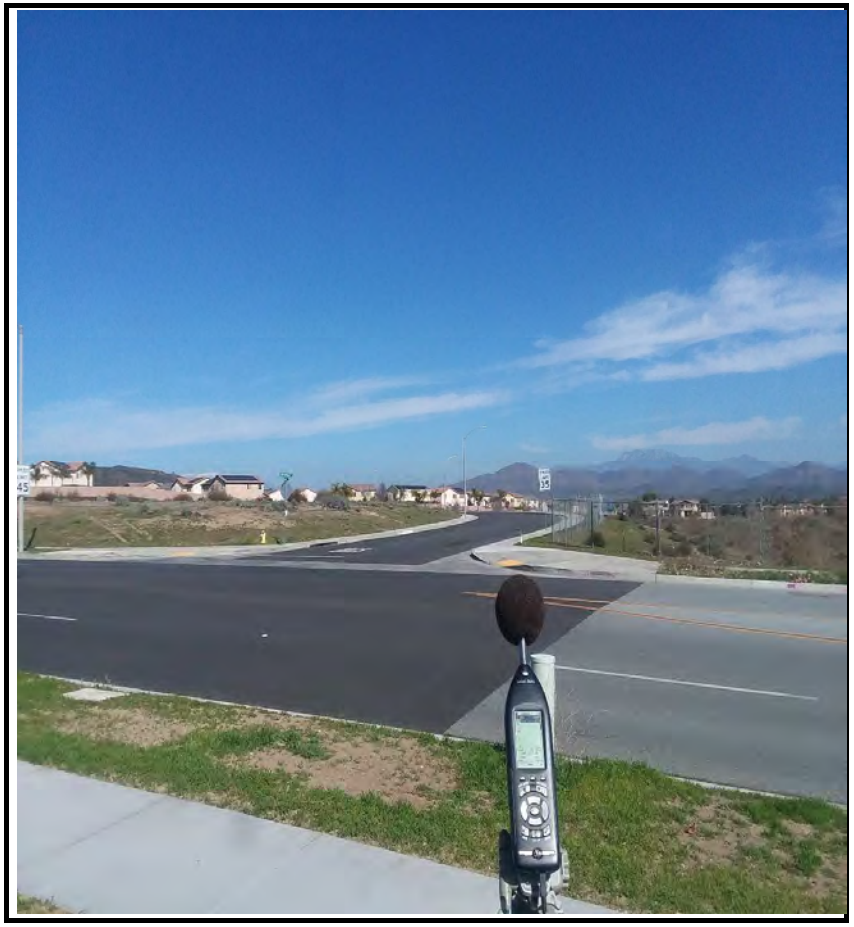
L25 62.5 dB

L50 55.2 dB

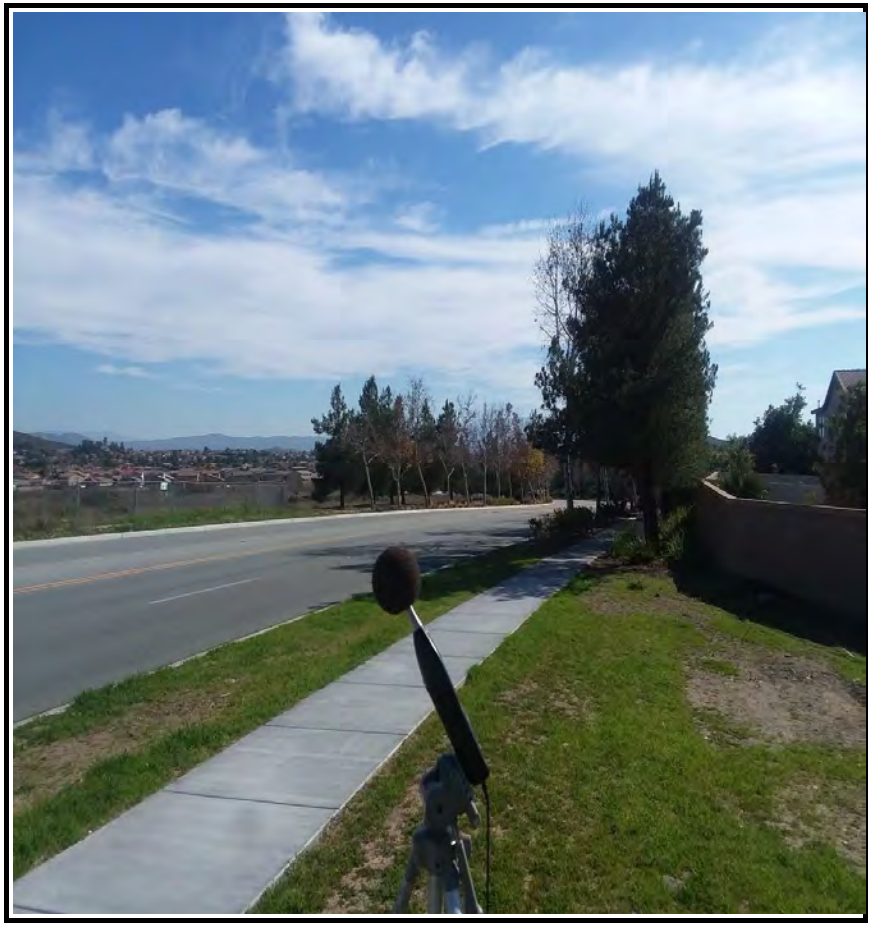
NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:



NM4 looking NE across Jean Nicholas Road towards Elliot Road intersectioin.



NM4 looking SE down Jean Nicholas Road heading towards Winchester Road.

Summary					
File Name on Meter	LxT_Data.330				
File Name on PC	SLM_0003099_LxT_Data_330.00.ldbin				
Serial Number	0003099				
Model	SoundTrack LxT®				
Firmware Version	2.301				
User	Ian Edward Gallagher				
Location	NM4 JN 19-0221 Winchester 33°36'39.72"N 117° 6'40.64"W				
Job Description	15 minute noise measurement (1 x 15 minutes)				
Measurement					
Start	2020-01-27 13:04:14				
Stop	2020-01-27 13:19:14				
Duration	00:15:00.0				
Run Time	00:15:00.0				
Pause	00:00:00.0				
Pre Calibration	2020-01-27 12:57:22				
Post Calibration	None				
Overall Settings					
RMS Weight	A Weighting				
Peak Weight	Z Weighting				
Detector	Slow				
Preamp	PRMLxT1L				
Microphone Correction	Off				
Integration Method	Linear				
OBA Range	Low				
OBA Bandwidth	1/1 and 1/3				
OBA Freq. Weighting	Z Weighting				
OBA Max Spectrum	Bin Max				
Overload	122.7 dB				
Results					
LA_{eq}	64.5				
LAE	94.0				
EA	279.770 µPa²h				
EA8	8.953 mPa²h				
EA40	44.763 mPa²h				
$LZ_{peak\ (max)}$	2020-01-27 13:10:06	105.9 dB			
LAS_{max}	2020-01-27 13:10:06	83.9 dB			
LAS_{min}	2020-01-27 13:18:10	40.1 dB			
SEA	-99.9 dB				
			Statistics		
LC_{eq}	74.7 dB		**LAI2.00**	72.9 dB	
LA_{eq}	64.5 dB		**LAI8.00**	67.0 dB	
LC_{eq} - LA_{eq}	10.3 dB		**LAI25.00**	62.5 dB	
LAI_{eq}	65.2 dB		**LAI50.00**	55.2 dB	
LA_{eq}	64.5 dB		**LAI66.60**	51.4 dB	
LAI_{eq} - LA_{eq}	0.7 dB		**LAI90.00**	46.3 dB	
# Overloads	0				

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27, 2020

Project #: JN 19-0221

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

Nearest Address or Cross Street: 31585 Maka Cir, Winchester, California.

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicholas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Jean Nicholas Road and single-family residential to north & vacant land to south.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 72 deg F **Wind:** 5-10 mph **Humidity:** 30% **Terrain:** Hilly

Start Time: 1:34 PM **End Time:** 1:49 PM **Run Time:**

Leq: 52.8 dB **Primary Noise Source:** Traffic ambiance from Winchester Road, Elliot Road & Jean Nicholas Road,

Lmax 68.4 dB 3 vehicles passed microphone along Jean Nicholas Road during measurement.

L2 63.9 dB **Secondary Noise Sources:** Overhead choppers, aircraft both jet and propeller, residential ambiance.

L8 57.0 dB Bird song, humming birds.

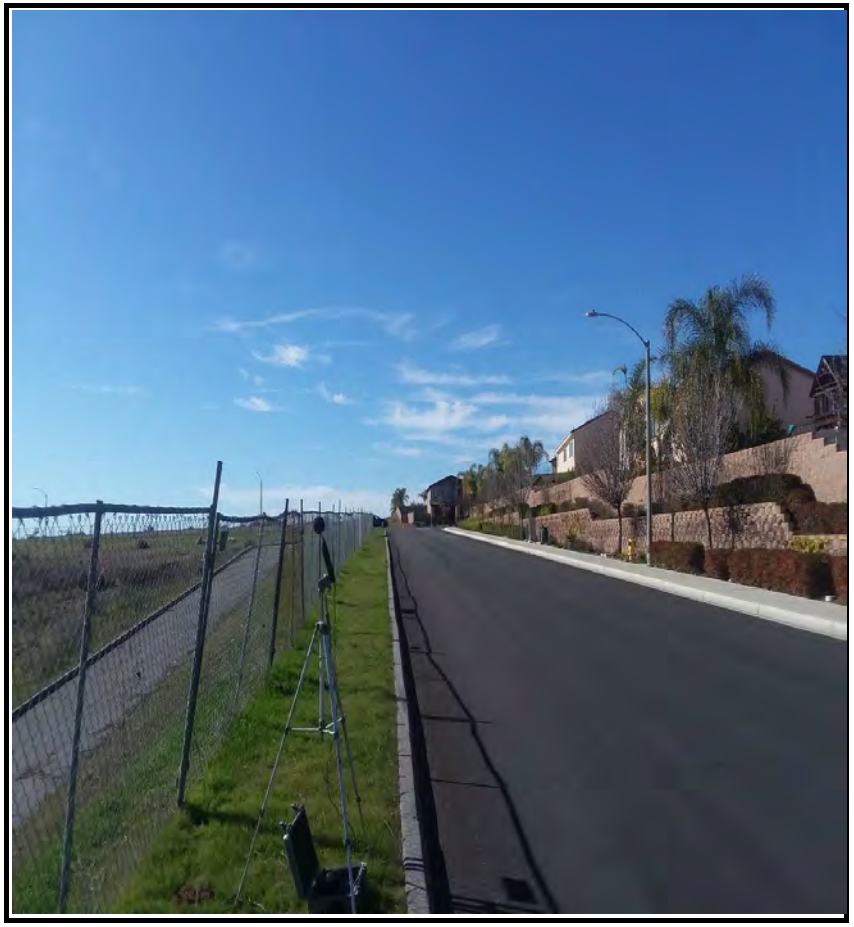
L25 48.4 dB

L50 44.0 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:



NM5 looking W along Jean Nicholas Road towards Elliot Road intersection.

NM5 looking SE towards Winchester Road.

Summary	
File Name on Meter	LxT_Data.331
File Name on PC	SLM_0003099_LxT_Data_331.00.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	NM5 JN 19-0221 Winchester 33°36'45.26"N 117° 6'30.92"W
Job Description	15 minute noise mwasurement (1 x 15 minutes)

Measurement	
Start	2020-01-27 13:34:45
Stop	2020-01-27 13:49:45
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2020-01-27 13:34:10
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.7 dB

Results			
LA_{eq}	52.8		
LAE	82.4		
EA	19.217	µPa²h	
EA8	614.938	µPa²h	
EA40	3.075	mPa²h	
$LZ_{peak\ (max)}$	2020-01-27 13:45:18	91.6	dB
LAS_{max}	2020-01-27 13:46:27	68.4	dB
LAS_{min}	2020-01-27 13:44:26	34.8	dB
SEA	-99.9	dB	

			Statistics	
LC_{eq}	63.4	dB	**LAI2.00**	63.9 dB
LA_{eq}	52.8	dB	**LAI8.00**	57.0 dB
LC_{eq} - LA_{eq}	10.5	dB	**LAI25.00**	48.4 dB
LAI_{eq}	54.9	dB	**LAI50.00**	44.0 dB
LA_{eq}	52.8	dB	**LAI66.60**	42.1 dB
LAI_{eq} - LA_{eq}	2.0	dB	**LAI90.00**	38.9 dB
# Overloads	0			

Noise Measurement
Field Data

Project Name: Winchester at Jean Nicolas Commercial Project, County of Riverside **Date:** January 27-28, 2020

Project #: JN 19-0221

Noise Measurement #: LTNM1 Run Time: 24 hours (24 x 1 hours) **Technician:** Ian Gallagher

Nearest Address or Cross Street: Jean Nicholas Road & Mauna Loa Road

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant with vegetation, Highway 79 (Winchester Rd) runs SW to NE along SE side of site, Jean Nicholas Road adjacent to west, & vacant land adjacent to north.
Noise Measurement Site: Western edge of project site. Jean Nicholas Road to weest, project site to south, east, and north.

Weather: About 5% high white cloud, filtered sun. Sunset 5:16 PM **Settings:** SLOW FAST

Temperature: 43-73 deg F **Wind:** 0-5 mph **Humidity:** 25-70% **Terrain:** Hilly

Start Time: 5:00 PM **End Time:** 5:00 PM **Run Time:**

Leq: 59.2 dB
Lmax 87 dB
L2 66.9 dB
L8 63.9 dB
L25 59.4 dB
L50 54.1 dB

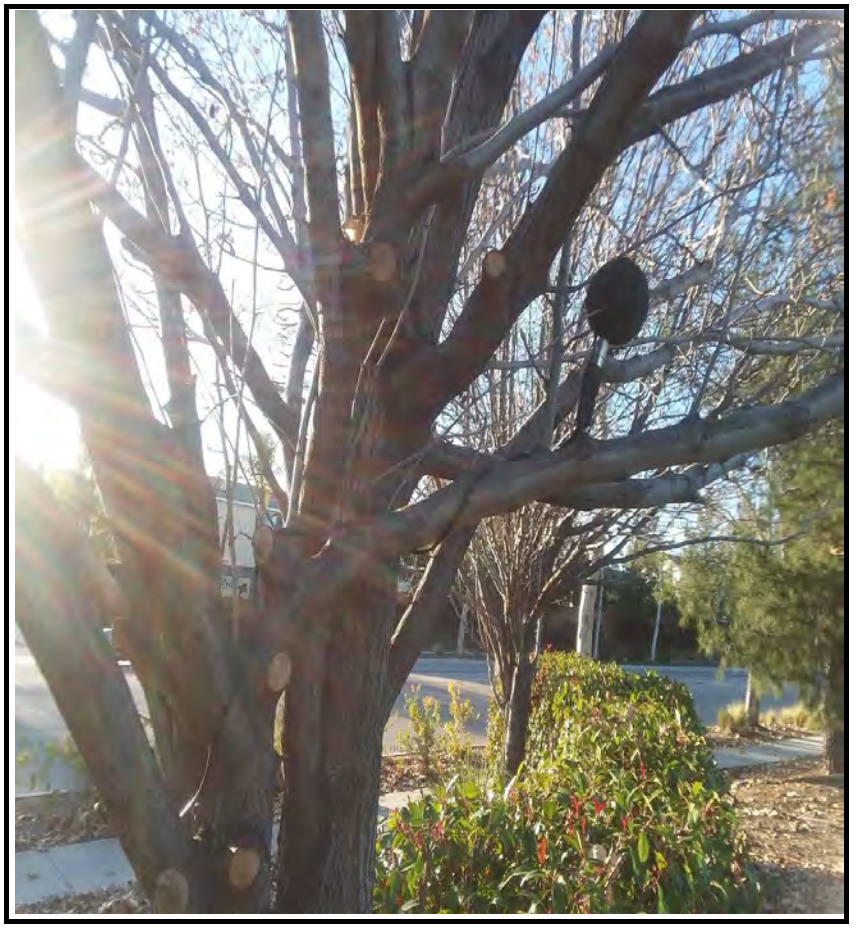
Primary Noise Source: Traffic noise from vehicles traveling along Jean Nicholas Road. Traffic ambiance from Winchester Road and other surrounding roads.

Secondary Noise Sources: Overhead choppers, aircraft both jet and propeller, residential ambiance. Bird song, humming birds by day. Night time wild life ambiance.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CAL250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	Cal 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2733
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	8/9/2017
FIELD CALIBRATION DATE:	1/27/2020		

Noise Measurement
Field Data

PHOTOS:



LTNM1 looking W past microphone, across Jean Nicholas Road and Mauna Loa Road intersection, down Mauna Loa Road towards Waimea Way intersection.

LTNM1 looking SE down Jean Nicholas Rd heading towars Winchester Rd intersection.

Summary	
File Name on Meter	LxT_Data.332
File Name on PC	SLM_0003099_LxT_Data_332.00.ldbin
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	LTNM1 JN 19-0221 Winchester 33°36'35.18"N 117° 6'37.42"W
Job Description	24 hour noise measurement (24 x 1 hours)

Measurement	
Start	2020-01-27 17:00:00
Stop	2020-01-28 17:00:00
Duration	24:00:00.0
Run Time	24:00:00.0
Pause	00:00:00.0
Pre Calibration	2020-01-27 15:47:12
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	122.7 dB

Results				
L_{Aeq}	59.2			
LAE	108.6			
EA	7.996	mPa^2h		
EA8	2.665	mPa^2h		
EA40	13.327	mPa^2h		
$L_{Apeak\ (max)}$	2020-01-28 16:13:57	101.4	dB	
L_{ASmax}	2020-01-28 16:13:57	87.0	dB	
L_{ASmin}	2020-01-28 01:50:15	28.3	dB	
SEA	-99.9	dB		

			Statistics	
L_{Ceq}	67.8	dB	**LAI2.00**	66.9 dB
L_{Aeq}	59.2	dB	**LAI8.00**	63.9 dB
L_{Ceq} - L_{Aeq}	8.6	dB	**LAI25.00**	59.4 dB
L_{AIeq}	60.6	dB	**LAI50.00**	54.1 dB
L_{Aeq}	59.2	dB	**LAI90.00**	43.9 dB
L_{AIeq} - L_{Aeq}	1.4	dB	**LAI99.00**	33.5 dB
# Overloads	0			

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2020-01-27	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.2	42.4	17:04:38	81.6	17:00:53	68.8	66.1	63.1	59.0	51.2	45.2
2	2020-01-27	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.7	44.1	18:28:35	75.8	18:37:26	66.9	64.8	61.5	58.4	52.5	48.2
3	2020-01-27	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.1	41.6	19:21:55	74.3	19:49:33	65.7	63.4	60.2	56.6	49.3	45.3
4	2020-01-27	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.6	38.9	20:55:00	80.2	20:01:23	66.9	63.4	59.0	55.5	50.0	43.6
5	2020-01-27	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	56.8	39.6	21:23:41	74.2	21:15:22	64.5	60.9	56.6	53.3	46.7	42.8
6	2020-01-27	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.7	36.0	22:48:01	70.7	22:52:21	62.6	58.8	54.8	51.6	43.1	38.5
7	2020-01-27	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.5	32.5	23:39:08	74.8	23:08:11	61.9	57.4	53.2	49.4	40.5	34.5
8	2020-01-28	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	52.1	30.5	00:19:17	71.2	00:51:38	61.3	55.9	51.2	45.7	35.7	32.3
9	2020-01-28	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	51.0	28.3	01:50:15	69.4	01:52:09	60.1	54.6	50.0	44.5	33.3	29.8
10	2020-01-28	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	49.9	29.8	02:43:20	66.3	02:27:56	57.9	54.1	49.8	45.4	34.6	31.5
11	2020-01-28	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	52.3	29.1	03:08:17	67.8	03:40:05	60.2	56.8	53.0	48.7	36.1	32.2
12	2020-01-28	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.8	39.0	04:02:43	74.3	04:50:17	65.0	62.2	58.7	54.7	48.0	43.3
13	2020-01-28	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.0	42.3	05:52:51	78.3	05:42:58	66.0	63.8	60.7	57.5	50.7	46.4
14	2020-01-28	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.2	46.4	06:27:37	77.2	06:32:09	68.4	65.9	63.1	60.2	54.5	49.3
15	2020-01-28	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.7	49.3	07:02:33	79.4	07:22:03	68.7	66.5	63.8	60.5	53.8	51.0
16	2020-01-28	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.9	43.3	08:58:05	81.9	08:41:08	68.6	66.4	62.9	57.8	50.3	46.7
17	2020-01-28	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.9	36.3	09:53:57	74.4	09:13:39	66.1	63.0	57.4	52.5	45.0	38.8
18	2020-01-28	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.3	40.5	10:00:35	74.4	10:11:47	65.3	62.3	56.9	51.3	46.7	43.1
19	2020-01-28	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.3	36.3	11:19:35	71.4	11:57:42	65.5	62.6	57.7	50.8	42.5	38.1
20	2020-01-28	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.5	35.1	12:08:21	77.7	12:54:29	66.2	63.0	58.0	52.0	45.1	40.8
21	2020-01-28	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.5	38.9	13:54:50	70.7	13:10:49	65.4	62.6	57.6	52.4	45.9	42.8
22	2020-01-28	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.2	39.5	14:09:17	73.6	14:42:15	67.8	64.7	61.2	55.7	47.3	41.9
23	2020-01-28	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.7	43.0	15:11:28	78.8	15:28:07	68.5	65.8	62.7	58.4	50.0	44.6
24	2020-01-28	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.4	42.9	16:42:32	87.0	16:13:57	68.5	65.7	62.3	57.3	49.8	45.2

APPENDIX D

CONSTRUCTION NOISE MODELING

Receptor - Resdiential to North

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	1010	40	58.9	54.9	Muffler (10 dB Reduction)	44.9	
Rubber Tired Dozers	1	85	1010	40	58.9	54.9	Muffler (10 dB Reduction)	44.9	10.0
Tractors/Loaders/Backhoes	2	84	1010	40	57.9	56.9	Muffler (10 dB Reduction)	46.9	
					Log Sum	60.5		50.5	
Building Construction									
Cranes	1	83	1010	16	56.9	48.9	Muffler (10 dB Reduction)	38.9	
Forklifts [2]	3	64	1010	40	37.9	38.7	n/a	38.7	
Generator Set	1	81	1010	50	54.9	51.9	Enclosure or Acoustic Tent (10 dB Reduction)	41.9	6.7
Welders	4	74	1010	40	47.9	49.9	n/a	49.9	
Tractors/Loaders/Backhoes	2	84	1010	40	57.9	56.9	Muffler (10 dB Reduction)	46.9	
					Log Sum	59.2		52.5	
Paving									
Cement and Mortar Mixers	1	85	1010	40	58.9	54.9	Muffler (10 dB Reduction)	**44.9**	
Pavers	1	77	1010	50	50.9	47.9	Muffler (10 dB Reduction)	37.9	
Paving Equipment	1	85	1010	20	58.9	51.9	Muffler (10 dB Reduction)	41.9	10.0
Rollers	2	80	1010	20	53.9	49.9	Muffler (10 dB Reduction)	39.9	
Tractors/Loaders/Backhoes	1	84	1010	40	57.9	53.9	Muffler (10 dB Reduction)	43.9	
					Log Sum	59.4		49.4	
Architectural Coating									
Air Compressors	1	80	1010	40	53.9	49.9	Enclosure or Acoustic Tent (10 dB Reduction)	39.9	10.0
					Log Sum	49.9		**39.9**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

Receptor - Multi-Family Resdiential to Northeast

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	2020	40	52.9	48.9	Muffler (10 dB Reduction)	38.9	
Rubber Tired Dozers	1	85	2020	40	52.9	48.9	Muffler (10 dB Reduction)	38.9	10.0
Tractors/Loaders/Backhoes	2	84	2020	40	51.9	50.9	Muffler (10 dB Reduction)	40.9	
					Log Sum	54.4		44.4	
Building Construction									
Cranes	1	83	2020	16	50.9	42.9	Muffler (10 dB Reduction)	32.9	
Forklifts [2]	3	64	2020	40	31.9	32.7	n/a	32.7	
Generator Set	1	81	2020	50	48.9	45.9	Enclosure or Acoustic Tent (10 dB Reduction)	35.9	6.7
Welders	4	74	2020	40	41.9	43.9	n/a	43.9	
Tractors/Loaders/Backhoes	2	84	2020	40	51.9	50.9	Muffler (10 dB Reduction)	40.9	
					Log Sum	53.2		46.5	
Paving									
Cement and Mortar Mixers	1	85	2020	40	52.9	48.9	Muffler (10 dB Reduction)	**38.9**	
Pavers	1	77	2020	50	44.9	41.9	Muffler (10 dB Reduction)	31.9	
Paving Equipment	1	85	2020	20	52.9	45.9	Muffler (10 dB Reduction)	35.9	10.0
Rollers	2	80	2020	20	47.9	43.9	Muffler (10 dB Reduction)	33.9	
Tractors/Loaders/Backhoes	1	84	2020	40	51.9	47.9	Muffler (10 dB Reduction)	37.9	
					Log Sum	53.4		43.4	
Architectural Coating									
Air Compressors	1	80	2020	40	47.9	43.9	Enclosure or Acoustic Tent (10 dB Reduction)	33.9	10.0
					Log Sum	43.9		**33.9**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

Receptor - Resdiential to East/Southeast

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	1300	40	56.7	52.7	Muffler (10 dB Reduction)	42.7	
Rubber Tired Dozers	1	85	1300	40	56.7	52.7	Muffler (10 dB Reduction)	42.7	10.0
Tractors/Loaders/Backhoes	2	84	1300	40	55.7	54.7	Muffler (10 dB Reduction)	44.7	
					Log Sum	58.3		48.3	
Building Construction									
Cranes	1	83	1300	16	54.7	46.7	Muffler (10 dB Reduction)	36.7	
Forklifts [2]	3	64	1300	40	35.7	36.5	n/a	36.5	
Generator Set	1	81	1300	50	52.7	49.7	Enclosure or Acoustic Tent (10 dB Reduction)	39.7	6.7
Welders	4	74	1300	40	45.7	47.7	n/a	47.7	
Tractors/Loaders/Backhoes	2	84	1300	40	55.7	54.7	Muffler (10 dB Reduction)	44.7	
					Log Sum	57.0		50.3	
Paving									
Cement and Mortar Mixers	1	85	1300	40	56.7	52.7	Muffler (10 dB Reduction)	**42.7**	
Pavers	1	77	1300	50	48.7	45.7	Muffler (10 dB Reduction)	35.7	
Paving Equipment	1	85	1300	20	56.7	49.7	Muffler (10 dB Reduction)	39.7	10.0
Rollers	2	80	1300	20	51.7	47.7	Muffler (10 dB Reduction)	37.7	
Tractors/Loaders/Backhoes	1	84	1300	40	55.7	51.7	Muffler (10 dB Reduction)	41.7	
					Log Sum	57.2		47.2	
Architectural Coating									
Air Compressors	1	80	1300	40	51.7	47.7	Enclosure or Acoustic Tent (10 dB Reduction)	37.7	10.0
					Log Sum	47.7		**37.7**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

Receptor - Resdiential to South

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	640	40	62.9	58.9	Muffler (10 dB Reduction)	48.9	
Rubber Tired Dozers	1	85	640	40	62.9	58.9	Muffler (10 dB Reduction)	48.9	10.0
Tractors/Loaders/Backhoes	2	84	640	40	61.9	60.9	Muffler (10 dB Reduction)	50.9	
					Log Sum	64.4		54.4	
Building Construction									
Cranes	1	83	640	16	60.9	52.9	Muffler (10 dB Reduction)	42.9	
Forklifts [2]	3	64	640	40	41.9	42.6	n/a	42.6	
Generator Set	1	81	640	50	58.9	55.8	Enclosure or Acoustic Tent (10 dB Reduction)	45.8	6.7
Welders	4	74	640	40	51.9	53.9	n/a	53.9	
Tractors/Loaders/Backhoes	2	84	640	40	61.9	60.9	Muffler (10 dB Reduction)	50.9	
					Log Sum	63.2		56.5	
Paving									
Cement and Mortar Mixers	1	85	640	40	62.9	58.9	Muffler (10 dB Reduction)	**48.9**	
Pavers	1	77	640	50	54.9	51.8	Muffler (10 dB Reduction)	41.8	
Paving Equipment	1	85	640	20	62.9	55.9	Muffler (10 dB Reduction)	45.9	10.0
Rollers	2	80	640	20	57.9	53.9	Muffler (10 dB Reduction)	43.9	
Tractors/Loaders/Backhoes	1	84	640	40	61.9	57.9	Muffler (10 dB Reduction)	47.9	
					Log Sum	63.4		53.4	
Architectural Coating									
Air Compressors	1	80	640	40	57.9	53.9	Enclosure or Acoustic Tent (10 dB Reduction)	43.9	10.0
					Log Sum	53.9		**43.9**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

Receptor - Resdiential to Southwest/West

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	220	40	72.1	68.2	Muffler (10 dB Reduction)	58.2	10.0
Rubber Tired Dozers	1	85	220	40	72.1	68.2	Muffler (10 dB Reduction)	58.2	
Tractors/Loaders/Backhoes	2	84	220	40	71.1	70.2	Muffler (10 dB Reduction)	60.2	
					Log Sum	73.7		63.7	
Building Construction									
Cranes	1	83	220	16	70.1	62.2	Muffler (10 dB Reduction)	52.2	6.7
Forklifts [2]	3	64	220	40	51.1	51.9	n/a	51.9	
Generator Set	1	81	220	50	68.1	65.1	Enclosure or Acoustic Tent (10 dB Reduction)	55.1	
Welders	4	74	220	40	61.1	63.2	n/a	63.2	
Tractors/Loaders/Backhoes	2	84	220	40	71.1	70.2	Muffler (10 dB Reduction)	60.2	
					Log Sum	72.4		65.8	
Paving									
Cement and Mortar Mixers	1	85	220	40	72.1	68.2	Muffler (10 dB Reduction)	**58.2**	10.0
Pavers	1	77	220	50	64.1	61.1	Muffler (10 dB Reduction)	51.1	
Paving Equipment	1	85	220	20	72.1	65.1	Muffler (10 dB Reduction)	55.1	
Rollers	2	80	220	20	67.1	63.2	Muffler (10 dB Reduction)	53.2	
Tractors/Loaders/Backhoes	1	84	220	40	71.1	67.2	Muffler (10 dB Reduction)	57.2	
					Log Sum	72.6		62.6	
Architectural Coating									
Air Compressors	1	80	220	40	67.1	63.2	Enclosure or Acoustic Tent (10 dB Reduction)	53.2	10.0
					Log Sum	63.2		**53.2**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

Receptor - Proposed Residential to North

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1, 2]	Distance to Receptor[3]	Item Usage Percent	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Required Mitigation	Mitigated Noise Level	Reduction (dBA Leq)
Grading									
Grader	1	85	115	40	77.8	73.8	Muffler (10 dB Reduction)	63.8	
Rubber Tired Dozers	1	85	115	40	77.8	73.8	Muffler (10 dB Reduction)	63.8	10.0
Tractors/Loaders/Backhoes	2	84	115	40	76.8	75.8	Muffler (10 dB Reduction)	65.8	
					Log Sum	79.3		69.3	
Building Construction									
Cranes	1	83	115	16	75.8	67.8	Muffler (10 dB Reduction)	57.8	
Forklifts [2]	3	64	115	40	56.8	57.6	n/a	57.6	
Generator Set	1	81	115	50	73.8	70.8	Enclosure or Acoustic Tent (10 dB Reduction)	60.8	6.7
Welders	4	74	115	40	66.8	68.8	n/a	68.8	
Tractors/Loaders/Backhoes	2	84	115	40	76.8	75.8	Muffler (10 dB Reduction)	65.8	
					Log Sum	78.1		71.4	
Paving									
Cement and Mortar Mixers	1	85	115	40	77.8	73.8	Muffler (10 dB Reduction)	**63.8**	
Pavers	1	77	115	50	69.8	66.8	Muffler (10 dB Reduction)	56.8	
Paving Equipment	1	85	115	20	77.8	70.8	Muffler (10 dB Reduction)	60.8	10.0
Rollers	2	80	115	20	72.8	68.8	Muffler (10 dB Reduction)	58.8	
Tractors/Loaders/Backhoes	1	84	115	40	76.8	72.8	Muffler (10 dB Reduction)	62.8	
					Log Sum	78.3		68.3	
Architectural Coating									
Air Compressors	1	80	115	40	72.8	68.8	Enclosure or Acoustic Tent (10 dB Reduction)	58.8	10.0
					Log Sum	68.8		**58.8**	

Notes:

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

(2) Source: https://www.google.com/url?q=http://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/&sa=D&source=hangouts&ust=1545259247311000&usg=AFQjCNHFcKKoEKUjv5VZMOtw_KO977Em1A

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

APPENDIX E

PROJECT GENERATED TRIPS FHWA WORKSHEETS

Existing Traffic Noise

1	:Id	
Leon Road	:Road	
North of Baxter Road/Jean Nicholas Road	:Segment	

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

ADT	5600
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	324.32	6.72	11.20	240.77	1.12	1.87	59.71	9.33	15.56
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	17.40	0.56	2.78	16.11	-7.22	-5.00	10.05	1.99	4.21
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.34	54.63	60.81	63.04	46.85	53.03	56.99	56.06	62.24
	DAY LEQ	66.24		EVENING LEQ	63.55		NIGHT LEQ	64.11	

F	CNEL	71.02	
	DAY LEQ	66.24	

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

1	:Id	
Leon Road	:Road	
North of Baxter Road/Jean Nicholas Road	:Segment	

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

ADT	5700
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	330.11	6.84	11.40	245.07	1.14	1.90	60.77	9.50	15.83
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	17.48	0.64	2.86	16.18	-7.14	-4.92	10.13	2.07	4.29
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.41	54.71	60.89	63.12	46.92	53.10	57.06	56.13	62.31
	DAY LEQ	66.32		EVENING LEQ	63.63		NIGHT LEQ	64.19	

CNEL	71.10
DAY LEQ	66.32

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

2	:Id
Leon Road	:Road
South of Baxter Road/Jean Nicholas Road	:Segment

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

ADT	7800
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	451.73	9.36	15.60	335.36	1.56	2.60	83.16	13.00	21.67
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	18.84	2.00	4.22	17.55	-5.78	-3.56	11.49	3.43	5.65
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.78	56.07	62.25	64.48	48.29	54.47	58.43	57.49	63.67
	DAY LEQ	67.68		EVENING LEQ	64.99		NIGHT LEQ	65.55	

CNEL	72.46
DAY LEQ	67.68

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

2	:Id	
Leon Road	:Road	
South of Baxter Road/Jean Nicholas Road	:Segment	

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

ADT	8600
Speed	55
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	498.06	10.32	17.20	369.75	1.72	2.87	91.69	14.33	23.89
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	19.26	2.43	4.65	17.97	-5.35	-3.14	11.91	3.85	6.07
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.20	56.49	62.67	64.91	48.71	54.89	58.85	57.92	64.10
	DAY LEQ	68.11		EVENING LEQ	65.41		NIGHT LEQ	65.97	

CNEL	72.89
DAY LEQ	68.11

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

3	:Id	
Winchester Road	:Road	
North of Whisper Heights/Pourroy Road	:Segment	

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

ADT	33800
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1957.49	40.56	67.60	1453.22	6.76	11.27	360.37	56.33	93.89
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.21	8.37	10.59	23.91	0.59	2.81	17.86	9.80	12.02
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.22	60.51	66.69	68.92	52.73	58.91	62.87	61.93	68.11
	DAY LEQ	72.12		EVENING LEQ	69.43		NIGHT LEQ	69.99	

CNEL	76.90
DAY LEQ	72.12

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

3	:Id
Winchester Road	:Road
North of Whisper Heights/Pourroy Road	:Segment

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

ADT	34200
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1980.66	41.04	68.40	1470.42	6.84	11.40	364.63	57.00	95.00
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.26	8.42	10.64	23.96	0.64	2.86	17.91	9.85	12.07
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.27	60.56	66.74	68.97	52.78	58.96	62.92	61.98	68.16
	DAY LEQ	72.17		EVENING LEQ	69.48		NIGHT LEQ	70.04	

CNEL	76.95
DAY LEQ	72.17

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

4	:Id	
Winchester Road	:Road	
Whisper Heights/Pourroy Road to Jean Nicholas Road/Skyview Road	:Segment	

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

ADT	30200
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1749.00	36.24	60.40	1298.44	6.04	10.07	321.99	50.33	83.89
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	24.72	7.88	10.10	23.42	0.10	2.32	17.37	9.31	11.53
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	69.73	60.02	66.20	68.43	52.24	58.42	62.38	61.44	67.62
	DAY LEQ	71.63		EVENING LEQ	68.94		NIGHT LEQ	69.50	

CNEL	76.41
DAY LEQ	71.63

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

4	:Id	
Winchester Road	:Road	
Whisper Heights/Pourroy Road to Jean Nicholas Road/Skyview Road	:Segment	

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

ADT	31300
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1812.71	37.56	62.60	1345.73	6.26	10.43	333.71	52.17	86.94
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	24.87	8.04	10.26	23.58	0.26	2.47	17.52	9.46	11.68
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	69.88	60.17	66.35	68.59	52.39	58.57	62.53	61.60	67.78
	DAY LEQ	71.79		EVENING LEQ	69.09		NIGHT LEQ	69.65	

CNEL	76.57
DAY LEQ	71.79

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

5	:Id	
Winchester Road	:Road	
Jean Nicholas Road/Skyview Road to Blue Spruce Lane/Algarve Avenue	:Segment	

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

ADT	32300
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1870.62	38.76	64.60	1388.73	6.46	10.77	344.38	53.83	89.72
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.01	8.17	10.39	23.72	0.39	2.61	17.66	9.60	11.82
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.02	60.31	66.49	68.72	52.53	58.71	62.67	61.74	67.92
	DAY LEQ	71.92		EVENING LEQ	69.23		NIGHT LEQ	69.79	

CNEL	76.71
DAY LEQ	71.92

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

5	:Id	
Winchester Road	:Road	
Jean Nicholas Road/Skyview Road to Blue Spruce Lane/Algarve Avenue	:Segment	

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

ADT	34200
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1980.66	41.04	68.40	1470.42	6.84	11.40	364.63	57.00	95.00
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.26	8.42	10.64	23.96	0.64	2.86	17.91	9.85	12.07
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.27	60.56	66.74	68.97	52.78	58.96	62.92	61.98	68.16
	DAY LEQ	72.17		EVENING LEQ	69.48		NIGHT LEQ	70.04	

CNEL	**76.95**
DAY LEQ	72.17

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

6	:Id	
Winchester Road	:Road	
Blue Spruce Lane/Algarve Avenue to Max Gillis Boulevard/Thompson Road	:Segment	

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

ADT	33900
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1963.28	40.68	67.80	1457.52	6.78	11.30	361.43	56.50	94.17
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.22	8.38	10.60	23.93	0.60	2.82	17.87	9.81	12.03
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.23	60.52	66.70	68.93	52.74	58.92	62.88	61.95	68.13
	DAY LEQ	72.13		EVENING LEQ	69.44		NIGHT LEQ	70.00	

CNEL	**76.92**
DAY LEQ	72.13

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

6	:Id	
Winchester Road	:Road	
Blue Spruce Lane/Algarve Avenue to Max Gillis Boulevard/Thompson Road	:Segment	

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

ADT	35400
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	2050.16	42.48	70.80	1522.01	7.08	11.80	377.43	59.00	98.33
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.41	8.57	10.79	24.11	0.79	3.01	18.06	10.00	12.22
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.42	60.71	66.89	69.12	52.93	59.11	63.07	62.13	68.31
	DAY LEQ	72.32		EVENING LEQ	69.63		NIGHT LEQ	70.19	

CNEL	77.10	Day hour	94.00
DAY LEQ	72.32	Absorptive?	no
		Use hour?	no
		GRADE dB	5.00

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

7	:Id	
Winchester Road	:Road	
Max Gillis Boulevard/Thompson Road to Benton Road	:Segment	

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

ADT	42900
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	2484.51	51.48	85.80	1844.47	8.58	14.30	457.39	71.50	119.17
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	26.24	9.41	11.63	24.95	1.63	3.84	18.89	10.83	13.05
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	71.25	61.54	67.72	69.96	53.76	59.94	63.90	62.97	69.15
	DAY LEQ	73.16		EVENING LEQ	70.46		NIGHT LEQ	71.02	

CNEL	77.94
DAY LEQ	73.16

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

7	:Id	
Winchester Road	:Road	
Max Gillis Boulevard/Thompson Road to Benton Road	:Segment	

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

ADT	43700
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	2530.84	52.44	87.40	1878.87	8.74	14.57	465.92	72.83	121.39
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	26.32	9.49	11.71	25.03	1.71	3.92	18.97	10.91	13.13
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	71.33	61.62	67.80	70.04	53.84	60.02	63.98	63.05	69.23
	DAY LEQ	73.24		EVENING LEQ	70.54		NIGHT LEQ	71.10	

CNEL	78.02
DAY LEQ	73.24

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

8	:Id	Vehicle Distribution (Heavy Truck Mix)				ADT	37400		
Winchester Road	:Road	Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow	Speed	55	
South of Benton Road	:Segment	Automobiles	75.54	14.02	10.43	92.00	Distance	92	
		Medium Trucks	48.00	2.00	50.00	3.00	Left Angle	-90	
		Heavy Trucks	48.00	2.00	50.00	5.00	Right Angle	90	

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	2165.98	44.88	74.80	1608.00	7.48	12.47	398.75	62.33	103.89
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.65	8.81	11.03	24.35	1.03	3.25	18.30	10.24	12.46
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.65	60.95	67.13	69.36	53.16	59.34	63.31	62.37	68.55
	DAY LEQ	72.56		EVENING LEQ	69.87		NIGHT LEQ	70.43	

CNEL	77.34			
DAY LEQ	72.56	Day hour	96.00	
		Absorptive?	no	
		Use hour?	no	
		GRADE dB	7.00	

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

8	:Id
Winchester Road	:Road
South of Benton Road	:Segment

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

ADT	37800
Speed	55
Distance	92
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	2189.15	45.36	75.60	1625.20	7.56	12.60	403.02	63.00	105.00
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81
ADJUSTMENTS									
Flow	25.69	8.86	11.08	24.40	1.08	3.29	18.34	10.28	12.50
Distance	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72	-2.72
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	70.70	60.99	67.17	69.41	53.21	59.39	63.35	62.42	68.60
	DAY LEQ	72.61		EVENING LEQ	69.91		NIGHT LEQ	70.47	

CNEL	77.39
DAY LEQ	72.61

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

9	:Id
Pourroy Road	:Road
East of Winchester Road	:Segment

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

ADT	10400
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	637.83	7.80	3.03	471.36	1.38	1.39	118.07	10.40	4.04
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	21.21	2.08	-2.02	19.90	-5.43	-5.41	13.88	3.33	-0.77
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.48	54.63	55.05	64.17	47.13	51.66	58.16	55.88	56.30
	DAY LEQ	66.18		EVENING LEQ	64.49		NIGHT LEQ	61.67	

CNEL	69.39
DAY LEQ	66.18

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

9	:Id
Pourroy Road	:Road
East of Winchester Road	:Segment

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

ADT	11200
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	686.89	8.40	3.27	507.62	1.49	1.49	127.15	11.20	4.36
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	21.53	2.40	-1.70	20.22	-5.10	-5.09	14.21	3.65	-0.45
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.81	54.96	55.37	64.49	47.45	51.98	58.48	56.21	56.62
	DAY LEQ	66.50		EVENING LEQ	64.81		NIGHT LEQ	61.99	

F	CNEL	69.71	
	DAY LEQ	66.50	

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

10	:Id	Vehicle Distribution (Heavy Truck Mix)				ADT	2000
Baxter Road	:Road	Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow	Speed	45
West of Leon Road	:Segment	Automobiles	75.54	14.02	10.43	92.00	Distance	50
		Medium Trucks	48.00	2.00	50.00	3.00	Left Angle	-90
		Heavy Trucks	48.00	2.00	50.00	5.00	Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	115.83	2.40	4.00	85.99	0.40	0.67	21.32	3.33	5.56
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	13.80	-3.04	-0.82	12.51	-10.82	-8.60	6.45	-1.61	0.61
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	58.07	49.52	56.25	56.78	41.73	48.47	50.73	50.94	57.68
	DAY LEQ	60.62		EVENING LEQ	57.50		NIGHT LEQ	59.18	

CNEL	65.92	Day hour	98.00
DAY LEQ	60.62	Absorptive?	no
		Use hour?	no
		GRADE dB	9.00

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

10	:Id	Vehicle Distribution (Heavy Truck Mix)				ADT	2500
		Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow		
Baxter Road	:Road						Speed	45
		Automobiles	75.54	14.02	10.43	92.00	Distance	50
West of Leon Road	:Segment	Medium Trucks	48.00	2.00	50.00	3.00	Left Angle	-90
		Heavy Trucks	48.00	2.00	50.00	5.00	Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	144.79	3.00	5.00	107.49	0.50	0.83	26.65	4.17	6.94
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	14.77	-2.07	0.15	13.48	-9.85	-7.63	7.42	-0.64	1.58
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	59.04	50.49	57.22	57.75	42.70	49.44	51.69	51.91	58.65
	DAY LEQ	61.59		EVENING LEQ	58.47		NIGHT LEQ	60.15	

CNEL	66.89	Day hour	98.00
DAY LEQ	61.59	Absorptive?	no
		Use hour?	no
		GRADE dB	9.00

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

11	:Id
Jean Nicholas Road	:Road
Leon Road to Mauna Loa Road	:Segment

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

ADT	5600
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	343.45	4.20	1.63	253.81	0.75	0.75	63.57	5.60	2.18
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	18.52	-0.61	-4.71	17.21	-8.11	-8.10	11.19	0.64	-3.46
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.80	51.95	52.36	61.48	44.44	48.97	55.47	53.20	53.61
	DAY LEQ	63.49		EVENING LEQ	61.80		NIGHT LEQ	58.98	

CNEL	66.70
DAY LEQ	63.49

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

11	:Id
Jean Nicholas Road	:Road
Leon Road to Mauna Loa Road	:Segment

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

ADT	7300
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	447.71	5.47	2.13	330.86	0.97	0.97	82.87	7.30	2.84
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	19.67	0.55	-3.56	18.36	-6.96	-6.95	12.35	1.79	-2.31
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	63.95	53.10	53.52	62.63	45.59	50.12	56.62	54.35	54.77
	DAY LEQ	64.64		EVENING LEQ	62.95		NIGHT LEQ	60.13	

CNEL	67.85
DAY LEQ	64.64

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

12	:Id
Jean Nicholas Road	:Road
Mauna Loa Road to Winchester Road	:Segment

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

ADT	5700
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	349.58	4.27	1.66	258.34	0.76	0.76	64.71	5.70	2.22
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	18.60	-0.53	-4.63	17.28	-8.04	-8.03	11.27	0.72	-3.38
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	62.87	52.02	52.44	61.56	44.51	49.05	55.55	53.27	53.69
	DAY LEQ	63.56		EVENING LEQ	61.88		NIGHT LEQ	59.06	

CNEL	66.78
DAY LEQ	63.56

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

12	:Id
Jean Nicholas Road	:Road
Mauna Loa Road to Winchester Road	:Segment

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

ADT	8700
Speed	45
Distance	50
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	533.57	6.52	2.54	394.31	1.16	1.16	98.77	8.70	3.38
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	20.43	1.31	-2.79	19.12	-6.20	-6.19	13.11	2.56	-1.54
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.71	53.86	54.28	63.40	46.35	50.88	57.38	55.11	55.53
	DAY LEQ	65.40		EVENING LEQ	63.71		NIGHT LEQ	60.89	

CNEL	68.62
DAY LEQ	65.40

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

13	:Id
Mauna Loa Road	:Road
South of Jean Nicholas Road	:Segment

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

ADT	900
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	55.20	0.67	0.26	40.79	0.12	0.12	10.22	0.90	0.35
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	11.67	-7.45	-11.55	10.36	-14.96	-14.95	4.35	-6.20	-10.31
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	53.02	43.61	44.73	51.71	36.10	41.33	45.69	44.86	45.98
	DAY LEQ	54.03		EVENING LEQ	52.20		NIGHT LEQ	50.31	

CNEL	57.74
DAY LEQ	54.03

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

13	:Id
Mauna Loa Road	:Road
South of Jean Nicholas Road	:Segment

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

ADT	1200
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	73.60	0.90	0.35	54.39	0.16	0.16	13.62	1.20	0.47
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	12.92	-6.20	-10.31	11.61	-13.71	-13.70	5.60	-4.95	-9.06
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	54.27	44.86	45.98	52.96	37.35	42.58	46.94	46.11	47.23
	DAY LEQ	55.28		EVENING LEQ	53.45		NIGHT LEQ	51.56	

CNEL	58.99
DAY LEQ	55.28

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

14	:Id
Blue Spruce Lane	:Road
West of Winchester Road	:Segment

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

ADT	700
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	42.93	0.52	0.20	31.73	0.09	0.09	7.95	0.70	0.27
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	10.58	-8.55	-12.65	9.27	-16.05	-16.04	3.26	-7.30	-11.40
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	51.93	42.52	43.64	50.62	35.01	40.24	44.60	43.77	44.89
	DAY LEQ	52.94		EVENING LEQ	51.10		NIGHT LEQ	49.22	

CNEL	56.65
DAY LEQ	52.94

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

14	:Id
Blue Spruce Lane	:Road
West of Winchester Road	:Segment

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

ADT	800
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	49.06	0.60	0.23	36.26	0.11	0.11	9.08	0.80	0.31
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	11.16	-7.97	-12.07	9.85	-15.47	-15.46	3.84	-6.72	-10.82
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	52.51	43.10	44.22	51.20	35.59	40.82	45.18	44.35	45.47
	DAY LEQ	53.52		EVENING LEQ	51.68		NIGHT LEQ	49.80	

CNEL	57.23
DAY LEQ	53.52

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

15	:Id
Algarve Avenue	:Road
East of Winchester Road	:Segment

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

ADT	2300
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	141.06	1.72	0.67	104.24	0.31	0.31	26.11	2.30	0.89
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	15.75	-3.38	-7.48	14.43	-10.89	-10.88	8.42	-2.13	-6.23
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	57.09	47.69	48.80	55.78	40.18	45.41	49.77	48.94	50.05
	DAY LEQ	58.11		EVENING LEQ	56.27		NIGHT LEQ	54.38	

CNEL	61.82
DAY LEQ	58.11

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Plus Project Traffic Noise

15	:Id
Algarve Avenue	:Road
East of Winchester Road	:Segment

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

ADT	2600
Speed	35
Distance	37
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	159.46	1.95	0.76	117.84	0.35	0.35	29.52	2.60	1.01
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05
ADJUSTMENTS									
Flow	16.28	-2.85	-6.95	14.97	-10.36	-10.34	8.95	-1.60	-5.70
Distance	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	57.63	48.22	49.34	56.31	40.71	45.94	50.30	49.47	50.59
	DAY LEQ	58.64		EVENING LEQ	56.80		NIGHT LEQ	54.92	

CNEL	62.35
DAY LEQ	58.64

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside light truck mix.

Existing Traffic Noise

16	:Id
Thompson Road	:Road
East of Winchester Road	:Segment

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

ADT	11600
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	671.80	13.92	23.20	498.74	2.32	3.87	123.68	19.33	32.22
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	21.43	4.60	6.82	20.14	-3.18	-0.96	14.08	6.03	8.24
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	64.99	56.43	63.17	63.70	48.65	55.39	57.64	57.86	64.60
	DAY LEQ	67.54		EVENING LEQ	64.41		NIGHT LEQ	66.10	

CNEL	72.83
DAY LEQ	67.54

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

16	:Id
Thompson Road	:Road
East of Winchester Road	:Segment

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

ADT	12300
Speed	45
Distance	59
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	712.34	14.76	24.60	528.83	2.46	4.10	131.14	20.50	34.17
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	21.69	4.85	7.07	20.40	-2.93	-0.71	14.34	6.28	8.50
Distance	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79	-0.79
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	65.24	56.69	63.42	63.95	48.90	55.64	57.90	58.11	64.85
	DAY LEQ	67.79		EVENING LEQ	64.67		NIGHT LEQ	66.35	

CNEL	73.09
DAY LEQ	67.79

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Traffic Noise

17	:Id	Vehicle Distribution (Heavy Truck Mix)				ADT	20700
Benton Road	:Road	Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow	Speed	45
East of Winchester Road	:Segment	Automobiles	75.54	14.02	10.43	92.00	Distance	76
		Medium Trucks	48.00	2.00	50.00	3.00	Left Angle	-90
		Heavy Trucks	48.00	2.00	50.00	5.00	Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1198.82	24.84	41.40	889.99	4.14	6.90	220.70	34.50	57.50
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	23.95	7.11	9.33	22.66	-0.67	1.55	16.60	8.54	10.76
Distance	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.41	57.85	64.59	65.11	50.07	56.80	59.06	59.27	66.01
	DAY LEQ	68.95		EVENING LEQ	65.83		NIGHT LEQ	67.51	

CNEL	74.25	Day hour	0.00
DAY LEQ	68.95	Absorptive?	no
		Use hour?	no
		GRADE dB	0.00

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

Existing Plus Project Traffic Noise

17	:Id
Benton Road	:Road
East of Winchester Road	:Segment

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

ADT	21100
Speed	45
Distance	76
Left Angle	-90
Right Angle	90

	Daytime			Evening			Night		
Noise Parameters	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
INPUT PARAMETERS									
Vehicles per hour	1221.99	25.32	42.20	907.19	4.22	7.03	224.96	35.17	58.61
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
NOISE CALCULATIONS									
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14
ADJUSTMENTS									
Flow	24.03	7.20	9.42	22.74	-0.58	1.63	16.68	8.62	10.84
Distance	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89	-1.89
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00
LEQ	66.49	57.93	64.67	65.20	50.15	56.89	59.14	59.36	66.10
	DAY LEQ	69.03		EVENING LEQ	65.91		NIGHT LEQ	67.60	

CNEL	74.33
DAY LEQ	69.03

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

Notes:

(1) FHWA Traffic Noise Prediction Model FHWA-RD-77-108

(2) Vehicle percentages based on County of Riverside heavy truck mix.

FHWA Traffic Noise Prediction Model FHWA-RD-77-108
Riverside County Published Mix
Larger than Secondary

Buildout Traffic Noise
Highway 79 - at closest proposed building

	DAYTIME			EVENING			NIGHTTIME				
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	ADT	32700.00
							AUTOS			SPEED	55.00
										DISTANCE	155.00
INPUT PARAMETERS											
Vehicles per hour	1893.79	39.24	65.40	1405.93	6.54	10.90	348.64	54.50	90.83	% A	92.00
Speed in MPH	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	% MT	3.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	% HT	5.00
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	LEFT	-90.00
										RIGHT	90.00
NOISE CALCULATIONS											
Reference levels	72.73	79.85	83.81	72.73	79.85	83.81	72.73	79.85	83.81	CNEL	74.49
ADJUSTMENTS										DAY LEQ	69.71
Flow	25.06	8.23	10.45	23.77	0.45	2.66	17.71	9.65	11.87		
Distance	-4.98	-4.98	-4.98	-4.98	-4.98	-4.98	-4.98	-4.98	-4.98	Day hour	89.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Absorbtive?	no
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	Use hour?	no
LEQ	67.81	58.10	64.28	66.51	50.32	56.50	60.46	59.52	65.70	GRADE dB	0.00

DAY LEQ	69.71	EVENING LEQ	67.02	NIGHT LEQ	67.58	
CNEL	**74.49**					

FHWA Traffic Noise Prediction Model FHWA-RD-77-108
Riverside County Published Mix
For Secondary and Smaller

Future Traffic Noise

Jean Nicolas Road - at closest proposed building

	DAYTIME			EVENING			NIGHTTIME				
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	ADT	20700.00
										SPEED	45.00
										DISTANCE	71.00
INPUT PARAMETERS											
Vehicles per hour	1269.52	15.39	6.04	938.20	2.76	2.76	235.00	20.31	8.05	% A	97.40
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	% MT	1.84
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	% HT	0.74
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	LEFT	-90.00
										RIGHT	90.00
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	CNEL	70.84
ADJUSTMENTS										DAY LEQ	67.64
Flow	24.20	5.03	0.97	22.88	-2.44	-2.43	16.87	6.24	2.22		
Distance	-1.59	-1.59	-1.59	-1.59	-1.59	-1.59	-1.59	-1.59	-1.59	Day hour	89.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Absorbtive?	no
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	Use hour?	no
LEQ	66.95	56.06	56.52	65.64	48.59	53.12	59.62	57.27	57.77	GRADE dB	0.00

DAY LEQ 67.64 EVENING LEQ 65.95 NIGHT LEQ 63.11

CNEL **70.84**

APPENDIX F

SOUNDPLAN INPUT AND OUTPUT

Catalog

				Frequency spectrum [dB(A)]																																				Corrections		
Source name	Reference	Level	dB(A)	6 Hz	8 Hz	10 Hz	12 Hz	16 Hz	20 Hz	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.3 kHz	1.6 kHz	2 kHz	2.5 kHz	3.2 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	20 kHz	Cwall dB	CI dB	CT dB
Car Wash Quie	Lw/m	Day	50																																					-	-	-
Car Wash Quie		Evening	-																																					-	-	-
Car Wash Quie		Night	-																																					-	-	-
Car Wash Que	Lw/m	Day	50																																					-	-	-
Car Wash Que		Evening	-																																					-	-	-
Car Wash Que		Night	-																																					-	-	-
Drive Thru Que	Lw/m	Day	50																																					-	-	-
Drive Thru Que		Evening	-																																					-	-	-
Drive Thru Que		Night	-																																					-	-	-
Drive Thru Que	Lw/m	Day	50																																					-	-	-
Drive Thru Que		Evening	-																																					-	-	-
Drive Thru Que		Night	-																																					-	-	-
Drive Thru Que	Lw/m	Day	50																																					-	-	-
Drive Thru Que		Evening	-																																					-	-	-
Drive Thru Que		Night	-																																					-	-	-
Drive Thru Que	Lw/m	Day	50																																					-	-	-
Drive Thru Que		Evening	-																																					-	-	-
Drive Thru Que		Night	-																																					-	-	-
Drive Thru Que	Lw/m	Day	50																																					-	-	-
Drive Thru Que		Evening	-																																					-	-	-
Drive Thru Que		Night	-																																					-	-	-
Fueling Area	Lw/m^2	Day	65																																					-	-	-
Fueling Area		Evening	-																																					-	-	-
Fueling Area		Night	-																																					-	-	-
Producer Facade	Lw/unit	Day	80																																					3	-	-
Producer Facade		Evening	-																																					3	-	-
Producer Facade		Night	-																																					3	-	-
Producer Facade	Lw/unit	Day	80																																					3	-	-
Producer Facade		Evening	-																																					3	-	-
Producer Facade		Night	-																																					3	-	-
Car Wash Drying System	Lw/unit	Day	106.8																																					-	-	-
Car Wash Drying System		Evening	-																																					-	-	-
Car Wash Drying System		Night	-																																					-	-	-
Drive-Thru Speaker	Lw/unit	Day	83																																					-	-	-
Drive-Thru Speaker		Evening	-																																					-	-	-
Drive-Thru Speaker		Night	-																																					-	-	-
HVAC1	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC1		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC1		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC2	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC2		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC2		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC3	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC3		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC3		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC4	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC4		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC4		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC5	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC5		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC5		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC6	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC6		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC6		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC7	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC7		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC7		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC8	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC8		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC8		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC9	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC9		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC9		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC10	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC10		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC10		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC11	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC11		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC11		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC13	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC13		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC13		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC14	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC14		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC14		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC15	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC15		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC15		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC 16	Lw/unit	Day	78.7	-	-	-	-	-	-	-	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-	-
HVAC 16		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HVAC 16		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End1	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End1		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End1		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End2	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End2		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End2		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End3	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End3		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End3		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End4	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End4		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End4		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End5	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End5		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End5		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End6	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End6		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End6		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End7	Lw/unit	Day	95	-8.9	-1.4	6.5	14.7	28.9	40.6	38.9	44.9	50.2	52.7	57.2	60.3	59.9	63.3	63.1	64.5	66	68.1	71.9	73.3	76.2	77.5	79.4	82.1	85.9	86.7	85.8	85.5	83.7	84	85	82.5	79.7	77	75.5	71.1	-	-	-
Vaccum/Blower End7		Evening	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccum/Blower End7		Night	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour			Road surface	Separated method	Lw,ref
			Day	Evening	Night			dB(A)
P1	Visitors and staff	9 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	72.5
P2	Visitors and staff	3 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	67.8
P3	Visitors and staff	6 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	70.8
P4	Visitors and staff	11 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	74.2
P5	Visitors and staff	9 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	72.5
P6	Visitors and staff	6 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	70.8
P7	Visitors and staff	11 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	74.2
P8	Visitors and staff	10 Parking bays	4.100	0.000	0.000	Asphaltic driving lanes	no	73.0
P9	Visitors and staff	6 Parking bays	4.100	1.500	1.200	Asphaltic driving lanes	no	70.8

Receiver list

No.	Receiver name	Building side	Floor	Limit			Level w/o NP			Level w NP			Difference			Conflict
				Day	Evenir	Night	Day	Evenir	Night	Day	Evenir	Night	Day	Evenir	Night	Day
				dB(A)			dB(A)			dB(A)			dB			dB
1	Existing Building	South we	GF	-	-	-	62.2	26.1	25.2	56.8	21.7	20.8	-5.4	-4.4	-4.4	-
			1.Fl	-	-	-	62.3	25.4	24.4	62.3	24.1	23.2	0.0	-1.2	-1.2	-
2		South we	GF	-	-	-	54.4	28.9	27.9	50.0	24.0	23.1	-4.4	-4.9	-4.9	-
			1.Fl	-	-	-	54.7	28.7	27.8	54.2	27.5	26.6	-0.5	-1.2	-1.2	-
3		South we	GF	-	-	-	58.5	35.9	34.9	53.9	30.3	29.4	-4.6	-5.5	-5.5	-
			1.Fl	-	-	-	58.6	35.8	34.9	58.3	34.9	34.0	-0.3	-0.9	-0.9	-
4		South we	GF	-	-	-	64.4	29.1	28.1	58.5	24.6	23.6	-5.9	-4.5	-4.5	-
			1.Fl	-	-	-	64.5	28.7	27.7	64.5	27.7	26.8	0.0	-1.0	-1.0	-
5	R1	North eas	GF	-	-	-	53.7	23.2	22.2	52.1	18.1	17.1	-1.5	-5.1	-5.1	-
			1.Fl	-	-	-	53.8	22.3	21.3	53.8	21.9	20.9	0.0	-0.4	-0.4	-
6	R2	North eas	GF	-	-	-	56.0	13.5	12.5	54.3	10.8	9.9	-1.7	-2.6	-2.6	-
			1.Fl	-	-	-	56.3	12.9	11.9	56.1	12.9	11.9	-0.2	0.0	0.0	-
7	R3	North eas	GF	-	-	-	58.4	22.1	21.2	56.7	16.4	15.4	-1.6	-5.7	-5.7	-
			1.Fl	-	-	-	59.1	21.3	20.4	59.0	20.5	19.6	-0.1	-0.8	-0.8	-
8	R4	East	GF	-	-	-	53.7	24.6	23.6	50.7	20.2	19.2	-3.0	-4.4	-4.4	-
			1.Fl	-	-	-	54.4	23.7	22.7	54.4	23.6	22.6	0.0	-0.1	-0.1	-
9	R5	East	GF	-	-	-	53.7	23.5	22.5	51.1	19.1	18.1	-2.6	-4.4	-4.4	-
			1.Fl	-	-	-	54.0	22.5	21.5	53.0	22.4	21.4	-1.0	-0.1	-0.1	-
10	R6	East	GF	-	-	-	52.5	18.5	17.5	49.6	14.1	13.2	-2.9	-4.4	-4.4	-
			1.Fl	-	-	-	52.6	18.0	17.0	51.1	16.0	15.0	-1.5	-2.0	-2.0	-
11	R7	East	GF	-	-	-	48.9	20.5	19.5	47.4	15.9	14.9	-1.5	-4.6	-4.6	-
			1.Fl	-	-	-	49.3	19.8	18.8	49.3	18.6	17.6	0.0	-1.2	-1.2	-

Contribution levels of the receivers

Source name		Level w/o NP Day	Level w/o NP Evening	Level w/o NP Night	Level w NP Day	Level w NP Evening	Level w NP Night
		dB(A)			dB(A)		
Existing Building	GF	62.2	26.1	25.2	56.8	21.7	20.8
Car Wash Drying System		48.2	-	-	45.4	-	-
Car Wash Que		9.0	-	-	8.2	-	-
Car Wash Quie		17.1	-	-	15.7	-	-
Drive Thru Que		-1.5	-	-	-5.7	-	-
Drive Thru Que		9.1	-	-	7.5	-	-
Drive Thru Que		1.4	-	-	-2.6	-	-
Drive Thru Que		21.1	-	-	18.2	-	-
Drive Thru Que		6.7	-	-	5.0	-	-
Drive-Thru Speaker		33.5	-	-	32.7	-	-
Fueling Area		41.0	-	-	40.2	-	-
HVAC1		30.1	-	-	29.8	-	-
HVAC2		30.1	-	-	30.0	-	-
HVAC3		30.9	-	-	30.5	-	-
HVAC4		33.8	-	-	33.8	-	-
HVAC5		31.4	-	-	31.4	-	-
HVAC6		29.7	-	-	29.6	-	-
HVAC7		29.6	-	-	29.6	-	-
HVAC8		34.5	-	-	34.4	-	-
HVAC9		29.6	-	-	29.3	-	-
HVAC10		26.7	-	-	26.1	-	-
HVAC11		25.4	-	-	24.3	-	-
HVAC13		25.4	-	-	24.4	-	-
HVAC14		26.3	-	-	25.9	-	-
HVAC15		27.9	-	-	27.9	-	-
HVAC 16		34.0	-	-	34.0	-	-
P1		36.4	-	-	31.9	-	-
P2		37.2	-	-	31.6	-	-
P3		41.2	-	-	35.1	-	-
P4		47.9	-	-	40.3	-	-
P5		32.8	-	-	27.7	-	-
P6		23.3	-	-	19.8	-	-
P7		33.2	-	-	28.8	-	-
P8		35.7	-	-	31.0	-	-
P9		40.3	35.9	34.9	34.7	30.3	29.4
Producer Facade		24.8	-	-	23.4	-	-
Producer Facade		33.5	-	-	32.7	-	-
Vaccum/Blower End1		48.9	-	-	43.8	-	-
Vaccum/Blower End2		48.8	-	-	43.7	-	-
Vaccum/Blower End3		48.7	-	-	43.6	-	-
Vaccum/Blower End4		48.6	-	-	43.5	-	-
Vaccum/Blower End5		48.4	-	-	43.4	-	-
Vaccum/Blower End6		48.3	-	-	43.3	-	-
Vaccum/Blower End7		48.1	-	-	43.1	-	-
Existing Building	1.Fl	62.3	25.4	24.4	62.3	24.1	23.2
Car Wash Drying System		48.9	-	-	48.9	-	-
Car Wash Que		9.6	-	-	9.5	-	-
Car Wash Quie		17.9	-	-	17.7	-	-
Drive Thru Que		0.1	-	-	0.1	-	-
Drive Thru Que		10.1	-	-	9.3	-	-
Drive Thru Que		2.7	-	-	2.7	-	-
Drive Thru Que		22.6	-	-	20.6	-	-
Drive Thru Que		7.6	-	-	7.4	-	-
Drive-Thru Speaker		34.4	-	-	33.7	-	-
Fueling Area		41.8	-	-	41.8	-	-
HVAC1		29.9	-	-	29.9	-	-
HVAC2		30.4	-	-	30.4	-	-
HVAC3		30.8	-	-	30.8	-	-
HVAC4		35.7	-	-	35.7	-	-
HVAC5		34.8	-	-	34.8	-	-
HVAC6		31.6	-	-	31.6	-	-
HVAC7		30.7	-	-	30.7	-	-
HVAC8		35.0	-	-	35.0	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
HVAC9	32.4	-	-	32.4	-	-
HVAC10	27.0	-	-	27.0	-	-
HVAC11	25.6	-	-	25.6	-	-
HVAC13	25.7	-	-	25.7	-	-
HVAC14	27.1	-	-	27.1	-	-
HVAC15	30.9	-	-	30.9	-	-
HVAC 16	35.0	-	-	35.0	-	-
P1	36.0	-	-	34.8	-	-
P2	37.2	-	-	36.2	-	-
P3	41.1	-	-	39.7	-	-
P4	47.7	-	-	43.7	-	-
P5	32.7	-	-	31.8	-	-
P6	23.2	-	-	23.2	-	-
P7	32.4	-	-	31.5	-	-
P8	35.5	-	-	34.7	-	-
P9	40.2	35.8	34.9	39.3	34.9	34.0
Producer Facade	25.4	-	-	25.1	-	-
Producer Facade	34.3	-	-	34.3	-	-
Vaccum/Blower End1	49.0	-	-	49.0	-	-
Vaccum/Blower End2	48.8	-	-	48.8	-	-
Vaccum/Blower End3	48.7	-	-	48.7	-	-
Vaccum/Blower End4	48.6	-	-	48.6	-	-
Vaccum/Blower End5	48.4	-	-	48.4	-	-
Vaccum/Blower End6	48.3	-	-	48.3	-	-
Vaccum/Blower End7	48.1	-	-	48.1	-	-
Existing Building GF	54.4	28.9	27.9	50.0	24.0	23.1
Car Wash Drying System	50.0	-	-	49.4	-	-
Car Wash Que	17.7	-	-	15.8	-	-
Car Wash Quie	29.6	-	-	23.2	-	-
Drive Thru Que	0.7	-	-	0.5	-	-
Drive Thru Que	7.5	-	-	6.7	-	-
Drive Thru Que	0.6	-	-	0.4	-	-
Drive Thru Que	12.5	-	-	11.6	-	-
Drive Thru Que	1.5	-	-	1.1	-	-
Drive-Thru Speaker	24.1	-	-	16.9	-	-
Fueling Area	36.2	-	-	35.6	-	-
HVAC1	37.2	-	-	37.2	-	-
HVAC2	36.7	-	-	36.6	-	-
HVAC3	35.8	-	-	35.8	-	-
HVAC4	29.7	-	-	28.9	-	-
HVAC5	29.6	-	-	28.8	-	-
HVAC6	26.3	-	-	25.3	-	-
HVAC7	22.3	-	-	22.3	-	-
HVAC8	29.8	-	-	29.3	-	-
HVAC9	29.6	-	-	28.1	-	-
HVAC10	28.9	-	-	26.4	-	-
HVAC11	27.7	-	-	25.3	-	-
HVAC13	24.9	-	-	23.8	-	-
HVAC14	24.8	-	-	24.2	-	-
HVAC15	24.3	-	-	24.3	-	-
HVAC 16	27.8	-	-	27.8	-	-
P1	43.1	-	-	37.7	-	-
P2	30.1	-	-	25.7	-	-
P3	35.7	-	-	30.8	-	-
P4	37.4	-	-	32.3	-	-
P5	30.3	-	-	25.8	-	-
P6	27.5	-	-	23.1	-	-
P7	29.9	-	-	25.5	-	-
P8	26.3	-	-	21.9	-	-
P9	33.4	29.1	28.1	28.9	24.6	23.6
Producer Facade	42.2	-	-	40.0	-	-
Producer Facade	41.8	-	-	39.2	-	-
Vaccum/Blower End1	54.7	-	-	48.4	-	-
Vaccum/Blower End2	55.0	-	-	48.7	-	-

Contribution levels of the receivers

Source name		Level w/o NP Day	Level w/o NP Evening	Level w/o NP Night	Level w NP Day	Level w NP Evening	Level w NP Night
			dB(A)			dB(A)	
Vaccum/Blower End3		55.4	-	-	48.9	-	-
Vaccum/Blower End4		55.7	-	-	49.1	-	-
Vaccum/Blower End5		56.0	-	-	49.3	-	-
Vaccum/Blower End6		56.2	-	-	49.5	-	-
Vaccum/Blower End7		56.4	-	-	49.6	-	-
Existing Building	1.Fl	54.7	28.7	27.8	54.2	27.5	26.6
Car Wash Drying System		51.1	-	-	51.1	-	-
Car Wash Que		19.4	-	-	19.4	-	-
Car Wash Quie		31.1	-	-	27.9	-	-
Drive Thru Que		1.1	-	-	1.1	-	-
Drive Thru Que		8.0	-	-	7.9	-	-
Drive Thru Que		1.1	-	-	1.1	-	-
Drive Thru Que		13.0	-	-	13.0	-	-
Drive Thru Que		1.9	-	-	1.9	-	-
Drive-Thru Speaker		24.5	-	-	24.5	-	-
Fueling Area		36.8	-	-	36.8	-	-
HVAC1		37.5	-	-	37.5	-	-
HVAC2		36.9	-	-	36.9	-	-
HVAC3		36.1	-	-	36.1	-	-
HVAC4		28.4	-	-	28.4	-	-
HVAC5		28.2	-	-	28.2	-	-
HVAC6		26.5	-	-	26.5	-	-
HVAC7		24.5	-	-	24.5	-	-
HVAC8		30.5	-	-	30.5	-	-
HVAC9		30.0	-	-	30.0	-	-
HVAC10		29.3	-	-	29.3	-	-
HVAC11		28.1	-	-	28.1	-	-
HVAC13		25.7	-	-	25.7	-	-
HVAC14		26.5	-	-	26.5	-	-
HVAC15		27.2	-	-	27.2	-	-
HVAC 16		29.5	-	-	29.5	-	-
P1		43.0	-	-	42.4	-	-
P2		29.7	-	-	28.7	-	-
P3		35.6	-	-	34.4	-	-
P4		37.2	-	-	34.0	-	-
P5		29.5	-	-	28.4	-	-
P6		26.6	-	-	25.2	-	-
P7		29.0	-	-	27.8	-	-
P8		25.5	-	-	24.8	-	-
P9		33.1	28.7	27.7	32.1	27.7	26.8
Producer Facade		43.3	-	-	43.3	-	-
Producer Facade		43.0	-	-	43.0	-	-
Vaccum/Blower End1		54.7	-	-	54.7	-	-
Vaccum/Blower End2		55.0	-	-	55.0	-	-
Vaccum/Blower End3		55.4	-	-	55.4	-	-
Vaccum/Blower End4		55.7	-	-	55.7	-	-
Vaccum/Blower End5		56.0	-	-	55.9	-	-
Vaccum/Blower End6		56.2	-	-	56.2	-	-
Vaccum/Blower End7		56.4	-	-	56.4	-	-
Existing Building	GF	58.5	35.9	34.9	53.9	30.3	29.4
Car Wash Drying System		50.0	-	-	48.7	-	-
Car Wash Que		22.4	-	-	19.1	-	-
Car Wash Quie		28.6	-	-	22.8	-	-
Drive Thru Que		-1.2	-	-	-1.4	-	-
Drive Thru Que		5.9	-	-	5.4	-	-
Drive Thru Que		0.8	-	-	0.6	-	-
Drive Thru Que		9.8	-	-	9.4	-	-
Drive Thru Que		-0.8	-	-	-0.9	-	-
Drive-Thru Speaker		20.7	-	-	11.6	-	-
Fueling Area		33.1	-	-	32.6	-	-
HVAC1		36.9	-	-	36.8	-	-
HVAC2		37.0	-	-	36.7	-	-
HVAC3		33.1	-	-	32.7	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
HVAC4	25.6	-	-	25.2	-	-
HVAC5	27.3	-	-	26.0	-	-
HVAC6	24.8	-	-	23.6	-	-
HVAC7	22.8	-	-	22.0	-	-
HVAC8	29.4	-	-	26.8	-	-
HVAC9	29.6	-	-	26.3	-	-
HVAC10	27.2	-	-	23.7	-	-
HVAC11	26.7	-	-	22.7	-	-
HVAC13	23.7	-	-	22.4	-	-
HVAC14	25.9	-	-	24.7	-	-
HVAC15	26.1	-	-	25.0	-	-
HVAC 16	26.4	-	-	25.7	-	-
P1	40.3	-	-	35.1	-	-
P2	27.2	-	-	22.8	-	-
P3	31.8	-	-	27.2	-	-
P4	33.6	-	-	29.0	-	-
P5	29.0	-	-	24.6	-	-
P6	25.6	-	-	21.3	-	-
P7	25.5	-	-	21.9	-	-
P8	22.5	-	-	18.6	-	-
P9	30.5	26.1	25.2	26.1	21.7	20.8
Producer Facade	43.9	-	-	41.2	-	-
Producer Facade	40.7	-	-	38.3	-	-
Vaccum/Blower End1	52.2	-	-	46.5	-	-
Vaccum/Blower End2	52.7	-	-	46.9	-	-
Vaccum/Blower End3	53.2	-	-	47.3	-	-
Vaccum/Blower End4	53.7	-	-	47.7	-	-
Vaccum/Blower End5	54.3	-	-	48.1	-	-
Vaccum/Blower End6	52.7	-	-	46.3	-	-
Vaccum/Blower End7	53.4	-	-	46.8	-	-
Existing Building 1.Fl	58.6	35.8	34.9	58.3	34.9	34.0
Car Wash Drying System	51.8	-	-	51.8	-	-
Car Wash Que	25.1	-	-	25.1	-	-
Car Wash Quie	30.5	-	-	26.5	-	-
Drive Thru Que	-0.9	-	-	-0.9	-	-
Drive Thru Que	6.3	-	-	6.2	-	-
Drive Thru Que	1.1	-	-	1.1	-	-
Drive Thru Que	10.2	-	-	10.2	-	-
Drive Thru Que	-0.4	-	-	-0.4	-	-
Drive-Thru Speaker	21.0	-	-	21.0	-	-
Fueling Area	33.7	-	-	33.7	-	-
HVAC1	37.9	-	-	37.9	-	-
HVAC2	36.1	-	-	36.1	-	-
HVAC3	34.5	-	-	34.5	-	-
HVAC4	25.9	-	-	25.9	-	-
HVAC5	25.8	-	-	25.8	-	-
HVAC6	24.6	-	-	24.6	-	-
HVAC7	22.5	-	-	22.5	-	-
HVAC8	29.8	-	-	29.8	-	-
HVAC9	29.9	-	-	29.9	-	-
HVAC10	27.5	-	-	27.5	-	-
HVAC11	27.0	-	-	27.0	-	-
HVAC13	25.8	-	-	25.8	-	-
HVAC14	28.2	-	-	28.2	-	-
HVAC15	28.5	-	-	28.5	-	-
HVAC 16	28.5	-	-	28.5	-	-
P1	40.3	-	-	39.6	-	-
P2	26.4	-	-	25.2	-	-
P3	31.2	-	-	29.7	-	-
P4	32.9	-	-	29.3	-	-
P5	28.0	-	-	27.0	-	-
P6	24.6	-	-	23.4	-	-
P7	24.8	-	-	24.2	-	-
P8	21.5	-	-	20.9	-	-

Contribution levels of the receivers

Source name		Level w/o NP Day	Level w/o NP Evening	Level w/o NP Night	Level w NP Day	Level w NP Evening	Level w NP Night
			dB(A)			dB(A)	
P9		29.7	25.4	24.4	28.5	24.1	23.2
Producer Facade		44.8	-	-	44.8	-	-
Producer Facade		41.9	-	-	41.9	-	-
Vaccum/Blower End1		52.2	-	-	52.2	-	-
Vaccum/Blower End2		52.7	-	-	52.7	-	-
Vaccum/Blower End3		53.2	-	-	53.2	-	-
Vaccum/Blower End4		53.7	-	-	53.7	-	-
Vaccum/Blower End5		54.3	-	-	54.3	-	-
Vaccum/Blower End6		52.7	-	-	52.7	-	-
Vaccum/Blower End7		53.4	-	-	53.4	-	-
Existing Building	GF	64.4	29.1	28.1	58.5	24.6	23.6
Car Wash Drying System		46.6	-	-	41.2	-	-
Car Wash Que		3.9	-	-	3.4	-	-
Car Wash Quie		11.8	-	-	11.4	-	-
Drive Thru Que		8.7	-	-	7.7	-	-
Drive Thru Que		22.9	-	-	19.9	-	-
Drive Thru Que		8.3	-	-	7.3	-	-
Drive Thru Que		29.8	-	-	22.9	-	-
Drive Thru Que		20.0	-	-	12.6	-	-
Drive-Thru Speaker		45.4	-	-	41.5	-	-
Fueling Area		36.9	-	-	33.4	-	-
HVAC1		25.0	-	-	24.5	-	-
HVAC2		24.8	-	-	24.4	-	-
HVAC3		25.2	-	-	24.6	-	-
HVAC4		33.7	-	-	33.7	-	-
HVAC5		31.9	-	-	31.9	-	-
HVAC6		34.2	-	-	34.2	-	-
HVAC7		35.4	-	-	35.4	-	-
HVAC8		20.2	-	-	20.2	-	-
HVAC9		18.6	-	-	18.6	-	-
HVAC10		16.8	-	-	16.8	-	-
HVAC11		16.3	-	-	16.3	-	-
HVAC13		16.5	-	-	16.5	-	-
HVAC14		17.5	-	-	17.5	-	-
HVAC15		18.8	-	-	18.8	-	-
HVAC 16		19.7	-	-	19.7	-	-
P1		31.4	-	-	27.1	-	-
P2		30.9	-	-	25.7	-	-
P3		32.3	-	-	27.7	-	-
P4		38.8	-	-	32.9	-	-
P5		28.4	-	-	24.0	-	-
P6		36.7	-	-	31.6	-	-
P7		35.6	-	-	31.2	-	-
P8		24.2	-	-	22.5	-	-
P9		33.3	28.9	27.9	28.4	24.0	23.1
Producer Facade		18.8	-	-	17.6	-	-
Producer Facade		28.0	-	-	27.5	-	-
Vaccum/Blower End1		43.7	-	-	39.0	-	-
Vaccum/Blower End2		43.6	-	-	38.9	-	-
Vaccum/Blower End3		43.5	-	-	38.8	-	-
Vaccum/Blower End4		43.3	-	-	38.7	-	-
Vaccum/Blower End5		43.2	-	-	38.5	-	-
Vaccum/Blower End6		43.1	-	-	38.4	-	-
Vaccum/Blower End7		43.0	-	-	38.3	-	-
Existing Building	1.Fl	64.5	28.7	27.7	64.5	27.7	26.8
Car Wash Drying System		47.0	-	-	47.0	-	-
Car Wash Que		4.3	-	-	4.1	-	-
Car Wash Quie		12.2	-	-	12.2	-	-
Drive Thru Que		9.8	-	-	9.8	-	-
Drive Thru Que		25.3	-	-	23.5	-	-
Drive Thru Que		9.3	-	-	9.3	-	-
Drive Thru Que		31.9	-	-	26.1	-	-
Drive Thru Que		22.2	-	-	16.4	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
Drive-Thru Speaker	47.0	-	-	44.6	-	-
Fueling Area	38.6	-	-	38.6	-	-
HVAC1	24.7	-	-	24.7	-	-
HVAC2	25.1	-	-	25.1	-	-
HVAC3	25.5	-	-	25.5	-	-
HVAC4	38.1	-	-	38.1	-	-
HVAC5	35.7	-	-	35.7	-	-
HVAC6	38.8	-	-	38.8	-	-
HVAC7	40.2	-	-	40.2	-	-
HVAC8	25.5	-	-	25.5	-	-
HVAC9	24.5	-	-	24.5	-	-
HVAC10	23.6	-	-	23.6	-	-
HVAC11	22.9	-	-	22.9	-	-
HVAC13	23.3	-	-	23.3	-	-
HVAC14	24.0	-	-	24.0	-	-
HVAC15	25.0	-	-	25.0	-	-
HVAC 16	25.7	-	-	25.7	-	-
P1	30.4	-	-	28.9	-	-
P2	30.8	-	-	29.6	-	-
P3	31.9	-	-	29.9	-	-
P4	38.7	-	-	35.6	-	-
P5	28.4	-	-	28.3	-	-
P6	36.6	-	-	35.6	-	-
P7	35.2	-	-	34.4	-	-
P8	25.4	-	-	25.4	-	-
P9	33.1	28.7	27.8	31.9	27.5	26.6
Producer Facade	19.1	-	-	18.9	-	-
Producer Facade	28.4	-	-	28.4	-	-
Vaccum/Blower End1	43.1	-	-	43.1	-	-
Vaccum/Blower End2	43.0	-	-	43.0	-	-
Vaccum/Blower End3	42.9	-	-	42.9	-	-
Vaccum/Blower End4	42.8	-	-	42.7	-	-
Vaccum/Blower End5	42.6	-	-	42.6	-	-
Vaccum/Blower End6	42.5	-	-	42.4	-	-
Vaccum/Blower End7	42.4	-	-	42.3	-	-
R1 GF	53.7	23.2	22.2	52.1	18.1	17.1
Car Wash Drying System	51.2	-	-	50.8	-	-
Car Wash Que	2.3	-	-	-1.9	-	-
Car Wash Quie	9.6	-	-	7.6	-	-
Drive Thru Que	4.8	-	-	4.2	-	-
Drive Thru Que	12.6	-	-	11.8	-	-
Drive Thru Que	4.7	-	-	4.1	-	-
Drive Thru Que	6.6	-	-	5.4	-	-
Drive Thru Que	3.1	-	-	1.3	-	-
Drive-Thru Speaker	29.8	-	-	28.8	-	-
Fueling Area	41.6	-	-	40.8	-	-
HVAC1	20.4	-	-	18.7	-	-
HVAC2	21.8	-	-	19.4	-	-
HVAC3	24.3	-	-	20.1	-	-
HVAC4	25.4	-	-	21.3	-	-
HVAC5	26.3	-	-	21.6	-	-
HVAC6	26.1	-	-	21.4	-	-
HVAC7	26.0	-	-	21.3	-	-
HVAC8	23.2	-	-	23.2	-	-
HVAC9	24.8	-	-	24.3	-	-
HVAC10	25.2	-	-	25.1	-	-
HVAC11	30.6	-	-	28.7	-	-
HVAC13	30.8	-	-	28.8	-	-
HVAC14	25.8	-	-	25.8	-	-
HVAC15	25.8	-	-	25.4	-	-
HVAC 16	25.2	-	-	24.4	-	-
P1	28.2	-	-	23.8	-	-
P2	26.4	-	-	21.7	-	-
P3	22.1	-	-	16.3	-	-

Contribution levels of the receivers

Source name			Level w/o NP			Level w NP		
			Day	Evening	Night	Day	Evening	Night
				dB(A)			dB(A)	
P4			31.1	-	-	26.5	-	-
P5			33.1	-	-	28.6	-	-
P6			30.0	-	-	25.5	-	-
P7			36.6	-	-	32.0	-	-
P8			34.6	-	-	29.9	-	-
P9			27.6	23.2	22.2	22.5	18.1	17.1
Producer Facade			13.7	-	-	11.6	-	-
Producer Facade			20.1	-	-	16.1	-	-
Vaccum/Blower End1			40.1	-	-	35.4	-	-
Vaccum/Blower End2			40.0	-	-	35.3	-	-
Vaccum/Blower End3			39.8	-	-	35.2	-	-
Vaccum/Blower End4			39.6	-	-	35.0	-	-
Vaccum/Blower End5			39.5	-	-	35.0	-	-
Vaccum/Blower End6			39.3	-	-	34.8	-	-
Vaccum/Blower End7			39.1	-	-	34.7	-	-
R1	1.Fl	53.8	22.3	21.3	53.8	21.9	20.9	
Car Wash Drying System			51.6	-	-	51.6	-	-
Car Wash Que			2.8	-	-	2.8	-	-
Car Wash Quie			10.1	-	-	8.9	-	-
Drive Thru Que			5.4	-	-	5.4	-	-
Drive Thru Que			13.1	-	-	13.0	-	-
Drive Thru Que			5.4	-	-	5.4	-	-
Drive Thru Que			7.1	-	-	6.5	-	-
Drive Thru Que			3.5	-	-	2.3	-	-
Drive-Thru Speaker			30.2	-	-	30.0	-	-
Fueling Area			42.4	-	-	42.4	-	-
HVAC1			22.5	-	-	22.5	-	-
HVAC2			23.4	-	-	23.4	-	-
HVAC3			24.7	-	-	24.7	-	-
HVAC4			26.2	-	-	26.2	-	-
HVAC5			26.6	-	-	26.6	-	-
HVAC6			26.4	-	-	26.4	-	-
HVAC7			26.3	-	-	26.3	-	-
HVAC8			23.8	-	-	23.8	-	-
HVAC9			24.8	-	-	24.8	-	-
HVAC10			28.3	-	-	28.3	-	-
HVAC11			30.8	-	-	30.8	-	-
HVAC13			31.0	-	-	31.0	-	-
HVAC14			29.2	-	-	29.2	-	-
HVAC15			28.4	-	-	28.4	-	-
HVAC 16			27.3	-	-	27.3	-	-
P1			27.1	-	-	26.6	-	-
P2			25.6	-	-	25.2	-	-
P3			21.5	-	-	19.1	-	-
P4			30.1	-	-	30.0	-	-
P5			32.2	-	-	32.2	-	-
P6			29.2	-	-	29.2	-	-
P7			36.3	-	-	36.3	-	-
P8			34.1	-	-	33.9	-	-
P9			26.7	22.3	21.3	26.3	21.9	20.9
Producer Facade			13.9	-	-	13.9	-	-
Producer Facade			20.4	-	-	20.4	-	-
Vaccum/Blower End1			39.5	-	-	39.5	-	-
Vaccum/Blower End2			39.5	-	-	39.5	-	-
Vaccum/Blower End3			39.3	-	-	39.3	-	-
Vaccum/Blower End4			39.1	-	-	39.1	-	-
Vaccum/Blower End5			38.9	-	-	39.0	-	-
Vaccum/Blower End6			38.8	-	-	38.9	-	-
Vaccum/Blower End7			38.6	-	-	38.7	-	-
R2	GF	56.0	13.5	12.5	54.3	10.8	9.9	
Car Wash Drying System			54.1	-	-	53.4	-	-
Car Wash Que			6.6	-	-	3.6	-	-
Car Wash Quie			11.1	-	-	8.3	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
Drive Thru Que	4.8	-	-	4.4	-	-
Drive Thru Que	11.4	-	-	11.1	-	-
Drive Thru Que	4.8	-	-	4.4	-	-
Drive Thru Que	6.7	-	-	4.5	-	-
Drive Thru Que	1.2	-	-	0.8	-	-
Drive-Thru Speaker	28.2	-	-	27.7	-	-
Fueling Area	41.0	-	-	40.2	-	-
HVAC1	23.9	-	-	22.1	-	-
HVAC2	27.3	-	-	23.0	-	-
HVAC3	27.9	-	-	23.7	-	-
HVAC4	25.5	-	-	21.6	-	-
HVAC5	26.6	-	-	21.9	-	-
HVAC6	26.1	-	-	21.5	-	-
HVAC7	25.9	-	-	21.2	-	-
HVAC8	24.0	-	-	24.0	-	-
HVAC9	25.7	-	-	25.7	-	-
HVAC10	29.5	-	-	29.5	-	-
HVAC11	33.6	-	-	32.1	-	-
HVAC13	33.2	-	-	31.6	-	-
HVAC14	27.6	-	-	27.6	-	-
HVAC15	25.5	-	-	25.5	-	-
HVAC 16	24.0	-	-	24.0	-	-
P1	30.0	-	-	24.9	-	-
P2	18.6	-	-	13.9	-	-
P3	29.7	-	-	25.2	-	-
P4	24.1	-	-	20.3	-	-
P5	33.0	-	-	28.5	-	-
P6	29.9	-	-	25.4	-	-
P7	35.0	-	-	30.5	-	-
P8	34.5	-	-	29.6	-	-
P9	17.8	13.5	12.5	15.2	10.8	9.9
Producer Facade	24.5	-	-	24.0	-	-
Producer Facade	19.1	-	-	16.3	-	-
Vaccum/Blower End1	43.7	-	-	38.3	-	-
Vaccum/Blower End2	43.5	-	-	38.2	-	-
Vaccum/Blower End3	43.4	-	-	38.0	-	-
Vaccum/Blower End4	43.2	-	-	37.8	-	-
Vaccum/Blower End5	39.6	-	-	29.9	-	-
Vaccum/Blower End6	38.2	-	-	30.3	-	-
Vaccum/Blower End7	37.8	-	-	30.2	-	-
R2 1.Fl	56.3	12.9	11.9	56.1	12.9	11.9
Car Wash Drying System	54.6	-	-	54.6	-	-
Car Wash Que	7.0	-	-	6.6	-	-
Car Wash Quie	11.5	-	-	10.1	-	-
Drive Thru Que	5.3	-	-	5.3	-	-
Drive Thru Que	12.0	-	-	11.9	-	-
Drive Thru Que	5.4	-	-	5.4	-	-
Drive Thru Que	7.4	-	-	6.0	-	-
Drive Thru Que	1.7	-	-	1.6	-	-
Drive-Thru Speaker	28.8	-	-	28.8	-	-
Fueling Area	41.8	-	-	41.7	-	-
HVAC1	23.0	-	-	23.0	-	-
HVAC2	26.7	-	-	26.7	-	-
HVAC3	27.5	-	-	27.5	-	-
HVAC4	26.4	-	-	26.4	-	-
HVAC5	26.9	-	-	26.9	-	-
HVAC6	26.5	-	-	26.5	-	-
HVAC7	26.2	-	-	26.2	-	-
HVAC8	25.6	-	-	25.6	-	-
HVAC9	26.8	-	-	26.8	-	-
HVAC10	31.0	-	-	31.0	-	-
HVAC11	33.9	-	-	33.9	-	-
HVAC13	33.6	-	-	33.6	-	-
HVAC14	30.7	-	-	30.7	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
HVAC15	26.9	-	-	26.9	-	-
HVAC 16	25.7	-	-	25.7	-	-
P1	29.2	-	-	28.6	-	-
P2	18.1	-	-	18.0	-	-
P3	28.9	-	-	28.9	-	-
P4	23.7	-	-	23.6	-	-
P5	32.1	-	-	32.1	-	-
P6	29.1	-	-	29.0	-	-
P7	34.4	-	-	34.4	-	-
P8	34.2	-	-	34.1	-	-
P9	17.3	12.9	11.9	17.3	12.9	11.9
Producer Facade	24.8	-	-	24.8	-	-
Producer Facade	19.5	-	-	19.5	-	-
Vaccum/Blower End1	43.2	-	-	42.7	-	-
Vaccum/Blower End2	43.1	-	-	42.5	-	-
Vaccum/Blower End3	42.9	-	-	42.3	-	-
Vaccum/Blower End4	42.7	-	-	42.1	-	-
Vaccum/Blower End5	39.0	-	-	37.4	-	-
Vaccum/Blower End6	37.6	-	-	35.6	-	-
Vaccum/Blower End7	37.1	-	-	34.8	-	-
R3 GF	58.4	22.1	21.2	56.7	16.4	15.4
Car Wash Drying System	57.6	-	-	56.4	-	-
Car Wash Que	8.4	-	-	7.7	-	-
Car Wash Quie	10.7	-	-	8.1	-	-
Drive Thru Que	1.6	-	-	1.3	-	-
Drive Thru Que	8.3	-	-	7.5	-	-
Drive Thru Que	1.7	-	-	1.4	-	-
Drive Thru Que	-0.2	-	-	-3.0	-	-
Drive Thru Que	-7.7	-	-	-9.3	-	-
Drive-Thru Speaker	20.7	-	-	19.9	-	-
Fueling Area	37.6	-	-	36.8	-	-
HVAC1	24.0	-	-	24.0	-	-
HVAC2	26.8	-	-	25.6	-	-
HVAC3	30.8	-	-	26.8	-	-
HVAC4	19.0	-	-	19.0	-	-
HVAC5	19.3	-	-	19.3	-	-
HVAC6	18.5	-	-	18.5	-	-
HVAC7	17.9	-	-	17.8	-	-
HVAC8	28.4	-	-	26.0	-	-
HVAC9	30.3	-	-	27.1	-	-
HVAC10	32.3	-	-	29.3	-	-
HVAC11	32.8	-	-	31.0	-	-
HVAC13	31.0	-	-	29.8	-	-
HVAC14	28.7	-	-	28.6	-	-
HVAC15	26.8	-	-	26.4	-	-
HVAC 16	26.8	-	-	26.0	-	-
P1	30.5	-	-	25.1	-	-
P2	20.2	-	-	15.6	-	-
P3	30.4	-	-	26.0	-	-
P4	31.9	-	-	27.3	-	-
P5	22.7	-	-	20.6	-	-
P6	26.8	-	-	22.5	-	-
P7	32.3	-	-	27.9	-	-
P8	25.6	-	-	20.4	-	-
P9	26.5	22.1	21.2	20.7	16.4	15.4
Producer Facade	22.2	-	-	22.0	-	-
Producer Facade	20.9	-	-	19.6	-	-
Vaccum/Blower End1	46.1	-	-	40.4	-	-
Vaccum/Blower End2	42.1	-	-	31.3	-	-
Vaccum/Blower End3	39.2	-	-	31.1	-	-
Vaccum/Blower End4	38.8	-	-	31.1	-	-
Vaccum/Blower End5	38.8	-	-	31.6	-	-
Vaccum/Blower End6	38.8	-	-	31.6	-	-
Vaccum/Blower End7	38.9	-	-	29.7	-	-

Contribution levels of the receivers

Source name		Level w/o NP Day	Level w/o NP Evening	Level w/o NP Night	Level w NP Day	Level w NP Evening	Level w NP Night
			dB(A)			dB(A)	
R3	1.Fl	59.1	21.3	20.4	59.0	20.5	19.6
Car Wash Drying System		58.4	-	-	58.4	-	-
Car Wash Que		9.2	-	-	9.1	-	-
Car Wash Quie		11.4	-	-	10.1	-	-
Drive Thru Que		2.0	-	-	2.0	-	-
Drive Thru Que		9.4	-	-	9.4	-	-
Drive Thru Que		2.2	-	-	2.2	-	-
Drive Thru Que		2.3	-	-	-1.1	-	-
Drive Thru Que		-5.2	-	-	-5.6	-	-
Drive-Thru Speaker		23.9	-	-	23.9	-	-
Fueling Area		38.3	-	-	38.3	-	-
HVAC1		27.3	-	-	27.3	-	-
HVAC2		28.4	-	-	28.4	-	-
HVAC3		30.6	-	-	30.6	-	-
HVAC4		21.4	-	-	21.4	-	-
HVAC5		21.6	-	-	21.6	-	-
HVAC6		21.1	-	-	21.1	-	-
HVAC7		20.7	-	-	20.7	-	-
HVAC8		30.3	-	-	30.3	-	-
HVAC9		31.3	-	-	31.3	-	-
HVAC10		32.6	-	-	32.6	-	-
HVAC11		33.3	-	-	33.3	-	-
HVAC13		32.4	-	-	32.4	-	-
HVAC14		29.7	-	-	29.7	-	-
HVAC15		27.7	-	-	27.7	-	-
HVAC 16		27.0	-	-	27.0	-	-
P1		29.9	-	-	29.3	-	-
P2		19.5	-	-	18.7	-	-
P3		29.7	-	-	29.9	-	-
P4		31.1	-	-	31.2	-	-
P5		22.6	-	-	22.2	-	-
P6		26.0	-	-	25.9	-	-
P7		31.4	-	-	31.3	-	-
P8		25.0	-	-	23.8	-	-
P9		25.7	21.3	20.4	24.9	20.5	19.6
Producer Facade		24.6	-	-	24.6	-	-
Producer Facade		21.9	-	-	21.9	-	-
Vaccum/Blower End1		46.0	-	-	45.7	-	-
Vaccum/Blower End2		41.8	-	-	40.8	-	-
Vaccum/Blower End3		38.6	-	-	36.2	-	-
Vaccum/Blower End4		38.2	-	-	35.3	-	-
Vaccum/Blower End5		38.1	-	-	35.8	-	-
Vaccum/Blower End6		38.2	-	-	35.8	-	-
Vaccum/Blower End7		38.2	-	-	33.7	-	-
R4	GF	53.7	24.6	23.6	50.7	20.2	19.2
Car Wash Drying System		52.3	-	-	49.6	-	-
Car Wash Que		13.7	-	-	12.3	-	-
Car Wash Quie		12.6	-	-	10.6	-	-
Drive Thru Que		-8.4	-	-	-9.3	-	-
Drive Thru Que		0.4	-	-	-0.1	-	-
Drive Thru Que		-8.7	-	-	-9.7	-	-
Drive Thru Que		7.6	-	-	2.9	-	-
Drive Thru Que		-15.4	-	-	-16.5	-	-
Drive-Thru Speaker		11.3	-	-	10.8	-	-
Fueling Area		30.8	-	-	29.8	-	-
HVAC1		29.5	-	-	29.0	-	-
HVAC2		30.3	-	-	29.8	-	-
HVAC3		30.8	-	-	30.3	-	-
HVAC4		26.0	-	-	21.3	-	-
HVAC5		23.8	-	-	22.0	-	-
HVAC6		23.0	-	-	21.2	-	-
HVAC7		22.8	-	-	20.6	-	-
HVAC8		28.1	-	-	24.4	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
HVAC9	28.5	-	-	25.1	-	-
HVAC10	29.0	-	-	26.0	-	-
HVAC11	28.9	-	-	26.2	-	-
HVAC13	26.1	-	-	25.1	-	-
HVAC14	24.5	-	-	24.5	-	-
HVAC15	24.0	-	-	24.0	-	-
HVAC 16	24.0	-	-	23.6	-	-
P1	28.9	-	-	24.3	-	-
P2	25.9	-	-	21.1	-	-
P3	29.7	-	-	25.4	-	-
P4	32.3	-	-	28.2	-	-
P5	21.3	-	-	18.4	-	-
P6	17.7	-	-	16.6	-	-
P7	29.0	-	-	24.6	-	-
P8	17.9	-	-	16.0	-	-
P9	28.9	24.6	23.6	24.6	20.2	19.2
Producer Facade	27.0	-	-	26.3	-	-
Producer Facade	22.9	-	-	22.5	-	-
Vaccum/Blower End1	39.4	-	-	34.4	-	-
Vaccum/Blower End2	38.9	-	-	34.2	-	-
Vaccum/Blower End3	38.7	-	-	34.1	-	-
Vaccum/Blower End4	38.5	-	-	33.9	-	-
Vaccum/Blower End5	38.3	-	-	33.8	-	-
Vaccum/Blower End6	38.1	-	-	33.6	-	-
Vaccum/Blower End7	38.0	-	-	33.5	-	-
R4 1.Fl	54.4	23.7	22.7	54.4	23.6	22.6
Car Wash Drying System	53.2	-	-	53.2	-	-
Car Wash Que	14.5	-	-	14.3	-	-
Car Wash Quie	13.4	-	-	12.5	-	-
Drive Thru Que	-6.3	-	-	-6.3	-	-
Drive Thru Que	2.6	-	-	2.6	-	-
Drive Thru Que	-6.8	-	-	-6.8	-	-
Drive Thru Que	8.0	-	-	5.4	-	-
Drive Thru Que	-14.9	-	-	-14.9	-	-
Drive-Thru Speaker	11.9	-	-	11.9	-	-
Fueling Area	31.7	-	-	31.7	-	-
HVAC1	31.9	-	-	31.9	-	-
HVAC2	32.6	-	-	32.6	-	-
HVAC3	32.7	-	-	32.7	-	-
HVAC4	24.5	-	-	24.5	-	-
HVAC5	19.9	-	-	19.9	-	-
HVAC6	19.4	-	-	19.4	-	-
HVAC7	19.0	-	-	19.0	-	-
HVAC8	28.4	-	-	28.4	-	-
HVAC9	28.8	-	-	28.8	-	-
HVAC10	29.3	-	-	29.3	-	-
HVAC11	29.3	-	-	29.3	-	-
HVAC13	28.1	-	-	28.1	-	-
HVAC14	27.5	-	-	27.5	-	-
HVAC15	27.1	-	-	27.1	-	-
HVAC 16	26.9	-	-	26.9	-	-
P1	28.5	-	-	28.3	-	-
P2	25.0	-	-	24.5	-	-
P3	28.9	-	-	28.9	-	-
P4	31.4	-	-	31.6	-	-
P5	20.6	-	-	20.0	-	-
P6	17.5	-	-	17.5	-	-
P7	27.9	-	-	27.6	-	-
P8	16.8	-	-	16.8	-	-
P9	28.0	23.7	22.7	27.9	23.6	22.6
Producer Facade	28.1	-	-	28.1	-	-
Producer Facade	24.8	-	-	24.8	-	-
Vaccum/Blower End1	38.9	-	-	38.9	-	-
Vaccum/Blower End2	38.4	-	-	38.4	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
Vaccum/Blower End3	38.1	-	-	38.1	-	-
Vaccum/Blower End4	37.9	-	-	37.9	-	-
Vaccum/Blower End5	37.7	-	-	37.7	-	-
Vaccum/Blower End6	37.5	-	-	37.5	-	-
Vaccum/Blower End7	37.3	-	-	37.3	-	-
R5 GF	53.7	23.5	22.5	51.1	19.1	18.1
Car Wash Drying System	50.5	-	-	49.7	-	-
Car Wash Que	16.9	-	-	15.3	-	-
Car Wash Quie	17.5	-	-	15.1	-	-
Drive Thru Que	-9.9	-	-	-10.1	-	-
Drive Thru Que	2.8	-	-	1.6	-	-
Drive Thru Que	-10.4	-	-	-10.6	-	-
Drive Thru Que	3.5	-	-	2.5	-	-
Drive Thru Que	-13.8	-	-	-17.2	-	-
Drive-Thru Speaker	14.2	-	-	10.2	-	-
Fueling Area	25.7	-	-	25.3	-	-
HVAC1	31.6	-	-	30.9	-	-
HVAC2	31.6	-	-	30.7	-	-
HVAC3	31.0	-	-	30.0	-	-
HVAC4	23.1	-	-	18.5	-	-
HVAC5	23.1	-	-	18.5	-	-
HVAC6	20.6	-	-	18.0	-	-
HVAC7	18.2	-	-	17.6	-	-
HVAC8	26.3	-	-	22.2	-	-
HVAC9	26.4	-	-	22.6	-	-
HVAC10	27.4	-	-	23.7	-	-
HVAC11	27.1	-	-	23.7	-	-
HVAC13	24.7	-	-	22.3	-	-
HVAC14	23.7	-	-	22.0	-	-
HVAC15	23.5	-	-	21.7	-	-
HVAC 16	23.7	-	-	21.6	-	-
P1	28.0	-	-	22.2	-	-
P2	24.2	-	-	19.9	-	-
P3	26.9	-	-	22.5	-	-
P4	28.8	-	-	24.5	-	-
P5	27.4	-	-	23.1	-	-
P6	18.1	-	-	15.8	-	-
P7	23.9	-	-	20.6	-	-
P8	16.0	-	-	14.4	-	-
P9	27.8	23.5	22.5	23.5	19.1	18.1
Producer Facade	37.8	-	-	36.1	-	-
Producer Facade	27.1	-	-	26.3	-	-
Vaccum/Blower End1	42.3	-	-	36.4	-	-
Vaccum/Blower End2	42.4	-	-	36.4	-	-
Vaccum/Blower End3	41.0	-	-	34.2	-	-
Vaccum/Blower End4	41.2	-	-	34.3	-	-
Vaccum/Blower End5	41.4	-	-	34.9	-	-
Vaccum/Blower End6	41.6	-	-	35.0	-	-
Vaccum/Blower End7	41.8	-	-	35.0	-	-
R5 1.Fl	54.0	22.5	21.5	53.0	22.4	21.4
Car Wash Drying System	51.3	-	-	51.3	-	-
Car Wash Que	18.1	-	-	18.0	-	-
Car Wash Quie	18.4	-	-	17.4	-	-
Drive Thru Que	-8.0	-	-	-8.0	-	-
Drive Thru Que	3.6	-	-	3.6	-	-
Drive Thru Que	-8.6	-	-	-8.6	-	-
Drive Thru Que	3.9	-	-	3.9	-	-
Drive Thru Que	-13.4	-	-	-13.4	-	-
Drive-Thru Speaker	14.5	-	-	14.5	-	-
Fueling Area	27.2	-	-	27.2	-	-
HVAC1	33.3	-	-	33.3	-	-
HVAC2	33.0	-	-	33.0	-	-
HVAC3	32.4	-	-	32.4	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
HVAC4	23.5	-	-	23.5	-	-
HVAC5	23.5	-	-	23.5	-	-
HVAC6	22.2	-	-	22.2	-	-
HVAC7	20.6	-	-	20.6	-	-
HVAC8	26.6	-	-	26.6	-	-
HVAC9	26.8	-	-	26.8	-	-
HVAC10	27.7	-	-	27.7	-	-
HVAC11	27.4	-	-	27.4	-	-
HVAC13	25.8	-	-	25.8	-	-
HVAC14	25.5	-	-	25.5	-	-
HVAC15	25.4	-	-	25.4	-	-
HVAC 16	25.5	-	-	25.5	-	-
P1	27.5	-	-	25.8	-	-
P2	23.2	-	-	23.1	-	-
P3	26.2	-	-	26.1	-	-
P4	28.2	-	-	28.2	-	-
P5	26.4	-	-	26.3	-	-
P6	17.5	-	-	17.5	-	-
P7	23.1	-	-	22.6	-	-
P8	14.8	-	-	14.8	-	-
P9	26.8	22.5	21.5	26.7	22.4	21.4
Producer Facade	38.9	-	-	38.9	-	-
Producer Facade	27.6	-	-	27.6	-	-
Vaccum/Blower End1	41.7	-	-	39.2	-	-
Vaccum/Blower End2	41.8	-	-	39.2	-	-
Vaccum/Blower End3	40.5	-	-	36.0	-	-
Vaccum/Blower End4	40.8	-	-	36.2	-	-
Vaccum/Blower End5	41.0	-	-	36.5	-	-
Vaccum/Blower End6	41.2	-	-	36.7	-	-
Vaccum/Blower End7	41.5	-	-	39.6	-	-
R6 GF	52.5	18.5	17.5	49.6	14.1	13.2
Car Wash Drying System	48.4	-	-	48.0	-	-
Car Wash Que	14.4	-	-	13.4	-	-
Car Wash Quie	17.6	-	-	15.6	-	-
Drive Thru Que	-10.3	-	-	-10.8	-	-
Drive Thru Que	-0.1	-	-	-1.1	-	-
Drive Thru Que	-10.9	-	-	-11.3	-	-
Drive Thru Que	-1.2	-	-	-2.5	-	-
Drive Thru Que	-16.5	-	-	-17.8	-	-
Drive-Thru Speaker	9.3	-	-	8.1	-	-
Fueling Area	25.1	-	-	24.7	-	-
HVAC1	32.3	-	-	30.4	-	-
HVAC2	28.5	-	-	27.6	-	-
HVAC3	27.6	-	-	26.6	-	-
HVAC4	15.7	-	-	15.7	-	-
HVAC5	15.8	-	-	15.8	-	-
HVAC6	15.4	-	-	15.4	-	-
HVAC7	18.9	-	-	17.2	-	-
HVAC8	24.1	-	-	22.8	-	-
HVAC9	25.4	-	-	21.1	-	-
HVAC10	25.3	-	-	21.3	-	-
HVAC11	25.0	-	-	21.1	-	-
HVAC13	23.7	-	-	20.6	-	-
HVAC14	23.3	-	-	20.5	-	-
HVAC15	23.4	-	-	20.5	-	-
HVAC 16	24.1	-	-	20.6	-	-
P1	27.9	-	-	21.1	-	-
P2	19.6	-	-	15.3	-	-
P3	23.8	-	-	18.9	-	-
P4	24.8	-	-	21.5	-	-
P5	21.7	-	-	18.6	-	-
P6	18.9	-	-	15.7	-	-
P7	21.1	-	-	18.8	-	-
P8	16.1	-	-	13.3	-	-

Contribution levels of the receivers

Source name		Level w/o NP Day	Level w/o NP Evening	Level w/o NP Night	Level w NP Day	Level w NP Evening	Level w NP Night
			dB(A)			dB(A)	
P9		22.9	18.5	17.5	18.5	14.1	13.2
Producer Facade		35.9	-	-	34.6	-	-
Producer Facade		25.0	-	-	24.1	-	-
Vaccum/Blower End1		40.6	-	-	34.0	-	-
Vaccum/Blower End2		40.8	-	-	34.0	-	-
Vaccum/Blower End3		41.1	-	-	34.1	-	-
Vaccum/Blower End4		41.3	-	-	34.6	-	-
Vaccum/Blower End5		41.5	-	-	34.7	-	-
Vaccum/Blower End6		41.8	-	-	34.8	-	-
Vaccum/Blower End7		42.2	-	-	34.9	-	-
R6	1.Fl	52.6	18.0	17.0	51.1	16.0	15.0
Car Wash Drying System		49.2	-	-	49.2	-	-
Car Wash Que		15.4	-	-	15.5	-	-
Car Wash Quie		18.4	-	-	17.6	-	-
Drive Thru Que		-8.8	-	-	-8.8	-	-
Drive Thru Que		2.6	-	-	2.6	-	-
Drive Thru Que		-9.5	-	-	-9.5	-	-
Drive Thru Que		1.7	-	-	1.7	-	-
Drive Thru Que		-15.8	-	-	-15.8	-	-
Drive-Thru Speaker		9.8	-	-	9.8	-	-
Fueling Area		26.5	-	-	26.5	-	-
HVAC1		31.3	-	-	31.3	-	-
HVAC2		31.1	-	-	31.1	-	-
HVAC3		30.2	-	-	30.2	-	-
HVAC4		17.5	-	-	17.5	-	-
HVAC5		17.5	-	-	17.5	-	-
HVAC6		17.1	-	-	17.1	-	-
HVAC7		16.7	-	-	16.7	-	-
HVAC8		24.5	-	-	24.5	-	-
HVAC9		25.7	-	-	25.7	-	-
HVAC10		25.6	-	-	25.6	-	-
HVAC11		25.3	-	-	25.3	-	-
HVAC13		24.6	-	-	24.6	-	-
HVAC14		24.6	-	-	24.6	-	-
HVAC15		24.7	-	-	24.7	-	-
HVAC 16		24.9	-	-	24.9	-	-
P1		27.3	-	-	24.8	-	-
P2		19.2	-	-	17.3	-	-
P3		23.2	-	-	21.2	-	-
P4		24.5	-	-	24.1	-	-
P5		21.5	-	-	20.6	-	-
P6		18.7	-	-	18.0	-	-
P7		20.6	-	-	19.7	-	-
P8		15.2	-	-	13.6	-	-
P9		22.3	18.0	17.0	20.4	16.0	15.0
Producer Facade		36.7	-	-	36.7	-	-
Producer Facade		25.5	-	-	25.5	-	-
Vaccum/Blower End1		40.1	-	-	36.2	-	-
Vaccum/Blower End2		40.3	-	-	36.3	-	-
Vaccum/Blower End3		40.6	-	-	36.4	-	-
Vaccum/Blower End4		40.8	-	-	36.6	-	-
Vaccum/Blower End5		41.1	-	-	36.8	-	-
Vaccum/Blower End6		41.4	-	-	37.1	-	-
Vaccum/Blower End7		41.8	-	-	37.6	-	-
R7	GF	48.9	20.5	19.5	47.4	15.9	14.9
Car Wash Drying System		46.9	-	-	46.4	-	-
Car Wash Que		10.7	-	-	10.2	-	-
Car Wash Quie		13.1	-	-	12.7	-	-
Drive Thru Que		-11.2	-	-	-12.4	-	-
Drive Thru Que		1.9	-	-	0.7	-	-
Drive Thru Que		-12.5	-	-	-13.7	-	-
Drive Thru Que		5.4	-	-	5.3	-	-
Drive Thru Que		-5.7	-	-	-6.5	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
Drive-Thru Speaker	10.8	-	-	7.9	-	-
Fueling Area	24.5	-	-	24.0	-	-
HVAC1	27.6	-	-	25.6	-	-
HVAC2	24.0	-	-	24.0	-	-
HVAC3	23.2	-	-	23.2	-	-
HVAC4	21.8	-	-	17.1	-	-
HVAC5	21.7	-	-	17.1	-	-
HVAC6	20.4	-	-	16.7	-	-
HVAC7	18.0	-	-	16.4	-	-
HVAC8	17.4	-	-	17.4	-	-
HVAC9	18.0	-	-	18.0	-	-
HVAC10	22.2	-	-	18.8	-	-
HVAC11	21.9	-	-	18.6	-	-
HVAC13	21.1	-	-	18.2	-	-
HVAC14	20.2	-	-	17.1	-	-
HVAC15	17.3	-	-	17.3	-	-
HVAC 16	17.0	-	-	17.0	-	-
P1	24.8	-	-	20.1	-	-
P2	22.7	-	-	18.1	-	-
P3	26.2	-	-	21.4	-	-
P4	29.2	-	-	24.1	-	-
P5	24.3	-	-	19.9	-	-
P6	19.9	-	-	16.3	-	-
P7	17.1	-	-	16.0	-	-
P8	11.6	-	-	9.5	-	-
P9	24.9	20.5	19.5	20.2	15.9	14.9
Producer Facade	31.0	-	-	30.1	-	-
Producer Facade	17.7	-	-	16.5	-	-
Vaccum/Blower End1	23.9	-	-	21.9	-	-
Vaccum/Blower End2	24.4	-	-	22.0	-	-
Vaccum/Blower End3	25.1	-	-	22.1	-	-
Vaccum/Blower End4	26.1	-	-	22.1	-	-
Vaccum/Blower End5	28.0	-	-	22.2	-	-
Vaccum/Blower End6	31.5	-	-	22.3	-	-
Vaccum/Blower End7	42.8	-	-	38.2	-	-
R7 1.Fl	49.3	19.8	18.8	49.3	18.6	17.6
Car Wash Drying System	47.6	-	-	47.6	-	-
Car Wash Que	11.4	-	-	11.3	-	-
Car Wash Quie	13.7	-	-	13.7	-	-
Drive Thru Que	-9.5	-	-	-9.5	-	-
Drive Thru Que	2.9	-	-	2.9	-	-
Drive Thru Que	-11.0	-	-	-11.0	-	-
Drive Thru Que	5.6	-	-	5.6	-	-
Drive Thru Que	-5.5	-	-	-5.5	-	-
Drive-Thru Speaker	11.0	-	-	11.0	-	-
Fueling Area	26.2	-	-	26.2	-	-
HVAC1	27.9	-	-	27.9	-	-
HVAC2	26.6	-	-	26.6	-	-
HVAC3	25.7	-	-	25.7	-	-
HVAC4	22.1	-	-	22.1	-	-
HVAC5	22.0	-	-	22.0	-	-
HVAC6	21.2	-	-	21.2	-	-
HVAC7	20.0	-	-	20.0	-	-
HVAC8	19.7	-	-	19.7	-	-
HVAC9	17.5	-	-	17.5	-	-
HVAC10	22.7	-	-	22.7	-	-
HVAC11	22.4	-	-	22.4	-	-
HVAC13	21.8	-	-	21.8	-	-
HVAC14	21.1	-	-	21.1	-	-
HVAC15	17.1	-	-	17.1	-	-
HVAC 16	18.6	-	-	18.6	-	-
P1	23.9	-	-	23.4	-	-
P2	22.0	-	-	20.7	-	-
P3	25.3	-	-	24.2	-	-

Contribution levels of the receivers

Source name	Level w/o NP			Level w NP		
	Day	Evening	Night	Day	Evening	Night
		dB(A)			dB(A)	
P4	28.3	-	-	27.1	-	-
P5	23.6	-	-	22.7	-	-
P6	19.6	-	-	18.9	-	-
P7	16.9	-	-	16.9	-	-
P8	10.5	-	-	10.5	-	-
P9	24.1	19.8	18.8	22.9	18.6	17.6
Producer Facade	31.6	-	-	31.6	-	-
Producer Facade	18.1	-	-	18.1	-	-
Vaccum/Blower End1	24.8	-	-	24.8	-	-
Vaccum/Blower End2	25.2	-	-	25.2	-	-
Vaccum/Blower End3	25.7	-	-	25.7	-	-
Vaccum/Blower End4	26.4	-	-	26.4	-	-
Vaccum/Blower End5	28.1	-	-	28.1	-	-
Vaccum/Blower End6	31.3	-	-	31.3	-	-
Vaccum/Blower End7	42.5	-	-	42.5	-	-

Source name	Reference	Frequency spectrum [dB(A)]																											Corrections		
		31	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1	1.3	1.6	2	2.5	3.2	4	5	6.3	8	10	12.5	16	Cwall	CI	CT
		Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	Hz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	kHz	dB	dB	dB
Drive Thru Que	Lw/m	Night																												-	-	-
Drive Thru Que	Lw/m	Night																												-	-	-
Drive Thru Que	Lw/m	Night																												-	-	-
Drive Thru Que	Lw/m	Night																												-	-	-
Drive Thru Que	Lw/m	Night																												-	-	-
Fueling Area	Lw/m²	Night																												-	-	-
Drive-Thru Speaker	Lw/unit	Night																												-	-	-
HVAC4	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC5	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC6	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC7	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC8	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC9	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC10	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC11	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC13	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC14	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC15	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-
HVAC 16	Lw/unit	-8.1	0.7	18.1	27.2	24.9	39.2	44.3	46	50.5	52.7	56.8	59.6	62.1	67.5	69.6	66.4	69	70.4	68.6	69.6	66.6	67.3	64.9	64.3	58.3	51.9	48.1	41.8	-	-	-

Noise emissions of parking lot traffic

Name	Parking lot type	Size	Movements per hour Night	Road surface	Separated method	Lw,ref dB(A)
P2	Visitors and staff	3 Parking bays	0.000	Asphaltic driving lanes	no	67.8
P5	Visitors and staff	9 Parking bays	0.000	Asphaltic driving lanes	no	72.5
P6	Visitors and staff	6 Parking bays	0.000	Asphaltic driving lanes	no	70.8
P7	Visitors and staff	11 Parking bays	0.000	Asphaltic driving lanes	no	74.2
P8	Visitors and staff	10 Parking bays	0.000	Asphaltic driving lanes	no	73.0
P9	Visitors and staff	6 Parking bays	0.000	Asphaltic driving lanes	no	70.8

Receiver list

No.	Receiver name	Building side	Floor	Limit Night dB(A)	Level w/o N Night dB(A)	Level w NP Night dB(A)	Difference Night dB	Conflict Day	Evening	Night	Lmax
								dB			
1	Existing Building	South we	GF	-	46.1	44.7	-1.4	-	-	-	-
			1.Fl	-	46.9	46.7	-0.2	-	-	-	-
2		South we	GF	-	39.8	37.8	-1.9	-	-	-	-
			1.Fl	-	40.2	40.1	-0.1	-	-	-	-
3		South we	GF	-	41.7	40.2	-1.5	-	-	-	-
			1.Fl	-	41.9	41.8	-0.2	-	-	-	-
4		South we	GF	-	47.6	44.6	-3.0	-	-	-	-
			1.Fl	-	49.8	48.6	-1.2	-	-	-	-
5	R1	North eas	GF	-	44.3	42.7	-1.6	-	-	-	-
			1.Fl	-	44.9	44.9	0.0	-	-	-	-
6	R2	North eas	GF	-	44.2	42.8	-1.4	-	-	-	-
			1.Fl	-	44.8	44.8	0.0	-	-	-	-
7	R3	North eas	GF	-	42.1	40.5	-1.5	-	-	-	-
			1.Fl	-	42.8	42.8	0.0	-	-	-	-
8	R4	East	GF	-	38.7	36.5	-2.2	-	-	-	-
			1.Fl	-	39.2	39.2	0.0	-	-	-	-
9	R5	East	GF	-	36.8	33.8	-3.0	-	-	-	-
			1.Fl	-	37.4	37.4	0.0	-	-	-	-
10	R6	East	GF	-	34.8	32.2	-2.6	-	-	-	-
			1.Fl	-	35.4	35.3	-0.1	-	-	-	-
11	R7	East	GF	-	33.0	30.5	-2.5	-	-	-	-
			1.Fl	-	33.6	33.5	-0.2	-	-	-	-

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
Existing Building	GF	46.1	44.7		
Drive Thru Que				1.4	-2.6
Drive Thru Que				-1.5	-5.7
Drive Thru Que				9.1	7.5
Drive Thru Que				21.1	18.2
Drive Thru Que				6.7	5.0
Drive-Thru Speaker				33.5	32.7
Fueling Area				41.0	40.2
HVAC4				33.8	33.8
HVAC5				31.4	31.4
HVAC6				29.7	29.6
HVAC7				29.6	29.6
HVAC8				34.5	34.4
HVAC9				29.6	29.3
HVAC10				26.7	26.1
HVAC11				25.4	24.3
HVAC13				25.4	24.4
HVAC14				26.3	25.9
HVAC15				27.9	27.9
HVAC 16				34.0	34.0
P2				34.1	28.5
P5				29.7	24.6
P6				20.2	16.7
P7				30.1	25.7
P8				32.6	27.9
P9				37.1	31.6
Existing Building	1.Fl	46.9	46.7		
Drive Thru Que				2.7	2.7
Drive Thru Que				0.1	0.1
Drive Thru Que				10.1	9.3
Drive Thru Que				22.6	20.6
Drive Thru Que				7.6	7.4
Drive-Thru Speaker				34.4	33.7
Fueling Area				41.8	41.8
HVAC4				35.7	35.7
HVAC5				34.8	34.8
HVAC6				31.6	31.6
HVAC7				30.7	30.7
HVAC8				35.0	35.0
HVAC9				32.4	32.4
HVAC10				27.0	27.0
HVAC11				25.6	25.6
HVAC13				25.7	25.7
HVAC14				27.1	27.1
HVAC15				30.9	30.9
HVAC 16				35.0	35.0
P2				34.0	33.1
P5				29.6	28.7
P6				20.1	20.1
P7				29.3	28.4
P8				32.4	31.6
P9				37.1	36.2
Existing Building	GF	39.8	37.8		
Drive Thru Que				0.7	0.6
Drive Thru Que				-1.2	-1.4
Drive Thru Que				5.9	5.4
Drive Thru Que				9.8	9.4
Drive Thru Que				-0.8	-0.9
Drive-Thru Speaker				20.7	11.6
Fueling Area				33.1	32.6
HVAC4				25.6	25.2
HVAC5				27.3	26.0
HVAC6				24.8	23.6

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
HVAC7				22.8	22.0
HVAC8				29.4	26.8
HVAC9				29.6	26.3
HVAC10				27.2	23.7
HVAC11				26.7	22.7
HVAC13				23.7	22.4
HVAC14				25.9	24.7
HVAC15				26.1	25.0
HVAC 16				26.4	25.7
P2				24.1	19.7
P5				25.9	21.5
P6				22.5	18.2
P7				22.4	18.8
P8				19.4	15.4
P9				27.4	23.0
Existing Building	1.Fl	40.2	40.1		
Drive Thru Que				1.1	1.1
Drive Thru Que				-0.9	-0.9
Drive Thru Que				6.3	6.2
Drive Thru Que				10.2	10.2
Drive Thru Que				-0.4	-0.4
Drive-Thru Speaker				21.0	21.0
Fueling Area				33.7	33.7
HVAC4				25.9	25.9
HVAC5				25.8	25.8
HVAC6				24.6	24.6
HVAC7				22.5	22.5
HVAC8				29.8	29.8
HVAC9				29.9	29.9
HVAC10				27.5	27.5
HVAC11				27.0	27.0
HVAC13				25.8	25.8
HVAC14				28.2	28.2
HVAC15				28.5	28.5
HVAC 16				28.5	28.5
P2				23.3	22.1
P5				24.9	23.9
P6				21.5	20.3
P7				21.7	21.1
P8				18.4	17.8
P9				26.6	25.4
Existing Building	GF	41.7	40.2		
Drive Thru Que				0.6	0.4
Drive Thru Que				0.7	0.5
Drive Thru Que				7.5	6.7
Drive Thru Que				12.5	11.6
Drive Thru Que				1.5	1.1
Drive-Thru Speaker				24.1	16.9
Fueling Area				36.2	35.6
HVAC4				29.7	28.9
HVAC5				29.6	28.8
HVAC6				26.3	25.3
HVAC7				22.3	22.3
HVAC8				29.8	29.3
HVAC9				29.6	28.1
HVAC10				28.9	26.4
HVAC11				27.7	25.3
HVAC13				24.9	23.8
HVAC14				24.8	24.2
HVAC15				24.3	24.3
HVAC 16				27.8	27.8
P2				27.0	22.5
P5				27.2	22.7

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
P6				24.4	19.9
P7				26.8	22.4
P8				23.2	18.8
P9				30.3	25.8
Existing Building	1.Fl	41.9	41.8		
Drive Thru Que				1.1	1.1
Drive Thru Que				1.1	1.1
Drive Thru Que				8.0	7.9
Drive Thru Que				13.0	13.0
Drive Thru Que				1.9	1.9
Drive-Thru Speaker				24.5	24.5
Fueling Area				36.8	36.8
HVAC4				28.4	28.4
HVAC5				28.2	28.2
HVAC6				26.5	26.5
HVAC7				24.5	24.5
HVAC8				30.5	30.5
HVAC9				30.0	30.0
HVAC10				29.3	29.3
HVAC11				28.1	28.1
HVAC13				25.7	25.7
HVAC14				26.5	26.5
HVAC15				27.2	27.2
HVAC 16				29.5	29.5
P2				26.5	25.6
P5				26.4	25.3
P6				23.4	22.1
P7				25.8	24.7
P8				22.4	21.7
P9				30.0	29.0
Existing Building	GF	47.6	44.6		
Drive Thru Que				8.3	7.3
Drive Thru Que				8.7	7.7
Drive Thru Que				22.9	19.9
Drive Thru Que				29.8	22.9
Drive Thru Que				20.0	12.6
Drive-Thru Speaker				45.4	41.5
Fueling Area				36.9	33.4
HVAC4				33.7	33.7
HVAC5				31.9	31.9
HVAC6				34.2	34.2
HVAC7				35.4	35.4
HVAC8				20.2	20.2
HVAC9				18.6	18.6
HVAC10				16.8	16.8
HVAC11				16.3	16.3
HVAC13				16.5	16.5
HVAC14				17.5	17.5
HVAC15				18.8	18.8
HVAC 16				19.7	19.7
P2				27.7	22.5
P5				25.3	20.8
P6				33.5	28.5
P7				32.5	28.0
P8				21.1	19.4
P9				30.1	25.3
Existing Building	1.Fl	49.8	48.6		
Drive Thru Que				9.3	9.3
Drive Thru Que				9.8	9.8
Drive Thru Que				25.3	23.5
Drive Thru Que				31.9	26.1
Drive Thru Que				22.2	16.4
Drive-Thru Speaker				47.0	44.6

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
Fueling Area				38.6	38.6
HVAC4				38.1	38.1
HVAC5				35.7	35.7
HVAC6				38.8	38.8
HVAC7				40.2	40.2
HVAC8				25.5	25.5
HVAC9				24.5	24.5
HVAC10				23.6	23.6
HVAC11				22.9	22.9
HVAC13				23.3	23.3
HVAC14				24.0	24.0
HVAC15				25.0	25.0
HVAC 16				25.7	25.7
P2				27.7	26.5
P5				25.3	25.2
P6				33.4	32.5
P7				32.1	31.3
P8				22.3	22.3
P9				30.0	28.8
R1	GF	44.3	42.7		
Drive Thru Que				4.7	4.1
Drive Thru Que				4.8	4.2
Drive Thru Que				12.6	11.8
Drive Thru Que				6.6	5.4
Drive Thru Que				3.1	1.3
Drive-Thru Speaker				29.8	28.8
Fueling Area				41.6	40.8
HVAC4				25.4	21.3
HVAC5				26.3	21.6
HVAC6				26.1	21.4
HVAC7				26.0	21.3
HVAC8				23.2	23.2
HVAC9				24.8	24.3
HVAC10				25.2	25.1
HVAC11				30.6	28.7
HVAC13				30.8	28.8
HVAC14				25.8	25.8
HVAC15				25.8	25.4
HVAC 16				25.2	24.4
P2				23.3	18.5
P5				30.0	25.5
P6				26.9	22.4
P7				33.5	28.8
P8				31.5	26.8
P9				24.4	19.4
R1	1.Fl	44.9	44.9		
Drive Thru Que				5.4	5.4
Drive Thru Que				5.4	5.4
Drive Thru Que				13.1	13.0
Drive Thru Que				7.1	6.5
Drive Thru Que				3.5	2.3
Drive-Thru Speaker				30.2	30.0
Fueling Area				42.4	42.4
HVAC4				26.2	26.2
HVAC5				26.6	26.6
HVAC6				26.4	26.4
HVAC7				26.3	26.3
HVAC8				23.8	23.8
HVAC9				24.8	24.8
HVAC10				28.3	28.3
HVAC11				30.8	30.8
HVAC13				31.0	31.0
HVAC14				29.2	29.2

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
HVAC15				28.4	28.4
HVAC 16				27.3	27.3
P2				22.4	22.1
P5				29.1	29.0
P6				26.1	26.0
P7				33.2	33.1
P8				31.0	30.8
P9				23.6	23.2
R2	GF	44.2	42.8		
Drive Thru Que				4.8	4.4
Drive Thru Que				4.8	4.4
Drive Thru Que				11.4	11.1
Drive Thru Que				6.7	4.5
Drive Thru Que				1.2	0.8
Drive-Thru Speaker				28.2	27.7
Fueling Area				41.0	40.2
HVAC4				25.5	21.6
HVAC5				26.6	21.9
HVAC6				26.1	21.5
HVAC7				25.9	21.2
HVAC8				24.0	24.0
HVAC9				25.7	25.7
HVAC10				29.5	29.5
HVAC11				33.6	32.1
HVAC13				33.2	31.6
HVAC14				27.6	27.6
HVAC15				25.5	25.5
HVAC 16				24.0	24.0
P2				15.5	10.8
P5				29.9	25.4
P6				26.7	22.3
P7				31.9	27.4
P8				31.4	26.5
P9				14.7	12.1
R2	1.Fl	44.8	44.8		
Drive Thru Que				5.4	5.4
Drive Thru Que				5.3	5.3
Drive Thru Que				12.0	11.9
Drive Thru Que				7.4	6.0
Drive Thru Que				1.7	1.6
Drive-Thru Speaker				28.8	28.8
Fueling Area				41.8	41.7
HVAC4				26.4	26.4
HVAC5				26.9	26.9
HVAC6				26.5	26.5
HVAC7				26.2	26.2
HVAC8				25.6	25.6
HVAC9				26.8	26.8
HVAC10				31.0	31.0
HVAC11				33.9	33.9
HVAC13				33.6	33.6
HVAC14				30.7	30.7
HVAC15				26.9	26.9
HVAC 16				25.7	25.7
P2				15.0	14.9
P5				29.0	29.0
P6				25.9	25.9
P7				31.3	31.2
P8				31.1	31.0
P9				14.1	14.1
R3	GF	42.1	40.5		
Drive Thru Que				1.7	1.4
Drive Thru Que				1.6	1.3

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
Drive Thru Que				8.3	7.5
Drive Thru Que				-0.2	-3.0
Drive Thru Que				-7.7	-9.3
Drive-Thru Speaker				20.7	19.9
Fueling Area				37.6	36.8
HVAC4				19.0	19.0
HVAC5				19.3	19.3
HVAC6				18.5	18.5
HVAC7				17.9	17.8
HVAC8				28.4	26.0
HVAC9				30.3	27.1
HVAC10				32.3	29.3
HVAC11				32.8	31.0
HVAC13				31.0	29.8
HVAC14				28.7	28.6
HVAC15				26.8	26.4
HVAC 16				26.8	26.0
P2				17.1	12.4
P5				19.6	17.4
P6				23.7	19.3
P7				29.2	24.8
P8				22.5	17.3
P9				23.4	17.6
R3	1.Fl	42.8	42.8		
Drive Thru Que				2.2	2.2
Drive Thru Que				2.0	2.0
Drive Thru Que				9.4	9.4
Drive Thru Que				2.3	-1.1
Drive Thru Que				-5.2	-5.6
Drive-Thru Speaker				23.9	23.9
Fueling Area				38.3	38.3
HVAC4				21.4	21.4
HVAC5				21.6	21.6
HVAC6				21.1	21.1
HVAC7				20.7	20.7
HVAC8				30.3	30.3
HVAC9				31.3	31.3
HVAC10				32.6	32.6
HVAC11				33.3	33.3
HVAC13				32.4	32.4
HVAC14				29.7	29.7
HVAC15				27.7	27.7
HVAC 16				27.0	27.0
P2				16.4	15.6
P5				19.5	19.1
P6				22.9	22.8
P7				28.3	28.2
P8				21.9	20.7
P9				22.6	21.8
R4	GF	38.7	36.5		
Drive Thru Que				-8.7	-9.7
Drive Thru Que				-8.4	-9.3
Drive Thru Que				0.4	-0.1
Drive Thru Que				7.6	2.9
Drive Thru Que				-15.4	-16.5
Drive-Thru Speaker				11.3	10.8
Fueling Area				30.8	29.8
HVAC4				26.0	21.3
HVAC5				23.8	22.0
HVAC6				23.0	21.2
HVAC7				22.8	20.6
HVAC8				28.1	24.4
HVAC9				28.5	25.1

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
HVAC10				29.0	26.0
HVAC11				28.9	26.2
HVAC13				26.1	25.1
HVAC14				24.5	24.5
HVAC15				24.0	24.0
HVAC 16				24.0	23.6
P2				22.8	18.0
P5				18.2	15.3
P6				14.6	13.5
P7				25.8	21.5
P8				14.8	12.9
P9				25.8	21.4
R4	1.Fl	39.2	39.2		
Drive Thru Que				-6.8	-6.8
Drive Thru Que				-6.3	-6.3
Drive Thru Que				2.6	2.6
Drive Thru Que				8.0	5.4
Drive Thru Que				-14.9	-14.9
Drive-Thru Speaker				11.9	11.9
Fueling Area				31.7	31.7
HVAC4				24.5	24.5
HVAC5				19.9	19.9
HVAC6				19.4	19.4
HVAC7				19.0	19.0
HVAC8				28.4	28.4
HVAC9				28.8	28.8
HVAC10				29.3	29.3
HVAC11				29.3	29.3
HVAC13				28.1	28.1
HVAC14				27.5	27.5
HVAC15				27.1	27.1
HVAC 16				26.9	26.9
P2				21.9	21.4
P5				17.5	16.9
P6				14.4	14.4
P7				24.8	24.5
P8				13.7	13.7
P9				24.9	24.8
R5	GF	36.8	33.8		
Drive Thru Que				-10.4	-10.6
Drive Thru Que				-9.9	-10.1
Drive Thru Que				2.8	1.6
Drive Thru Que				3.5	2.5
Drive Thru Que				-13.8	-17.2
Drive-Thru Speaker				14.2	10.2
Fueling Area				25.7	25.3
HVAC4				23.1	18.5
HVAC5				23.1	18.5
HVAC6				20.6	18.0
HVAC7				18.2	17.6
HVAC8				26.3	22.2
HVAC9				26.4	22.6
HVAC10				27.4	23.7
HVAC11				27.1	23.7
HVAC13				24.7	22.3
HVAC14				23.7	22.0
HVAC15				23.5	21.7
HVAC 16				23.7	21.6
P2				21.1	16.8
P5				24.3	19.9
P6				15.0	12.7
P7				20.8	17.5
P8				12.8	11.3

Contribution levels of the receivers

Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
P9				24.7	20.3
R5	1.Fl	37.4	37.4		
Drive Thru Que				-8.6	-8.6
Drive Thru Que				-8.0	-8.0
Drive Thru Que				3.6	3.6
Drive Thru Que				3.9	3.9
Drive Thru Que				-13.4	-13.4
Drive-Thru Speaker				14.5	14.5
Fueling Area				27.2	27.2
HVAC4				23.5	23.5
HVAC5				23.5	23.5
HVAC6				22.2	22.2
HVAC7				20.6	20.6
HVAC8				26.6	26.6
HVAC9				26.8	26.8
HVAC10				27.7	27.7
HVAC11				27.4	27.4
HVAC13				25.8	25.8
HVAC14				25.5	25.5
HVAC15				25.4	25.4
HVAC 16				25.5	25.5
P2				20.1	20.0
P5				23.3	23.2
P6				14.3	14.3
P7				19.9	19.5
P8				11.7	11.7
P9				23.7	23.6
R6	GF	34.8	32.2		
Drive Thru Que				-10.9	-11.3
Drive Thru Que				-10.3	-10.8
Drive Thru Que				-0.1	-1.1
Drive Thru Que				-1.2	-2.5
Drive Thru Que				-16.5	-17.8
Drive-Thru Speaker				9.3	8.1
Fueling Area				25.1	24.7
HVAC4				15.7	15.7
HVAC5				15.8	15.8
HVAC6				15.4	15.4
HVAC7				18.9	17.2
HVAC8				24.1	22.8
HVAC9				25.4	21.1
HVAC10				25.3	21.3
HVAC11				25.0	21.1
HVAC13				23.7	20.6
HVAC14				23.3	20.5
HVAC15				23.4	20.5
HVAC 16				24.1	20.6
P2				16.4	12.1
P5				18.6	15.4
P6				15.8	12.6
P7				18.0	15.6
P8				13.0	10.2
P9				19.8	15.4
R6	1.Fl	35.4	35.3		
Drive Thru Que				-9.5	-9.5
Drive Thru Que				-8.8	-8.8
Drive Thru Que				2.6	2.6
Drive Thru Que				1.7	1.7
Drive Thru Que				-15.8	-15.8
Drive-Thru Speaker				9.8	9.8
Fueling Area				26.5	26.5
HVAC4				17.5	17.5
HVAC5				17.5	17.5

Contribution levels of the receivers

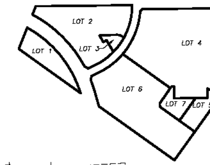
Source name				Level w/o NP Night dB(A)	Level w NP Night dB(A)
HVAC6				17.1	17.1
HVAC7				16.7	16.7
HVAC8				24.5	24.5
HVAC9				25.7	25.7
HVAC10				25.6	25.6
HVAC11				25.3	25.3
HVAC13				24.6	24.6
HVAC14				24.6	24.6
HVAC15				24.7	24.7
HVAC 16				24.9	24.9
P2				16.0	14.2
P5				18.4	17.5
P6				15.6	14.9
P7				17.4	16.6
P8				12.0	10.5
P9				19.2	17.3
R7	GF	33.0	30.5		
Drive Thru Que				-12.5	-13.7
Drive Thru Que				-11.2	-12.4
Drive Thru Que				1.9	0.7
Drive Thru Que				5.4	5.3
Drive Thru Que				-5.7	-6.5
Drive-Thru Speaker				10.8	7.9
Fueling Area				24.5	24.0
HVAC4				21.8	17.1
HVAC5				21.7	17.1
HVAC6				20.4	16.7
HVAC7				18.0	16.4
HVAC8				17.4	17.4
HVAC9				18.0	18.0
HVAC10				22.2	18.8
HVAC11				21.9	18.6
HVAC13				21.1	18.2
HVAC14				20.2	17.1
HVAC15				17.3	17.3
HVAC 16				17.0	17.0
P2				19.6	15.0
P5				21.1	16.7
P6				16.7	13.2
P7				14.0	12.9
P8				8.5	6.3
P9				21.7	17.1
R7	1.Fl	33.6	33.5		
Drive Thru Que				-11.0	-11.0
Drive Thru Que				-9.5	-9.5
Drive Thru Que				2.9	2.9
Drive Thru Que				5.6	5.6
Drive Thru Que				-5.5	-5.5
Drive-Thru Speaker				11.0	11.0
Fueling Area				26.2	26.2
HVAC4				22.1	22.1
HVAC5				22.0	22.0
HVAC6				21.2	21.2
HVAC7				20.0	20.0
HVAC8				19.7	19.7
HVAC9				17.5	17.5
HVAC10				22.7	22.7
HVAC11				22.4	22.4
HVAC13				21.8	21.8
HVAC14				21.1	21.1
HVAC15				17.1	17.1
HVAC 16				18.6	18.6
P2				18.9	17.6

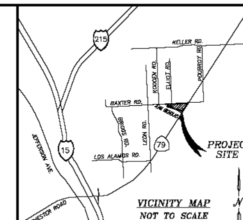
Contribution levels of the receivers

Source name	Level w/o NP Night dB(A)	Level w NP Night dB(A)
P5	20.5	19.6
P6	16.5	15.8
P7	13.8	13.8
P8	7.4	7.4
P9	21.0	19.8

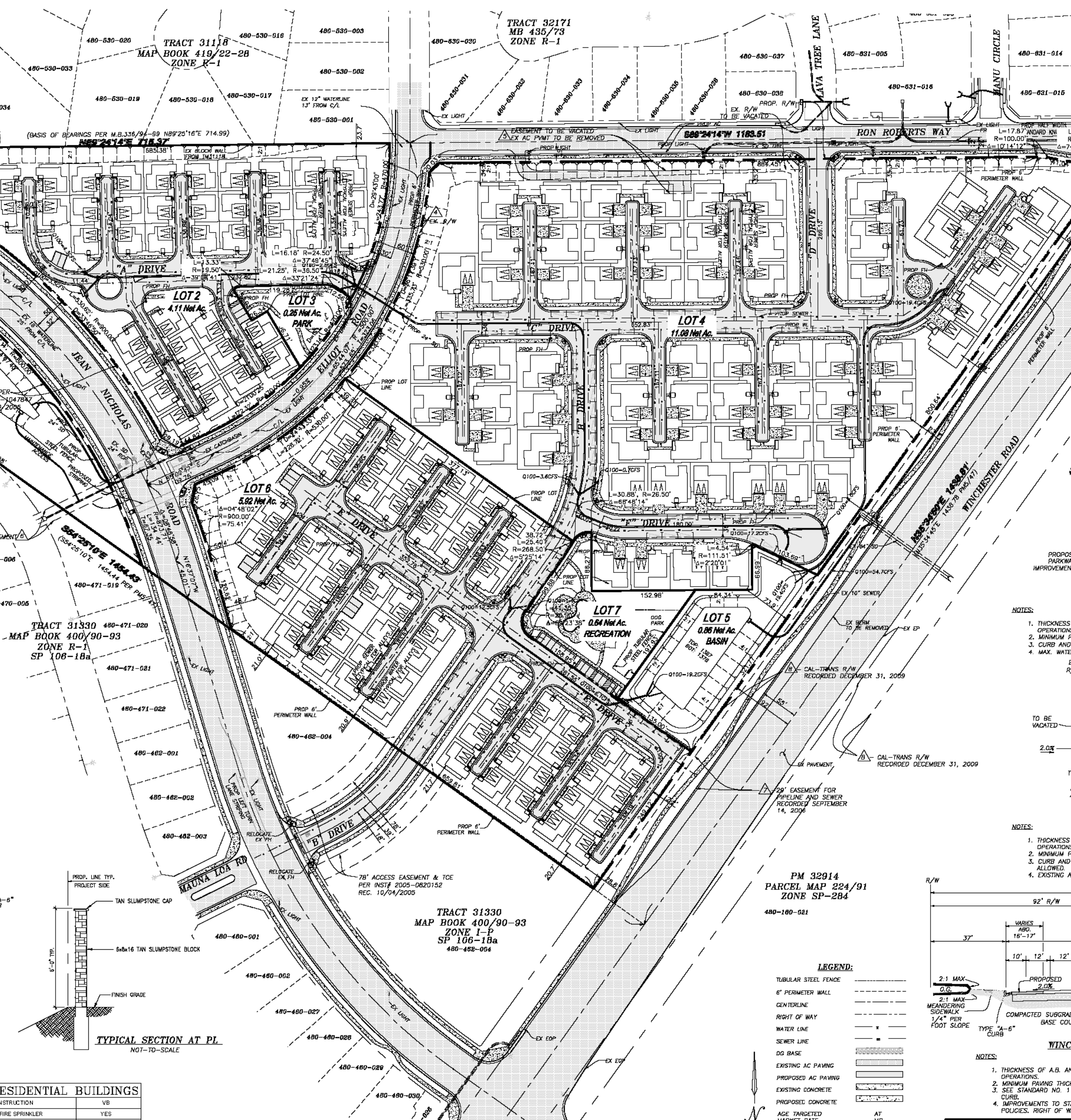
TENTATIVE TRACT MAP 37078

SCHEDULE "A" TRACT MAP FOR CONDOMINIUM PURPOSES





VICINITY MAP
NOT TO SCALE
THOMAS GUIDE 2014
PAGE 899, GRID D-5
SEC. 32, T.6S, R.2W



SCALE: 1"= 60'

GENERAL NOTES

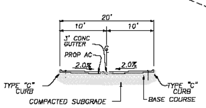
1. **LEGAL DESCRIPTION**
   A PORTION OF PARCEL 2 AS SHOWN BY MAP ON FILE IN BOOK 5, PAGE 47 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF RIVERSIDE COUNTY, CALIF.
2. **TOTAL ACREAGE**
   30.62 ACRES (GROSS)
   LOT 1; 1.52 AC. (NET)
   LOT 2; 4.11 AC. (NET)
   LOT 3; 0.25 AC. (NET)
   LOT 4; 11.08AC. (NET)
   LOT 5; 0.86 AC. (NET)
   LOT 6; 5.92 AC. (NET)
   LOT 7; 0.64 AC. (NET)
3. **EXISTING ZONING:**
   C-P-S, R-5, I-P, C-O
4. **PROPOSED ZONING:**
   R-3
5. **EXISTING LAND USE:**
   VACANT
6. **PROPOSED LAND USE:**
   RESIDENTIAL
7. **METHOD OF SEWAGE DISPOSAL**
   SANITARY SEWER
8. **UTILITIES:**
   WATER – EASTERN MUNICIPAL WATER DISTRICT
   SEWER – EASTERN MUNICIPAL WATER DISTRICT
   NATURAL GAS – SOUTHERN CALIFORNIA GAS CO.
   ELECTRIC – THE EDISON COMPANY
   TELEPHONE – FRONTIER
   CABLE – FRONTIER
9. **SCHOOL DISTRICT:**
   MURRIETA UNIFIED SCHOOL DISTRICT
10. **COMMUNITY SERVICES AREA:**
    NOT WITHIN A COMMUNITY SERVICE AREA
11. **ASSESSORS PARCEL NO.:**
    480-160-023
12. **2014 THOMAS BROS. GUIDE:**
    PAGE 899, GRID D-5
13. **SITE PLAN PREPARED:**
    MARCH 2018
14. **UNIFORM BUILDING CODE:**
    N/A
15. **NOTE:**
    ALL PROPOSED DRAINAGE FACILITIES SHALL BE DESIGNED TO ACCOMODATE 100 YEAR STORM FLOWS. ALL Q"S ARE APPROX.
    THIS PROJECT IS WITHIN A SPECIFIC PLAN DUTCH VILLAGE SP 106. LAND USE DESIGNATION INDUSTRIAL PARK / OFFICE COMMERCIAL SURROUNDING LAND USE DES. MED. DENSITY RESIDENTIAL.
    ALL SLOPE ARE 2:1 UNLESS NOTED.
16. **FEMA FLOOD PLAIN:**
    NOT IN A FLOOD ZONE.
17. **GEOLOGICAL HAZARD:**
    A SMALL PORTION OF THE SUBJECT ALONG WINCHESTER ROAD SHOWS A LOW POTENTIAL OF LIQUEFACTION AND SUBSIDENCE.
18. **SPECIFIC PLAN:**
    DUTCH VILLAGE
    PLAN NUMBER: #106
    PLANNING AREA: 18a
    ADOPTED DATE: 10/14/1986
19. **EXISTING LAND USE DESIGNATION:**
    OS-C, CO, CR, LI
20. **PROPOSED LAND USE DESIGNATION:**
    HDR
21. THIS TRACT MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVIDER

EASEMENT NOTES

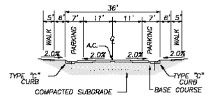
1. WATER RIGHTS,CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY HE PUBLIC RECORDS. (NOT PLOTTABLE FROM PUBLIC RECORDS).
2. AN EASEMENT FOR AVIGATION AND INCIDENTAL PURPOSES, RECORDED JUNE 25, 1991 AS INSTRUMENT NO. 1991-214567 OF OFFICIAL RECORDS. (BLANKET IN NATURE).
   IN FAVOR OF: ....THE COUNTY OF RIVERSIDE
   AFFECTS: ....A PORTION OF SAID LAND
3. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "GRADING AND DRAINAGE AGREEMENT" RECORDED JULY 30, 2003 AS INSTRUMENT NO.03-572028 OF OFFICIAL RECORDS. (BLANKET IN NATURE).
4. AN EASEMENT FOR PUBLIC ROAD, DRAINAGE PURPOSES AND PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED DECEMBER 20, 2005 AS INSTRUMENT NO. 2005-1047847 OF OFFICIAL RECORDS.
   IN FAVOR OF: ....THE COUNTY OF RIVERSIDE
   AFFECTS: ....SAID LAND
5. AN EASEMENT FOR STORM DRAIN PURPOSES AND INCIDENTAL PURPOSES, RECORDED AUGUST 22, 2006 AS INSTRUMENT NO. 2006-0616526 OF OFFICIAL RECORDS.
6. AN EASEMENT FOR STORM DRAIN PURPOSES AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 11, 2006 AS INSTRUMENT NO. 2006-0669514 OF OFFICIAL RECORDS.
   IN FAVOR OF: ....THE COUNTY OF RIVERSIDE
   AFFECTS: ....SAID LAND
7. AN EASEMENT FOR PIPELINE AND SEWAGE TRANSMISSIONS AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 14, 2006 AS INSTRUMENT NO. 2006-0682431 OF OFFICIAL RECORDS.
   IN FAVOR OF: ....THE COUNTY OF RIVERSIDE
   AFFECTS: ....SAID LAND
8. A DEED FOR FREEWAY AND PUBLIC UTILITY PURPOSES RECORDED DECEMBER 31, 2009, AS INSTRUMENT NO. 2009-0670974 OF OFFICIAL RECORDS.
   IN FAVOR OF: ....THE STATE OF CALIFORNIA
   AFFECTS: ....SAID LAND

BENCHMARK
FROM THE INTERSECTION OF RANCHO CALIFORNIA ROAD AND FRONT STREET 1.7 MILES NW ON FRONT STREET-JEFFERSON AVENUE TO THE INTERSECTION OF JEFFERSON AVENUE AND WINCHESTER ROAD (HWY 79) 5.5 MILES NE ON WINCHESTER ROAD (HWY 79) TO THE INTERSECTION OF WINCHESTER ROAD AND BENTON ROAD, .05 MILE WEST ON BENTON ROAD TO THE INTERSECTION OF BENTON ROAD AND BRIGGS ROAD, IN THE NW CONER OF THE INTERSECTION 69' NW OF P.P. X11447E ON LINE WITH MAILBOXES , 17' N OF BENTON, 15' W OF C/L BRIGGS. SET FIBERGLASS WITNESS POST 1' W OF MONUMENT.

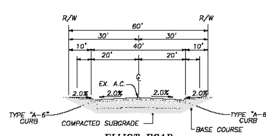
BASIS OF BEARINGS
PER M.B.336/94-99 N89°25'16"E 714.99'



ALLEY WAYS
(NO STREET PARKING)
NOT-TO-SCALE



PRIVATE DRIVEWAYS "A" THRU "F"
NOT-TO-SCALE

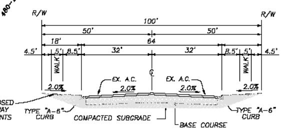


ELLIOT ROAD
STANDARD NO. 105
EXISTING
NOT-TO-SCALE

NOTES:

1. THICKNESS OF A.B. AND A.C. TO BE DETERMINED BY SOIL TEST AT TIME OF GRADING OPERATIONS.
2. MINIMUM PAVING THICKNESS PER SPECIFICATIONS SECTION 8.07 OF ORDINANCE 461.
3. CURB AND GUTTER TO BE TYPE "A-6" (STANDARD NO. 200) 8" CURB IS NOT ALLOWED.
4. AC DIKE DIKE REQUIRED WHEN NECESSARY TO CONTROL DRAINAGE. AC DIKE MAY BE REQUIRED ON ONE OR BOTH SIDES.
5. FOR UNDERGROUND UTILITY LOCATIONS SEE STD. NO. 817, SHT 2 OF 2.

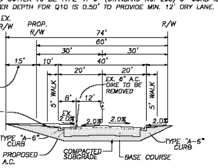
TYPICAL SECTION AT PL
NOT-TO-SCALE



JEAN NICHOLAS ROAD
STANDARD NO. 94
NOT-TO-SCALE

NOTES:

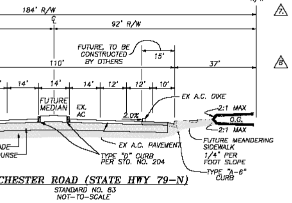
1. THICKNESS OF A.B. AND A.C. TO BE DETERMINED BY SOIL TEST AT TIME OF GRADING OPERATIONS.
2. MINIMUM PAVING THICKNESS PER SPECIFICATIONS SECTION 8.07 OF ORDINANCE 461.
3. CURB AND GUTTER TO BE TYPE "A-6" (STANDARD NO. 200) 8" CURB IS NOT ALLOWED.
4. MAX. WATER DEPTH FOR Q10 IS 0.50' TO PROVIDE MIN. 12' DRY LANE.



RON ROBERTS WAY
STANDARD NO. 104
NOT-TO-SCALE

NOTES:

1. THICKNESS OF A.B. AND A.C. TO BE DETERMINED BY SOIL TEST AT TIME OF GRADING OPERATIONS.
2. MINIMUM PAVING THICKNESS PER SPECIFICATIONS SECTION 8.07 OF ORDINANCE 461.
3. CURB AND GUTTER TO BE TYPE "A-6" (STANDARD NO. 200) 8" CURB IS NOT ALLOWED.
4. EXISTING AC DIKE TO BE REMOVED



WINCHESTER ROAD (STATE HWY 79-N)
STANDARD NO. 83
NOT-TO-SCALE

NOTES:

1. THICKNESS OF A.B. AND A.C. TO BE DETERMINED BY SOIL TEST AT TIME OF GRADING OPERATIONS.
2. MINIMUM PAVING THICKNESS PER SPECIFICATIONS SECTION 8.07 OF ORDINANCE 461.
3. SEE STANDARD NO. 113 FOR LANDSCAPE MEDIAN REQUIRMENTS, INCLUDING MEDIAN CURB.
4. IMPROVEMENTS TO STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS AND POLICIES. RIGHT OF WAY MAY VARY PER THE REQUIREMENTS OF CALTRANS POLICY.

LEGEND:

TUBULAR STEEL FENCE	
6' PERIMETER WALL	
CENTERLINE	
RIGHT OF WAY	
WATER LINE	
SEWER LINE	
DG BASE	
EXISTING AC PAVING	
PROPOSED AC PAVING	
EXISTING CONCRETE	
PROPOSED CONCRETE	
AGE TARGETED	AT
MARKET RATE	MR
PROPERTY LINE	PL
CENTERLINE OF STREET	CL
FINSH GRADE	FG
TOP OF CURB	TC
FINISH SURFACE	FS
FLOW LINE	FL
GRADE BREAK	GB
TOP OF GRATE	TG
INVERT	INV
AC PAVING	AC
EDGE OF PAVEMENT	EOP

AT RESIDENTIAL BUILDINGS

TYPE OF CONSTRUCTION		VB	
AUTOMATIC FIRE SPRINKLER		YES	
OCCUPANCY TYPE		R3	
ALLOWABLE AREA		1,850-2,600 SF	
PLAN 1 #OF BLDG/SF/NO. STORIES		19/1,862 SF/1 STORY	
PLAN 2 #OF BLDG/SF/NO. STORIES		8/2,318 SF/2 STORIES	
PLAN 2X #OF BLDG/SF/NO. STORIES		15/2,411 SF/2 STORIES	
PLAN 3 #OF BLDG/SF/NO. STORIES		22/2,577 SF/ 2 STORIES	
NO. BUILDINGS		64	
NET AREA	11.1 AC	DENSITY	5.8 DU/AC
HWY 79 POLICY AREA - HDR MID DENSITY = 11.0 DU/AC 11.0 DU/AC X 9% REDUCTION = 10.0 DU/AC ALLOWED			

MR RESIDENTIAL BUILDINGS

TYPE OF CONSTRUCTION		VB	
AUTOMATIC FIRE SPRINKLER		YES	
OCCUPANCY TYPE		R3	
ALLOWABLE AREA		1,610-2,050 SF	
PLAN 1 #OF BLDG/SF/NO. STORIES		39/1,610 SF/2 STORIES	
PLAN 2 #OF BLDG/SF/NO. STORIES		16/1,764 SF/2 STORIES	
PLAN 2X #OF BLDG/SF/NO. STORIES		14/1,653 SF/2 STORIES	
PLAN 3 #OF BLDG/SF/NO. STORIES		30/2,027 SF/ 2 STORIES	
NO. BUILDINGS		99	
NET AREA	10.0 AC	DENSITY	9.9 DU/AC
HWY 79 POLICY AREA - HDR MID DENSITY = 11.0 DU/AC 11.0 DU/AC X 9% REDUCTION = 10.0 DU/AC ALLOWED			

PARKING MATRIX

USE	RATIO	ADDITIONAL SPACES REQ'D	SPACES PROV'D
MARKET RATE RESIDENTIAL	0.5/ UNIT (99 UNITS x 0.50)	50	28 (STALLS) 56 (PARALLEL)
AGE TARGETED RESIDENTIAL	SELF SUFFICIENT	0	0 (STALLS) 54 (PARALLEL)
REQUIRED ACCESSIBLE SPACES (26-50)		2	5

THE "STALLS" ARE DESIGNATED PARKING SPACES, THE "PARALLEL" IS STREET PARKING AVAILABILITY PER THE SECTION LABELED "PRIVATE DRIVEWAYS "A" THRU "F"

THIS MAP IS BASED ON RECORD DATA AND SHOULD NOT BE RELIED UPON FOR ACCURATE SURVEY INFORMATION. ALL MEASUREMENTS SHALL BE FIELD VERIFIED BY PERSONS AUTHORIZED TO PERFORM SUCH WORK. ANY DESIGN INFORMATION SHOWN ON THIS PLAN IS CONCEPTUAL IN NATURE AND SHALL NOT BE RELIED ON FOR CONSTRUCTION PURPOSES.

NO.	DATE	REVISION
1	5/17/18	REVISIONS PER 1ST PLAN CHECK COMMENTS
2	10/11/18	REVISIONS PER 2ND PLAN CHECK COMMENTS
3	12/11/18	REVISED LOT LINES, REMOVED LOT

OWNER/APPLICANT:
DR. ALLEN D. SU
C/O GENE TOBIN
1930 ALPHA AVE.
PASADENA, CA 91030
(951) 760-6097
USONELLA@HOTMAIL.COM

PREPARED BY:
MDMG
MARKHAM DEVELOPMENT MANAGEMENT GROUP, INC.
41635 Enterprise Circle N. – Suite B
Temecula, California 92590
(951) 296-3466 TEL
LRM@MARKHAMDMG.COM

SHEET 1 OF 2
J.N. 101.001

37078

PROPOSED EARTHWORKS:
CUT: 85,000 CY
FILL: 85,000 CY
TOTAL EXPORT: 0 CY

OWNER/APPLICANT:
DR. ALLEN D. SU
C/O GENE TOBIN
1932 K/9TH AVE.
PASADENA, CA 91030
(951) 780-6057
LINDVELLA@HOTMAIL.COM

THIS MAP IS BASED ON RECORD DATA AND SHOULD NOT BE RELIED UPON FOR ACCURATE SURVEY INFORMATION. ALL MEASUREMENTS SHALL BE FIELD VERIFIED BY PERSONS AUTHORIZED TO PERFORM SUCH WORK. ANY DESIGN INFORMATION SHOWN ON THIS PLAN IS CONCEPTUAL IN NATURE AND SHALL NOT BE RELIED ON FOR CONSTRUCTION PURPOSES.

NO.	DATE	REVISION
1	5/17/18	REVISIONS PER 1ST PLAN CHECK COMMENTS
2	10/11/18	REVISIONS PER 2ND PLAN CHECK COMMENTS
3	12/11/18	REVISED LOT LINES, REMOVED LOT

PREPARED BY:
MDMG
MARKHAM DEVELOPMENT MANAGEMENT GROUP, INC.
41635 Enterprise Circle N. – Suite B
Temecula, California 92590
(951) 296-3466 TEL
LRM@MARKHAMDMG.COM

SHEET 2 OF 2
J.N. 101.001

APPENDIX G

VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS

Project:	19-0221 Winchester at Jean Nicolas	Date:	1/27/20
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Residential to southwest		
Address:			

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

INPUT

Equipment Type =	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	135.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

RESULTS

PPV =	0.007	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19-0221 Winchester at Jean Nicolas	Date:	1/27/20
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Residential to southwest		
Address:			

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

INPUT

Equipment Type =	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	135.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

RESULTS

PPV =	0.017	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19-0221 Winchester at Jean Nicolas	Date:	6/17/20
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Proposed Residential to North		
Address:			

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

INPUT

Equipment Type =	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	21.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

RESULTS

PPV =	0.116	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS

Project:	19-0221 Winchester at Jean Nicolas	Date:	6/17/20
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Proposed Residential to North		
Address:			

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

INPUT

Equipment Type =	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	21.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

RESULTS

PPV =	0.273	IN/SEC	OUTPUT IN BLUE

GANDDINI GROUP, INC.
550 Parkcenter Drive, Suite 202, Santa Ana, CA 92705
714.795.3100 | www.ganddini.com