Redwood Avenue Warehouse
Noise Study

November 2015 (13419)

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San Bernardino County

Table of Contents

Tables

Figures

Exhibits

Appendix

1 EXECUTIVE SUMMARY

Construction-related and operational noise impacts were modeled and analyzed for the proposed warehouse building located at 9988 Redwood Avenue, San Bernardino County, California. This noise impact analysis contains documentation of existing noise levels as well as analysis of the impacts generated by project operation and traffic and analysis of vibration impacts. This report analyzes the project's consistency with applicable federal, State, and local regulations. The results of this report find construction-related and operational noise levels are consistent with applicable regulations.

1.1 Project Description

The project includes the demolition of the existing no-site structures and the development of a 215,000-square foot warehouse building located at 9988 Redwood Avenue, San Bernardino, California. The project site will be bounded by an eight-foot concrete screening wall along the northern, western, and southern boundaries. The project includes 160 parking stalls, 27 trailer docks, 31 trailer parking spaces, and 70,450 square feet of landscaping.

1.2 Construction-Related Noise

Temporary noise increases will be greatest during the demolition and grading phases of construction. Demolition and grading equipment can expose the single family residence located approximately 355 feet to the west of the center of the project site to a combined noise level of 72.6 dBA $L_{max.}$ Construction equipment could expose the single family residences located 410 feet, 413 feet, and 470 feet to the east of the center of the project site to a combined noise level of 71.3 dBA L_{max}, 71.2 dBA L_{max}, and 70.1 dBA L_{max}, respectively. Although construction noise is exempt pursuant to the municipal code, Mitigation Measures N-1 through N-6 has been incorporated to reduce the impact to neighboring uses during construction. Construction activity will not exceed the County's exterior noise standard for stationary sources; however, noise from construction activity is exempt pursuant to Section 83.01.080(g) of the Municipal Code. With incorporation of the Mitigation Measure N-1, described herein, no substantial impacts will occur.

1.3 Operational Noise

The increase in vehicular traffic on area roadways will not result in noise levels exceeding the 60 dBA CNEL mobile source standard established by the County for residential uses. Operation of the proposed warehouse will not exceed allowable stationary noise levels established by the County at neighboring uses. Therefore, no substantial impacts will occur.

1.4 Vibration

Based on the threshold criteria established by the Federal Transit Administration (FTA) and the California Department of Transportation (Caltrans), vibration from use of heavy construction equipment to construct the proposed project would be below the thresholds to cause damage to nearby structures and result in less than *barely perceptible* vibration at the receptors analyzed in the report. Should roadway improvements be required, implementation of Mitigation Measure N-2 will ensure that no substantial impacts will occur.

1.5 Airport Noise

The project site is located with two miles of a public or private use airport or helipad. Therefore, no substantial impacts will occur.

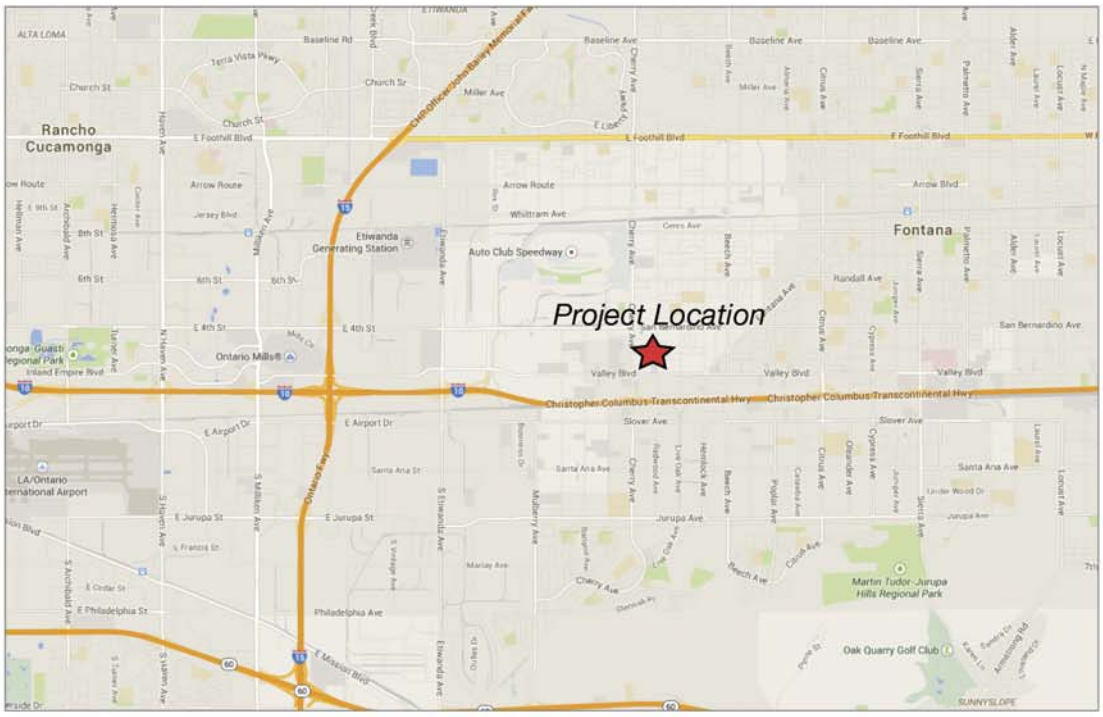
1.6 Mitigation Measures

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

N-1 Prior to issuance of grading permits, the Applicant shall submit a mitigation plan prepared by a qualified engineer or other acoustical expert for review and approval by the Planning Division that identifies noise control measures that achieve a minimum 20 dBA reduction in construction-related noise levels at the residential uses to the west, south, and east of the project site. The mitigation plan may include use of vibratory pile drivers or other pile

driving noise controls, sound curtains, engineered equipment controls, or other methods. Noise control requirements shall be noted on project construction drawings and verified by the Building Department during standard inspection procedures.

N-2 In the event that roadway improvements are necessary, the Applicant shall ensure that vibration associated with the use of a vibratory roller will not exceed the vibration damage potential for older residential structures of 0.30 PPV and the vibration annoyance potential of 0.04 PPV (distinctly perceptible) established by Caltrans. Supplemental analysis shall be performed and submitted for the review and approval of the Planning Division prior to the start of construction activities.



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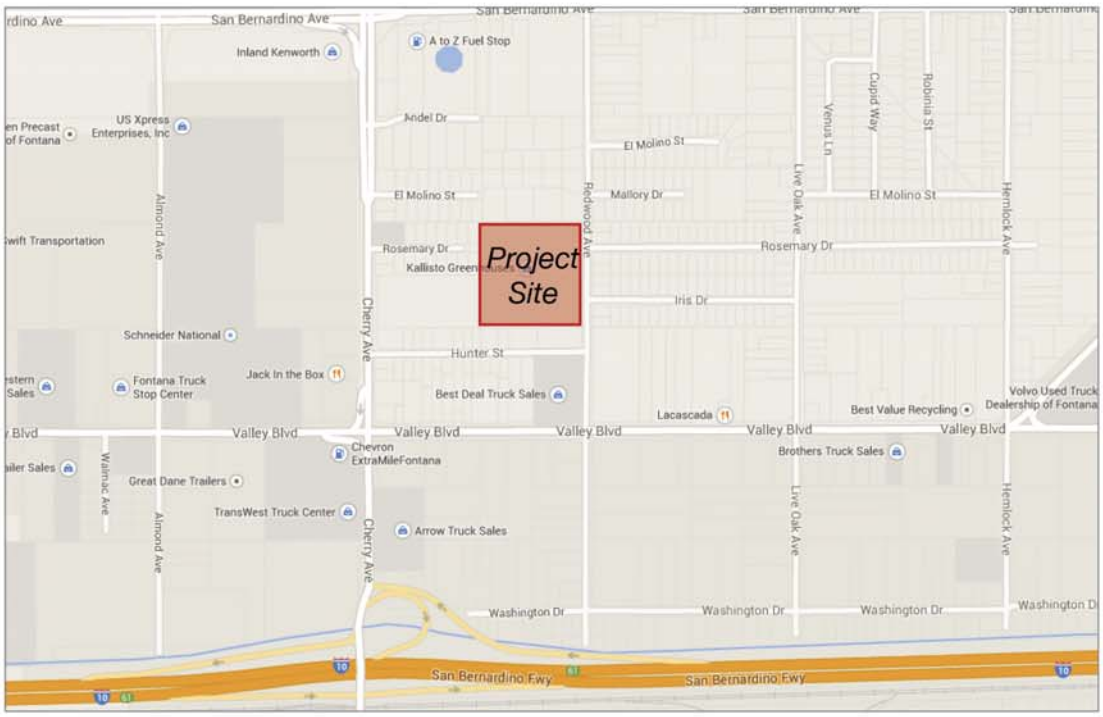
Regional



Source: Google Maps 2014

Vicinity

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Exhibit 1 Regional and Vicinity Map

Redwood Avenue Warehouse
Fontana, California

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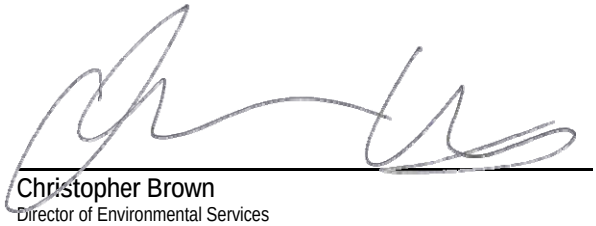
2 INTRODUCTION

This report includes modeling and analysis of construction- and operation-related noise generated from the proposed project on surrounding land uses. Vibration effects and airport noise are also discussed herein. The project includes construction of a 215,000-square foot warehouse building on 9.89 gross acres in unincorporated San Bernardino County, California.

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

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

This report has been prepared by Christopher Brown (Director of Environmental Services) and Olivia Chan (Project Associate) of MIG | Hogle-Ireland, Inc. under contract to CRP Oakmont Redwood Avenue, LLC.



Christopher Brown
Director of Environmental Services

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Project Associate

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3.1 Defining Noise

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

THE PRODUCTION OF SOUND

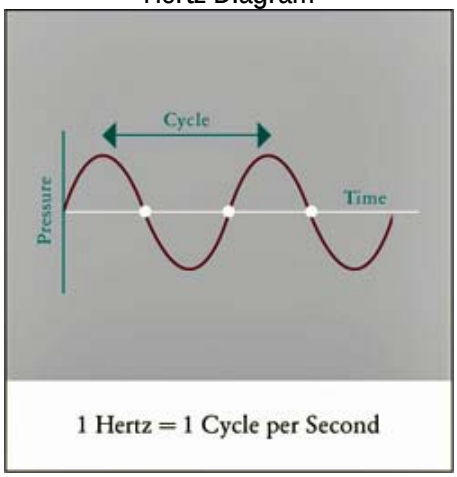
Sound has three properties: amplitude and amplitude variation of the acoustical wave (loudness), frequency (pitch), and duration of the noise. Despite the ability to measure sound, human perceptibility is subjective, and the physical response to sound complicates the analysis of its impact on people.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

MEASURING SOUND

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

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

Figure 1
Hertz Diagram



STANDARDS FOR NOISE EQUIVALENT

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

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

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

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

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

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

3.2 Vibration and Groundborne Noise

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

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

4.1 Sensitive Receptors

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, and residential uses make up the majority of these areas. The proposed facility is located in a generally commercial and residential area with a self storage facility to the north, an automobile tire retailer to the west, and residential use to the west, east, and south. There are no schools located within a quarter mile of the project site. Exhibit 2 (Radius Map) identifies existing development in the project vicinity based on assessor's parcel data.

4.2 Existing Noise Levels

Short-term noise measurements at the project site were conducted to identify the ambient noise in the project vicinity. An American National Standards Institute (ANSI Section SI4 1979, Type 1) Larson Davis model LxT sound level meter was used to monitor existing ambient noise levels in the project area. The noise meter was programmed in "slow" mode to record noise levels in A-weighted form. The microphone height was set at five feet. Three 15-minute daytime noise measurements were taken between 1:08 PM and 2:09 PM on Tuesday, February 3, 2015.

Ambient noise levels ranged from 58.0 to 62.9 dBA CNEL. Ambient noise levels are a composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location. Measurement locations are shown in Exhibit 3 (Noise Measurement Locations). Ambient noise levels are presented in Table 1 (Ambient Noise Levels) and measurement output data is included as Appendix A.

Vehicular traffic along Redwood Avenue was the dominant noise source at measurement locations 001 and 002 at the eastern boundary of the project site and vehicular traffic on Rosemary Drive and operational equipment on the project site were the dominant noise sources at measurement location 003. Other noise sources included human activity along Redwood Avenue and at the residential uses to the west of the project site.

Table 1
Ambient Noise Levels

Location	Time Period	Measurement Period	Description	Existing Ambient Noise Levels (dBA CNEL)
001	1:08 PM-1:23 PM	15 Minutes	Intersection of Rosemary Drive and Redwood Avenue	61.2
002	1:29 PM-1:47 PM	15 Minutes	Southwest corner of project site on Redwood Avenue	62.9
003	1:54 PM-2:09 PM	15 Minutes	Northwestern boundary of project site at the termination of Rosemary Drive	58.0

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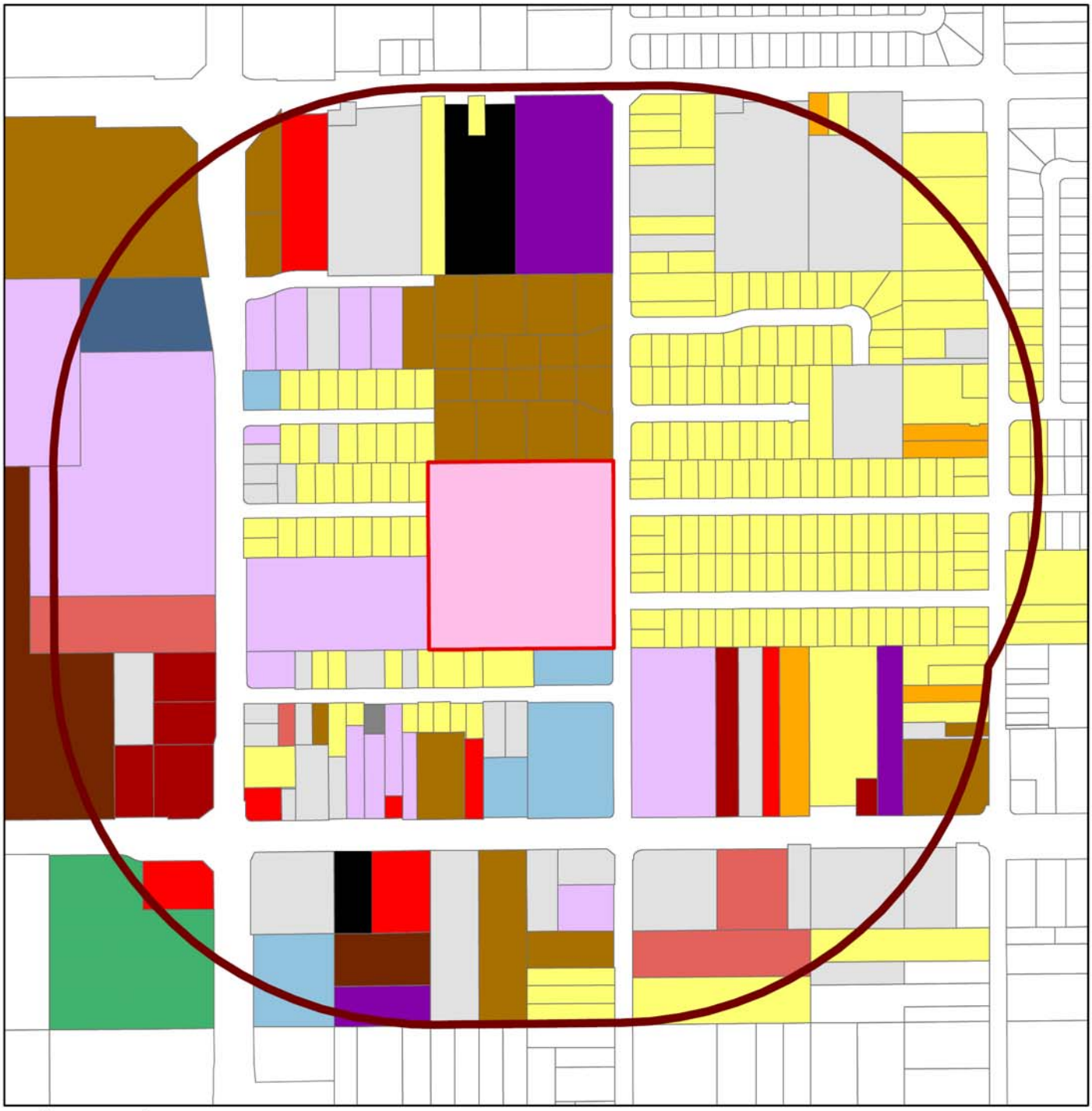

Legend

- Project Site
- 0.25 Mile Radius

Land Use

- Single Family Residential
- Multi Family Residential
- General Office
- Retail
- Restaurant
- Storage Facility
- Warehose
- Industrial
- Car Lot
- Auto Dealorship
- Service Station
- Service Garage
- Miscellaneous Agriculture Building
- Parking Lot
- Unknown
- Vacant

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Exhibit 2 Radius Map

Redwood Avenue Warehouse
Fontana, California

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Source: RGA Office of Architectural Design

Exhibit 3 Noise Measurement Locations

Redwood Avenue Warehouse
Fontana, California

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5.1 Federal Regulations

FEDERAL NOISE CONTROL ACT OF 1972

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

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

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

FEDERAL TRANSIT ADMINISTRATION

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

VIBRATION STANDARDS

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

Table 2
Reference Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft (in/sec) at 25 Feet	Approximate Vibration Level (VL) at 25 Feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 (upper range)	105
	0.170 (typical)	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
Slurry wall	0.017 in rock	75
Vibratory roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

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

Table 3
Groundborne Vibration and Noise Impact Criteria

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

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

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

5.2 State Regulations

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

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

CALIFORNIA NOISE CONTROL ACT OF 1973

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

CALIFORNIA NOISE INSULATION STANDARDS (CCR TITLE 24)

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

STATE OF CALIFORNIA GENERAL PLAN GUIDELINES 2003

Though not adopted by law, the State of California General Plan Guidelines 2003, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provides guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of development relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., L_{dn} or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses.

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

CALIFORNIA DEPARTMENT OF TRANSPORTATION

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

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

Table 4
Vibration Damage Potential Threshold Criteria

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans 2004		

Table 5
Vibration Annoyance Potential Threshold Criteria

Human Response	PPV Threshold (in/sec)	
	Transient	Continuous
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severely perceptible	2.00	0.40
Source: Caltrans 2004		

5.3 Local Regulations

COUNTY OF SAN BERNARDINO MUNICIPAL CODE

The County of San Bernardino Municipal Code, under Title 8 (Development Code) Division 3 (Countywide Development Standards) Chapter 83.01 (General Performance Standards) Section 83.01.080 (Noise), provides the local government ordinance relative to community noise level exposure, guidelines, and regulations.

Stationary Noise Sources

Table 83-2 (Noise Standards for Stationary Noise Sources) of the Municipal Code includes exterior noise standard for daytime and nighttime noise levels resulting from stationary noise sources. Between the hours of 7:00 AM and 10:00 PM, exterior noise levels shall not exceed 55 dBA for residential use and 60 dBA for commercial use.

Mobile Noise Sources

Table 83-3 (Noise Standards for Stationary Noise Sources) of the Municipal Code includes exterior noise standards for mobile noise sources. The allowable exterior noise level resulting from mobile noise sources is 60 dBA for residential use and 65 dBA for office commercial use. There is no exterior noise standard for retail commercial use or industrial use.

Construction Noise Levels

Pursuant to Section 83.01.080(g), temporary construction, maintenance, repair, and demolition activities occurring between the hours of 7:00 AM and 7:00 PM except on Sundays and Federal holidays is exempt from County noise standards. In addition, noise from motor vehicles not under the control of the commercial or industrial use is exempt.

Vibration Impacts

Pursuant to Section 83.01.090 (Vibration), temporary construction, maintenance, repair, and demolition activities occurring between the hours of 7:00 AM and 7:00 PM except on Sundays and Federal holidays is exempt from County vibration standards. In addition, noise from motor vehicles not under the control of the commercial or industrial use is exempt.

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

6.1 Thresholds of Significance

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

A. Exposure of persons or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
B. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
C. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
D. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
E. For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.
F. For a project within a vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

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

To assess current and opening year traffic noise levels, vehicle trips associated with surrounding roadways were modeled utilizing the SoundPLAN software. SoundPLAN is a three-dimensional noise modeling software that accounts for the shielding and reflective effects associated with intervening topography and nearby buildings.

6.2 Consistency with Applicable Standards

CONSTRUCTION NOISE LEVELS

Construction noise levels were estimated using the FHWA Roadway Construction Noise Model (RCNM). Temporary noise increases will be greatest during the demolition and grading phases. The model indicates that the use of construction equipment such as graders, tractors, dozers, and excavators could expose the single family residence located approximately 355 feet to the west of the center of the project site to a combined noise level of 72.6 dBA L_{max} (see Exhibit 4, Receptors). Construction equipment could expose the single family residences located 410 feet, 413 feet, and 470 feet to the east of the center of the project site to a combined noise level of 71.3 dBA L_{max}, 71.2 dBA L_{max}, and 70.1 dBA L_{max}, respectively. Although construction noise is exempt pursuant to the municipal code, Mitigation Measure N-1 has been incorporated to reduce the impact to neighboring uses during construction.

Per Section 83.01.080(g) of the San Bernardino County Code, construction activities occurring between the hours of 7:00 AM and 7:00 PM on Mondays through Saturdays are exempt from noise standards. Due to the time limitations on construction activity, surrounding employees and residents will be exposed to limited construction noise with adherence to County standards. Because noise levels construction are anticipated to exceed the City's standards for stationary noise sources, mitigation measures will be necessary to minimize noise levels at nearby receptors. Mitigation Measure N-1 will be incorporated to minimize noise associated with general construction activities. Mitigation Measure N-1 requires preparation of a construction noise reduction plan to reduce temporary noise impacts by minimum of 20 dBA which is a feasible performance standard based on available technology. Engineered controls include retrofitting equipment with improved exhaust and intake muffling, disengaging equipment fans, and installation of sound panels

around equipment engines. These types of controls can achieve noise level reductions of approximately 10 dBA.[6] [7] Sound curtains and other noise barriers can be used for general construction noise and achieve reductions of up to 20 dBA.[8] Implementation of Mitigation Measure N-1 will reduce temporary noise impacts by a minimum of 20 dBA, resulting in a maximum construction noise level of 57.3 dBA at the commercial use to the west of the project site. Therefore, with implementation of Mitigation Measures N-1 and adherence to County standards, construction noise will feasibly be reduced to unsubstantial levels.

OPERATIONAL NOISE LEVELS

The San Bernardino County Municipal Code sets an allowable exterior noise level resulting from stationary noise sources for residential uses at 55 dBA CNEL, 65 dBA CNEL for commercial uses, and 70 dBA CNEL for industrial uses. Allowable exterior noise levels resulting from adjacent mobile sources are set at 60 dBA CNEL for residential uses and 65 dBA CNEL for office commercial uses. There is no mobile source exterior standard for retail commercial or industrial uses. Ambient noise at the project site would generally be defined by traffic on Redwood Avenue, Hunter Street, and operational noise from neighboring commercial uses. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters. Using a Larson Davis LxT sound level meter, three short-term (15 minute) noise measurements were recorded at various locations at the site. Short-term noise measurements were recorded during daytime hours. Traffic noise from vehicular traffic generated by the proposed project was projected using SoundPLAN software based on trip generation and distribution estimated in the project traffic study prepared by Kunzman Associates.

The noise levels at neighboring uses were calculated using SoundPLAN software to provide a baseline of the opening year traffic noise levels. Noise levels at the single family homes to the east and west, the storage faciility to the north, and the commercial uses to the south were calculated (see Appendix C for output data) and projected at the ground floor. The 2017 opening year without and with project traffic noise levels during the AM and PM peak hours at neighboring uses are summarized in Table 6 (Roadway Noise Levels Without Project) and Table 7 (Roadway Noise Levels With Project). Opening year without and with project exterior mobile source noise levels will exceed the 60 dBA CNEL standard established by the County for residential uses at six of the eight single family homes identified below. However, the project does not cause the exterior noise levels to exceed the 60 dBA CNEL threshold for a receptor that is currently below 60 dBA CNEL. Therefore, no significant impacts will result.

Table 6
Roadway Noise Levels Without Project

Receptors	AM Peak Hour dBA CNEL	PM Peak Hour dBA CNEL
1 – Single Family Home (NE)	60.0	61.4
2 – Storage Facility (N)	63.7	64.9
3 – Single Family Home (E)	61.0	62.5
4 – Single Family Home (E)	61.0	62.5
5 – Single Family Home (E)	61.0	62.5
6 – Single Family Home (E)	62.1	63.5
7 – Retail Commercial (SE)	62.3	63.7
8 – Single Family Home (S)	62.0	63.0
9 – Single Family Home (S)	53.9	55.2
10 – Single Family Home (W)	48.8	50.2

Table 7
Roadway Noise Levels With Project

Receptors	AM Peak Hour dBA CNEL	PM Peak Hour dBA CNEL
1 – Single Family Home (NE)	60.0	61.7
2 – Storage Facility (N)	63.7	65.2
3 – Single Family Home (E)	61.2	62.7
4 – Single Family Home (E)	61.2	62.6
5 – Single Family Home (E)	61.3	62.7
6 – Single Family Home (E)	62.4	63.7
7 – Retail Commercial (SE)	62.7	64.1
8 – Single Family Home (S)	62.4	63.4
9 – Single Family Home (S)	54.0	55.3
10 – Single Family Home (W)	48.9	50.4

Operation of the proposed warehouse facility will involve on-site truck movement, truck idling, loading activities, doors slamming, and back-up alarms on the south side of the building. Parking areas for passenger cars located on the west and north sides of the building will involve car movement, car doors slamming, and the starting up of vehicles. The proposed project includes an eight-foot concrete screen wall along the northern, western, and southern boundaries of the site, shielding neighboring uses from noise generated on-site. These operational noise levels have been calculated using SoundPLAN software and summarized in Table 8 (On-Site Project Noise Levels). As shown below, exterior noise levels at all receivers are within the 55 dBA CNEL stationary noise standard for residential use and 60 dBA CNEL stationary noise standard for commercial use.

Table 8
On-site Project Noise Levels

Receptors	dBA CNEL
1 – Single Family Home (NE)	40.2
2 – Storage Facility (N)	45.2
3 – Single Family Home (E)	46.8
4 – Single Family Home (E)	39.3
5 – Single Family Home (E)	32.7
6 – Single Family Home (E)	42.6
7 – Retail Commercial (SE)	39.4
8 – Single Family Home (S)	43.9
9 – Single Family Home (S)	47.2
10 – Single Family Home (W)	53.3

6.3 Vibration Impacts

Construction activities that use vibratory rollers and bulldozers are repetitive sources of vibration; therefore, the *continuous* threshold is used. Single family residences to the south and east were built in the 1970s to 1990s. Therefore, the *older residential structures* threshold is used. Based on the threshold criteria summarized in Tables 4 and 5, vibration from use of heavy construction equipment for the proposed project would be below the thresholds to cause damage to nearby structures and result in less than *barely perceptible* vibration at the ten receptors shown in Table 9 (Distance to Vibration Receptors) and Table 10 (Construction Vibration Impacts).

Table 9
Distance to Vibration Receptors

Receptors	Distance from Center of Project Site (ft)
1 – Single Family Home (NE)	683
2 – Storage Facility (N)	680
3 – Single Family Home (E)	465
4 – Single Family Home (E)	410
5 – Single Family Home (E)	413
6 – Single Family Home (E)	470
7 – Retail Commercial (SE)	753
8 – Single Family Home (S)	472
9 – Single Family Home (S)	427
10 – Single Family Home (W)	355

Construction of the project does not require rock blasting, pile driving, or the use of a jack hammer, but will use a vibratory roller, small and large bulldozer, and loaded trucks. All of the receptors will experience less than *barely perceptible* vibration from construction of the proposed project. Furthermore, these construction activities will be limited to the hours of 7:00 AM to 7:00 PM Mondays through Saturdays.

Use of a vibratory roller may be required in the event that roadway improvements are required. To ensure that vibration-related impacts related to potential roadway improvements will not damage the neighboring residential structures or cause annoyance, Mitigation Measure N-2 has been incorporated. Mitigation Measure N-2 requires the preparation of supplemental vibration analysis in the event that roadway improvements are required.

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

Table 10
Construction Vibration Impacts

Receptors	Equipment	PPVref	Distance (feet)	PPV
1 – Single Family Home (NE)	Vibratory Roller	0.21	683	0.0028
2 – Storage Facility (N)	Vibratory Roller	0.21	680	0.0029
3 – Single Family Home (E)	Vibratory Roller	0.21	465	0.0047
4 – Single Family Home (E)	Vibratory Roller	0.21	410	0.0055
5 – Single Family Home (E)	Vibratory Roller	0.21	413	0.0055
6 – Single Family Home (E)	Vibratory Roller	0.21	470	0.0046
7 – Retail Commercial (SE)	Vibratory Roller	0.21	753	0.0025
8 – Single Family Home (S)	Vibratory Roller	0.21	472	0.0046
9 – Single Family Home (S)	Vibratory Roller	0.21	427	0.0052
10 – Single Family Home (W)	Vibratory Roller	0.21	355	0.0067
1 – Single Family Home (NE)	Large Bulldozer	0.089	683	0.001208
2 – Storage Facility (N)	Large Bulldozer	0.089	680	0.001215
3 – Single Family Home (E)	Large Bulldozer	0.089	465	0.001991
4 – Single Family Home (E)	Large Bulldozer	0.089	410	0.002345
5 – Single Family Home (E)	Large Bulldozer	0.089	413	0.002323
6 – Single Family Home (E)	Large Bulldozer	0.089	470	0.001963
7 – Retail Commercial (SE)	Large Bulldozer	0.089	753	0.001064
8 – Single Family Home (S)	Large Bulldozer	0.089	472	0.001952
9 – Single Family Home (S)	Large Bulldozer	0.089	427	0.002224
10 – Single Family Home (W)	Large Bulldozer	0.089	355	0.002828
1 – Single Family Home (NE)	Small Bulldozer	0.003	683	0.000041
2 – Storage Facility (N)	Small Bulldozer	0.003	680	0.000041
3 – Single Family Home (E)	Small Bulldozer	0.003	465	0.000067
4 – Single Family Home (E)	Small Bulldozer	0.003	410	0.000079
5 – Single Family Home (E)	Small Bulldozer	0.003	413	0.000078
6 – Single Family Home (E)	Small Bulldozer	0.003	470	0.000066
7 – Retail Commercial (SE)	Small Bulldozer	0.003	753	0.000036
8 – Single Family Home (S)	Small Bulldozer	0.003	472	0.000066
9 – Single Family Home (S)	Small Bulldozer	0.003	427	0.000075
10 – Single Family Home (W)	Small Bulldozer	0.003	355	0.000095
1 – Single Family Home (NE)	Loaded Truck	0.076	683	0.001031
2 – Storage Facility (N)	Loaded Truck	0.076	680	0.001037
3 – Single Family Home (E)	Loaded Truck	0.076	465	0.001700
4 – Single Family Home (E)	Loaded Truck	0.076	410	0.002002
5 – Single Family Home (E)	Loaded Truck	0.076	413	0.001983
6 – Single Family Home (E)	Loaded Truck	0.076	470	0.001677
7 – Retail Commercial (SE)	Loaded Truck	0.076	753	0.000908
8 – Single Family Home (S)	Loaded Truck	0.076	472	0.001667
9 – Single Family Home (S)	Loaded Truck	0.076	427	0.001899
10 – Single Family Home (W)	Loaded Truck	0.076	355	0.002415

6.4 Increase in Ambient Noise Levels

A substantial increase in ambient noise is an increase that is *barely perceptible* (3 dBA). Operationally, the proposed project will result in periodic landscaping and other occasional noise generating activities. These activities are common

in industrial uses and do not represent a substantial increase in periodic noise in consideration that the project site is located in an industrialized area.

Traffic noise levels will not increase more than 3 dBA as a result of the proposed project as shown in Table 11 (AM Peak Hour Change in Noise Levels) and Table 12 (PM Peak Hour Change in Noise Levels). In addition, the ambient noise measurements at the eastern boundary of the project site, as previously indicated in Table 1, is generally consistent with the modeled roadway noise levels with project. Therefore impacts will be less than significant.

Table 11
AM Peak Hour Change in Noise Levels

Receptors	Without Project dBA CNEL	With Project dBA CNEL	Difference	Significant?
1 – Single Family Home (NE)	60.0	60.0	0.0	No
2 – Storage Facility (N)	63.7	63.7	0.0	No
3 – Single Family Home (E)	61.0	61.2	0.2	No
4 – Single Family Home (E)	61.0	61.2	0.2	No
5 – Single Family Home (E)	61.0	61.3	0.3	No
6 – Single Family Home (E)	62.1	62.4	0.3	No
7 – Retail Commercial (SE)	62.3	62.7	0.4	No
8 – Single Family Home (S)	62.0	62.4	0.4	No
9 – Single Family Home (S)	53.9	54.0	0.1	No
10 – Single Family Home (W)	48.8	48.9	0.1	No

Table 12
PM Peak Hour Change in Noise Levels

Receptors	Without Project dBA CNEL	With Project dBA CNEL	Difference	Significant?
1 – Single Family Home (NE)	61.4	61.7	0.3	No
2 – Storage Facility (N)	64.9	65.2	0.3	No
3 – Single Family Home (E)	62.5	62.7	0.2	No
4 – Single Family Home (E)	62.5	62.6	0.1	No
5 – Single Family Home (E)	62.5	62.7	0.2	No
6 – Single Family Home (E)	63.5	63.7	0.2	No
7 – Retail Commercial (SE)	63.7	64.1	0.4	No
8 – Single Family Home (S)	63.0	63.4	0.4	No
9 – Single Family Home (S)	55.2	55.3	0.1	No
10 – Single Family Home (W)	50.2	50.4	0.2	No

6.5 Airport Noise

The project site is located with two miles of a public or private use airport or helipad. Therefore, no substantial impacts will occur.

Exhibit 4 Receptors

Redwood Avenue Warehouse
Fontana, California

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7 MITIGATION MEASURES

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

N-1 Prior to issuance of grading permits, the Applicant shall submit a mitigation plan prepared by a qualified engineer or other acoustical expert for review and approval by the Planning Division that identifies noise control measures that achieve a minimum 20 dBA reduction in construction-related noise levels at the residential uses to the west, south, and east of the project site. The mitigation plan may include use of vibratory pile drivers or other pile driving noise controls, sound curtains, engineered equipment controls, or other methods. Noise control requirements shall be noted on project construction drawings and verified by the Building Department during standard inspection procedures.

N-2 In the event that roadway improvements are necessary, the Applicant shall ensure that vibration associated with the use of a vibratory roller will not exceed the vibration damage potential for older residential structures of 0.30 PPV and the vibration annoyance potential of 0.04 PPV (distinctly perceptible) established by Caltrans. Supplemental analysis shall be performed and submitted for the review and approval of the Planning Division prior to the start of construction activities.

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8 REFERENCES

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

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

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

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

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

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

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

8 Sound Seal. Sound Seal Sound Curtains Exterior Grade Noise Control. http://www.soundcurtains.com/exterior-grade-noise-control.pdf [October 2014]

Appendix A Noise Measurement Data

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General Information

Serial Number	03790
Model	SoundExpert™ LxT
Firmware Version	2.206
Filename	LxT_Data.002
User	OliviaChan
Job Description	Redwood Warehouse
Location	San Bernardino County
Measurement Description	
Start Time	Tuesday, 03 February 2015 13:08:36
Stop Time	Tuesday, 03 February 2015 13:23:36
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	Thursday, 30 January 2014 00:00:58
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LASeq		61.2	dB
LASmax	03 Feb 2015 13:12:00	77.1	dB
LApeak (max)	03 Feb 2015 13:12:00	92.3	dB
LASmin	03 Feb 2015 13:16:06	45.5	dB
LCSeq		67.9	dB
LASeq		61.2	dB
LCSeq - LASeq		6.7	dB
LAIeq		63.1	dB
LAeq		61.2	dB
LAIeq - LAeq		1.9	dB
LASE		90.7	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		8	
OBA Overload Duration		19.8	s

Statistics

LAS5.00	68.5	dBA
LAS10.00	65.2	dBA
LAS33.30	55.3	dBA
LAS50.00	50.2	dBA
LAS66.60	47.7	dBA
LAS90.00	46.2	dBA

LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LAS > 115.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

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

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LASeq	6.3	10.7	24.2	36.8	45.8	47.7	53.4	57.9	54.4	45.2	38.9	22.7
LASmax	6.3	15.8	31.1	42.6	53.2	58.9	68.4	72.7	67.6	58.5	52.0	40.5
LASmin	6.3	5.7	18.8	29.1	35.0	36.6	37.5	40.5	37.4	26.6	14.5	6.4

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LASeq	2.1	1.6	0.8	0.4	4.8	9.3	12.4	20.1	21.7	28.0	32.6	33.7
LASmax	2.1	1.6	0.8	0.5	6.8	14.8	18.1	25.3	30.0	32.7	38.8	38.7
LASmin	2.1	1.6	0.8	0.3	-0.6	3.2	5.8	13.6	15.0	18.6	23.8	24.7

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LASeq	40.1	41.0	41.9	41.1	43.5	43.7	46.1	48.0	50.5	52.6	53.7	53.1
LASmax	48.8	46.1	51.0	52.4	53.8	56.5	58.0	60.6	67.3	68.7	67.7	66.6
LASmin	27.4	30.9	29.3	31.0	32.5	30.7	32.7	32.4	32.8	34.9	35.7	34.5

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LASeq	51.6	49.3	46.5	42.9	39.5	36.6	34.1	36.8	27.0	21.1	15.8	8.3
LASmax	64.6	63.0	59.7	55.5	53.1	51.8	49.9	46.4	43.2	39.1	33.5	25.8
LASmin	33.3	33.2	28.5	24.7	20.4	16.0	11.8	9.4	6.3	3.0	2.0	-1.6

Calibration History

Preamp	Date	dB re. 1V/Pa
PRMLxT1L	30 Jan 2014 00:00:58	-28.0
PRMLxT1L	13 Sep 2014 10:03:02	-27.2
PRMLxT1L	13 Aug 2014 07:59:24	-28.6
PRMLxT1L	21 Jul 2014 14:19:41	-28.1
PRMLxT1L	08 May 2014 10:49:07	-28.1
PRMLxT1L	07 Oct 2013 00:47:30	-28.3
PRMLxT1L	07 Oct 2013 00:06:24	-26.4

General Information

Serial Number	03790
Model	SoundExpert™ LxT
Firmware Version	2.206
Filename	LxT_Data.003
User	OliviaChan
Job Description	Redwood Warehouse
Location	San Bernardino County
Measurement Description	
Start Time	Tuesday, 03 February 2015 13:29:34
Stop Time	Tuesday, 03 February 2015 13:47:28
Duration	00:15:04.5
Run Time	00:15:04.5
Pause	00:00:00.0
Pre Calibration	Thursday, 30 January 2014 00:00:58
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LASeq		62.9	dB
LASmax	03 Feb 2015 13:44:33	79.4	dB
LApeak (max)	03 Feb 2015 13:41:29	93.8	dB
LASmin	03 Feb 2015 13:39:24	44.9	dB
LCSeq		72.4	dB
LASeq		62.9	dB
LCSeq - LASeq		9.5	dB
LAIeq		65.0	dB
LAeq		63.1	dB
LAIeq - LAeq		2.0	dB
LASE		92.5	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		13	
OBA Overload Duration		61.8	s

Statistics

LAS5.00	70.4	dBA
LAS10.00	67.5	dBA
LAS33.30	58.1	dBA
LAS50.00	53.1	dBA
LAS66.60	49.8	dBA
LAS90.00	47.8	dBA

LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LAS > 115.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

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

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LASeq	6.3	12.8	33.1	42.1	48.9	49.6	55.3	59.2	56.0	49.0	43.4	33.8
LASmax	6.3	14.2	38.6	52.7	57.4	64.4	71.1	75.1	72.9	71.0	66.5	53.5
LASmin	6.3	6.3	19.4	29.4	33.3	33.8	37.5	41.4	33.3	28.1	13.8	6.4

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LASeq	2.1	1.6	0.8	0.5	7.3	11.2	14.9	23.9	32.5	33.9	37.5	38.6
LASmax	2.1	1.6	0.8	2.0	7.6	11.7	14.5	20.5	37.4	33.3	42.0	51.3
LASmin	2.1	1.6	0.8	0.3	-0.6	1.7	6.3	13.6	12.4	18.8	23.1	21.2

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LASeq	43.5	45.2	44.1	44.1	44.0	46.2	48.4	50.6	52.0	53.9	55.2	54.2
LASmax	49.2	51.5	55.5	58.8	56.8	61.8	66.3	66.4	66.7	69.2	71.7	69.8
LASmin	26.3	28.7	27.3	29.0	28.5	28.7	30.2	31.9	34.5	37.0	36.6	34.9

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LASeq	52.9	51.2	48.6	46.0	43.6	41.8	39.9	36.8	38.6	31.8	25.4	19.1
LASmax	67.7	68.3	68.6	67.8	65.4	65.4	64.4	61.3	56.2	52.2	46.3	39.2
LASmin	31.3	26.7	22.7	25.0	22.5	19.6	11.5	7.2	4.9	2.8	1.4	-1.1

Calibration History

Preamp	Date	dB re. 1V/Pa
PRMLxT1L	30 Jan 2014 00:00:58	-28.0
PRMLxT1L	13 Sep 2014 10:03:02	-27.2
PRMLxT1L	13 Aug 2014 07:59:24	-28.6
PRMLxT1L	21 Jul 2014 14:19:41	-28.1
PRMLxT1L	08 May 2014 10:49:07	-28.1
PRMLxT1L	07 Oct 2013 00:47:30	-28.3
PRMLxT1L	07 Oct 2013 00:06:24	-26.4

General Information

Serial Number	03790
Model	SoundExpert™ LxT
Firmware Version	2.206
Filename	LxT_Data.004
User	OliviaChan
Job Description	Redwood Warehouse
Location	San Bernardino County
Measurement Description	
Start Time	Tuesday, 03 February 2015 13:54:08
Stop Time	Tuesday, 03 February 2015 14:09:08
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	Thursday, 30 January 2014 00:00:58
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LASeq		58.0	dB
LASmax	03 Feb 2015 14:08:23	81.0	dB
LApeak (max)	03 Feb 2015 14:08:22	104.2	dB
LASmin	03 Feb 2015 13:54:08	48.6	dB
LCSeq		65.6	dB
LASeq		58.0	dB
LCSeq - LASeq		7.6	dB
LAIeq		66.4	dB
LAeq		58.0	dB
LAIeq - LAeq		8.4	dB
LASE		87.5	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		4	
OBA Overload Duration		8.3	s

Statistics

LAS5.00	62.2	dBA
LAS10.00	60.3	dBA
LAS33.30	54.4	dBA
LAS50.00	52.4	dBA
LAS66.60	51.4	dBA
LAS90.00	50.1	dBA

LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LAS > 115.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

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

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LASeq	6.3	11.2	25.0	33.9	37.5	41.6	47.4	50.7	50.8	52.7	41.2	28.7
LASmax	10.3	16.2	26.3	34.5	42.3	53.6	53.9	58.3	68.4	75.2	59.8	55.0
LASmin	6.3	4.5	18.2	30.2	33.6	36.5	42.8	44.6	36.0	30.5	16.8	6.5

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LASeq	2.1	1.6	0.8	0.7	5.3	9.6	17.6	19.0	22.6	25.5	30.2	30.2
LASmax	2.1	1.6	4.1	6.7	10.5	13.8	15.4	21.9	22.5	27.4	32.0	30.8
LASmin	2.1	1.6	0.8	0.3	-0.6	2.0	6.7	-3.4	15.6	20.9	26.1	23.0

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LASeq	30.4	33.9	33.2	36.1	35.9	38.1	40.4	42.6	44.2	45.5	45.8	46.5
LASmax	38.3	38.9	34.5	37.8	41.9	53.3	42.6	44.7	53.2	49.9	51.1	56.8
LASmin	25.2	28.6	28.0	29.0	29.5	32.0	35.0	37.4	39.1	39.7	40.0	37.4

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LASeq	45.9	45.0	47.0	50.0	47.5	45.5	39.2	34.3	31.9	26.8	22.7	15.4
LASmax	54.3	54.7	67.7	75.1	63.9	55.6	52.5	54.7	57.2	53.2	49.3	43.0
LASmin	33.7	29.6	28.1	25.3	23.1	18.9	14.1	9.9	6.4	4.1	0.9	-3.1

Calibration History

Preamp	Date	dB re. 1V/Pa
PRMLxT1L	30 Jan 2014 00:00:58	-28.0
PRMLxT1L	13 Sep 2014 10:03:02	-27.2
PRMLxT1L	13 Aug 2014 07:59:24	-28.6
PRMLxT1L	21 Jul 2014 14:19:41	-28.1
PRMLxT1L	08 May 2014 10:49:07	-28.1
PRMLxT1L	07 Oct 2013 00:47:30	-28.3
PRMLxT1L	07 Oct 2013 00:06:24	-26.4

Appendix B Construction Noise and Vibration Output Data

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Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Building Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	683	0
Excavator	No	40		80.7	683	0
Excavator	No	40		80.7	683	0
Excavator	No	40		80.7	683	0
Dozer	No	40		81.7	683	0
Dozer	No	40		81.7	683	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	680	0
Excavator	No	40		80.7	680	0
Excavator	No	40		80.7	680	0
Excavator	No	40		80.7	680	0
Dozer	No	40		81.7	680	0
Dozer	No	40		81.7	680	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	465	0
Excavator	No	40		80.7	465	0
Excavator	No	40		80.7	465	0
Excavator	No	40		80.7	465	0
Dozer	No	40		81.7	465	0
Dozer	No	40		81.7	465	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		70.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	70.2	67.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	410	0
Excavator	No	40		80.7	410	0
Excavator	No	40		80.7	410	0
Excavator	No	40		80.7	410	0
Dozer	No	40		81.7	410	0
Dozer	No	40		81.7	410	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71.3	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71.3	68.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	413	0
Excavator	No	40		80.7	413	0
Excavator	No	40		80.7	413	0
Excavator	No	40		80.7	413	0
Dozer	No	40		81.7	413	0
Dozer	No	40		81.7	413	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71.2	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71.2	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	470	0
Excavator	No	40		80.7	470	0
Excavator	No	40		80.7	470	0
Excavator	No	40		80.7	470	0
Dozer	No	40		81.7	470	0
Dozer	No	40		81.7	470	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.1	67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	753	0
Excavator	No	40		80.7	753	0
Excavator	No	40		80.7	753	0
Excavator	No	40		80.7	753	0
Dozer	No	40		81.7	753	0
Dozer	No	40		81.7	753	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	472	0
Excavator	No	40		80.7	472	0
Excavator	No	40		80.7	472	0
Excavator	No	40		80.7	472	0
Dozer	No	40		81.7	472	0
Dozer	No	40		81.7	472	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	70.1	66.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	427	0
Excavator	No	40		80.7	427	0
Excavator	No	40		80.7	427	0
Excavator	No	40		80.7	427	0
Dozer	No	40		81.7	427	0
Dozer	No	40		81.7	427	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71	64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71	67.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	355	0
Excavator	No	40		80.7	355	0
Excavator	No	40		80.7	355	0
Excavator	No	40		80.7	355	0
Dozer	No	40		81.7	355	0
Dozer	No	40		81.7	355	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		72.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	72.6	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Paving Demolition

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	683	0
Excavator	No	40		80.7	683	0
Excavator	No	40		80.7	683	0
Excavator	No	40		80.7	683	0
Dozer	No	40		81.7	683	0
Dozer	No	40		81.7	683	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	680	0
Excavator	No	40		80.7	680	0
Excavator	No	40		80.7	680	0
Excavator	No	40		80.7	680	0
Dozer	No	40		81.7	680	0
Dozer	No	40		81.7	680	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	465	0
Excavator	No	40		80.7	465	0
Excavator	No	40		80.7	465	0
Excavator	No	40		80.7	465	0
Dozer	No	40		81.7	465	0
Dozer	No	40		81.7	465	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		70.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	70.2	67.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	410	0
Excavator	No	40		80.7	410	0
Excavator	No	40		80.7	410	0
Excavator	No	40		80.7	410	0
Dozer	No	40		81.7	410	0
Dozer	No	40		81.7	410	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71.3	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71.3	68.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	413	0
Excavator	No	40		80.7	413	0
Excavator	No	40		80.7	413	0
Excavator	No	40		80.7	413	0
Dozer	No	40		81.7	413	0
Dozer	No	40		81.7	413	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71.2	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71.2	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	470	0
Excavator	No	40		80.7	470	0
Excavator	No	40		80.7	470	0
Excavator	No	40		80.7	470	0
Dozer	No	40		81.7	470	0
Dozer	No	40		81.7	470	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.1	67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	753	0
Excavator	No	40		80.7	753	0
Excavator	No	40		80.7	753	0
Excavator	No	40		80.7	753	0
Dozer	No	40		81.7	753	0
Dozer	No	40		81.7	753	0

			Results											
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	472	0
Excavator	No	40		80.7	472	0
Excavator	No	40		80.7	472	0
Excavator	No	40		80.7	472	0
Dozer	No	40		81.7	472	0
Dozer	No	40		81.7	472	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	70.1	66.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	427	0
Excavator	No	40		80.7	427	0
Excavator	No	40		80.7	427	0
Excavator	No	40		80.7	427	0
Dozer	No	40		81.7	427	0
Dozer	No	40		81.7	427	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		71	64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71	67.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	355	0
Excavator	No	40		80.7	355	0
Excavator	No	40		80.7	355	0
Excavator	No	40		80.7	355	0
Dozer	No	40		81.7	355	0
Dozer	No	40		81.7	355	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		72.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	72.6	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	683	0
Grader	No	40	85		683	0
Dozer	No	40		81.7	683	0
Tractor	No	40	84		683	0
Backhoe	No	40		77.6	683	0
Backhoe	No	40		77.6	683	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	680	0
Grader	No	40	85		680	0
Dozer	No	40		81.7	680	0
Tractor	No	40	84		680	0
Backhoe	No	40		77.6	680	0
Backhoe	No	40		77.6	680	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	66.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	59	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	465	0
Grader	No	40	85		465	0
Dozer	No	40		81.7	465	0
Tractor	No	40	84		465	0
Backhoe	No	40		77.6	465	0
Backhoe	No	40		77.6	465	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	70.2	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.3	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	62.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.2	67.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	410	0
Grader	No	40	85		410	0
Dozer	No	40		81.7	410	0
Tractor	No	40	84		410	0
Backhoe	No	40		77.6	410	0
Backhoe	No	40		77.6	410	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	71.3	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.4	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.3	68.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	413	0
Grader	No	40	85		413	0
Dozer	No	40		81.7	413	0
Tractor	No	40	84		413	0
Backhoe	No	40		77.6	413	0
Backhoe	No	40		77.6	413	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		71.2	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		63.3	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	71.2	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	470	0
Grader	No	40	85		470	0
Dozer	No	40		81.7	470	0
Tractor	No	40	84		470	0
Backhoe	No	40		77.6	470	0
Backhoe	No	40		77.6	470	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	70.1	67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	753	0
Grader	No	40	85		753	0
Dozer	No	40		81.7	753	0
Tractor	No	40	84		753	0
Backhoe	No	40		77.6	753	0
Backhoe	No	40		77.6	753	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		66	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		57.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	472	0
Grader	No	40	85		472	0
Dozer	No	40		81.7	472	0
Tractor	No	40	84		472	0
Backhoe	No	40		77.6	472	0
Backhoe	No	40		77.6	472	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	70.1	63.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.2	57.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.1	66.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	427	0
Grader	No	40	85		427	0
Dozer	No	40		81.7	427	0
Tractor	No	40	84		427	0
Backhoe	No	40		77.6	427	0
Backhoe	No	40		77.6	427	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	66.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	63	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	65.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.9	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.9	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.4	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	355	0
Grader	No	40	85		355	0
Dozer	No	40		81.7	355	0
Tractor	No	40	84		355	0
Backhoe	No	40		77.6	355	0
Backhoe	No	40		77.6	355	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		72.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	72.6	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	683	0
All Other Equipment > 5 HP	No	50	85		683	0
All Other Equipment > 5 HP	No	50	85		683	0
All Other Equipment > 5 HP	No	50	85		683	0
Generator	No	50		80.6	683	0
Backhoe	No	40		77.6	683	0
Backhoe	No	40		77.6	683	0
Tractor	No	40	84		683	0
Welder / Torch	No	40		74	683	0

	Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.8	49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.3	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.3	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	680	0
All Other Equipment > 5 HP	No	50	85		680	0
All Other Equipment > 5 HP	No	50	85		680	0
All Other Equipment > 5 HP	No	50	85		680	0
Generator	No	50		80.6	680	0
Backhoe	No	40		77.6	680	0
Backhoe	No	40		77.6	680	0
Tractor	No	40	84		680	0
Welder / Torch	No	40		74	680	0

	Results Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.9	49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	58	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.3	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.3	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	465	0
All Other Equipment > 5 HP	No	50	85		465	0
All Other Equipment > 5 HP	No	50	85		465	0
All Other Equipment > 5 HP	No	50	85		465	0
Generator	No	50		80.6	465	0
Backhoe	No	40		77.6	465	0
Backhoe	No	40		77.6	465	0
Tractor	No	40	84		465	0
Welder / Torch	No	40		74	465	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		61.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		61.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		64.6	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		54.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.6	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	410	0
All Other Equipment > 5 HP	No	50	85		410	0
All Other Equipment > 5 HP	No	50	85		410	0
All Other Equipment > 5 HP	No	50	85		410	0
Generator	No	50		80.6	410	0
Backhoe	No	40		77.6	410	0
Backhoe	No	40		77.6	410	0
Tractor	No	40	84		410	0
Welder / Torch	No	40		74	410	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		62.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		62.4	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.7	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	413	0
All Other Equipment > 5 HP	No	50	85		413	0
All Other Equipment > 5 HP	No	50	85		413	0
All Other Equipment > 5 HP	No	50	85		413	0
Generator	No	50		80.6	413	0
Backhoe	No	40		77.6	413	0
Backhoe	No	40		77.6	413	0
Tractor	No	40	84		413	0
Welder / Torch	No	40		74	413	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		62.2	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		59.2	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		59.2	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		55.7	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.7	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
Generator	No	50		80.6	470	0
Backhoe	No	40		77.6	470	0
Backhoe	No	40		77.6	470	0
Tractor	No	40	84		470	0
Welder / Torch	No	40		74	470	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		61.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		61.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		54.5	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.5	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	753	0
All Other Equipment > 5 HP	No	50	85		753	0
All Other Equipment > 5 HP	No	50	85		753	0
All Other Equipment > 5 HP	No	50	85		753	0
Generator	No	50		80.6	753	0
Backhoe	No	40		77.6	753	0
Backhoe	No	40		77.6	753	0
Tractor	No	40	84		753	0
Welder / Torch	No	40		74	753	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		57	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		57.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		54	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		54	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		60.4	56.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		50.4	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	61.4	64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	472	0
All Other Equipment > 5 HP	No	50	85		472	0
All Other Equipment > 5 HP	No	50	85		472	0
All Other Equipment > 5 HP	No	50	85		472	0
Generator	No	50		80.6	472	0
Backhoe	No	40		77.6	472	0
Backhoe	No	40		77.6	472	0
Tractor	No	40	84		472	0
Welder / Torch	No	40		74	472	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		61.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		61.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		64.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.5	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	427	0
All Other Equipment > 5 HP	No	50	85		427	0
All Other Equipment > 5 HP	No	50	85		427	0
All Other Equipment > 5 HP	No	50	85		427	0
Generator	No	50		80.6	427	0
Backhoe	No	40		77.6	427	0
Backhoe	No	40		77.6	427	0
Tractor	No	40	84		427	0
Welder / Torch	No	40		74	427	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		61.9	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		62	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.9	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		58.9	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		65.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		55.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.4	69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	355	0
All Other Equipment > 5 HP	No	50	85		355	0
All Other Equipment > 5 HP	No	50	85		355	0
All Other Equipment > 5 HP	No	50	85		355	0
Generator	No	50		80.6	355	0
Backhoe	No	40		77.6	355	0
Backhoe	No	40		77.6	355	0
Tractor	No	40	84		355	0
Welder / Torch	No	40		74	355	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		63.5	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		63.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe		60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		67	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch		57	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	68	71.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Paving

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	683	0
Paver	No	50		77.2	683	0
All Other Equipment > 5 HP	No	50	85		683	0
All Other Equipment > 5 HP	No	50	85		683	0
Roller	No	20		80	683	0
Roller	No	20		80	683	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	54.5	51.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.5	51.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.3	50.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.3	50.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.3	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	680	0
Paver	No	50		77.2	680	0
All Other Equipment > 5 HP	No	50	85		680	0
All Other Equipment > 5 HP	No	50	85		680	0
Roller	No	20		80	680	0
Roller	No	20		80	680	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	57.9	49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	58	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.3	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	465	0
Paver	No	50		77.2	465	0
All Other Equipment > 5 HP	No	50	85		465	0
All Other Equipment > 5 HP	No	50	85		465	0
Roller	No	20		80	465	0
Roller	No	20		80	465	0

				Results											
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.2	53.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		61.3	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.6	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	410	0
Paver	No	50		77.2	410	0
All Other Equipment > 5 HP	No	50	85		410	0
All Other Equipment > 5 HP	No	50	85		410	0
Roller	No	20		80	410	0
Roller	No	20		80	410	0

				Results											
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		62.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		62.4	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		59.3	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.7	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	413	0
Paver	No	50		77.2	413	0
All Other Equipment > 5 HP	No	50	85		413	0
All Other Equipment > 5 HP	No	50	85		413	0
Roller	No	20		80	413	0
Roller	No	20		80	413	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		62.2	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		62.3	59.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		59.2	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.7	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	470	0
Paver	No	50		77.2	470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
Roller	No	20		80	470	0
Roller	No	20		80	470	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		61.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.5	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	753	0
Paver	No	50		77.2	753	0
All Other Equipment > 5 HP	No	50	85		753	0
All Other Equipment > 5 HP	No	50	85		753	0
Roller	No	20		80	753	0
Roller	No	20		80	753	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		57	49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		61.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		57.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		54	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	61.4	64.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment				
			Spec	Actual	Receptor	Estimated	
		Impact	Lmax	Lmax	Distance	Shielding	
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver		No	50		77.2	472	0
Paver		No	50		77.2	472	0
All Other Equipment > 5 HP		No	50	85		472	0
All Other Equipment > 5 HP		No	50	85		472	0
Roller		No	20		80	472	0
Roller		No	20		80	472	0

				Results											
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.1	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		65.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		61.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.5	69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

			Equipment				
			Spec	Actual	Receptor	Estimated	
		Impact	Lmax	Lmax	Distance	Shielding	
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver		No	50		77.2	427	0
Paver		No	50		77.2	427	0
All Other Equipment > 5 HP		No	50	85		427	0
All Other Equipment > 5 HP		No	50	85		427	0
Roller		No	20		80	427	0
Roller		No	20		80	427	0

				Results											
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.9	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		66.4	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		62	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.9	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.4	69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

			Equipment				
			Spec	Actual	Receptor	Estimated	
		Impact	Lmax	Lmax	Distance	Shielding	
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver		No	50		77.2	355	0
Paver		No	50		77.2	355	0
All Other Equipment > 5 HP		No	50	85		355	0
All Other Equipment > 5 HP		No	50	85		355	0
Roller		No	20		80	355	0
Roller		No	20		80	355	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		63.5	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		68	65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		63.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		60.5	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	68	71.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/3/2015
Case Description: Architectural Coating

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (NE)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	683	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		55 51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		55 51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Storage Facility (N)	Industrial	65	65	65

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	680	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		55 51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		55 51		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	465	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.3 54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		58.3 54.3		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	410	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					

				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		59.4	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59.4	55.4		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

		Equipment				
		Spec	Actual	Receptor	Estimated	
	Impact	Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	413	0

Results

Calculated (dBA)				Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		59.3	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59.3	55.4		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Single Family Home (E)	Residential	55	55	55

		Equipment				
		Spec	Actual	Receptor	Estimated	
	Impact	Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	470	0

Results

Calculated (dBA)				Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	58.2	54.2		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #7 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Retail Commercial (SE)	Commercial	60	60	60

		Equipment				
		Spec	Actual	Receptor	Estimated	
	Impact	Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	753	0

Results

Calculated (dBA)				Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		54.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	54.1	50.1		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #8 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

		Equipment				
		Spec	Actual	Receptor	Estimated	
	Impact	Lmax	Lmax	Distance	Shielding	
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	472	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.2	54.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	58.2	54.2		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #9 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (S)	Residential	55	55	55

		Equipment			
	Impact	Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40	77.7	427	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		59	55.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59	55.1		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

---- Receptor #10 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single Family Home (W)	Residential	55	55	55

		Equipment			
	Impact	Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40	77.7	355	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		60.6	56.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	60.6	56.7		0		0		0		0		0		0

*Calculated Lmax is the Loudest value.

San Sevaine & Bain Vibration Screening

Receptors	Distance (ft)
1 – Single Family Home (NE)	683
2 – Storage Facility (N)	680
3 – Single Family Home (E)	465
4 – Single Family Home (E)	410
5 – Single Family Home (E)	413
6 – Single Family Home (E)	470
7 – Retail Commercial (SE)	753
8 – Single Family Home (S)	472
9 – Single Family Home (S)	427
10 – Single Family Home (W)	355

Equipment	PPVref	D	n	Eref	Eequip	PPV
Vibratory Roller	0.21	683	1.3			0.0028
Vibratory Roller	0.21	680	1.3			0.0029
Vibratory Roller	0.21	465	1.3			0.0047
Vibratory Roller	0.21	410	1.3			0.0055
Vibratory Roller	0.21	413	1.3			0.0055
Vibratory Roller	0.21	470	1.3			0.0046
Vibratory Roller	0.21	753	1.3			0.0025
Vibratory Roller	0.21	472	1.3			0.0046
Vibratory Roller	0.21	427	1.3			0.0052
Vibratory Roller	0.21	355	1.3			0.0067
Large Bulldozer	0.089	683	1.3			0.001208
Large Bulldozer	0.089	680	1.3			0.001215
Large Bulldozer	0.089	465	1.3			0.001991
Large Bulldozer	0.089	410	1.3			0.002345
Large Bulldozer	0.089	413	1.3			0.002323
Large Bulldozer	0.089	470	1.3			0.001963
Large Bulldozer	0.089	753	1.3			0.001064
Large Bulldozer	0.089	472	1.3			0.001952
Large Bulldozer	0.089	427	1.3			0.002224
Large Bulldozer	0.089	355	1.3			0.002828
Small Bulldozer	0.003	683	1.3			0.000041
Small Bulldozer	0.003	680	1.3			0.000041
Small Bulldozer	0.003	465	1.3			0.000067
Small Bulldozer	0.003	410	1.3			0.000079
Small Bulldozer	0.003	413	1.3			0.000078
Small Bulldozer	0.003	470	1.3			0.000066
Small Bulldozer	0.003	753	1.3			0.000036
Small Bulldozer	0.003	472	1.3			0.000066
Small Bulldozer	0.003	427	1.3			0.000075
Small Bulldozer	0.003	355	1.3			0.000095
Loaded Truck	0.076	683	1.3			0.001031
Loaded Truck	0.076	680	1.3			0.001037
Loaded Truck	0.076	465	1.3			0.001700
Loaded Truck	0.076	410	1.3			0.002002
Loaded Truck	0.076	413	1.3			0.001983
Loaded Truck	0.076	470	1.3			0.001677
Loaded Truck	0.076	753	1.3			0.000908
Loaded Truck	0.076	472	1.3			0.001667
Loaded Truck	0.076	427	1.3			0.001899
Loaded Truck	0.076	355	1.3			0.002415

Table

Equipment	PPVref	Distance	PPV
Vibratory Roller	0.21	683	0.0028
Vibratory Roller	0.21	680	0.0029
Vibratory Roller	0.21	465	0.0047
Vibratory Roller	0.21	410	0.0055
Vibratory Roller	0.21	413	0.0055
Vibratory Roller	0.21	470	0.0046
Vibratory Roller	0.21	753	0.0025
Vibratory Roller	0.21	472	0.0046
Vibratory Roller	0.21	427	0.0052
Vibratory Roller	0.21	355	0.0067
Large Bulldozer	0.089	683	0.0012
Large Bulldozer	0.089	680	0.0012
Large Bulldozer	0.089	465	0.0020
Large Bulldozer	0.089	410	0.0023
Large Bulldozer	0.089	413	0.0023
Large Bulldozer	0.089	470	0.0020
Large Bulldozer	0.089	753	0.0011
Large Bulldozer	0.089	472	0.0020
Large Bulldozer	0.089	427	0.0022
Large Bulldozer	0.089	355	0.0028
Small Bulldozer	0.003	683	0.0000
Small Bulldozer	0.003	680	0.0000
Small Bulldozer	0.003	465	0.0001
Small Bulldozer	0.003	410	0.0001
Small Bulldozer	0.003	413	0.0001
Small Bulldozer	0.003	470	0.0001
Small Bulldozer	0.003	753	0.0000
Small Bulldozer	0.003	472	0.0001
Small Bulldozer	0.003	427	0.0001
Small Bulldozer	0.003	355	0.0001
Loaded Truck	0.076	683	0.0010
Loaded Truck	0.076	680	0.0010
Loaded Truck	0.076	465	0.0017
Loaded Truck	0.076	410	0.0020
Loaded Truck	0.076	413	0.0020
Loaded Truck	0.076	470	0.0017
Loaded Truck	0.076	753	0.0009
Loaded Truck	0.076	472	0.0017
Loaded Truck	0.076	427	0.0019
Loaded Truck	0.076	355	0.0024

Appendix C SoundPLAN Output Data

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Redwood Avenue Warehouse 13419
Opening Year 2017 Without Project
Road

Stationing km	ADT Veh/24h	Traffic values Vehicles type	Vehicle name	day Veh/h	night Veh/h	Speed km/h	Control device	Constr. Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
Valley Blvd EB	Traffic direction:	In entry direction									
0+000	18528	Total	-	558	1200	-	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Automobiles	-	443	954	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Medium trucks	-	46	98	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Heavy trucks	-	69	148	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+368	18528	Total	-	558	1200	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Automobiles	-	443	954	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Medium trucks	-	46	98	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Heavy trucks	-	69	148	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Buses	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Motorcycles	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18528	Auxiliary Vehicle	-	-	-	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+572	-						-	-	-	-	-
0+000	18528	Total	-	558	1200	-	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Automobiles	-	443	954	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Medium trucks	-	46	98	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Heavy trucks	-	69	148	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18528	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
Valley Blvd WB	Traffic direction:	In entry direction									
0+000	14168	Total	-	628	515	-	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Automobiles	-	499	409	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Medium trucks	-	51	42	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Heavy trucks	-	78	64	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+208	14168	Total	-	628	515	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Automobiles	-	499	409	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Medium trucks	-	51	42	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Heavy trucks	-	78	64	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Buses	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Motorcycles	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14168	Auxiliary Vehicle	-	-	-	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+570	-						-	-	-	-	-
0+000	14168	Total	-	628	515	-	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Automobiles	-	499	409	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Medium trucks	-	51	42	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Heavy trucks	-	78	64	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14168	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
Hunter St. EB	Traffic direction:	In entry direction									
0+000	544	Total	-	22	24	-	none	-	-	Average (of DGAC and PCC)	0

0+000	544	Automobiles	-	17	19	64	none	-	-	Average (of DGAC and PCC)		0
0+000	544	Medium trucks	-	2	2	64	none	-	-	Average (of DGAC and PCC)		0
0+000	544	Heavy trucks	-	3	3	64	none	-	-	Average (of DGAC and PCC)		0
0+000	544	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	544	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	544	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+362	-						-	-	-	-	-	
Iris Dr. EB	Traffic direction:	In entry direction										
0+000	312	Total	-	7	25	-	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Automobiles	-	5	20	64	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Medium trucks	-	1	2	64	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Heavy trucks	-	1	3	64	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	312	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+211	-						-	-	-	-	-	
Rosemary Dr EB	Traffic direction:	In entry direction										
0+000	600	Total	-	21	33	-	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Automobiles	-	16	26	64	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Medium trucks	-	2	3	64	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Heavy trucks	-	3	4	64	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	600	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+210	-						-	-	-	-	-	
Redwood Ave SB	Traffic direction:	In entry direction										
0+000	2448	Total	-	101	104	-	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Automobiles	-	79	82	64	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Medium trucks	-	9	9	64	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Heavy trucks	-	13	13	64	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+000	2448	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Total	-	101	104	-	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Automobiles	-	79	82	64	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Medium trucks	-	9	9	64	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Heavy trucks	-	13	13	64	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+154	2448	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Total	-	111	116	-	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Automobiles	-	88	91	64	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Medium trucks	-	9	10	64	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Heavy trucks	-	14	15	64	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+189	2704	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Total	-	126	114	-	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Automobiles	-	99	90	64	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Medium trucks	-	11	10	64	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Heavy trucks	-	16	14	64	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)		0
0+290	2928	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)		0
0+328	2928	Total	-	126	114	-	none	-	-	Average (of DGAC and PCC)		0

0+328	2928	Automobiles	-		99	90	64	none	-	-	Average (of DGAC and PCC)		0	
0+328	2928	Medium trucks	-		11	10	64	none	-	-	Average (of DGAC and PCC)		0	
0+328	2928	Heavy trucks	-		16	14	64	none	-	-	Average (of DGAC and PCC)		0	
0+328	2928	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+328	2928	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+328	2928	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Total	-		130	178	-	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Automobiles	-		103	141	64	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Medium trucks	-		11	15	64	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Heavy trucks	-		16	22	64	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+384	3504	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0	
0+543	992	Total	-		47	30	-	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Automobiles	-		37	23	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Medium trucks	-		4	3	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Heavy trucks	-		6	4	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Buses	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Motorcycles	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+543	992	Auxiliary Vehicle	-	-	-	-		Traffic light	0	-	Average (of DGAC and PCC)		0	
0+623	-							-	-	-	-	-		
0+000	992	Total	-		47	30	-	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Automobiles	-		37	23	64	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Medium trucks	-		4	3	64	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Heavy trucks	-		6	4	64	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+000	992	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0	
Redwood Ave NB		Traffic direction:	In entry direction											
0+622	1992	Total	-		72	105	-	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Automobiles	-		57	83	64	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Medium trucks	-		6	9	64	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Heavy trucks	-		9	13	64	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+622	1992	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0	
0+701	1992	Total	-		72	105	-	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Automobiles	-		57	83	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Medium trucks	-		6	9	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Heavy trucks	-		9	13	64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Buses	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Motorcycles	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0	
0+701	1992	Auxiliary Vehicle	-	-	-	-		Traffic light	0	-	Average (of DGAC and PCC)		0	
0+860	2888	Total	-		94	173	-	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Automobiles	-		74	137	64	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Medium trucks	-		8	14	64	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Heavy trucks	-		12	22	64	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	
0+860	2888	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0	
0+917	2872	Total	-		93	173	-	none	-	-	Average (of DGAC and PCC)		0	
0+917	2872	Automobiles	-		73	137	64	none	-	-	Average (of DGAC and PCC)		0	
0+917	2872	Medium trucks	-		8	14	64	none	-	-	Average (of DGAC and PCC)		0	
0+917	2872	Heavy trucks	-		12	22	64	none	-	-	Average (of DGAC and PCC)		0	
0+917	2872	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0	

0+917	2872	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+917	2872	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Total	-		89	158	-	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Automobiles	-		70	125	64	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Medium trucks	-		8	13	64	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Heavy trucks	-		11	20	64	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+958	2688	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Total	-		70	144	-	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Automobiles	-		55	114	64	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Medium trucks	-		6	12	64	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Heavy trucks	-		9	18	64	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
1+057	2272	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Total	-		70	135	-	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Automobiles	-		55	107	64	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Medium trucks	-		6	11	64	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Heavy trucks	-		9	17	64	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
1+091	2200	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
1+242	-							-	-	-	-	-	

Redwood Avenue Warehouse 13419
Opening Year 2017 Without Project
Receivers

No.	Receiver name	Building side	Floor	Level Day dB(A)	Night
1	1 Single Family Home NE		GF	60	61.4
2	2 Storage Facility N		GF	63.7	64.9
3	3 Single Family Home E1		GF	61	62.5
4	4 Single Family Home E2		GF	61	62.5
5	5 Single Family Home E3		GF	61	62.5
6	6 Single Family Home E4		GF	62.1	63.5
7	7 Commercial SE		GF	62.3	63.7
8	8 Single Family Home S		GF	62	63
9	9 Single Family Home S2		GF	53.9	55.2
10	10 Single Family Home W		GF	48.8	50.2

Redwood Avenue Warehouse 13419
Opening Year 2017 Without Project
Contributions

Source name		Level Day dB(A)	Night
1 Single Family Home NE	GF	60.0	61.4
Hunter St. EB		28.4	28.4
Iris Dr. EB		25.1	29.8
Redwood Ave NB		56.2	59.0
Redwood Ave SB		57.4	57.4
Rosemary Dr EB		34.5	35.9
Valley Blvd EB		40.5	43.8
Valley Blvd WB		41.2	40.3
2 Storage Facility N	GF	63.7	64.9
Hunter St. EB		29.9	29.9
Iris Dr. EB		27.5	32.2
Redwood Ave NB		59.2	61.9
Redwood Ave SB		61.7	61.8
Rosemary Dr EB		38.0	39.5
Valley Blvd EB		41.6	44.9
Valley Blvd WB		42.2	41.4
3 Single Family Home E1	GF	61.0	62.5
Hunter St. EB		31.1	31.1
Iris Dr. EB		29.9	34.5
Redwood Ave NB		57.1	60.0
Redwood Ave SB		58.2	58.3
Rosemary Dr EB		45.8	47.3
Valley Blvd EB		42.7	46.0
Valley Blvd WB		43.4	42.5
4 Single Family Home E2	GF	61.0	62.5
Hunter St. EB		32.3	32.4
Iris Dr. EB		32.9	37.6
Redwood Ave NB		57.0	59.6
Redwood Ave SB		57.6	57.8
Rosemary Dr EB		50.7	52.2
Valley Blvd EB		43.7	47.0
Valley Blvd WB		44.4	43.5
5 Single Family Home E3	GF	61.0	62.5
Hunter St. EB		35.1	35.2
Iris Dr. EB		41.7	46.3
Redwood Ave NB		57.4	59.9
Redwood Ave SB		57.8	58.0

Rosemary Dr EB		38.4	39.8
Valley Blvd EB		45.7	49.0
Valley Blvd WB		46.4	45.5
6 Single Family Home E4	GF	62.1	63.5
Hunter St. EB		38.2	38.3
Iris Dr. EB		42.2	46.9
Redwood Ave NB		58.6	61.2
Redwood Ave SB		58.8	58.5
Rosemary Dr EB		34.6	36.0
Valley Blvd EB		47.0	50.3
Valley Blvd WB		47.7	46.9
7 Commercial SE	GF	62.3	63.7
Hunter St. EB		39.9	40.0
Iris Dr. EB		28.9	33.6
Redwood Ave NB		57.7	59.4
Redwood Ave SB		58.5	59.7
Rosemary Dr EB		29.2	30.6
Valley Blvd EB		52.4	55.7
Valley Blvd WB		53.1	52.3
8 Single Family Home S	GF	62.0	63.0
Hunter St. EB		45.0	45.1
Iris Dr. EB		34.0	38.7
Redwood Ave NB		57.0	59.5
Redwood Ave SB		59.5	59.2
Rosemary Dr EB		32.1	33.6
Valley Blvd EB		48.5	51.8
Valley Blvd WB		49.2	48.3
9 Single Family Home S2	GF	53.9	55.2
Hunter St. EB		47.2	47.3
Iris Dr. EB		25.9	30.7
Redwood Ave NB		42.3	44.6
Redwood Ave SB		44.0	44.4
Rosemary Dr EB		28.5	29.8
Valley Blvd EB		48.4	51.7
Valley Blvd WB		49.1	48.3
10 Single Family Home W	GF	48.8	50.2
Hunter St. EB		34.4	34.5
Iris Dr. EB		23.3	28.0
Redwood Ave NB		39.4	41.9
Redwood Ave SB		41.0	41.3
Rosemary Dr EB		28.5	29.9
Valley Blvd EB		43.7	47.0
Valley Blvd WB		44.3	43.5

Redwood Avenue Warehouse 13419
Opening Year 2017 Without Project
Receiver Spectra

No.	Name	Floor	Time slice	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 kHz	2 kHz	2 kHz	2 kHz	3 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz
1	1 Single Family Home NE	GF	Day	28.1	34.9	39	41.3	42.8	44.3	45.5	46.4	47.9	47.2	48.7	50	49.9	50	49.1	48.3	47.6	46.7	46.2	44.2	42	39.8	36.9	32.7
1	1 Single Family Home NE	GF	Night	29.6	36.5	40.6	42.8	44.3	45.8	47.1	48.1	49.6	48.6	50.2	51.8	51.2	51.4	50.5	49.5	48.8	48	47.5	45.6	43.4	41.2	38.3	34.1
2	2 Storage Facility N	GF	Day	30.7	37.6	41.7	44	45.6	47.2	48.9	51.3	51	51	53.3	54.2	53.7	54.2	53.3	52.1	51.2	49.5	48.5	46.3	44.7	42.5	39.6	35.4
2	2 Storage Facility N	GF	Night	31.9	38.8	42.9	45.2	46.7	48.4	50	52.3	52.3	52.1	54.3	55.4	55	55.5	54.6	53.4	52.5	50.9	49.8	47.5	45.8	43.6	40.7	36.6
3	3 Single Family Home E1	GF	Day	29.3	36.2	40.3	42.6	44	45.5	46.7	47.3	48.7	48.3	49.8	50.7	50.8	51.1	50.1	49.2	48.6	47.8	47.3	45.5	43.1	41	38.1	33.9
3	3 Single Family Home E1	GF	Night	30.9	37.8	41.9	44.2	45.6	47.1	48.3	49.1	50.5	49.9	51.3	52.6	52.3	52.6	51.5	50.6	49.9	49.1	48.7	46.8	44.6	42.4	39.5	35.3
4	4 Single Family Home E2	GF	Day	29.6	36.4	40.5	42.8	44.2	45.7	46.8	47.1	48.6	48.5	49.9	50.6	50.9	51.1	49.8	48.9	48.3	47.8	47.6	45.7	43.6	41.3	38.4	34.2
4	4 Single Family Home E2	GF	Night	31.1	38	42.1	44.3	45.8	47.2	48.4	48.7	50.3	50	51.4	52.2	52.5	52.6	51.2	50.3	49.6	49.1	49	47.2	45	42.8	39.9	35.6
5	5 Single Family Home E3	GF	Day	29.7	36.6	40.6	42.9	44.4	45.8	46.9	47.2	48.4	48.3	49.9	50.5	50.7	51.2	49.9	49	48.5	48	48	45.9	43.5	41.2	38.3	34.1
5	5 Single Family Home E3	GF	Night	31.2	38.1	42.2	44.5	45.9	47.4	48.5	48.8	50.1	49.9	51.3	52.2	52.2	52.6	51.3	50.3	49.8	49.3	49.4	47.3	45	42.7	39.8	35.5
6	6 Single Family Home E4	GF	Day	30.5	37.3	41.4	43.7	45.2	46.7	47.9	48.7	49.7	49.2	51	51.9	51.8	52.2	51.5	50.4	49.7	49.1	48.6	46.5	43.6	41.8	38.9	34.7
6	6 Single Family Home E4	GF	Night	31.9	38.9	43	45.2	46.7	48.2	49.4	50.4	51.4	50.6	52.3	53.7	53.1	53.5	52.7	51.6	50.9	50.4	50	47.9	45	43.2	40.3	36.1
7	7 Commercial SE	GF	Day	31.3	38.2	42.3	44.6	46	47.5	48.7	49.3	49.6	48.9	50.8	51.6	51.7	52.3	51.7	50.7	50.1	49	48.4	46.8	44.4	41.9	39	34.7
7	7 Commercial SE	GF	Night	32.8	39.7	43.8	46	47.5	48.9	50.1	50.8	51	50.3	52.2	53.2	53.2	53.8	53.2	52.2	51.5	50.5	49.8	48.2	45.9	43.4	40.5	36.2
8	8 Single Family Home S	GF	Day	30.8	37.7	41.7	44	45.5	46.9	48.1	48.8	49.8	49.1	50.7	52	51.6	52	51	50.1	49.5	49	48.8	46.2	43.4	41.8	38.9	34.6
8	8 Single Family Home S	GF	Night	31.8	38.7	42.8	45.1	46.5	47.9	49.1	49.5	50.3	50	51.7	52.6	52.5	53.1	52.2	51.3	50.8	50.2	50	47.4	44.6	42.9	40	35.8
9	9 Single Family Home S2	GF	Day	25.9	32.8	36.8	39	40.4	41.6	42.3	40.6	37.5	35.7	38.4	39.5	40.4	41.6	42.1	42.5	42.9	44	44.2	40.5	37.7	35.5	32.4	27.9
9	9 Single Family Home S2	GF	Night	27.2	34.1	38.1	40.3	41.7	42.9	43.6	41.8	38.4	36.4	39	40.3	41.3	42.7	43.2	43.8	44.2	45.4	45.6	41.9	38.8	36.8	33.7	29.2
10	10 Single Family Home W	GF	Day	21.6	28.4	32.4	34.6	35.9	37.1	37.5	32.7	27.1	23	26.3	28.5	31.2	33.1	34.4	35.6	36.9	39	40.6	39.1	36.7	34.7	31.5	26.8
10	10 Single Family Home W	GF	Night	23	29.9	33.9	36.1	37.4	38.5	38.9	34	28.4	24.6	27.8	30	32.6	34.5	35.8	37	38.3	40.4	42.1	40.6	38.3	36.2	33.1	28.4

Redwood Avenue Warehouse 13419
Opening Year 2017 With Project
Road

Stationing	ADT	Traffic values Vehicles type	Vehicle name	day	night	Speed	Control device	Constr. Speed	Affect. veh.	Road surface	Gradient Min / Max
km	Veh/24h			Veh/h	Veh/h	km/h		km/h	%		%
Valley Blvd EB	Traffic direction:	In entry direction									
0+000	18568	Total	-	559	1203	-	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Automobiles	-	444	956	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Medium trucks	-	46	98	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Heavy trucks	-	69	149	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+368	18568	Total	-	559	1203	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Automobiles	-	444	956	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Medium trucks	-	46	98	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Heavy trucks	-	69	149	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Buses	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Motorcycles	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+368	18568	Auxiliary Vehicle	-	-	-	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+572	-						-	-	-	-	-
0+000	18568	Total	-	559	1203	-	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Automobiles	-	444	956	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Medium trucks	-	46	98	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Heavy trucks	-	69	149	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	18568	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
Valley Blvd WB	Traffic direction:	In entry direction									
0+000	14368	Total	-	633	530	-	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Automobiles	-	503	421	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Medium trucks	-	52	43	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Heavy trucks	-	78	66	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+208	14368	Total	-	633	530	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Automobiles	-	503	421	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Medium trucks	-	52	43	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Heavy trucks	-	78	66	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Buses	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Motorcycles	-	-	-	64	Traffic light	0	-	Average (of DGAC and PCC)	0
0+208	14368	Auxiliary Vehicle	-	-	-	-	Traffic light	0	-	Average (of DGAC and PCC)	0
0+570	-						-	-	-	-	-
0+000	14368	Total	-	633	530	-	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Automobiles	-	503	421	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Medium trucks	-	52	43	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Heavy trucks	-	78	66	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+000	14368	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
Hunter St. EB	Traffic direction:	In entry direction									

0+000	552	Total	-	22	25	-	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Automobiles	-	17	20	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Medium trucks	-	2	2	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Heavy trucks	-	3	3	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	552	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+362	-						-	-	-	-	-		
Iris Dr. EB	Traffic direction:	In entry direction											
0+000	312	Total	-	7	25	-	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Automobiles	-	5	20	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Medium trucks	-	1	2	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Heavy trucks	-	1	3	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	312	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+211	-						-	-	-	-	-		
Rosemary Dr EB	Traffic direction:	In entry direction											
0+000	600	Total	-	21	33	-	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Automobiles	-	16	26	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Medium trucks	-	2	3	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Heavy trucks	-	3	4	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	600	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+210	-						-	-	-	-	-		
Redwood Ave SB	Traffic direction:	In entry direction											
0+000	2544	Total	-	102	114	-	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Automobiles	-	80	90	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Medium trucks	-	9	10	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Heavy trucks	-	13	14	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+000	2544	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Total	-	102	114	-	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Automobiles	-	80	90	64	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Medium trucks	-	9	10	64	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Heavy trucks	-	13	14	64	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+154	2544	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Total	-	116	126	-	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Automobiles	-	91	99	64	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Medium trucks	-	10	11	64	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Heavy trucks	-	15	16	64	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+189	2864	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Total	-	129	124	-	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Automobiles	-	102	98	64	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Medium trucks	-	11	10	64	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Heavy trucks	-	16	16	64	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		
0+290	3056	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0		

0+290	3056	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Total	-	133	134	-		none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Automobiles	-	105	106		64	none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Medium trucks	-	11	11		64	none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Heavy trucks	-	17	17		64	none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+328	3200	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Total	-	136	197	-		none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Automobiles	-	108	156		64	none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Medium trucks	-	11	16		64	none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Heavy trucks	-	17	25		64	none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+384	3752	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+543	992	Total	-	47	30	-		Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Automobiles	-	37	23		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Medium trucks	-	4	3		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Heavy trucks	-	6	4		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Buses	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Motorcycles	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+543	992	Auxiliary Vehicle	-	-	-	-		Traffic light	0	-	Average (of DGAC and PCC)		0
0+623	-							-	-	-	-	-	
0+000	992	Total	-	47	30	-		none	-	-	Average (of DGAC and PCC)		0
0+000	992	Automobiles	-	37	23		64	none	-	-	Average (of DGAC and PCC)		0
0+000	992	Medium trucks	-	4	3		64	none	-	-	Average (of DGAC and PCC)		0
0+000	992	Heavy trucks	-	6	4		64	none	-	-	Average (of DGAC and PCC)		0
0+000	992	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+000	992	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+000	992	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
Redwood Ave NB		Traffic direction:	In entry direction										
0+622	2352	Total	-	90	114	-		none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Automobiles	-	71	90		64	none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Medium trucks	-	8	10		64	none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Heavy trucks	-	11	14		64	none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+622	2352	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+701	2352	Total	-	90	114	-		Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Automobiles	-	71	90		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Medium trucks	-	8	10		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Heavy trucks	-	11	14		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Buses	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Motorcycles	-	-	-		64	Traffic light	0	-	Average (of DGAC and PCC)		0
0+701	2352	Auxiliary Vehicle	-	-	-	-		Traffic light	0	-	Average (of DGAC and PCC)		0
0+860	3256	Total	-	114	179	-		none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Automobiles	-	90	142		64	none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Medium trucks	-	10	15		64	none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Heavy trucks	-	14	22		64	none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Buses	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Motorcycles	-	-	-		64	none	-	-	Average (of DGAC and PCC)		0
0+860	3256	Auxiliary Vehicle	-	-	-	-		none	-	-	Average (of DGAC and PCC)		0
0+917	3072	Total	-	103	178	-		none	-	-	Average (of DGAC and PCC)		0
0+917	3072	Automobiles	-	81	141		64	none	-	-	Average (of DGAC and PCC)		0

0+917	3072	Medium trucks	-	9	15	64	none	-	-	Average (of DGAC and PCC)	0
0+917	3072	Heavy trucks	-	13	22	64	none	-	-	Average (of DGAC and PCC)	0
0+917	3072	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+917	3072	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+917	3072	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Total	-	98	163	-	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Automobiles	-	78	129	64	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Medium trucks	-	8	14	64	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Heavy trucks	-	12	20	64	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
0+958	2872	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Total	-	80	149	-	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Automobiles	-	63	118	64	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Medium trucks	-	7	12	64	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Heavy trucks	-	10	19	64	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
1+057	2472	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Total	-	72	140	-	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Automobiles	-	57	110	64	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Medium trucks	-	6	12	64	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Heavy trucks	-	9	18	64	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Buses	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Motorcycles	-	-	-	64	none	-	-	Average (of DGAC and PCC)	0
1+091	2272	Auxiliary Vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	0
1+242	-						-	-	-	-	-

Redwood Avenue Warehouse 13419
Opening Year 2017 With Project
Receivers

No.	Receiver name	Building side	Floor	Level Day dB(A)	Night
1	1 Single Family Home NE		GF	60	61.7
2	2 Storage Facility N		GF	63.7	65.2
3	3 Single Family Home E1		GF	61.2	62.7
4	4 Single Family Home E2		GF	61.2	62.6
5	5 Single Family Home E3		GF	61.3	62.7
6	6 Single Family Home E4		GF	62.4	63.7
7	7 Commercial SE		GF	62.7	64.1
8	8 Single Family Home S		GF	62.4	63.4
9	9 Single Family Home S2		GF	54	55.3
10	10 Single Family Home W		GF	48.9	50.4

Redwood Avenue Warehouse 13419
Opening Year 2017 With Project
Contributions

Source name		Level Day dB(A)	Night
1 Single Family Home NE	GF	60.0	61.7
Hunter St. EB		28.4	28.4
Iris Dr. EB		25.1	29.8
Redwood Ave NB		56.2	59.2
Redwood Ave SB		57.4	57.8
Rosemary Dr EB		34.5	35.9
Valley Blvd EB		40.5	43.9
Valley Blvd WB		41.2	40.5
2 Storage Facility N	GF	63.7	65.2
Hunter St. EB		29.9	29.9
Iris Dr. EB		27.5	32.2
Redwood Ave NB		59.2	62.2
Redwood Ave SB		61.7	62.1
Rosemary Dr EB		38.0	39.5
Valley Blvd EB		41.6	44.9
Valley Blvd WB		42.2	41.5
3 Single Family Home E1	GF	61.2	62.7
Hunter St. EB		31.1	31.2
Iris Dr. EB		29.9	34.5
Redwood Ave NB		57.5	60.2
Redwood Ave SB		58.2	58.6
Rosemary Dr EB		45.8	47.3
Valley Blvd EB		42.7	46.0
Valley Blvd WB		43.4	42.7
4 Single Family Home E2	GF	61.2	62.6
Hunter St. EB		32.3	32.4
Iris Dr. EB		32.9	37.6
Redwood Ave NB		57.3	59.7
Redwood Ave SB		57.8	58.2
Rosemary Dr EB		50.7	52.2
Valley Blvd EB		43.7	47.0
Valley Blvd WB		44.4	43.7
5 Single Family Home E3	GF	61.3	62.7
Hunter St. EB		35.1	35.2
Iris Dr. EB		41.7	46.3
Redwood Ave NB		57.7	60.0
Redwood Ave SB		58.1	58.4

Rosemary Dr EB		38.4	39.8
Valley Blvd EB		45.7	49.0
Valley Blvd WB		46.4	45.6
6 Single Family Home E4	GF	62.4	63.7
Hunter St. EB		38.2	38.3
Iris Dr. EB		42.2	46.9
Redwood Ave NB		59.1	61.3
Redwood Ave SB		58.9	59.0
Rosemary Dr EB		34.6	36.0
Valley Blvd EB		47.0	50.3
Valley Blvd WB		47.7	47.0
7 Commercial SE	GF	62.7	64.1
Hunter St. EB		39.9	40.1
Iris Dr. EB		28.9	33.6
Redwood Ave NB		58.6	59.7
Redwood Ave SB		58.7	60.2
Rosemary Dr EB		29.2	30.6
Valley Blvd EB		52.4	55.7
Valley Blvd WB		53.2	52.4
8 Single Family Home S	GF	62.4	63.4
Hunter St. EB		45.0	45.1
Iris Dr. EB		34.0	38.7
Redwood Ave NB		57.7	59.6
Redwood Ave SB		59.8	59.9
Rosemary Dr EB		32.1	33.6
Valley Blvd EB		48.5	51.8
Valley Blvd WB		49.2	48.5
9 Single Family Home S2	GF	54.0	55.3
Hunter St. EB		47.2	47.4
Iris Dr. EB		25.9	30.7
Redwood Ave NB		42.9	44.8
Redwood Ave SB		44.2	44.9
Rosemary Dr EB		28.5	29.8
Valley Blvd EB		48.4	51.8
Valley Blvd WB		49.1	48.4
10 Single Family Home W	GF	48.9	50.4
Hunter St. EB		34.4	34.5
Iris Dr. EB		23.3	28.0
Redwood Ave NB		39.9	42.1
Redwood Ave SB		41.2	41.7
Rosemary Dr EB		28.5	29.9
Valley Blvd EB		43.7	47.0
Valley Blvd WB		44.3	43.6

Redwood Avenue Warehouse 13419
Opening Year 2017 With Project
Receiver Spectra

No.	Name	Floor	Time slice	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 kHz	2 kHz	2 kHz	2 kHz	3 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz
1	1 Single Family Home NE	GF	Day	28.1	35	39.1	41.3	42.8	44.3	45.5	46.4	47.9	47.2	48.7	50.1	49.9	50.1	49.2	48.3	47.7	46.8	46.2	44.2	42	39.9	37	32.8
1	1 Single Family Home NE	GF	Night	29.8	36.7	40.8	43.1	44.6	46.1	47.3	48.4	49.9	48.9	50.4	52	51.5	51.7	50.7	49.8	49.1	48.3	47.8	45.9	43.6	41.5	38.6	34.4
2	2 Storage Facility N	GF	Day	30.7	37.6	41.8	44.1	45.6	47.3	48.9	51.4	51	51.1	53.3	54.2	53.7	54.3	53.3	52.1	51.2	49.6	48.6	46.3	44.7	42.5	39.6	35.5
2	2 Storage Facility N	GF	Night	32.2	39.1	43.2	45.5	47	48.7	50.3	52.6	52.6	52.4	54.6	55.7	55.3	55.8	54.9	53.7	52.8	51.2	50.1	47.8	46.1	43.9	41	36.8
3	3 Single Family Home E1	GF	Day	29.5	36.4	40.5	42.7	44.2	45.7	46.9	47.6	48.9	48.5	49.9	51	51	51.3	50.3	49.4	48.8	47.9	47.5	45.6	43.3	41.1	38.2	34
3	3 Single Family Home E1	GF	Night	31.1	38	42.1	44.4	45.9	47.3	48.6	49.4	50.7	50.1	51.5	52.8	52.6	52.8	51.8	50.8	50.2	49.3	49	47.1	44.8	42.7	39.7	35.5
4	4 Single Family Home E2	GF	Day	29.8	36.7	40.8	43	44.5	45.9	47.1	47.4	48.9	48.7	50.2	50.8	51.2	51.4	50.1	49.2	48.5	48	47.8	46	43.8	41.6	38.6	34.4
4	4 Single Family Home E2	GF	Night	31.3	38.2	42.2	44.5	46	47.4	48.5	48.9	50.4	50.2	51.6	52.4	52.6	52.8	51.4	50.5	49.8	49.3	49.2	47.3	45.2	42.9	40	35.8
5	5 Single Family Home E3	GF	Day	29.9	36.8	40.9	43.2	44.6	46	47.2	47.5	48.7	48.6	50.1	50.8	51	51.4	50.2	49.3	48.8	48.2	48.2	46.1	43.7	41.5	38.6	34.3
5	5 Single Family Home E3	GF	Night	31.4	38.3	42.4	44.7	46.1	47.5	48.7	49	50.3	50	51.5	52.4	52.4	52.8	51.5	50.6	50	49.5	49.5	47.5	45.1	42.9	39.9	35.7
6	6 Single Family Home E4	GF	Day	30.7	37.6	41.7	44	45.4	46.9	48.1	49	50	49.5	51.2	52.3	52.1	52.5	51.7	50.6	50	49.3	48.8	46.7	43.9	42.1	39.1	35
6	6 Single Family Home E4	GF	Night	32.1	39	43.1	45.4	46.9	48.4	49.6	50.6	51.6	50.8	52.6	53.9	53.4	53.7	52.9	51.8	51.2	50.6	50.2	48.1	45.2	43.4	40.5	36.3
7	7 Commercial SE	GF	Day	31.6	38.6	42.6	44.9	46.4	47.8	49	49.8	50.1	49.4	51.3	52.2	52.2	52.8	52.1	51.1	50.4	49.4	48.7	47.1	44.7	42.3	39.3	35.1
7	7 Commercial SE	GF	Night	33	39.9	44	46.3	47.8	49.2	50.4	51.1	51.4	50.7	52.6	53.5	53.6	54.1	53.5	52.5	51.8	50.8	50.1	48.5	46.2	43.7	40.8	36.5
8	8 Single Family Home S	GF	Day	31.1	37.9	42	44.3	45.8	47.2	48.4	49.1	50.1	49.5	51.1	52.3	51.9	52.5	51.5	50.5	49.9	49.3	49.1	46.5	43.8	42.1	39.2	35
8	8 Single Family Home S	GF	Night	32.1	39	43.1	45.4	46.8	48.2	49.4	49.9	50.8	50.4	52.1	53	52.9	53.5	52.5	51.6	51.1	50.5	50.3	47.7	44.9	43.2	40.3	36.1
10	10 Single Family Home W	GF	Day	21.7	28.5	32.5	34.7	36	37.1	37.6	32.8	27.2	23.1	26.4	28.6	31.3	33.2	34.5	35.7	37	39.1	40.7	39.1	36.8	34.7	31.6	26.9
10	10 Single Family Home W	GF	Night	23.2	30	34	36.2	37.5	38.6	39.1	34.2	28.5	24.7	27.9	30.2	32.7	34.6	35.9	37.2	38.4	40.5	42.2	40.7	38.4	36.3	33.2	28.5
9	9 Single Family Home S2	GF	Day	26	32.8	36.9	39.1	40.4	41.7	42.4	40.7	37.5	35.8	38.4	39.6	40.4	41.7	42.1	42.6	43	44.1	44.2	40.5	37.8	35.6	32.5	28
9	9 Single Family Home S2	GF	Night	27.3	34.2	38.2	40.5	41.8	43	43.7	41.9	38.5	36.5	39.1	40.4	41.4	42.8	43.3	43.9	44.4	45.5	45.7	42	39	36.9	33.8	29.3

Redwood Avenue Warehouse 13419
Warehouse Operation
Industry

Source name	Reference	Level	Frequency spectrum [dB(A)]																										
			dB(A)	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
Truck Docking Area	Unit	Day	97.1	53	55	59	68	68	69	76	78	80	82	84	88	90	87	87	86	86	85	84	83	81	78	77	74
Truck Parking Area	Unit	Day	61	-	28	-	-	38	-	-	45	-	-	51	-	-	54	-	-	55	-	-	55	-	-	53	-
Passenger Car Parking Area N	Unit	Day	97.1	53	55	59	68	68	69	76	78	80	82	84	88	90	87	87	86	86	85	84	83	81	78	77	74
Passenger Car Parking Area W	Unit	Day	97.1	53	55	59	68	68	69	76	78	80	82	84	88	90	87	87	86	86	85	84	83	81	78	77	74

Redwood Avenue Warehouse 13419
Warehouse Operation
Receivers

No.	Receiver name	Floor	Level Day dB(A)
1	1 Single Family Home NE	GF	42.5
2	2 Storage Facility N	GF	48.5
3	3 Single Family Home E1	GF	46.5
4	4 Single Family Home E2	GF	38.2
5	5 Single Family Home E3	GF	31.8
6	6 Single Family Home E4	GF	42.4
7	7 Commercial SE	GF	39.6
8	8 Single Family Home S	GF	44.7
9	9 Single Family Home S2	GF	48.8
10	10 Single Family Home W	GF	63.2

Redwood Avenue Warehouse 13419
Warehouse Operation
Contributions

Source name			Level Day dB(A)
1 Single Family Home NE	GF		42.5
Passenger Car Parking Area N			42.3
Passenger Car Parking Area W			28.9
Truck Docking Area			18
Truck Parking Area			-15.2
2 Storage Facility N	GF		48.5
Passenger Car Parking Area N			48.4
Passenger Car Parking Area W			30.6
Truck Docking Area			19.9
Truck Parking Area			-14.9
3 Single Family Home E1	GF		46.5
Passenger Car Parking Area N			46.4
Passenger Car Parking Area W			28.7
Truck Docking Area			21.4
Truck Parking Area			-13.3
4 Single Family Home E2	GF		38.2
Passenger Car Parking Area N			38
Passenger Car Parking Area W			19.5
Truck Docking Area			23.3
Truck Parking Area			-11.8
5 Single Family Home E3	GF		31.8
Passenger Car Parking Area N			29.4
Passenger Car Parking Area W			20
Truck Docking Area			27.3
Truck Parking Area			-3.4
6 Single Family Home E4	GF		42.4
Passenger Car Parking Area N			25.6
Passenger Car Parking Area W			29.6
Truck Docking Area			42.1
Truck Parking Area			6.6
7 Commercial SE	GF		39.6
Passenger Car Parking Area N			20.1
Passenger Car Parking Area W			28.4
Truck Docking Area			39.2
Truck Parking Area			2.4
8 Single Family Home S	GF		44.7

Passenger Car Parking Area N		22.5
Passenger Car Parking Area W		31
Truck Docking Area		44.5
Truck Parking Area		9.2
9 Single Family Home S2	GF	48.8
Passenger Car Parking Area N		19.4
Passenger Car Parking Area W		38.6
Truck Docking Area		48.3
Truck Parking Area		15.8
10 Single Family Home W	GF	63.2
Passenger Car Parking Area N		38.9
Passenger Car Parking Area W		63.2
Truck Docking Area		31.5
Truck Parking Area		-8.2

Redwood Avenue Warehouse 13419
Warehouse Operation
Receiver Spectra

No.	Name	Floor	Time slice	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 kHz	2 kHz	2 kHz	2 kHz	3 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz
1	1 Single Family Home NE	GF	Day	-1.7	0.2	4.1	13	12.9	14.4	21.6	23.7	25.8	28.1	30.3	34.2	36.1	33	32.8	31.5	31.1	29.4	27.3	24.7	20.3	13.7	7.4	-2.5
2	2 Storage Facility N	GF	Day	3.9	5.9	9.8	18.9	19.1	20.1	27.2	29.4	31.7	33.8	35.8	39.9	41.8	38.8	38.7	37.6	37.3	36	34.5	32.7	29.6	25	21.7	15.9
3	3 Single Family Home E1	GF	Day	2.9	4.9	8.8	17.8	17.7	18.7	25.6	27.6	29.6	31.6	33.7	37.8	39.8	36.8	36.7	35.6	35.3	34	32.5	30.7	27.6	23.1	19.8	14.1
4	4 Single Family Home E2	GF	Day	-0.7	0.7	4.2	12.7	12.2	12.7	19.3	20.9	22.6	24.3	26	29.8	31.6	28.4	28.2	27	26.7	25.3	23.8	22	18.8	14.1	10.3	3.7
5	5 Single Family Home E3	GF	Day	-2.5	-1.2	1.9	10.1	9.3	9.3	15.5	16.8	18	19.2	20.5	23.9	25.2	21.7	21.1	19.5	18.9	17.1	15.1	12.6	8.5	2.4	-3.4	-12.8
6	6 Single Family Home E4	GF	Day	-0.6	1.2	5	13.9	13.8	14.7	21.7	23.7	25.8	28	30	34	36	32.9	32.7	31.5	31.1	29.5	27.7	25.3	21.4	15.7	10.7	2.5
7	7 Commercial SE	GF	Day	-4	-2.1	1.7	10.6	10.5	11.9	19	21	23	25.5	27.6	31.5	33.4	30.2	30	28.6	28	26.1	23.6	20.3	14.9	6.8	-2	-15.3
8	8 Single Family Home S	GF	Day	0.4	2.4	6.4	15.5	15.4	16.4	23.6	25.9	28	30.1	32.3	36.3	38.3	35.2	35	33.8	33.5	32	30.1	27.9	24	18.3	13.4	5.2
9	9 Single Family Home S2	GF	Day	4.5	6.4	10.7	19.7	19.7	20.6	27.9	29.9	32.1	34.3	36.2	40.2	42.1	39.1	39	37.8	37.6	36.2	34.6	32.7	29.3	24.2	20.2	12.9
10	10 Single Family Home W	GF	Day	19.1	21.1	25	34	34	35.1	42.2	44.2	46.3	48.3	50.3	54.2	56.2	53.2	53.2	52.2	52.1	51.1	50	48.8	46.6	43.3	41.8	38.2