

# **Appendix G**

## **Noise**

**SLOVER DISTRIBUTION CENTER**  
**DRAFT**  
**ENVIRONMENTAL IMPACT REPORT**



# **BLOOMINGTON BUSINESS CENTER PROJECT**

## **ACOUSTICAL ANALYSIS**

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## 1.0 INTRODUCTION

This report includes a description of existing noise conditions, a summary of applicable regulations, and an analysis of potential noise impacts associated with the proposed Bloomington Business Center project. The purpose of this report is to estimate and evaluate the potential noise and vibration impacts associated with construction and operation of the proposed project relative to the significance thresholds and noise/vibration standards of the County of San Bernardino.

### 1.1 PROJECT LOCATION

The project site is located in unincorporated San Bernardino County in the community of Bloomington. Bloomington is generally located south of the Interstate 10 (I-10) freeway and just north of the San Bernardino and Riverside County line. Nearby cities include Fontana to the west, Rialto to the east, and Jurupa Valley to the south. The project site is located on the southeast corner of Slover Avenue and Laurel Avenue, and extends to the southwest corner of Slover Avenue and Locust Avenue. Refer to **Exhibit 1, Regional Vicinity**, and **Exhibit 2, Project Location**.

The project site is currently zoned for Single Residential (BL/RS-20m-AA and BL/RS-1AA) and the areas surrounding the project site are zoned for Single Residential and Community Industrial. Surrounding land uses include single-family residences, a distribution warehouse to the north, industrial uses to the west, and a church to the east.

### 1.2 PROJECT DESCRIPTION

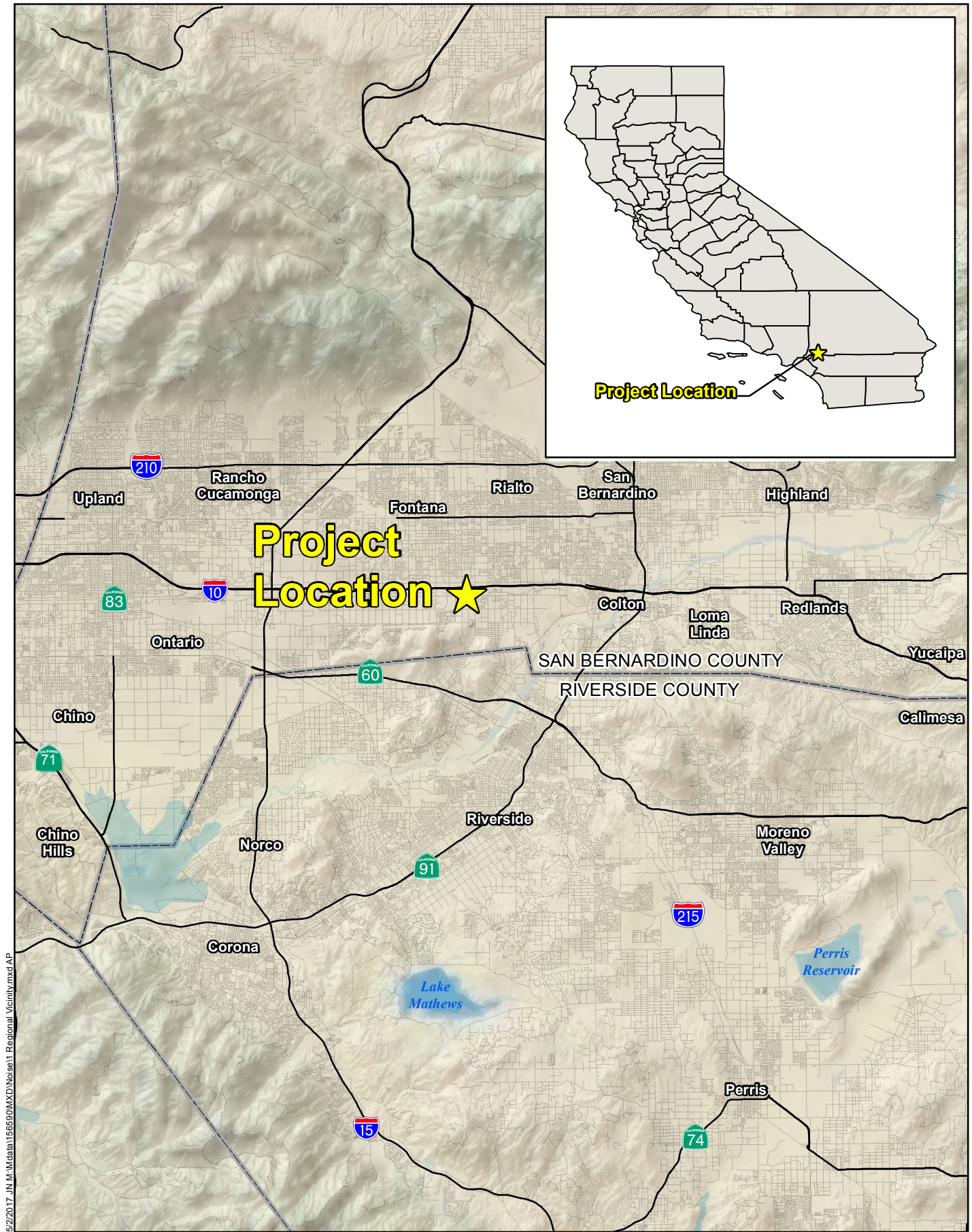
The project would include the development of a 344,000-square-foot (SF) high cube concrete tilt-up warehouse facility shell building, with no current tenant. The building would be approximately 38 feet in height, and be set back from the property line approximately 150 feet on the north, 70 feet on the south, 150 feet on the east, and 80 feet on the west; refer to **Exhibit 3, Conceptual Site Plan**.

The building would feature up to two offices of approximately 4,000 SF each, for a total of 8,000 SF. Although their specific locations have not been determined, the site plan shows tentative locations on the opposite ends of the northern portion of the building fronting Slover Avenue. Landscaping would be provided within and around the project site to create a more aesthetically pleasing view of the project. The project would include a 26,000 SF infiltration basin, located on the southeast corner along Locust Avenue.

There would be a total of 224 automobile parking stalls provided for employees located along the north, east, and west portions of the project site. Approximately 49 dock doors and 48 trailer stalls would be provided and limit the northern portion of the project site. Shared automobile and truck access would be via Laurel, Slover, and Locust Avenues.

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BLOOMINGTON BUSINESS CENTER PROJECT  
ACOUSTICAL ANALYSIS

**Michael Baker**  
INTERNATIONAL



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Miles

Source: ESRI Relief Map, National Highway Planning Network

**Regional Vicinity**

Exhibit 1

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## 2.0 NOISE

Noise is a subjective reaction to different types of sounds. Noise is typically defined as airborne sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. A typical noise environment consists of a base of steady “background” noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

### 2.1 FUNDAMENTALS OF ACOUSTICS

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

#### Standard Unit of Measurement

Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by differentiating among frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are illustrated in **Exhibit 4, Typical Community Noise Levels**.

Table 1, *Noise Descriptors*, lists various methods to measure sound over a period of time.

## 2.0 NOISE

**TABLE 1 NOISE DESCRIPTORS**

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level ( $L_{eq}$ )	The sound level containing the same total energy as a time varying signal over a given time period. The $L_{eq}$ is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level ( $L_{max}$ )	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level ( $L_{min}$ )	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM.
Day/Night Average ( $L_{dn}$ )	The $L_{dn}$ is a measure of the 24-hour average noise level at a given location. It was adopted by the US Environmental Protection Agency for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the $L_{eq}$ . The $L_{dn}$ is calculated by averaging the $L_{eqs}$ for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM) by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level ( $L_n$ )	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% ( $L_{01}$ , $L_{10}$ , $L_{50}$ , $L_{90}$ , respectively) of the time during the measurement period.

Source: Harris 1979



EXHIBIT 4 TYPICAL COMMUNITY NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	
Quiet Urban Daytime	50	Large Business Office
		Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2013b

### Addition of Decibels

The decibel scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (FTA 2006). Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB (Caltrans 2013b).

### Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed.

Sound levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA (FTA 2006). The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

## 2.2 HEALTH EFFECTS OF NOISE

Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. The percentage of people claiming to be annoyed by noise generally increases with the environmental sound level. However, many factors also influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, nonacoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude toward the source and those associated with it, and the predictability of the noise, all influence response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses would range from "not annoyed" to "highly annoyed."

When the noise level of an activity rises above 70 dBA, the chance of receiving a complaint is better, and as the noise level rises, dissatisfaction among the public steadily increases. However,

an individual's reaction to a particular noise depends on many factors, as described above. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community.

The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on the community can be organized into six broad categories:

- Noise-induced hearing loss
- Interference with communication
- Effects of noise on sleep
- Effects on performance and behavior
- Extra-auditory health effects
- Annoyance

Although it often causes discomfort and sometimes pain, noise-induced hearing loss usually takes years to develop. Noise-induced hearing loss can impair the quality of life through a reduction in the ability to hear important sounds and to communicate with family and friends. Hearing loss is one of the most obvious and easily quantified effects of excessive exposure to noise. While the loss may be temporary at first, it could become permanent after continued exposure. When combined with hearing loss associated with aging, the amount of hearing loss directly caused by the environment is difficult to quantify. Although the major cause of noise-induced hearing loss is occupational, substantial damage can be caused by nonoccupational sources.

According to the US Public Health Service, nearly 10 million of the estimated 21 million Americans with hearing impairments owe their losses to noise exposure. Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. It can also disrupt effective communication between teachers and pupils in schools, and can cause fatigue and vocal strain in those who need to communicate in spite of the noise. Interference with communication has proven to be one of the most important components of noise-related annoyance.

Noise-induced sleep interference is another critical component of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern, or level of sleep. It can produce short-term adverse effects on mood changes and job performance, with the possibility of more serious effects on health if it continues over long periods. Noise can cause adverse effects on task performance and behavior at work, and nonoccupational and social settings. These

## 2.0 NOISE

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effects are the subject of some controversy, since the presence and degree of effects depends on a variety of intervening variables. Most research in this area has focused mainly on occupational settings, where noise levels must be sufficiently high and the task sufficiently complex for effects on performance to occur.

Recent research indicates that more moderate noise levels can produce disruptive after-effects, commonly manifested as a reduced tolerance for frustration, increased anxiety, decreased incidence of “helping” behavior, and increased incidence of “hostile” behavior. Noise has been implicated in the development or exacerbation of a variety of health problems, ranging from hypertension to psychosis. As with other categories, quantifying these effects is difficult due to the variables that need to be considered in each situation. As a biological stressor, noise can influence the entire physiological system. Most effects seem to be transitory, but continued exposure in laboratory animals has revealed some effects to be chronic.

Annoyance can be viewed as the expression of negative feelings resulting from interference with activities, as well as the disruption of one’s peace of mind and the enjoyment of one’s environment. Field evaluations of community annoyance are useful for predicting the consequences of planned actions involving highways, airports, road traffic, railroads, or other noise sources. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed above. In a study conducted by the US Department of Transportation, the relationship between the effects of annoyance and the community were quantified. In areas where exterior noise levels were consistently above 60 dBA community noise equivalent level (CNEL), approximately 9 percent of the community is highly annoyed. When levels exceed 65 dBA CNEL, that percentage rises to 15 percent. Although evidence for the various effects of noise have differing levels of certainty, it is clear that noise can affect human health. Most of the effects are, to a varying degree, stress related.

## 2.3 GROUNDBORNE VIBRATION

Sources of earthborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints. Table 2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance

levels shown in Table 2 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

**TABLE 2 HUMAN REACTION AND DAMAGE TO BUILDINGS FOR CONTINUOUS OR FREQUENT INTERMITTENT VIBRATION LEVELS**

Peak Particle Velocity (inches/second)	Human Reaction	Effect on Buildings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage
0.2	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.1	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.08	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.006–0.019	Range of threshold of perception	Vibrations unlikely to cause damage of any type

Source: Caltrans 2013a

### 3.0 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Land uses deemed sensitive by the state of California within the vicinity of the project site include schools. Many jurisdictions also consider single- and multifamily residential uses particularly noise-sensitive because families and individuals expect to use time in the home for rest and relaxation, and noise can interfere with those activities. Some jurisdictions may also identify other noise-sensitive uses such as churches. Land uses that are relatively insensitive to noise include office, commercial, and retail developments. There are a variety of other insensitive noise receptors that include uses which generate significant noise levels and typically have a low level of human occupancy.

This noise analysis was conducted in accordance with federal, state, and local criteria described in the following sections.

#### 3.1 FEDERAL

The US Environmental Protection Agency (EPA) offers guidelines for community noise exposure in *Noise Effects Handbook – A Desk Reference to Health and Welfare Effects of Noise*. These guidelines consider occupational noise exposure as well as noise exposure in homes. The EPA recognizes an exterior noise level of 55 decibels day-night level (dB L<sub>dn</sub>) as a general goal to protect the public from hearing loss, activity interference, sleep disturbance, and annoyance. The EPA and other federal agencies have adopted suggested land use compatibility guidelines that indicate that residential noise exposures of 55 to 65 dB L<sub>dn</sub> are acceptable. However, the EPA notes that these levels are not regulatory goals, but are levels defined by a negotiated scientific consensus, without concern for economic and technological feasibility or the needs and desires of any particular community.

#### 3.2 STATE

The state Office of Planning and Research's Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. Table 3, *Land Use Compatibility for Community Noise Environments*, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

**TABLE 3 LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS**

Land Use Category	Community Noise Exposure (Ldn or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	75 – 85
Residential - Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging - Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA

NA: Not applicable; L<sub>dn</sub>: average day/night sound level; CNEL: community noise equivalent level

Notes:

Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable - New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable - New construction or development should generally not be undertaken.

Source: Office of Planning and Research 2003

### 3.3 LOCAL

#### County of San Bernardino 2007 General Plan

The purpose of the San Bernardino County General Plan Noise Element is to limit the exposure of the community to excessive noise levels. The Noise Element contains goals, policies, and programs that must be used to guide decisions concerning land uses that are common sources of excessive noise levels. The General Plan policies most applicable to the proposed project are included below.

- Policy N 1.3: When industrial, commercial, or other land uses, including locally regulated noise sources, are proposed for areas containing noise sensitive land uses, noise levels generated by the proposed use will not exceed the performance standards of Table N-2 (Table 3 in this document) within outdoor activity areas. If outdoor activity areas have not yet been determined, noise levels shall not exceed the performance standards listed in Chapter 83.01 of the Development Code at the boundary of areas planned or zoned for residential or other noise-sensitive land uses.
- Policy N 1.5: Limit truck traffic in residential and commercial areas to designated truck routes; limit construction, delivery, and through-truck traffic to designated routes; and distribute maps of approved truck routes to County traffic officers.
- Policy N 1.6: Enforce the hourly noise-level performance standards for stationary and other locally regulated sources, such as industrial, recreational, and construction activities as well as mechanical and electrical equipment.
- Policy N 2.1: The County will require appropriate and feasible on-site noise attenuating measures that may include noise walls, enclosure of noise-generating equipment, site planning to locate noise sources away from sensitive receptors, and other comparable features.

#### County of San Bernardino Municipal Code

##### **Noise Standards**

The County's Municipal Code (Title 8, Development Code; Division 3, Countywide Development Standards; Chapter 83.01, General Performance Standards, Section 83.01.080, Noise) sets interior and exterior noise standards for specific land uses by type of noise source. Noise standards for stationary noise sources are summarized in Table 4. As shown, the noise standard for residential properties is 55 dB(A)  $L_{eq}$  from 7 a.m. to 10 p.m. and 45 dB(A)  $L_{eq}$  from 10 p.m. to 7 a.m. For industrial properties the noise standard from stationary noise sources is 70 dB(A) during any time of the day or night. Areas exposed to noise levels exceeding these standards are considered noise-impacted areas. The County's Municipal Code exempts noise from construction noise provided that construction is limited to between the hours of 7 a.m. to 7 p.m. except on Sundays or federal holidays.



**TABLE 4: NOISE STANDARDS FOR STATIONARY NOISE SOURCES**

Affected Land Uses (Receiving Noise)	7:00 a.m. – 10:00 p.m. $L_{eq}$	10:00 p.m. – 7:00 a.m. $L_{eq}$
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)

Notes:

$L_{eq}$  = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.

dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

$L_{dn}$  = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way  $L_{dn}$  takes into account the lower tolerance of people for noise during nighttime periods.

Source: County of San Bernardino Municipal Code, Section 83.01.080, Table 83-2.

Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards for adjacent mobile noise sources. The County's noise standards for mobile sources (such as traffic) are summarized in Table 5.

**TABLE 5 NOISE STANDARDS FOR ADJACENT MOBILE NOISE SOURCES**

Land Use		L <sub>dn</sub> (or CNEL) dB(A) <sup>4</sup>	
Categories	Uses	Interior <sup>1</sup>	Exterior <sup>2</sup>
Residential	Single and multi-family, duplex, mobile homes	45	60 <sup>3</sup>
Commercial	Hotel, motel, transient housing	45	60 <sup>3</sup>
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:

1. The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.
2. The outdoor environment shall be limited to:
  - Hospital/office building patios
  - Hotel and motel recreation areas
  - Mobile home parks
  - Multi-family private patios or balconies
  - Park picnic areas
  - Private yard of single-family dwellings
  - School playgrounds
3. An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.
4. CNEL = (community noise equivalent level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

Source: County of San Bernardino Municipal Code, Section 83.01.080, Table 83-3.

#### **Vibration Standards**

The County's Municipal Code, Section 83.01.090, prohibits the operation of any device that creates vibration that can be felt without the aid of instruments at or beyond the lot line, or which produces a particle velocity greater than or equal to two-tenths (0.2) in/sec measured at or beyond the lot line.

## 4.0 EXISTING CONDITIONS

### 4.1 NOISE MEASUREMENTS

Regional noise sources include traffic-related noise on roadways and highways, airplanes flying overhead, and noise associated with typical residential development (e.g., people talking, dogs barking, children playing, yard maintenance equipment). Sound is affected by distance from the source, surrounding obstacles, and atmospheric properties.

In order to quantify existing ambient noise levels in the project area, noise measurements were taken at three locations on April 6, 2017; refer to **Exhibit 5**. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. Ten-minute measurements were taken, between 11:30 a.m. and 12:30 p.m., at each site during the day. Short-term ( $L_{eq}$ ) measurements are considered representative of the noise levels in the project vicinity. The average noise levels and sources of noise measured at each location are shown in Table 6, *Noise Measurements*. The existing daytime noise levels ranged from 47.2 to 64.1 dBA  $L_{eq}$ .

**TABLE 6: NOISE MEASUREMENTS**

Map #	Location	Run Time	Primary Noise Sources	$L_{eq}$ (dBA)	$L_{min}$ (dBA)	$L_{max}$ (dBA)	Peak (dBA)
1	Along the eastern terminus of Otilia Street	4/6/2017 11:30 a.m.	Occasional traffic	47.2	37.2	66.4	83.28
2	Along the western side of Locust Avenue, approximately 100 feet north of Slover Avenue	4/6/2017 12:05 p.m.	Traffic along Slover Avenue	61.7	49.1	80.4	97.7
3	East side of Locust Avenue, approximately 400 feet south of Slover Avenue	4/6/2017 12:33 p.m.	Traffic along Slover Avenue and Locust Avenue	64.1	46.4	78.0	98.7

Source: See **Appendix A**.

The project area is subject to typical suburban and semi-rural noises, such as noise generated by traffic and day-to-day outdoor activities, including occasional noise from roosters. Noise around the project site is the cumulative effect of noise from transportation activities and stationary sources. “Transportation noise” typically refers to noise from automobile use, trucking, airport operations, and rail operations. “Stationary noise” typically refers to noise from sources such as heating, ventilation, and air conditioning (HVAC) systems, compressors, landscape maintenance equipment, or machinery associated with local industrial or commercial activities.

## 4.0 EXISTING CONDITIONS

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The nearest airport in the vicinity of the project site is Flabob Airport (a small local airport), located approximately 4.8 miles to the south. The nearest major commercial airport is Ontario International Airport, located approximately 10.5 miles to the west. Although the project site is within the influence area of Ontario International Airport, the project site is outside of the airport's 60-65 dBA CNEL noise impact contours and is therefore not located within any airport's noise impact zone (City of Ontario 2011).

### 4.2 EXISTING ROADWAY NOISE LEVELS

Existing roadway noise levels were calculated for the roadway segments in the project vicinity using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project traffic impact analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average noise rates used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels.

Table 7, *Existing Traffic Noise Levels* summarizes the modeled existing traffic noise at 75 feet from the centerline of each project roadway and lists distances from each roadway centerline to the 60 dB, 65 dB, and 70 dB CNEL traffic noise contours.

5/2/2017 J:\N:\Mdata\156590\MXD\Noise\4 Noise Model Points.mxd



BLOOMINGTON BUSINESS CENTER PROJECT  
ACOUSTICAL ANALYSIS

## Noise Measurement and Modeling Locations



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TABLE 7 EXISTING TRAFFIC NOISE LEVELS

Roadway Segment	Existing Conditions				
	ADT	dBA @ 75 Feet from Roadway Segment	Distance (Feet) from Roadway Centerline to CNEL		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Slover Avenue					
West of Sierra Avenue	19,200	69.6	681	215	68
Sierra Avenue to Production Avenue	27,300	71.1	968	306	97
Production Avenue to Empire Center Boulevard	17,600	69.0	598	189	60
Empire Center Boulevard to Tamarind Avenue	16,100	68.4	518	164	52
Tamarind Avenue to Alder Avenue	15,900	68.3	505	160	51
Alder Avenue to Laurel Avenue	16,400	68.5	530	168	53
Laurel Avenue to Locust Avenue	16,400	68.5	530	168	53
Locust Avenue to Linden Avenue	14,600	68.8	573	181	57
Linden Avenue to Cedar Avenue	10,700	67.5	423	134	-
East of Cedar Avenue	8,500	66.5	334	105	-
Sierra Avenue					
North of Slover Avenue	43,400	74.0	1,870	591	187
Cedar Avenue					
Slover Avenue to Orange Street	30,300	70.3	796	252	80
North of Orange Street	30,300	70.3	796	252	80

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Michael Baker International 2017

### 4.3 NOISE-SENSITIVE RECEPTORS

Noise-sensitive land uses are those that may be subject to stress and/or interference from excessive noise. Typically, residential uses are considered noise-sensitive receptors. Other noise-sensitive land uses include public schools, hospitals, and institutional uses such as churches, museums, and private schools. Industrial and commercial land uses are generally not considered sensitive to noise.

Distances were measured from the center of the project site to the nearest outdoor living area. The nearest residential land uses would be those adjacent to the project site along the boundary, approximately 50 feet to the south. Bloomington High School is located approximately 1,000 feet to the southwest of the project site and a church is located directly across the street,



#### 4.0 EXISTING CONDITIONS

approximately 175 feet to the east. Sensitive receptors within 1 mile of the project site are listed in Table 8, *Sensitive Receptors*.

**TABLE 8: SENSITIVE RECEPTORS**

Type	Name	Distance from Project Site (feet) <sup>1</sup>	Direction from Project Site	Address
Residential	Residential Uses	Adjacent	South	Otilla Street east of Laurel Avenue
		165 feet	West / Southwest	Laurel Avenue south of Slover Avenue
		230 feet	East / Southeast	Locust Avenue south of Slover Avenue
		400 feet	Northeast	Locust Avenue north of Slover Avenue
		520 feet	Southwest	Laurel Avenue south of Otilla Street
Schools	Bloomington High School	1,000 feet	Southwest	10750 Laurel Avenue
	Ruth O Harris Middle School	3,700 feet	Southwest	11150 Alder Avenue
	Walter Zimmerman Elementary School	3,800 feet	Southeast	11050 Linden Avenue
	Sycamore Hills Elementary School	4,500 feet	Southwest	11036 Mahogany Drive, Fontana
	Bloomington Head Start Pre-School	4,800 feet	Northeast	18829 Orange Street
	Mary B Lewis Elementary School	5,400 feet	North	18040 San Bernardino Avenue
Places of Worship	Kingdom Hall of Jehovah's Witnesses	175 feet	East	10575 Locust Avenue
	Bloomington Congregational United Church of Christ	3,000 feet	Southeast	18490 Santa Ana Avenue
	Calvary Missionary Baptist Church	4,000 feet	Northeast	18194 Marygold Avenue
	Bloomington Pentecostal Church of God	4,500 feet	Northeast	9999 Linden Avenue
	Upland Indonesian Sda Church	5,000 feet	Southeast	11100 Cedar Avenue
Parks/ Recreational Areas	Ayala Park	2,750 feet	Northeast	18313 Valley Boulevard
	Sycamore Hills Park	5,400 feet	Southwest	11075 Mayberry Street, Fontana
	Kessler Park	5,500 feet	Southeast	Jurupa Avenue & Linden Avenue

Note:

1. Distances are measured from the center of the project site to the nearest outdoor living area.

Source: Google Earth 2016.



### EXISTING ENVIRONMENTAL GROUNDBORNE VIBRATION

The typical background vibration-velocity levels are between 50 and 60 vibration decibels (VdB). VdB is particle velocity in inches per second and measures the rumbling sound caused by the vibration of room surfaces. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

### 5.0 POTENTIAL IMPACTS

#### 5.1 THRESHOLDS OF SIGNIFICANCE

Criteria for determining the significance of noise impacts were developed based on information contained in the County of San Bernardino Municipal Code and the impact statements of CEQA Guidelines Appendix G. According to Appendix G, a significant impact related to noise would occur if the project would:

- Expose persons to or generate of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Be 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, and if so, the project would expose people residing or working in the project area to excessive noise levels.
- Be located within the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels.

Based on these standards and thresholds, the effects of the proposed project have been categorized as either “no impact,” “less than significant impact,” or “potentially significant impact.” Mitigation measures are provided for all potentially significant impacts.

#### Significance of Changes in Traffic Noise Levels

An off-site traffic noise impact typically occurs when there is a discernable increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dB are often identified as substantial, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. However, this is based on a direct, immediate comparison of two sound levels. Community noise exposures occur over a long period of time and changes in noise levels occur over years (rather than the immediate comparison made in a laboratory situation). Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB is the most

commonly accepted discernable difference. A 5 dB change is generally recognized as a clearly discernable difference.

Because traffic noise levels at sensitive uses likely approach or exceed the applicable land use compatibility standard, a 3 dB increase as a result of a project is used as the noise threshold for that project. Thus, a project would result in a significant noise impact when a permanent increase in ambient noise levels of 3 dB occur upon project implementation and the resulting noise level exceeds the applicable exterior standard at a noise-sensitive use.

## **5.2 IMPACT ASSESSMENT**

### **NOI-1**

- **Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**
- **Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.**
- **Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

### **Short-Term Construction**

Construction activities would occur in a single phase and would include demolition, site preparation, grading, paving, building construction, and the application of architectural coatings. Groundborne noise and other types of construction-related noise impacts would typically occur during excavation activities of the grading phase. This phase of construction has the potential to create the highest levels of noise. Typical noise levels generated by construction equipment are shown in Table 9, *Maximum Noise Levels Generated by Construction Equipment*. It should be noted that the noise levels identified in Table 9 are maximum sound levels ( $L_{max}$ ), which are the highest individual sound occurring at an individual time period. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

## 5.0 POTENTIAL IMPACTS

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**TABLE 9 MAXIMUM NOISE LEVELS GENERATED BY CONSTRUCTION EQUIPMENT**

Type of Equipment	Acoustical Use Factor <sup>1</sup>	L <sub>max</sub> at 50 Feet (dBA)
Concrete Saw	20	90
Crane	16	81
Concrete Mixer Truck	40	79
Backhoe	40	78
Dozer	40	82
Excavator	40	81
Forklift	40	78
Paver	50	77
Roller	20	80
Tractor	40	84
Water Truck	40	80
Grader	40	85
General Industrial Equipment	50	85

Note:

1. *Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.*

Source: FHWA 2006

Using the FHWA's Roadway Construction Noise Model (2008) construction noise model and construction information, the estimated noise levels from construction were calculated for a number of modeling points as shown in Exhibit 5. These points were selected based on outdoor living areas such as residential patios and outdoor church areas. Table 10, *Construction Noise Model Results Summary*, shows estimated noise levels for construction activities at a range of sites if all equipment were operated at the same time. The FHWA model inputs and outputs for all of the receptor sites are provided in Appendix B.

**TABLE 10: CONSTRUCTION NOISE MODEL RESULTS SUMMARY**

Map #	Distance from Receptor Site to Center of Project Area in Feet	Land Use	Daytime Baseline (dBA)	Demolition (dBA)	Site Preparation (dBA)	Grading (dBA)	Construction (dBA)
4	286	Residential	47.2	58.5	61.9	66.1	63.9
14 (Church)	829	Residential	64.1	60.2	57.6	61.9	59.7
26	986	Residential	47.2	48.7	46.1	50.4	48.2
27	737	Industrial	61.7	61.2	58.7	62.9	60.7

As shown in Table 10, the highest noise levels are expected to occur during grading activities. Noise levels during grading would range from 66.1 dBA at the nearest residential property to 50.4 dBA at the most distant residential property studied and 62.9 dBA at the nearest property within the industrial land use. Temporary construction noise generated by the project would not be significantly greater than baseline measurements except for the residential properties nearest to the project. Noise levels would be reduced by the block wall separating the residential properties from the project site; a solid wall can reduce noise levels by 5 to 10 decibels. Furthermore, County Municipal Code Section 83.01.080 exempts construction noise provided that construction is limited to between the hours of 7 a.m. to 7 p.m. except on Sundays or federal holidays. It is anticipated that construction activities associated with the proposed project would take place between 7:00 a.m. and 7:00 p.m., and would not take place on Sundays or federal holidays. However, if construction does occur outside of the exempted time frame, then noise standards could be exceeded. For instance, the County noise standard for stationary noise sources affecting residences is 55 dBA from the hours of 7:00 a.m. to 10:00 p.m. Therefore, Mitigation Measure NOI-1 is required to reduce construction noise impacts to a less than significant level.

### **Long-Term Operational Impacts**

#### ***Off-Site Mobile Noise***

The project would generate traffic along adjacent roads including Slover Avenue, Sierra Avenue, and Cedar Avenue. Traffic noise modeling was conducted for the proposed project using the traffic volumes from the project's traffic impact analysis report and the FHWA's RD-77-108 traffic noise model. The noise model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The modeled traffic speeds used were the posted speed limits in the project vicinity: 45 miles per hour (mph) on Slover, east of Locust Avenue; 50 mph on Slover Avenue west of Locust Avenue; 40 mph on Cedar Avenue; and 50 mph on Sierra Avenue. The noise modeling input and output files are included in Appendix C.

The information provided from this modeling was compared to the noise impact significance criteria in the County's Municipal Code for adjacent mobile noise sources. As shown in Table 7, *Existing Traffic Noise Levels*, existing traffic noise already exceeds the County's residential

## 5.0 POTENTIAL IMPACTS

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standard of 60 dBA and industrial standard of 65 dBA. Therefore, the threshold of significance is changed to an increase of greater than 3 dBA. For a community noise environment, a 3 dBA change is considered a just-perceivable difference.

The results of the traffic noise analysis are shown in Table 11 for 2018 (Opening Year) and in Table 12 for 2038 (Horizon Year). Based on average daily trip (ADT) values, the project would increase traffic noise by 0.5 dBA or less when compared to the Year 2018 Without Project scenario and would increase traffic noise by 0.2 dBA or less when compared to the 2038 Horizon Year Without Project scenario. These noise level increases are considered less than significant and no mitigation measures are necessary.

**TABLE 11 FUTURE - 2018 (OPENING YEAR) TRAFFIC NOISE LEVELS**

Roadway Segment	Future 2018 (Opening Year) Without Project					Future 2018 (Opening Year) With Project					Difference In dBA @ 75 Feet from Roadway
	ADT	dBA @ 75 Feet from Roadway Centerline	Distance from Roadway Centerline (Feet)			ADT	dBA @ 75 Feet from Roadway Centerline	Distance from Roadway Centerline (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
Slover Avenue											
West of Sierra Avenue	19,400	73.0	1,479	468	148	19,600	73.0	1,495	473	149	0.0
Sierra Avenue to Production Avenue	27,600	74.5	2,105	666	210	28,000	74.5	2,135	675	214	0.0
Production Avenue to Empire Center Boulevard	17,800	72.4	1,302	412	130	18,200	72.5	1,331	421	133	0.1
Empire Center Boulevard to Tamarind Avenue	16,300	71.8	1,129	357	113	16,700	71.9	1,156	366	116	0.1
Tamarind Avenue to Alder Avenue	16,100	71.7	1,100	348	110	16,500	71.8	1,127	356	113	0.1
Alder Avenue to Laurel Avenue	16,600	71.9	1,153	365	115	17,000	72.0	1,181	373	118	0.1
Laurel Avenue to Locust Avenue	16,600	71.9	1,153	365	115	17,200	72.0	1,195	378	119	0.1
Locust Avenue to Linden Avenue	14,800	72.0	1,193	377	119	15,200	72.1	1,225	387	122	0.1
Linden Avenue to Cedar Avenue	10,800	70.7	877	277	88	11,200	70.8	909	288	91	0.1
East of Cedar Avenue	8,000	69.3	645	204	64	8,800	69.8	709	224	71	0.5
Sierra Avenue											
North of Slover Avenue	43,800	77.1	3,875	1,225	387	44,200	77.2	3,910	1,237	391	0.1
Cedar Avenue											
Slover Avenue to Orange Street	30,600	73.8	1,815	574	182	30,900	73.9	1,833	580	183	0.1
North of Orange Street	30,600	73.8	1,815	574	182	30,900	73.9	1,833	580	183	0.1

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Michael Baker International 2015

## 5.0 POTENTIAL IMPACTS

**TABLE 12 FUTURE - HORIZON YEAR 2038 PROJECT TRAFFIC NOISE LEVELS**

Roadway Segment	Without Project - Horizon Year 2038					With Project - Horizon Year 2038					Difference In dBA @ 75 Feet from Roadway
	ADT	dBA @ 75 Feet from Roadway Centerline	Distance from Roadway Centerline (Feet)			ADT	dBA @ 75 Feet from Roadway Centerline	Distance from Roadway Centerline (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
Slover Avenue											
West of Sierra Avenue	23,100	73.7	1,762	557	176	23,300	73.7	1,777	562	178	0.0
Sierra Avenue to Production Avenue	33,300	75.3	2,539	803	254	33,700	75.3	2,570	813	257	0.0
Production Avenue to Empire Center Boulevard	21,800	73.3	1,594	504	159	22,200	73.4	1,624	513	162	0.1
Empire Center Boulevard to Tamarind Avenue	20,100	72.7	1,392	440	139	20,500	72.8	1,419	449	142	0.1
Tamarind Avenue to Alder Avenue	20,000	72.6	1,366	432	137	20,400	72.7	1,394	441	139	0.1
Alder Avenue to Laurel Avenue	20,600	72.8	1,431	453	143	21,000	72.9	1,459	461	146	0.1
Laurel Avenue to Locust Avenue	20,700	72.8	1,438	455	144	21,300	73.0	1,480	468	148	0.2
Locust Avenue to Linden Avenue	18,400	73.0	1,483	469	148	18,800	73.1	1,515	479	152	0.1
Linden Avenue to Cedar Avenue	13,600	71.7	1,104	349	110	14,000	71.8	1,136	359	114	0.1
East of Cedar Avenue	11,000	70.7	886	280	89	11,200	70.8	903	285	90	0.1
Sierra Avenue											
North of Slover Avenue	52,500	77.9	4,645	1,469	464	52,900	78.0	4,680	1,480	468	0.1
Cedar Avenue											
Slover Avenue to Orange Street	44,600	75.5	2,645	837	265	44,900	75.5	2,663	842	266	0.0
North of Orange Street	44,600	75.5	2,645	837	265	44,900	75.5	2,663	842	266	0.0

Notes: ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Michael Baker International 2017.



***Cumulative Mobile Source Impacts***

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "Cumulative with Project" condition to "Existing" conditions. This comparison accounts for the traffic noise increase generated by a project combined with the traffic noise increase generated by projects in the cumulative project list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

- *Combined Effect.* The cumulative with project noise level ("Future with Project") would cause a significant cumulative impact if a 3.0 dB increase over existing conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed project in combination with other related projects (combined effects), it must also be demonstrated that the project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.
  - *Incremental Effects.* The "Future with Project" causes a 1.0 dBA increase in noise over the "Future without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon, and reduces as distance from the source increases. Consequently, only the proposed project and growth due to occur in the project site's general vicinity would contribute to cumulative noise impacts. Table 13, *Cumulative Noise Scenario*, lists the traffic noise effects along roadway segments in the project vicinity for "Existing," "Future without Project," and "Future with Project," conditions, including incremental and net cumulative impacts.

## 5.0 POTENTIAL IMPACTS

**TABLE 13: CUMULATIVE NOISE SCENARIO**

Roadway Segment	Existing	Future (2038) without Project	Future (2038) with Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	dBA @ 75 Feet from Roadway Centerline	dBA @ 75 Feet from Roadway Centerline	dBA @ 75 Feet from Roadway Centerline	Difference In dBA Between Existing and Future with Project	Difference In dBA Between Future without Project and Future with Project	
Slover Avenue						
West of Sierra Avenue	69.6	73.7	73.7	4.1	0	No
Sierra Avenue to Production Avenue	71.1	75.3	75.3	4.2	0	No
Production Avenue to Empire Center Boulevard	69.0	73.3	73.4	4.4	0.1	No
Empire Center Boulevard to Tamarind Avenue	68.4	72.7	72.8	4.4	0.1	No
Tamarind Avenue to Alder Avenue	68.3	72.6	72.7	4.4	0.1	No
Alder Avenue to Laurel Avenue	68.5	72.8	72.9	4.4	0.1	No
Laurel Avenue to Locust Avenue	68.5	72.8	73	4.4	0.2	No
Locust Avenue to Linden Avenue	68.8	73	73.1	4.3	0.1	No
Linden Avenue to Cedar Avenue	67.5	71.7	71.8	4.3	0.1	No
East of Cedar Avenue	66.5	70.7	70.8	4.3	0.1	No
Sierra Avenue						
North of Slover Avenue	74.0	77.9	78	4.0	0.1	No
Cedar Avenue						
Slover Avenue to Orange Street	70.3	75.5	75.5	5.2	0	No
North of Orange Street	70.3	75.5	75.5	5.2	0	No

As indicated in Table 13, the proposed project would not result in long-term mobile noise impacts based on project-generated traffic as well as cumulative and incremental noise levels. None of the roadway segments would exceed both the incremental effects and combined effects criteria; thus, none of the roadway segments would be significantly impacted. Therefore, the proposed

project in combination with cumulative background traffic noise levels would result in a less than significant cumulative impact.

### ***On-Site Operations Noise***

Trucks, passenger vehicles, and ancillary equipment such as forklifts and HVAC equipment would create noise during on-site operations. The operations will be typical of warehouse/distribution center use. The nearest residences in the vicinity of the proposed project site are located approximately 286 feet from the center and approximately 105 feet from the nearest side of the proposed industrial building, to the south. Refrigerated trucks (which have an additional auxiliary cooling system which could result in higher individual truck noise levels) are not anticipated as part of this project.

### ***Project Mechanical Equipment***

Typically, mechanical equipment noise is 55 dBA at 50 feet from the source. This level of stationary source noise is acceptable per the noise standards influencing the project. Furthermore, project HVAC units would be included on the roof of the structure, likely located toward the center of the structure, making the nearest homes to the HVAC units greater than 50 feet away. On-site HVAC units and associated equipment attached to project structures would be acoustically engineered with appropriate procurement specifications, sound enclosures, and parapet walls to minimize noise—all in accordance with the County of San Bernardino noise emissions requirements—to ensure that such equipment does not exceed allowable noise limits. Thus, through compliance with pertinent local noise regulations, noise levels from project mechanical equipment would be less than significant.

### ***Loading Bay Operations***

On-site truck operations would be considered a stationary noise source subject to the County's noise regulation limitations. Operations would be conducted during daytime business hours (here assumed to be 7:00 a.m. to 6:00 p.m.).

Noise measurements at a variety of similar projects (e.g., Home Depot loading bays, Consolidated Volume Transport truck scales, Macy's truck transfer yard) have demonstrated that the noise produced by idling/maneuvering semi-trucks is typically on the order of 70 to 73 dBA at a distance of 50 feet (Wilder 2000).

For purposes of this impact assessment, the proposed project is projected to accept up to 250 trucks per day combined and would experience a peak of 22 truck trips during the peak hour of traffic. By state law, diesel trucks are prohibited from idling for more than 5 minutes at any one location. Additionally, it is assumed for this assessment that the maneuvering operation for any given truck would take no more than 3 to 5 minutes. Thus, the combination of maneuvering and parking and idling near or in the project's loading bays would take a maximum of 10 minutes per truck trip.

## 5.0 POTENTIAL IMPACTS

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For the purposes of this analysis, distances to receptors were measured from the center of the project site to represent the approximate location of the loading bay operations. The nearest noise-sensitive receptors (single-family residences) are approximately 286 feet from the center of the project site. These residences would experience approximately 15 dB of sound reduction due to distance attenuation (considering an attenuation rate of 6 dB per doubling distance as described above) and approximately 5 dB of attenuation due to the block wall surrounding the residences (FHWA 2006). Accounting for the sound reductions, noise attenuation will be approximately 20 dBA. Therefore, the noise levels experienced at the nearest sensitive receptors from on-site loading bay activities would be 53 dBA (73 dBA–20 dBA). As described in Table 4, the San Bernardino County Municipal Code states that the standard for stationary noise sources for residential properties is 55 dBA between 7:00 a.m. and 10:00 p.m.; therefore the noise generated by loading bay activities would be less than significant.

### ***Mitigation Measure***

**NOI-1** Prior to grading permit issuance, the project applicant/contractor shall demonstrate, to the satisfaction of the County of San Bernardino Planning Division, that the project complies with the following:

- Construction operations shall not occur between 7:00 p.m. and 7:00 a.m. Monday through Saturday, or at any time on Sunday or on federal holidays. The hours of construction, including noisy maintenance activities and all spoils and material transport, shall be restricted to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday.
- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state-required noise attenuation devices.
- The project applicant/contractor shall utilize construction noise reduction methods to minimize construction noise at sensitive receptors in the project area. These reduction methods include shutting off idling equipment, maximizing the distance between construction equipment staging areas and occupied residential areas, and electric air compressors and similar power tools.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.

**Level of Significance before Mitigation:** Potentially significant impact.

**Level of Significance after Mitigation:** Less than significant impact.

## NOI-2

- **Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.**

**Short-Term Construction**

Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings in the vicinity of a construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). This impact discussion utilizes Caltrans's recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings. Table 14 displays vibration levels for typical construction equipment.

**TABLE 14: TYPICAL VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	Approximate peak particle velocity at 25 feet (inches/second) <sup>2</sup>	Approximate peak particle velocity at 50 feet (inches/second) <sup>2</sup>	Approximate peak particle velocity at 105 feet (inches/second) <sup>2</sup>
Large bulldozer	0.089	0.031	0.010
Loaded trucks	0.076	0.027	0.009
Small bulldozer	0.003	0.001	0.0003

Notes:

1 – FTA 2006

2 – Calculated using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance

PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA Transit Noise and Vibration Impact Assessment Guidelines

D = the distance from the equipment to the receiver

The nearest structure to the project site is adjacent to the construction site boundary. However, it is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest structure. Based on the vibration levels presented in Table 14, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.089 in/sec peak particle velocity at 25 feet. Therefore, the use of virtually any type of construction equipment would most likely not result in a groundborne vibration velocity level above 0.2 in/sec and predicted vibration levels at the nearest off-site structures would not exceed recommended criteria. Additionally, this would be a temporary impact and would cease completely when construction ends. Once operational, the project would not be a source of groundborne vibration. Impacts would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

**Level of Significance:** Less than significant.

### NOI-3

- Be 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, expose people residing or working in the project area to excessive noise levels.
- Be located within the vicinity of a private airstrip and would expose people residing or working in the project area to excessive noise levels.

### Long-Term Operational Impacts

The nearest airport in the vicinity of the project site is Flabob Airport (a small local airport), located approximately 4.8 miles to the south. The nearest major commercial airport is Ontario International Airport, located approximately 10.5 miles to the west. Although the project site is within the influence area of Ontario International Airport, the project site is outside of the airport's 60-65 dBA CNEL noise impact contours and is not located within any airport's noise impact zone (City of Ontario 2011). Therefore, the project would not expose people working in the project area to excessive noise levels associated with aircraft. No impacts would occur in this regard.

**Mitigation Measures:** No mitigation measures are required.

**Level of Significance:** No impact.

## 6.0 REFERENCES

- Caltrans (California Department of Transportation). 2013a. Transportation and Construction Vibration Guidance Manual. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office. Sacramento, California.
- . 2013b. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. <http://www.dot.ca.gov/hq/env/noise/>.
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- County of San Bernardino. 2007. General Plan Noise Element.
- . 2006. Roadway Construction Noise Model (FHWA-HEP-05-054).
- . 2008. Roadway Construction Noise Model (RCNM), Software Version 1.1. U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division. Washington, D.C.
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- FTA (Federal Transit Administration). 2006. Transit Noise and Vibration Impact Assessment.
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- Harris, Cyril M. 1979. *Handbook of Noise Control*.
- Michael Baker International. 2017. *Bloomington Business Center Traffic Impact Analysis*. Office of Planning and Research. 2003. General Plan Guidelines.
- Wilder, Jim. 2000. Noise Survey of Commercial Loading Dock Operations.

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# **APPENDIX A: NOISE MEASUREMENTS**

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<b>Site Number:</b> 1			
<b>Recorded By:</b> Alex Pohlman			
<b>Job Number:</b> 156590			
<b>Date:</b> 4/6/17			
<b>Time:</b> 11:30 a.m.			
<b>Location:</b> Along the eastern terminus of Otilla Street.			
<b>Source of Peak Noise:</b> Occasional traffic			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
47.2	37.2	66.4	83.28

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	3/27/2017	
	Microphone	Brüel & Kjær	4189	3086765	3/27/2017	
	Preamp	Brüel & Kjær	ZC 0032	25380	3/27/2017	
	Calibrator	Brüel & Kjær	4231	2545667	3/27/2017	
Weather Data						
Est.	<b>Duration:</b> 10 minutes			<b>Sky:</b> ☀ Sunny		
	<b>Note:</b> dBA Offset = 0.01			<b>Sensor Height (ft):</b> 5 ft		
	<b>Wind Ave Speed (mph / m/s)</b>		<b>Temperature (degrees Fahrenheit)</b>		<b>Barometer Pressure (inches)</b>	
	<5		86		29.94	

### Photo of Measurement Location



## 2250

Instrument:		2250
Application:		BZ7222 Version 4.7.2
Start Time:		04/06/2017 11:29:45
End Time:		04/06/2017 11:39:45
Elapsed Time:		00:10:00
Bandwidth:		Broadband
Max Input Level:		141.90

	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

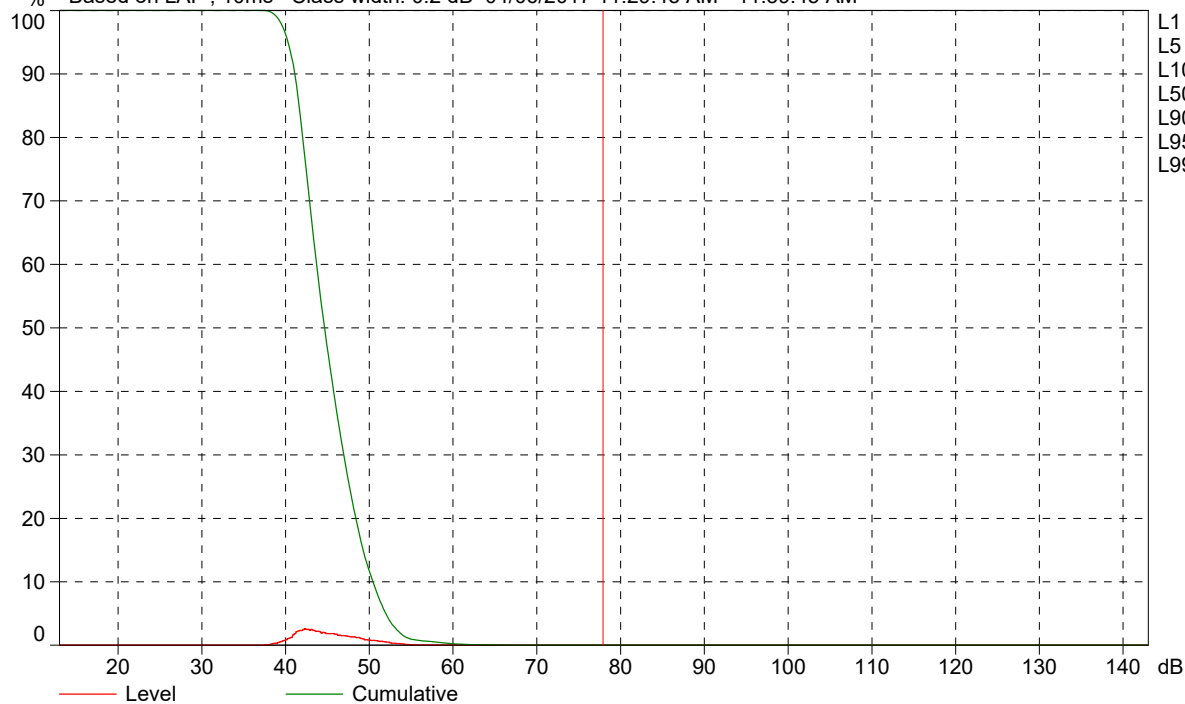
Calibration Time:		04/05/2017 13:30:48
Calibration Type:		External reference
Sensitivity:		44.729083776474 mV/Pa

## JM001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	47.2	66.4	37.2
Time	11:29:45 AM	11:39:45 AM	0:10:00				
Date	04/06/2017	04/06/2017					

JM001

% Based on LAF, 10ms Class width: 0.2 dB 04/06/2017 11:29:45 AM - 11:39:45 AM



L1 = 54.7 dB  
 L5 = 51.9 dB  
 L10 = 50.3 dB  
 L50 = 44.5 dB  
 L90 = 41.0 dB  
 L95 = 40.2 dB  
 L99 = 38.8 dB

Cursor: [77.8 ; 78.0] dB Level: 0.0% Cumulative: 0.0%

<b>Site Number:</b> 2			
<b>Recorded By:</b> Alex Pohlman			
<b>Job Number:</b> 156590			
<b>Date:</b> 4/6/17			
<b>Time:</b> 12:05 p.m.			
<b>Location:</b> Along the western side of Locust Avenue, approximately 100 feet north of Slover Avenue.			
<b>Source of Peak Noise:</b> Traffic along Slover			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
61.7	49.1	80.4	97.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	3/27/2017	
	Microphone	Brüel & Kjær	4189	3086765	3/27/2017	
	Preamp	Brüel & Kjær	ZC 0032	25380	3/27/2017	
	Calibrator	Brüel & Kjær	4231	2545667	3/27/2017	
Weather Data						
Est.	<b>Duration:</b> 10 minutes			<b>Sky:</b> ☀ Sunny		
	<b>Note:</b> dBA Offset = 0.01			<b>Sensor Height (ft):</b> 5 ft		
	<b>Wind Ave Speed (mph / m/s)</b>		<b>Temperature (degrees Fahrenheit)</b>		<b>Barometer Pressure (inches)</b>	
	<5		86		29.94	

### Photo of Measurement Location



## 2250

Instrument:		2250
Application:		BZ7222 Version 4.7.2
Start Time:		04/06/2017 12:05:42
End Time:		04/06/2017 12:15:42
Elapsed Time:		00:10:00
Bandwidth:		Broadband
Max Input Level:		141.90

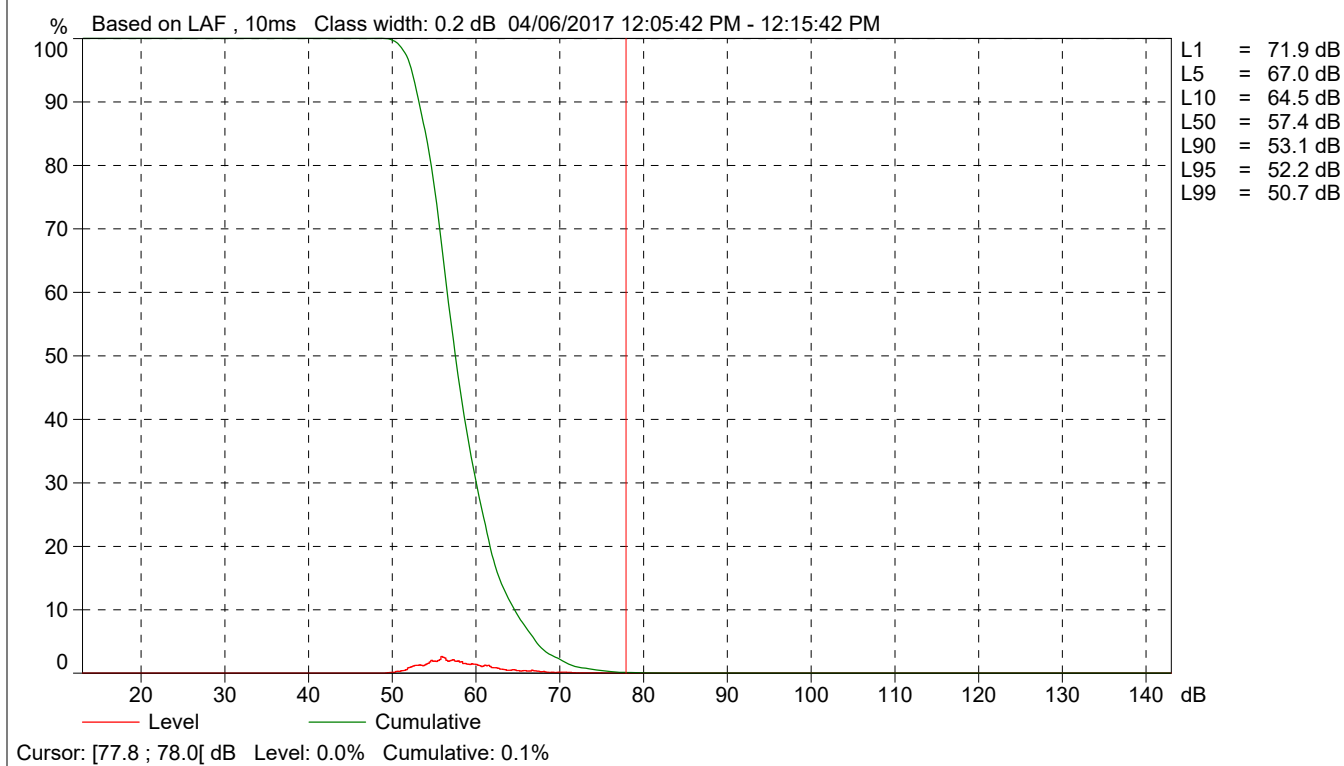
	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

Calibration Time:		04/05/2017 13:30:48
Calibration Type:		External reference
Sensitivity:		44.729083776474 mV/Pa

## JM002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	61.7	80.4	49.1
Time	12:05:42 PM	12:15:42 PM	0:10:00				
Date	04/06/2017	04/06/2017					

JM002

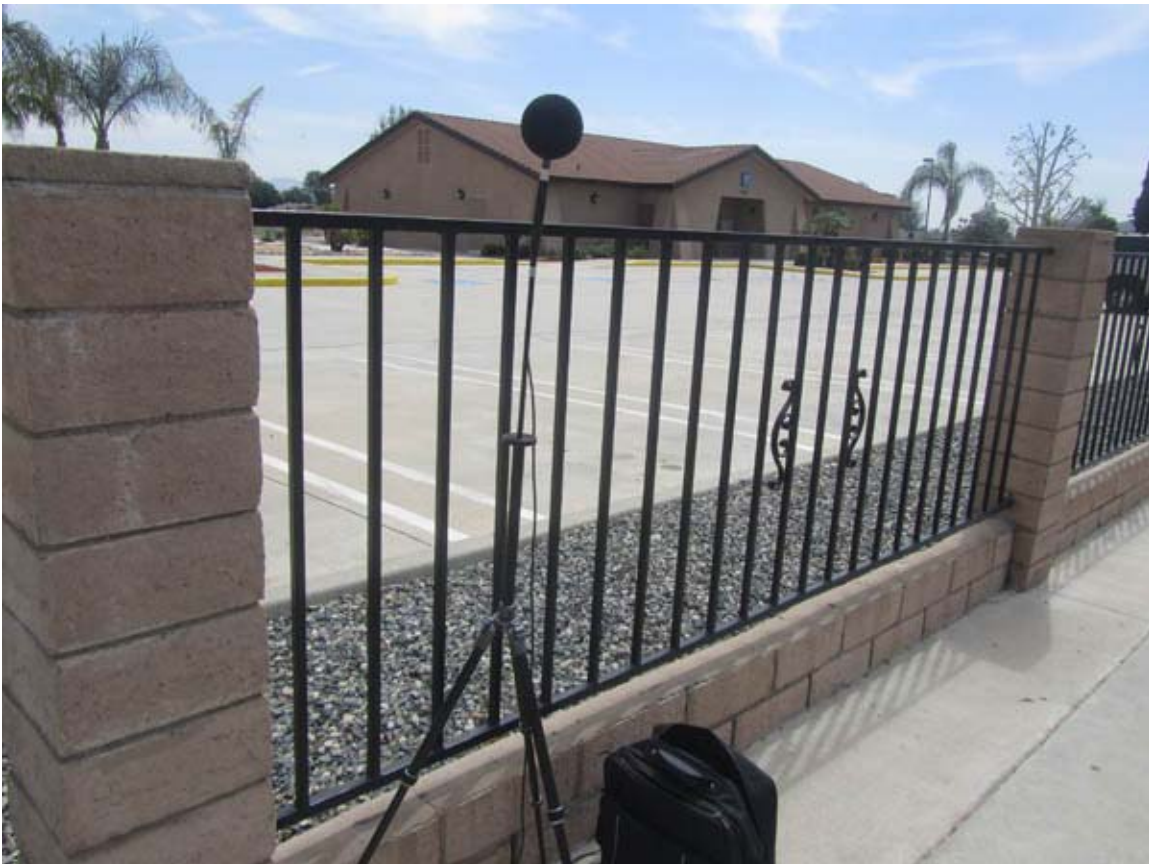




<b>Site Number:</b> 3			
<b>Recorded By:</b> Alex Pohlman			
<b>Job Number:</b> 156590			
<b>Date:</b> 4/6/17			
<b>Time:</b> 12:33 p.m.			
<b>Location:</b> Along the eastern side of Locust Avenue, approximately 400 feet south of Slover Avenue.			
<b>Source of Peak Noise:</b> Traffic along Slover Avenue and Locust Avenue			
<b>Noise Data</b>			
<b>Leq (dB)</b>	<b>Lmin (dB)</b>	<b>Lmax (dB)</b>	<b>Peak (dB)</b>
64.1	46.4	78.0	98.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	3/27/2017	
	Microphone	Brüel & Kjær	4189	3086765	3/27/2017	
	Preamp	Brüel & Kjær	ZC 0032	25380	3/27/2017	
	Calibrator	Brüel & Kjær	4231	2545667	3/27/2017	
Weather Data						
Est.	<b>Duration:</b> 10 minutes			<b>Sky:</b> ☀ Sunny		
	<b>Note:</b> dBA Offset = 0.01			<b>Sensor Height (ft):</b> 5 ft		
	<b>Wind Ave Speed (mph / m/s)</b>		<b>Temperature (degrees Fahrenheit)</b>		<b>Barometer Pressure (inches)</b>	
	<5		86		29.94	

### Photo of Measurement Location



# JM003

Instrument:		2250
Application:		BZ7222 Version 4.7.2
Start Time:		04/06/2017 12:23:16
End Time:		04/06/2017 12:33:16
Elapsed Time:		00:10:00
Bandwidth:		Broadband
Max Input Level:		141.90

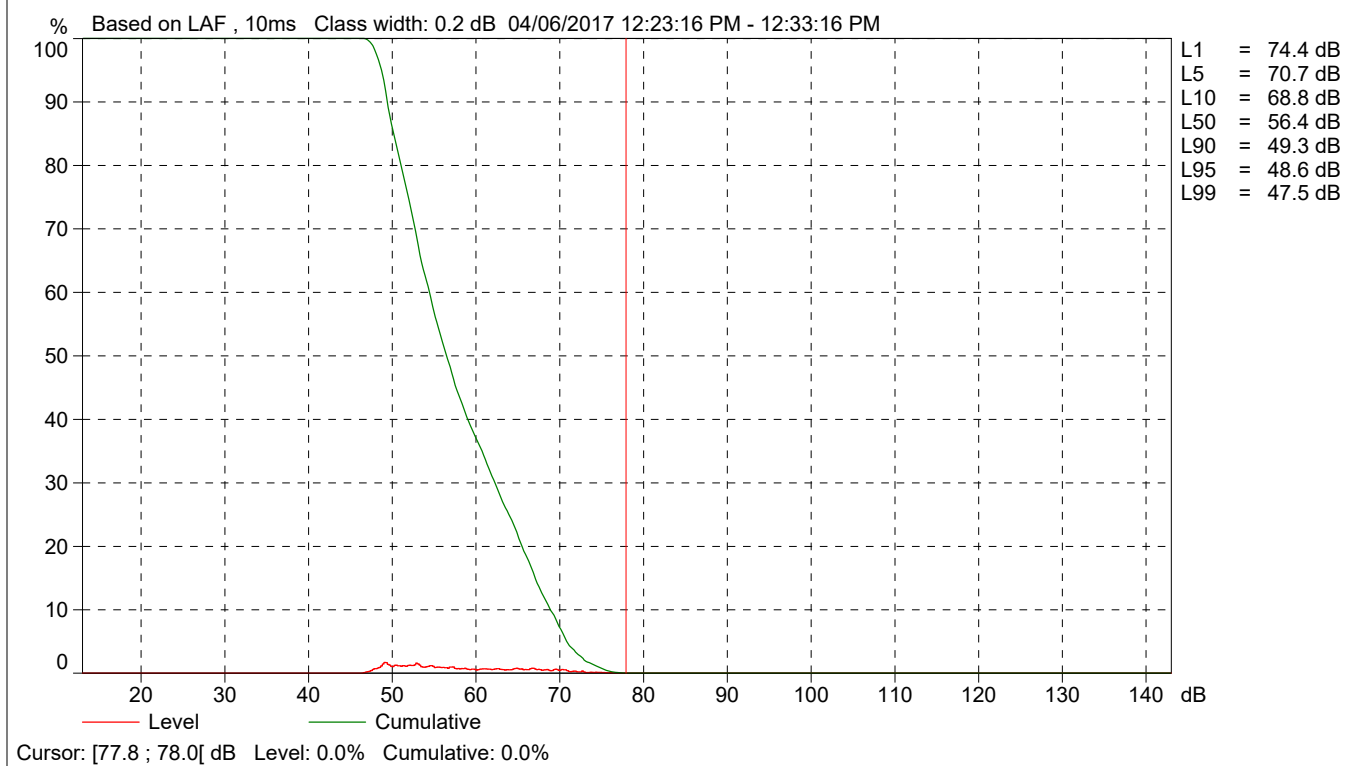
	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		UA-1650
Sound Field Correction:		Free-field

Calibration Time:		04/05/2017 13:30:48
Calibration Type:		External reference
Sensitivity:		44.729083776474 mV/Pa

# JM003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	64.1	78.0	46.4
Time	12:23:16 PM	12:33:16 PM	0:10:00				
Date	04/06/2017	04/06/2017					

JM003





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## **APPENDIX B: CONSTRUCTION NOISE**

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Roadway Construction Noise Model (RCNM),version 1.1

Report date: 04/12/2017  
Case Description: Bloomington Business Center - JM Realty: Demolition Phase

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
1: 17902 Otila St	Residential	47.2	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	564.0	5.0
Excavator	No	40		80.7	564.0	5.0
Dozer	No	40		81.7	564.0	5.0

Results

Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		63.5	56.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	4.3	N/A	N/A	N/A	N/A
Excavator		54.7	50.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		55.6	51.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		63.5	58.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	6.3	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #2 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
2: 17922 Otila St	Residential	47.2	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	464.0	5.0
Excavator	No	40		80.7	464.0	5.0
Dozer	No	40		81.7	464.0	5.0

Results

Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		65.2	58.2	N/A	52.2	N/A	N/A	N/A	N/A	N/A	6.0	N/A	N/A	N/A	N/A
Excavator		56.4	52.4	N/A	52.2	N/A	N/A	N/A	N/A	N/A	0.2	N/A	N/A	N/A	N/A
Dozer		57.3	53.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	1.1	N/A	N/A	N/A	N/A

Total 65.2 60.2 N/A 52.2 N/A N/A N/A 1 Demo Noise.txt N/A N/A 8.0 N/A N/A N/A N/A

\*\*\*\* Receptor #3 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
3: 17944 Otila St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	375.0	5.0
Excavator	No	40		80.7	375.0	5.0
Dozer	No	40		81.7	375.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	67.1	60.1	N/A	52.2	N/A	N/A	N/A	N/A		N/A	7.9	N/A	N/A	N/A	N/A
Excavator	58.2	54.2	N/A	52.2	N/A	N/A	N/A	N/A		N/A	2.0	N/A	N/A	N/A	N/A
Dozer	59.2	55.2	N/A	52.2	N/A	N/A	N/A	N/A		N/A	3.0	N/A	N/A	N/A	N/A
Total	67.1	62.1	N/A	52.2	N/A	N/A	N/A	N/A		N/A	9.9	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #4 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
4: 17966 Otila St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	286.0	5.0
Excavator	No	40		80.7	286.0	5.0
Dozer	No	40		81.7	286.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	69.4	62.4	N/A	52.2	N/A	N/A	N/A	N/A		N/A	10.2	N/A	N/A	N/A	N/A
Excavator	60.6	56.6	N/A	52.2	N/A	N/A	N/A	N/A		N/A	4.4	N/A	N/A	N/A	N/A
Dozer	61.5	57.5	N/A	52.2	N/A	N/A	N/A	N/A		N/A	5.3	N/A	N/A	N/A	N/A
Total	69.4	64.4	N/A	52.2	N/A	N/A	N/A	N/A		N/A	12.2	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #5 \*\*\*\*



Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
5: 17988 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	400.0	5.0
Excavator	No	40		80.7	400.0	5.0
Dozer	No	40		81.7	400.0	5.0

Results														
Noise Limits (dBA)										Noise Limit Exceedance (dBA)				
Calculated (dBA)		Day		Evening		Night		Day		Evening		Night		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.5	59.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	7.3	N/A	N/A	N/A	N/A
Excavator	57.6	53.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	1.5	N/A	N/A	N/A	N/A
Dozer	58.6	54.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	2.4	N/A	N/A	N/A	N/A
Total	66.5	61.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	9.3	N/A	N/A	N/A	N/A

-----  
7: 10638 Locust Ave      Residential      64.1      55.0      45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	714.0	0.0
Excavator	No	40		80.7	714.0	0.0
Dozer	No	40		81.7	714.0	0.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		66.5	59.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		57.6	53.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		58.6	54.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		66.5	61.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #8 \*\*\*\*

-----  
Description      Land Use      Baselines (dBA)  
-----  
8: 10606 Locust Ave      Residential      Daytime      Evening      Night  
-----  
64.1      55.0      45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	664.0	0.0
Excavator	No	40		80.7	664.0	0.0
Dozer	No	40		81.7	664.0	0.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		67.1	60.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		58.2	54.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		59.2	55.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		67.1	62.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #9 \*\*\*\*

-----  
Description      Land Use      Baselines (dBA)  
-----  
9: 10648 Spahn Dr      Residential      Daytime      Evening      Night  
-----  
64.1      55.0      45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	921.0	5.0
Excavator	No	40		80.7	921.0	5.0
Dozer	No	40		81.7	921.0	5.0

Results														
Noise Limits (dBA)										Noise Limit Exceedance (dBA)				
Calculated (dBA)			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	59.3	52.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator	50.4	46.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer	51.4	47.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	59.3	54.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

Description	Impact Device	Usage (%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	853.0	5.0
Excavator	No	40		80.7	853.0	5.0
Dozer	No	40		81.7	853.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		59.9	53.0	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		51.1	47.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		52.0	48.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		59.9	54.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #12 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
12: 10618 Spahn Dr	Residential	64.1	55.0	45.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	827.0	5.0
Excavator	No	40		80.7	827.0	5.0
Dozer	No	40		81.7	827.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		60.2	53.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		51.3	47.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		52.3	48.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		60.2	55.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #13 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
13: 10608 Spahn Dr	Residential	64.1	55.0	45.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Concrete Saw	No	20	89.6	801.0	5.0
Excavator	No	40	80.7	801.0	5.0
Dozer	No	40	81.7	801.0	5.0

Results

Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		60.5	53.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		51.6	47.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		52.6	48.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		60.5	55.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #14 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
14: Church	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	829.0	0.0
Excavator	No	40		80.7	829.0	0.0
Dozer	No	40		81.7	829.0	0.0

Results

Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		65.2	58.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		56.3	52.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		57.3	53.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		65.2	60.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #15 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
15: 18111 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	840.0	0.0
Excavator	No	40		80.7	840.0	0.0
Dozer	No	40		81.7	840.0	0.0

Results															
Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		65.1	58.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		56.2	52.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		57.2	53.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		65.1	60.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #16 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
16: 18133 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	941.0	0.0
Excavator	No	40		80.7	941.0	0.0
Dozer	No	40		81.7	941.0	5.0

Results															
Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		64.1	57.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		55.2	51.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		51.2	47.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		64.1	58.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #17 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
17: 18173 Slover Ave	Residential	61.7	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1154.0	10.0
Excavator	No	40		80.7	1154.0	10.0
Dozer	No	40		81.7	1154.0	10.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		52.3	45.3	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		43.4	39.5	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		44.4	40.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		52.3	47.3	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #18 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
18: 18189 Slover Ave	Residential	61.7	55.0	45.0

		Equipment				
		Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
						Estimated Shielding (dBA)
Concrete Saw		No	20		89.6	1351.0
Excavator		No	40		80.7	1351.0
Dozer		No	40		81.7	1351.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		50.9	44.0	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		42.1	38.1	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		43.0	39.1	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		50.9	46.0	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #19 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
19: 10471 Locust Ave	Industrial	61.7	55.0	45.0

		Equipment				
		Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
						Estimated Shielding (dBA)
Concrete Saw		No	20		89.6	1038.0
Excavator		No	40		80.7	1038.0
Dozer		No	40		81.7	1038.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	

1 Demo Noise.txt

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	58.2	51.2	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator	49.4	45.4	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer	50.3	46.3	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	58.2	53.2	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #20 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
20: 10441 Locust Ave	Industrial	61.7	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1201.0	5.0
Excavator	No	40		80.7	1201.0	5.0
Dozer	No	40		81.7	1201.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		57.0	50.0	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		48.1	44.1	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		49.1	45.1	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		57.0	52.0	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #21 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
21: 10450 Locust Ave	Industrial	61.7	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1024.0	5.0
Excavator	No	40		80.7	1024.0	5.0
Dozer	No	40		81.7	1024.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq



1 Demo Noise.txt														
Concrete Saw	58.4	51.4	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator	49.5	45.5	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer	50.4	46.5	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	58.4	53.4	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #22 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
22: 17887 Slover Ave	Industrial	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	775.0	0.0
Excavator	No	40		80.7	775.0	0.0
Dozer	No	40		81.7	775.0	0.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment	Calculated (dBA)		Day		Evening		Night			Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
	-----	-----	-----	-----	-----	-----	-----	-----		-----	-----	-----	-----	-----	-----
Concrete Saw	65.8	58.8	N/A	69.0	N/A	N/A	N/A	N/A		N/A	None	N/A	N/A	N/A	N/A
Excavator	56.9	52.9	N/A	69.0	N/A	N/A	N/A	N/A		N/A	None	N/A	N/A	N/A	N/A
Dozer	57.9	53.9	N/A	69.0	N/A	N/A	N/A	N/A		N/A	None	N/A	N/A	N/A	N/A
Total	65.8	60.8	N/A	69.0	N/A	N/A	N/A	N/A		N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #23 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
23: 10592 Laurel Ave	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	784.0	0.0
Excavator	No	40		80.7	784.0	0.0
Dozer	No	40		81.7	784.0	0.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment	Calculated (dBA)		Day		Evening		Night			Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
	-----	-----	-----	-----	-----	-----	-----	-----		-----	-----	-----	-----	-----	-----
Concrete Saw	65.7	58.7	N/A	52.2	N/A	N/A	N/A	N/A		N/A	6.5	N/A	N/A	N/A	N/A
Excavator	56.8	52.8	N/A	52.2	N/A	N/A	N/A	N/A		N/A	0.6	N/A	N/A	N/A	N/A
Dozer	57.8	53.8	N/A	52.2	N/A	N/A	N/A	N/A		N/A	1.6	N/A	N/A	N/A	N/A

Total 65.7 60.7 N/A 52.2 N/A N/A N/A 1 Demo Noise.txt N/A N/A 8.5 N/A N/A N/A N/A

\*\*\*\* Receptor #24 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
24: 17888 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	794.0	10.0
Excavator	No	40		80.7	794.0	10.0
Dozer	No	40		81.7	794.0	10.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		55.6	48.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		46.7	42.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		47.7	43.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		55.6	50.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #25 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
25: 17877 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	917.0	10.0
Excavator	No	40		80.7	917.0	10.0
Dozer	No	40		81.7	917.0	10.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		54.3	47.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		45.4	41.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		54.3	49.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #26 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
26: 10666 Laurel Ave	Residential	47.2	55.0	45.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	986.0	10.0
Excavator	No	40		80.7	986.0	10.0
Dozer	No	40		81.7	986.0	10.0

		Results													
		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		53.7	46.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		44.8	40.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		45.8	41.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	53.7	48.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #27 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
27: 18060 Slover Ave	Industrial	61.7	55.0	45.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	737.0	0.0
Excavator	No	40		80.7	737.0	0.0
Dozer	No	40		81.7	737.0	0.0

		Results													
		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		66.2	59.2	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Excavator		57.3	53.4	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		58.3	54.3	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	66.2	61.2	N/A	69.0	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/11/2017  
Case Description: Bloomington Business Center - JM Realty: Site Preparation Phase

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
1: 17902 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	564.0	5.0
Tractor	No	40	84.0		564.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		55.6	51.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		58.0	54.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	1.8	N/A	N/A	N/A	N/A
Total		58.0	56.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	3.8	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #2 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
2: 17922 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	464.0	5.0
Tractor	No	40	84.0		464.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		57.3	53.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	1.1	N/A	N/A	N/A	N/A
Tractor		59.6	55.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	3.5	N/A	N/A	N/A	N/A
Total		59.6	57.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	5.5	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #3 \*\*\*\*

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Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
3: 17944 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	375.0	5.0
Tractor	No	40	84.0		375.0	5.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer			59.2	55.2	N/A	52.2	N/A	N/A	N/A	N/A	3.0	N/A	N/A	N/A	N/A
Tractor			61.5	57.5	N/A	52.2	N/A	N/A	N/A	N/A	5.3	N/A	N/A	N/A	N/A
Total			61.5	59.5	N/A	52.2	N/A	N/A	N/A	N/A	7.3	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #4 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
4: 17966 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	286.0	5.0
Tractor	No	40	84.0		286.0	5.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer			61.5	57.5	N/A	52.2	N/A	N/A	N/A	N/A	5.3	N/A	N/A	N/A	N/A
Tractor			63.9	59.9	N/A	52.2	N/A	N/A	N/A	N/A	7.7	N/A	N/A	N/A	N/A
Total			63.9	61.9	N/A	52.2	N/A	N/A	N/A	N/A	9.7	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #5 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
5: 17988 Otilla St	Residential	47.2	55.0	45.0

Equipment

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Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	400.0	5.0
Tractor	No	40	84.0		400.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		58.6	54.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	2.4	N/A	N/A	N/A	N/A
Tractor		60.9	57.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	4.8	N/A	N/A	N/A	N/A
	Total	60.9	59.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	6.8	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #6 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
6: 17977 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	543.0	10.0
Tractor	No	40	84.0		543.0	10.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		51.0	47.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		53.3	49.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	53.3	51.3	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #7 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
7: 10638 Locust Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	714.0	0.0
Tractor	No	40	84.0		714.0	0.0

Results																
-----																
			Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
-----																
Dozer			58.6	54.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor			60.9	56.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total		60.9	58.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #8 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
8: 10606 Locust Ave	Residential	64.1	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----						
Dozer	No	40		81.7	664.0	0.0
Tractor	No	40	84.0		664.0	0.0

Results																
-----																
			Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment																
-----																
Dozer			59.2	55.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	
Tractor			61.5	57.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	
	Total		61.5	59.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	

\*\*\*\* Receptor #9 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
9: 10648 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----						
Dozer	No	40		81.7	921.0	5.0
Tractor	No	40	84.0		921.0	5.0

Results																
-----																
Equipment			Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

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Dozer		51.4	47.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		53.7	49.7	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	53.7	51.7	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #10 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
10: 10638 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	884.0	5.0
Tractor	No	40	84.0		884.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		51.7	47.7	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		54.1	50.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	54.1	52.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #11 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
11: 10628 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	853.0	5.0
Tractor	No	40	84.0		853.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		52.0	48.1	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		54.4	50.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	54.4	52.4	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #12 \*\*\*\*



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Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
12: 10618 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	827.0	5.0
Tractor	No	40	84.0		827.0	5.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		52.3	48.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		54.6	50.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		54.6	52.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #13 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
13: 10608 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	801.0	5.0
Tractor	No	40	84.0		801.0	5.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment															
Dozer		52.6	48.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		54.9	50.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	54.9	52.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #14 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
14: Church	Residential	64.1	55.0	45.0

Equipment

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Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	829.0	0.0
Tractor	No	40	84.0		829.0	0.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		57.3	53.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		59.6	55.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	59.6	57.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #15 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
15: 18111 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	840.0	0.0
Tractor	No	40	84.0		840.0	0.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		57.2	53.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		59.5	55.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	59.5	57.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #16 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
16: 18133 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	941.0	5.0
Tractor	No	40	84.0		941.0	5.0

Results																
-----																
			Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
					Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		
-----			-----		-----		-----		-----		-----		-----			
Dozer			51.2	47.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A		
Tractor			53.5	49.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A		
	Total		53.5	51.5	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A		

\*\*\*\* Receptor #17 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
17: 18173 Slover Ave	Residential	61.7	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----						
Dozer	No	40		81.7	1154.0	10.0
Tractor	No	40	84.0		1154.0	10.0

Results																
-----																
			Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
-----			-----		-----		-----		-----		-----		-----		-----	
Dozer			44.4	40.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor			46.7	42.8	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total		46.7	44.8	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #18 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
18: 18189 Slover Ave	Residential	61.7	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----						
Dozer	No	40		81.7	1351.0	10.0
Tractor	No	40	84.0		1351.0	10.0

Results																
-----																
Equipment			Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
			Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			-----		-----		-----		-----		-----		-----		-----	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

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Dozer		43.0	39.1	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		45.4	41.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	45.4	43.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #19 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
19: 10471 Locust Ave	Industrial	61.7	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1038.0	5.0
Tractor	No	40	84.0		1038.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		50.3	46.3	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		52.7	48.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	52.7	50.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #20 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
20: 10441 Locust Ave	Industrial	61.7	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	1201.0	5.0
Tractor	No	40	84.0		1201.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		49.1	45.1	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		51.4	47.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	51.4	49.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #21 \*\*\*\*

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Description	Land Use	Baselines (dBA)		
-----	-----	Daytime	Evening	Night
21: 10450 Locust Ave	Industrial	61.7	55.0	45.0

Equipment						
-----	-----	-----	-----	-----	-----	-----
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----	-----	-----	-----	-----	-----	-----
Dozer	No	40		81.7	1024.0	5.0
Tractor	No	40	84.0		1024.0	5.0

Results															
-----															
Noise Limits (dBA)															
-----															
		Calculated (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
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dozer		50.4	46.5	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		52.8	48.8	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		52.8	50.8	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #22 \*\*\*\*

Description	Land Use	Baselines (dBA)		
-----	-----	Daytime	Evening	Night
22: 17887 Slover Ave	Industrial	61.7	55.0	45.0

Equipment						
-----	-----	-----	-----	-----	-----	-----
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----	-----	-----	-----	-----	-----	-----
Dozer	No	40		81.7	775.0	0.0
Tractor	No	40	84.0		775.0	0.0

Results															
-----															
Noise Limits (dBA)															
-----															
Noise Limit Exceedance (dBA)															
-----															
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment		-----													
Dozer	Tractor		57.9	53.9	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A
			60.2	56.2	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A
		Total	60.2	58.2	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A

\*\*\*\* Receptor #23 \*\*\*\*

Description	Land Use	Baselines (dBA)		
-----	-----	Daytime	Evening	Night
23: 10592 Laurel Ave	Residential	47.2	55.0	45.0

Equipment  
-----

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Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	784.0	0.0
Tractor	No	40	84.0		784.0	0.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		57.8	53.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	1.6	N/A	N/A	N/A	N/A
Tractor		60.1	56.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	3.9	N/A	N/A	N/A	N/A
	Total	60.1	58.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	5.9	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #24 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
24: 17888 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	794.0	10.0
Tractor	No	40	84.0		794.0	10.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		47.7	43.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		50.0	46.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	50.0	48.0	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #25 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
25: 17877 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	917.0	10.0
Tractor	No	40	84.0		917.0	10.0

Results														
-----														
Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
-----			-----		-----		-----		-----		-----		-----	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	46.4	42.4	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor	48.7	44.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	48.7	46.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #26 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
26: 10666 Laurel Ave	Residential	47.2	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	986.0	10.0
Tractor	No	40	84.0		986.0	10.0

Results														
-----														
Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
-----			-----		-----		-----		-----		-----		-----	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	45.8	41.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor	48.1	44.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	48.1	46.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #27 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
27: 18060 Slover Ave	Industrial	61.7	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	737.0	0.0
Tractor	No	40	84.0		737.0	0.0

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

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Dozer		58.3	54.3	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		60.6	56.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
	Total	60.6	58.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A



Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/11/2017  
Case Description: Bloomington Business Center - JM Realty: Grading Phase

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
1: 17902 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	564.0	5.0
Dozer	No	40		81.7	564.0	5.0
Tractor	No	40	84.0		564.0	5.0
Grader	No	40	85.0		564.0	5.0
Scraper	No	40		83.6	564.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator			54.7	50.7	N/A	52.2	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer			55.6	51.6	N/A	52.2	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor			58.0	54.0	N/A	52.2	N/A	N/A	N/A	N/A	1.8	N/A	N/A	N/A	N/A
Grader			59.0	55.0	N/A	52.2	N/A	N/A	N/A	N/A	2.8	N/A	N/A	N/A	N/A
Scraper			57.5	53.6	N/A	52.2	N/A	N/A	N/A	N/A	1.4	N/A	N/A	N/A	N/A
Total			59.0	60.2	N/A	52.2	N/A	N/A	N/A	N/A	8.0	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #2 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
2: 17922 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	464.0	5.0
Dozer	No	40		81.7	464.0	5.0
Tractor	No	40	84.0		464.0	5.0
Grader	No	40	85.0		464.0	5.0
Scraper	No	40		83.6	464.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq

3 Grading.txt

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	56.4	52.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	57.3	53.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	59.6	55.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.7	N/A	1.7	N/A	1.7
Grader	60.6	56.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.7	N/A	2.7	N/A	2.7
Scraper	59.2	55.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.2	N/A	1.2	N/A	1.2
Total	60.6	61.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	7.9	N/A	7.9	N/A	7.9

\*\*\*\* Receptor #3 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
3: 17944 Otila St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	375.0	5.0
Dozer	No	40		81.7	375.0	5.0
Tractor	No	40	84.0		375.0	5.0
Grader	No	40	85.0		375.0	5.0
Scraper	No	40		83.6	375.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		58.2	54.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	0.2	N/A	0.2	N/A	0.2
Dozer		59.2	55.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.2	N/A	1.2	N/A	1.2
Tractor		61.5	57.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.5	N/A	3.5	N/A	3.5
Grader		62.5	58.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	4.5	N/A	4.5	N/A	4.5
Scraper		61.1	57.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.1	N/A	3.1	N/A	3.1
Total		62.5	63.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	9.8	N/A	9.8	N/A	9.8

\*\*\*\* Receptor #4 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
4: 17966 Otila St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	286.0	5.0
Dozer	No	40		81.7	286.0	5.0
Tractor	No	40	84.0		286.0	5.0
Grader	No	40	85.0		286.0	5.0
Scraper	No	40		83.6	286.0	5.0

Results														
-----														
Noise Limits (dBA)														
-----														
Noise Limit Exceedance (dBA)														
-----														
Calculated (dBA)			Day		Evening		Night		Day		Evening		Night	
-----			-----		-----		-----		-----		-----		-----	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Excavator	60.6	56.6	N/A	52.2	N/A	N/A	N/A	N/A	N/A	4.4	N/A	N/A	N/A	N/A
Dozer	61.5	57.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	5.3	N/A	N/A	N/A	N/A
Tractor	63.9	59.9	N/A	52.2	N/A	N/A	N/A	N/A	N/A	7.7	N/A	N/A	N/A	N/A
Grader	64.9	60.9	N/A	52.2	N/A	N/A	N/A	N/A	N/A	8.7	N/A	N/A	N/A	N/A
Scraper	63.4	59.5	N/A	52.2	N/A	N/A	N/A	N/A	N/A	7.3	N/A	N/A	N/A	N/A
Total	64.9	66.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	13.9	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #5 \*\*\*\*

Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night
-----	-----	-----	-----	-----
5: 17988 Otilla St	Residential	47.2	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----	-----	-----	-----	-----	-----	-----
Excavator	No	40		80.7	400.0	5.0
Dozer	No	40		81.7	400.0	5.0
Tractor	No	40	84.0		400.0	5.0
Grader	No	40	85.0		400.0	5.0
Scraper	No	40		83.6	400.0	5.0

Results														
-----														
Noise Limits (dBA)														
-----														
Noise Limit Exceedance (dBA)														
-----														
Calculated (dBA)			Day		Evening		Night		Day		Evening		Night	
-----			-----		-----		-----		-----		-----		-----	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Excavator	57.6	53.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	58.6	54.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	0.6	N/A	0.6	N/A	0.6
Tractor	60.9	57.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.0	N/A	3.0	N/A	3.0
Grader	61.9	58.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	4.0	N/A	4.0	N/A	4.0
Scraper	60.5	56.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.5	N/A	2.5	N/A	2.5
Total	61.9	63.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	9.2	N/A	9.2	N/A	9.2

\*\*\*\* Receptor #6 \*\*\*\*

Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night
-----	-----	-----	-----	-----
6: 17977 Otilla St	Residential	47.2	55.0	45.0

Equipment						
-----						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
-----	-----	-----	-----	-----	-----	-----
Excavator	No	40		80.7	543.0	10.0

Dozer	No	40		81.7	543.0	10.0
Tractor	No	40	84.0		543.0	10.0
Grader	No	40	85.0		543.0	10.0
Scraper	No	40		83.6	543.0	10.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		50.0	46.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		51.0	47.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor		53.3	49.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader		54.3	50.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper		52.9	48.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total		54.3	55.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.6	N/A	1.6	N/A	1.6

\*\*\*\* Receptor #7 \*\*\*\*

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
7: 10638 Locust Ave	Residential	64.1	55.0	45.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	714.0	0.0
Dozer	No	40		81.7	714.0	0.0
Tractor	No	40	84.0		714.0	0.0
Grader	No	40	85.0		714.0	0.0
Scraper	No	40		83.6	714.0	0.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		57.6	53.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		58.6	54.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	0.6	N/A	0.6	N/A	0.6
Tractor		60.9	56.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.9	N/A	2.9	N/A	2.9
Grader		61.9	57.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.9	N/A	3.9	N/A	3.9
Scraper		60.5	56.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.5	N/A	2.5	N/A	2.5
Total		61.9	63.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	9.2	N/A	9.2	N/A	9.2

\*\*\*\* Receptor #8 \*\*\*\*

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
8: 10606 Locust Ave	Residential	64.1	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	664.0	0.0
Dozer	No	40		81.7	664.0	0.0
Tractor	No	40	84.0		664.0	0.0
Grader	No	40	85.0		664.0	0.0
Scraper	No	40		83.6	664.0	0.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		58.2	54.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	0.3	N/A	0.3	N/A	0.3
Dozer		59.2	55.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.2	N/A	1.2	N/A	1.2
Tractor		61.5	57.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.6	N/A	3.6	N/A	3.6
Grader		62.5	58.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	4.6	N/A	4.6	N/A	4.6
Scraper		61.1	57.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.1	N/A	3.1	N/A	3.1
Total		62.5	63.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	9.8	N/A	9.8	N/A	9.8

\*\*\*\* Receptor #9 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
9: 10648 Spahn Dr	Residential	64.1	55.0	45.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	921.0	5.0
Dozer	No	40		81.7	921.0	5.0
Tractor	No	40	84.0		921.0	5.0
Grader	No	40	85.0		921.0	5.0
Scraper	No	40		83.6	921.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		50.4	46.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		51.4	47.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor		53.7	49.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader		54.7	50.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper		53.3	49.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total		54.7	56.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.0	N/A	2.0	N/A	2.0

\*\*\*\* Receptor #10 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night

-----  
10: 10638 Spahn Dr      Residential      64.1      55.0      45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	884.0	5.0
Dozer	No	40		81.7	884.0	5.0
Tractor	No	40	84.0		884.0	5.0
Grader	No	40	85.0		884.0	5.0
Scraper	No	40		83.6	884.0	5.0

Results														

\*\*\*\* Receptor #11 \*\*\*\*

-----  
Description      Land Use      Baselines (dBA)  
-----  
11: 10628 Spahn Dr      Residential      Daytime      Evening      Night  
-----  
64.1      55.0      45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	853.0	5.0
Dozer	No	40		81.7	853.0	5.0
Tractor	No	40	84.0		853.0	5.0
Grader	No	40	85.0		853.0	5.0
Scraper	No	40		83.6	853.0	5.0

Results														

\*\*\*\* Receptor #12 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
12: 10618 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	827.0	5.0
Dozer	No	40		81.7	827.0	5.0
Tractor	No	40	84.0		827.0	5.0
Grader	No	40	85.0		827.0	5.0
Scraper	No	40		83.6	827.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	51.3	47.4	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Dozer	52.3	48.3	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Tractor	54.6	50.6	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Grader	55.6	51.6	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Scraper	54.2	50.2	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Total	55.6	56.9	N/A	54.0	N/A	54.0	N/A	54.0		N/A	2.9	N/A	2.9	N/A	2.9

\*\*\*\* Receptor #13 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
13: 10608 Spahn Dr	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	801.0	5.0
Dozer	No	40		81.7	801.0	5.0
Tractor	No	40	84.0		801.0	5.0
Grader	No	40	85.0		801.0	5.0
Scraper	No	40		83.6	801.0	5.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	51.6	47.6	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None

3 Grading.txt														
Dozer	52.6	48.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	54.9	50.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	55.9	51.9	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	54.5	50.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	55.9	57.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	3.2	N/A	3.2	N/A	3.2

\*\*\*\* Receptor #14 \*\*\*\*

Description	Land Use	Baselines (dBA)													
		Daytime	Evening	Night											
14: Church	Residential	64.1	55.0	45.0											
Equipment															
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)									
Excavator	No	40		80.7	829.0	0.0									
Dozer	No	40		81.7	829.0	0.0									
Tractor	No	40	84.0		829.0	0.0									
Grader	No	40	85.0		829.0	0.0									
Scraper	No	40		83.6	829.0	0.0									
Results															
Noise Limits (dBA)					Noise Limit Exceedance (dBA)										
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		56.3	52.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer		57.3	53.3	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor		59.6	55.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Grader		60.6	56.6	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Scraper		59.2	55.2	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total		60.6	61.9	N/A	69.1	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #15 \*\*\*\*

Description		Land Use		Baselines (dBA)		Daytime		Evening		Night	
-----		-----		-----		-----		-----		-----	
15: 18111 Slover Ave		Residential		64.1		55.0		45.0			



3 Grading.txt

Equipment	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	56.2	52.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	57.2	53.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	59.5	55.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.5	N/A	1.5	N/A	1.5
Grader	60.5	56.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.5	N/A	2.5	N/A	2.5
Scraper	59.1	55.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	1.1	N/A	1.1	N/A	1.1
Total	60.5	61.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	7.8	N/A	7.8	N/A	7.8

\*\*\*\* Receptor #16 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
16: 18133 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator	No	40		80.7	941.0	0.0
Dozer	No	40		81.7	941.0	5.0
Tractor	No	40	84.0		941.0	5.0
Grader	No	40	85.0		941.0	5.0
Scraper	No	40		83.6	941.0	5.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	55.2	51.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	51.2	47.2	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	53.5	49.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	54.5	50.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	53.1	49.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	55.2	56.7	N/A	54.0	N/A	54.0	N/A	54.0	N/A	2.7	N/A	2.7	N/A	2.7

\*\*\*\* Receptor #17 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
17: 18173 Slover Ave	Residential	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator	No	40		80.7	1154.0	10.0
Dozer	No	40		81.7	1154.0	10.0
Tractor	No	40	84.0		1154.0	10.0
Grader	No	40	85.0		1154.0	10.0
Scraper	No	40		83.6	1154.0	10.0

Results															
Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		43.4	39.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		44.4	40.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor		46.7	42.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader		47.7	43.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper		46.3	42.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total		47.7	49.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #18 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
18: 18189 Slover Ave	Residential	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1351.0	10.0
Dozer	No	40		81.7	1351.0	10.0
Tractor	No	40	84.0		1351.0	10.0
Grader	No	40	85.0		1351.0	10.0
Scraper	No	40		83.6	1351.0	10.0

Results															
Equipment		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		42.1	38.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		43.0	39.1	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor		45.4	41.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader		46.4	42.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper		44.9	41.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total		46.4	47.6	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #19 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
19: 10471 Locust Ave	Industrial	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Excavator	No	40		80.7	1038.0	5.0
Dozer	No	40		81.7	1038.0	5.0
Tractor	No	40	84.0		1038.0	5.0
Grader	No	40	85.0		1038.0	5.0
Scraper	No	40		83.6	1038.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		49.4	45.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer		50.3	46.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor		52.7	48.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader		53.7	49.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper		52.2	48.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total		53.7	54.9	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #20 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
20: 10441 Locust Ave	Industrial	61.7	70.0	70.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1201.0	5.0
Dozer	No	40		81.7	1201.0	5.0
Tractor	No	40	84.0		1201.0	5.0
Grader	No	40	85.0		1201.0	5.0
Scraper	No	40		83.6	1201.0	5.0

Results

		Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		48.1	44.1	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer		49.1	45.1	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor		51.4	47.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader		52.4	48.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper		51.0	47.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total		52.4	53.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #21 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
21: 10450 Locust Ave	Industrial	61.7	70.0	70.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1024.0	5.0
Dozer	No	40		81.7	1024.0	5.0
Tractor	No	40	84.0		1024.0	5.0
Grader	No	40	85.0		1024.0	5.0
Scraper	No	40		83.6	1024.0	5.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	49.5	45.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	50.4	46.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	52.8	48.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	53.8	49.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	52.4	48.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	53.8	55.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #22 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
22: 17887 Slover Ave	Industrial	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	775.0	0.0
Dozer	No	40		81.7	775.0	0.0
Tractor	No	40	84.0		775.0	0.0
Grader	No	40	85.0		775.0	0.0
Scraper	No	40		83.6	775.0	0.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	56.9	52.9	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	57.9	53.9	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	60.2	56.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	61.2	57.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	59.8	55.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	61.2	62.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #23 \*\*\*\*

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
23: 10592 Laurel Ave	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	784.0	0.0
Dozer	No	40		81.7	784.0	0.0
Tractor	No	40	84.0		784.0	0.0
Grader	No	40	85.0		784.0	0.0
Scraper	No	40		83.6	784.0	0.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	56.8	52.8	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Dozer	57.8	53.8	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Tractor	60.1	56.1	N/A	54.0	N/A	54.0	N/A	54.0		N/A	2.1	N/A	2.1	N/A	2.1
Grader	61.1	57.1	N/A	54.0	N/A	54.0	N/A	54.0		N/A	3.1	N/A	3.1	N/A	3.1
Scraper	59.7	55.7	N/A	54.0	N/A	54.0	N/A	54.0		N/A	1.7	N/A	1.7	N/A	1.7
Total	61.1	62.4	N/A	54.0	N/A	54.0	N/A	54.0		N/A	8.4	N/A	8.4	N/A	8.4

\*\*\*\* Receptor #24 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
24: 17888 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	794.0	10.0
Dozer	No	40		81.7	794.0	10.0
Tractor	No	40	84.0		794.0	10.0
Grader	No	40	85.0		794.0	10.0
Scraper	No	40		83.6	794.0	10.0

Results															
Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night			Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	46.7	42.7	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Dozer	47.7	43.7	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Tractor	50.0	46.0	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Grader	51.0	47.0	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None
Scraper	49.6	45.6	N/A	54.0	N/A	54.0	N/A	54.0		N/A	None	N/A	None	N/A	None

Total51.052.3N/A54.0N/A54.0N/A54.03 Grading.txtN/ANoneN/ANoneN/ANone

\*\*\*\* Receptor #25 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
25: 17877 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	917.0	10.0
Dozer	No	40		81.7	917.0	10.0
Tractor	No	40	84.0		917.0	10.0
Grader	No	40	85.0		917.0	10.0
Scraper	No	40		83.6	917.0	10.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		45.4	41.5	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer		46.4	42.4	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor		48.7	44.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader		49.7	45.8	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper		48.3	44.3	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total		49.7	51.0	N/A	54.0	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #26 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
26: 10666 Laurel Ave	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	986.0	10.0
Dozer	No	40		81.7	986.0	10.0
Tractor	No	40	84.0		986.0	10.0
Grader	No	40	85.0		986.0	10.0
Scraper	No	40		83.6	986.0	10.0

Results

Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
Equipment		Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

3 Grading.txt														
Excavator	44.8	40.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer	45.8	41.8	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor	48.1	44.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Grader	49.1	45.1	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Scraper	47.7	43.7	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	49.1	50.4	N/A	52.2	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

\*\*\*\* Receptor #27 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
27: 18060 Slover Ave	Industrial	61.7	70.0	70.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	737.0	0.0
Dozer	No	40		81.7	737.0	0.0
Tractor	No	40	84.0		737.0	0.0
Grader	No	40	85.0		737.0	0.0
Scraper	No	40		83.6	737.0	0.0

Results

Equipment	Noise Limits (dBA)													
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	57.3	53.4	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Dozer	58.3	54.3	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Tractor	60.6	56.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Grader	61.6	57.7	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Scraper	60.2	56.2	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Total	61.6	62.9	N/A	66.7	N/A	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/11/2017  
Case Description: Bloomington Business Center - JM Realty

\*\*\*\* Receptor #1 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
1: 17902 Otila St	Residential	47.2	55.0	45.0

Equipment					
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Concrete Saw	No	20		89.6	564.0
Excavator	No	40		80.7	564.0
Dozer	No	40		81.7	564.0
Tractor	No	40	84.0		564.0
Grader	No	40	85.0		564.0
Scraper	No	40		83.6	564.0
Crane	No	16		80.6	564.0
Generator	No	50		80.6	564.0
Welder / Torch	No	40		74.0	564.0
Paver	No	50		77.2	564.0
Roller	No	20		80.0	564.0
Compressor (air)	No	40		77.7	564.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	63.5	56.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.3	N/A	2.5	N/A	2.5
Excavator	54.7	50.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	0.5	N/A	None	N/A	None
Dozer	55.6	51.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	1.4	N/A	None	N/A	None
Tractor	58.0	54.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.8	N/A	None	N/A	None
Grader	59.0	55.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.8	N/A	1.0	N/A	1.0
Scraper	57.5	53.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.4	N/A	None	N/A	None
Crane	54.5	46.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	54.6	51.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	1.4	N/A	None	N/A	None
Welder / Torch	48.0	44.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	51.2	48.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	54.0	47.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	51.6	47.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	63.5	62.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	12.6	N/A	8.8	N/A	8.8

\*\*\*\* Receptor #2 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
2: 17922 Otila St	Residential	47.2	55.0	45.0

Equipment			
Spec	Actual	Receptor	Estimated



4 Construction Noise.txt

Description	Impact Device	Usage (%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	464.0	5.0
Excavator	No	40		80.7	464.0	5.0
Dozer	No	40		81.7	464.0	5.0
Tractor	No	40	84.0		464.0	5.0
Grader	No	40	85.0		464.0	5.0
Scraper	No	40		83.6	464.0	5.0
Crane	No	16		80.6	464.0	5.0
Generator	No	50		80.6	464.0	5.0
Welder / Torch	No	40		74.0	464.0	5.0
Paver	No	50		77.2	464.0	5.0
Roller	No	20		80.0	464.0	5.0
Compressor (air)	No	40		77.7	464.0	5.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	65.2	58.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	8.0	N/A	4.2	N/A	4.2
Excavator	56.4	52.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	2.2	N/A	None	N/A	None
Dozer	57.3	53.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.1	N/A	None	N/A	None
Tractor	59.6	55.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	5.5	N/A	1.7	N/A	1.7
Grader	60.6	56.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.5	N/A	2.7	N/A	2.7
Scraper	59.2	55.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	5.0	N/A	1.2	N/A	1.2
Crane	56.2	48.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	56.3	53.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.1	N/A	None	N/A	None
Welder / Torch	49.6	45.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	52.9	49.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	55.6	48.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	53.3	49.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	65.2	64.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	14.3	N/A	10.5	N/A	10.5

\*\*\*\* Receptor #3 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
3: 17944 Otilla St	Residential	47.2	55.0	45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	375.0	5.0
Excavator	No	40		80.7	375.0	5.0
Dozer	No	40		81.7	375.0	5.0
Tractor	No	40	84.0		375.0	5.0
Grader	No	40	85.0		375.0	5.0
Scraper	No	40		83.6	375.0	5.0
Crane	No	16		80.6	375.0	5.0
Generator	No	50		80.6	375.0	5.0
Welder / Torch	No	40		74.0	375.0	5.0
Paver	No	50		77.2	375.0	5.0
Roller	No	20		80.0	375.0	5.0
Compressor (air)	No	40		77.7	375.0	5.0

4 Construction Noise.txt

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	67.1	60.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	9.9	N/A	6.1	N/A	6.1
Excavator	58.2	54.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.0	N/A	0.2	N/A	0.2
Dozer	59.2	55.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	5.0	N/A	1.2	N/A	1.2
Tractor	61.5	57.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	7.3	N/A	3.5	N/A	3.5
Grader	62.5	58.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	8.3	N/A	4.5	N/A	4.5
Scraper	61.1	57.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.9	N/A	3.1	N/A	3.1
Crane	58.0	50.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	58.1	55.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.9	N/A	1.1	N/A	1.1
Welder / Torch	51.5	47.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	54.7	51.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	1.5	N/A	None	N/A	None
Roller	57.5	50.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	0.3	N/A	None	N/A	None
Compressor (air)	55.2	51.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	1.0	N/A	None	N/A	None
Total	67.1	66.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	16.1	N/A	12.3	N/A	12.3

\*\*\*\* Receptor #4 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
4: 17966 Otilia St	Residential	47.2	55.0	45.0

Description	Equipment		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
	Impact Device	Usage (%)				
Concrete Saw	No	20	84.0	89.6	286.0	5.0
Excavator	No	40		80.7	286.0	5.0
Dozer	No	40		81.7	286.0	5.0
Tractor	No	40			286.0	5.0
Grader	No	40			286.0	5.0
Scraper	No	40	85.0		286.0	5.0
Crane	No	16		83.6	286.0	5.0
Generator	No	50		80.6	286.0	5.0
Welder / Torch	No	40		80.6	286.0	5.0
Paver	No	40		74.0	286.0	5.0
Roller	No	50		77.2	286.0	5.0
Compressor (air)	No	20		80.0	286.0	5.0
	No	40		77.7	286.0	5.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	69.4	62.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	12.2	N/A	8.4	N/A	8.4
Excavator	60.6	56.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.4	N/A	2.6	N/A	2.6
Dozer	61.5	57.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	7.3	N/A	3.5	N/A	3.5
Tractor	63.9	59.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	9.7	N/A	5.9	N/A	5.9
Grader	64.9	60.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	10.7	N/A	6.9	N/A	6.9
Scraper	63.4	59.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	9.3	N/A	5.5	N/A	5.5

4 Construction Noise.txt														
Crane	60.4	52.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	2.2	N/A	None	N/A	None
Generator	60.5	57.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	7.3	N/A	3.5	N/A	3.5
Welder / Torch	53.9	49.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	57.1	54.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.9	N/A	0.1	N/A	0.1
Roller	59.9	52.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	2.7	N/A	None	N/A	None
Compressor (air)	57.5	53.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.3	N/A	None	N/A	None
Total	69.4	68.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	18.5	N/A	14.7	N/A	14.7

\*\*\*\* Receptor #5 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
5: 17988 Otilla St	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	400.0	5.0
Excavator	No	40		80.7	400.0	5.0
Dozer	No	40		81.7	400.0	5.0
Tractor	No	40	84.0		400.0	5.0
Grader	No	40	85.0		400.0	5.0
Scraper	No	40		83.6	400.0	5.0
Crane	No	16		80.6	400.0	5.0
Generator	No	50		80.6	400.0	5.0
Welder / Torch	No	40		74.0	400.0	5.0
Paver	No	50		77.2	400.0	5.0
Roller	No	20		80.0	400.0	5.0
Compressor (air)	No	40		77.7	400.0	5.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Concrete Saw	66.5	59.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	9.3	N/A	5.5	N/A	5.5
Excavator	57.6	53.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.5	N/A	None	N/A	None
Dozer	58.6	54.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.4	N/A	0.6	N/A	0.6
Tractor	60.9	57.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.8	N/A	3.0	N/A	3.0
Grader	61.9	58.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	7.8	N/A	4.0	N/A	4.0
Scraper	60.5	56.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.3	N/A	2.5	N/A	2.5
Crane	57.5	49.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	57.6	54.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.4	N/A	0.6	N/A	0.6
Welder / Torch	50.9	47.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	54.2	51.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	0.9	N/A	None	N/A	None
Roller	56.9	49.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	54.6	50.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	0.4	N/A	None	N/A	None
Total	66.5	65.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	15.6	N/A	11.8	N/A	11.8

\*\*\*\* Receptor #6 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
6: 17977 Otilla St	Residential	64.1	55.0	45.0

4 Construction Noise.txt

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	543.0	10.0
Excavator	No	40		80.7	543.0	10.0
Dozer	No	40		81.7	543.0	10.0
Tractor	No	40	84.0		543.0	10.0
Grader	No	40	85.0		543.0	10.0
Scraper	No	40		83.6	543.0	10.0
Crane	No	16		80.6	543.0	10.0
Generator	No	50		80.6	543.0	10.0
Welder / Torch	No	40		74.0	543.0	10.0
Paver	No	50		77.2	543.0	10.0
Roller	No	20		80.0	543.0	10.0
Compressor (air)	No	40		77.7	543.0	10.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	58.9	51.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	50.0	46.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	51.0	47.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	53.3	49.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	54.3	50.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	52.9	48.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	49.8	41.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	49.9	46.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	43.3	39.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	46.5	43.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	49.3	42.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	47.0	43.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	58.9	58.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.1	N/A	4.1

\*\*\*\* Receptor #7 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
7: 10638 Locust Ave	Residential	64.1	55.0	45.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	714.0	0.0
Excavator	No	40		80.7	714.0	0.0
Dozer	No	40		81.7	714.0	0.0
Tractor	No	40	84.0		714.0	0.0
Grader	No	40	85.0		714.0	0.0
Scraper	No	40		83.6	714.0	0.0
Crane	No	16		80.6	714.0	0.0
Generator	No	50		80.6	714.0	0.0
Welder / Torch	No	40		74.0	714.0	0.0

4 Construction Noise.txt

Paver	No	50	77.2	714.0	0.0
Roller	No	20	80.0	714.0	0.0
Compressor (air)	No	40	77.7	714.0	0.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.5	59.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	5.5	N/A	5.5
Excavator	57.6	53.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	58.6	54.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	0.6	N/A	0.6
Tractor	60.9	56.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	2.9	N/A	2.9
Grader	61.9	57.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	3.9	N/A	3.9
Scraper	60.5	56.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	2.5	N/A	2.5
Crane	57.5	49.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	57.5	54.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	0.5	N/A	0.5
Welder / Torch	50.9	46.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	54.1	51.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	56.9	49.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	54.6	50.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	66.5	65.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	11.7	N/A	11.7

\*\*\*\* Receptor #8 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
8: 10606 Locust Ave	Residential	64.1	55.0	45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	664.0	0.0
Excavator	No	40		80.7	664.0	0.0
Dozer	No	40		81.7	664.0	0.0
Tractor	No	40	84.0		664.0	0.0
Grader	No	40	85.0		664.0	0.0
Scraper	No	40		83.6	664.0	0.0
Crane	No	16		80.6	664.0	0.0
Generator	No	50		80.6	664.0	0.0
Welder / Torch	No	40		74.0	664.0	0.0
Paver	No	50		77.2	664.0	0.0
Roller	No	20		80.0	664.0	0.0
Compressor (air)	No	40		77.7	664.0	0.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	67.1	60.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	6.1	N/A	6.1
Excavator	58.2	54.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	0.3	N/A	0.3
Dozer	59.2	55.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.2	N/A	1.2

4 Construction Noise.txt														
Tractor	61.5	57.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	3.6	N/A	3.6
Grader	62.5	58.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.6	N/A	4.6
Scraper	61.1	57.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	3.1	N/A	3.1
Crane	58.1	50.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	58.2	55.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.2	N/A	1.2
Welder / Torch	51.5	47.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	54.8	51.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	57.5	50.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	55.2	51.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	67.1	66.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	12.4	N/A	12.4

\*\*\*\* Receptor #9 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
9: 10648 Spahn Dr	Residential	64.1	55.0	45.0

Description	Impact Device	Usage (%)	Equipment		
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Concrete Saw	No	20		89.6	921.0
Excavator	No	40		80.7	921.0
Dozer	No	40		81.7	921.0
Tractor	No	40	84.0		921.0
Grader	No	40	85.0		921.0
Scraper	No	40		83.6	921.0
Crane	No	16		80.6	921.0
Generator	No	50		80.6	921.0
Welder / Torch	No	40		74.0	921.0
Paver	No	50		77.2	921.0
Roller	No	20		80.0	921.0
Compressor (air)	No	40		77.7	921.0

Equipment	Results								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Noise Limits (dBA)						Day		Evening		Night	
	Lmax	Leq	Day		Evening		Night		Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	59.3	52.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	50.4	46.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	51.4	47.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	53.7	49.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	54.7	50.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	53.3	49.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	50.2	42.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	50.3	47.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	43.7	39.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	46.9	43.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	49.7	42.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	47.4	43.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	59.3	58.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.5	N/A	4.5

\*\*\*\* Receptor #10 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night

10: 10638 Spahn Dr	Residential	64.1	55.0	45.0
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## Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20	84.0 85.0	89.6	884.0	5.0
Excavator	No	40		80.7	884.0	5.0
Dozer	No	40		81.7	884.0	5.0
Tractor	No	40		884.0	884.0	5.0
Grader	No	40		884.0	884.0	5.0
Scraper	No	40		83.6	884.0	5.0
Crane	No	16		80.6	884.0	5.0
Generator	No	50		80.6	884.0	5.0
Welder / Torch	No	40		74.0	884.0	5.0
Paver	No	50		77.2	884.0	5.0
Roller	No	20		80.0	884.0	5.0
Compressor (air)	No	40		77.7	884.0	5.0

## Results

	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	59.6	52.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	50.8	46.8	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	51.7	47.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	54.1	50.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	55.1	51.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scrapper	53.6	49.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	50.6	42.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	50.7	47.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
welder / Torch	44.1	40.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	47.3	44.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	50.1	43.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	47.7	43.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	59.6	58.9	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.9	N/A	4.9

\*\*\*\* Receptor #11 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
11: 10628 Spahn Dr	Residential	64.1	55.0	45.0

## Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	853.0	5.0
Excavator	No	40		80.7	853.0	5.0
Dozer	No	40		81.7	853.0	5.0
Tractor	No	40	84.0		853.0	5.0
Grader	No	40	85.0		853.0	5.0
Scraper	No	40		83.6	853.0	5.0

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Crane	No	16	80.6	853.0	5.0
Generator	No	50	80.6	853.0	5.0
Welder / Torch	No	40	74.0	853.0	5.0
Paver	No	50	77.2	853.0	5.0
Roller	No	20	80.0	853.0	5.0
Compressor (air)	No	40	77.7	853.0	5.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	59.9	53.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	51.1	47.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	52.0	48.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	54.4	50.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	55.4	51.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	53.9	50.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	50.9	43.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	51.0	48.0	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	44.4	40.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	47.6	44.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	50.4	43.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	48.0	44.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	59.9	59.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	5.2	N/A	5.2

\*\*\*\* Receptor #12 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
12: 10618 Spahn Dr	Residential	64.1	55.0	45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	827.0	5.0
Excavator	No	40		80.7	827.0	5.0
Dozer	No	40		81.7	827.0	5.0
Tractor	No	40	84.0		827.0	5.0
Grader	No	40	85.0		827.0	5.0
Scraper	No	40		83.6	827.0	5.0
Crane	No	16		80.6	827.0	5.0
Generator	No	50		80.6	827.0	5.0
Welder / Torch	No	40		74.0	827.0	5.0
Paver	No	50		77.2	827.0	5.0
Roller	No	20		80.0	827.0	5.0
Compressor (air)	No	40		77.7	827.0	5.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		



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Concrete Saw	60.2	53.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	51.3	47.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	52.3	48.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	54.6	50.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	55.6	51.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	54.2	50.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	51.2	43.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	51.3	48.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	44.6	40.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	47.8	44.8	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	50.6	43.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	48.3	44.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	60.2	59.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	5.4	N/A	5.4

\*\*\*\* Receptor #13 \*\*\*\*

Description		Land Use		Baselines (dBA)										
				Daytime	Evening	Night								
13: 10608 Spahn Dr		Residential		64.1	55.0	45.0								
				Equipment										
				Spec	Actual	Receptor								
				Lmax	Lmax	Distance								
				(dBA)	(dBA)	(feet)								
							Estimated							
							Shielding							
							(dBA)							

4 Construction Noise.txt

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
14: Church	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	829.0	0.0
Excavator	No	40		80.7	829.0	0.0
Dozer	No	40		81.7	829.0	0.0
Tractor	No	40	84.0		829.0	0.0
Grader	No	40	85.0		829.0	0.0
Scraper	No	40		83.6	829.0	0.0
Crane	No	16		80.6	829.0	0.0
Generator	No	50		80.6	829.0	0.0
Welder / Torch	No	40		74.0	829.0	0.0
Paver	No	50		77.2	829.0	0.0
Roller	No	20		80.0	829.0	0.0
Compressor (air)	No	40		77.7	829.0	0.0

Results									Noise Limit Exceedance (dBA)					
Noise Limits (dBA)														
Calculated (dBA)			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	65.2	58.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.2	N/A	4.2
Excavator	56.3	52.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	57.3	53.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	59.6	55.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.6	N/A	1.6
Grader	60.6	56.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	2.6	N/A	2.6
Scraper	59.2	55.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.2	N/A	1.2
Crane	56.2	48.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	56.2	53.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	49.6	45.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	52.8	49.8	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	55.6	48.6	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	53.3	49.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	65.2	64.4	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	10.4	N/A	10.4

\*\*\*\* Receptor #15 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
15: 18111 Slover Ave	Residential	64.1	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	840.0	0.0
Excavator	No	40		80.7	840.0	0.0
Dozer	No	40		81.7	840.0	0.0

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Tractor	No	40	84.0	840.0	0.0
Grader	No	40	85.0	840.0	0.0
Scraper	No	40	83.6	840.0	0.0
Crane	No	16	80.6	840.0	0.0
Generator	No	50	80.6	840.0	0.0
Welder / Torch	No	40	74.0	840.0	0.0
Paver	No	50	77.2	840.0	0.0
Roller	No	20	80.0	840.0	0.0
Compressor (air)	No	40	77.7	840.0	0.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	65.1	58.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	4.1	N/A	4.1
Excavator	56.2	52.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	57.2	53.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	59.5	55.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.5	N/A	1.5
Grader	60.5	56.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	2.5	N/A	2.5
Scraper	59.1	55.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	1.1	N/A	1.1
Crane	56.0	48.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	56.1	53.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	49.5	45.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	52.7	49.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	55.5	48.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	53.2	49.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	65.1	64.3	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	10.3	N/A	10.3

\*\*\*\* Receptor #16 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
16: 18133 Slover Ave	Residential	64.1	55.0	45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	941.0	0.0
Excavator	No	40		80.7	941.0	0.0
Dozer	No	40		81.7	941.0	5.0
Tractor	No	40	84.0		941.0	5.0
Grader	No	40	85.0		941.0	5.0
Scraper	No	40		83.6	941.0	5.0
Crane	No	16		80.6	941.0	5.0
Generator	No	50		80.6	941.0	5.0
Welder / Torch	No	40		74.0	941.0	5.0
Paver	No	50		77.2	941.0	5.0
Roller	No	20		80.0	941.0	5.0
Compressor (air)	No	40		77.7	941.0	5.0

Results

Calculated (dBA)	Noise Limits (dBA)			Noise Limit Exceedance (dBA)		
	Day	Evening	Night	Day	Evening	Night

4 Construction Noise.txt

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	64.1	57.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	3.1	N/A	3.1
Excavator	55.2	51.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	51.2	47.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	53.5	49.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	54.5	50.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	53.1	49.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	50.1	42.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	50.1	47.1	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	43.5	39.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	46.7	43.7	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	49.5	42.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	47.2	43.2	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	64.1	60.5	N/A	67.1	N/A	54.0	N/A	54.0	N/A	None	N/A	6.5	N/A	6.5

\*\*\*\* Receptor #17 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
17: 18173 Slover Ave	Residential	61.7	70.0	70.0

		Equipment				
		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)	
Description	Impact Device Usage (%)					
Concrete Saw	No 20		89.6	1154.0	10.0	
Excavator	No 40		80.7	1154.0	10.0	
Dozer	No 40		81.7	1154.0	10.0	
Tractor	No 40	84.0		1154.0	10.0	
Grader	No 40	85.0		1154.0	10.0	
Scraper	No 40		83.6	1154.0	10.0	
Crane	No 16		80.6	1154.0	10.0	
Generator	No 50		80.6	1154.0	10.0	
Welder / Torch	No 40		74.0	1154.0	10.0	
Paver	No 50		77.2	1154.0	10.0	
Roller	No 20		80.0	1154.0	10.0	
Compressor (air)	No 40		77.7	1154.0	10.0	

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	52.3	45.3	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	43.4	39.5	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	44.4	40.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	46.7	42.8	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	47.7	43.8	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	46.3	42.3	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	43.3	35.3	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	43.4	40.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	36.7	32.8	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	40.0	36.9	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	42.7	35.7	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	40.4	36.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

Total 52.3 51.6 N/A 64.7 N/A 54.0 N/A 4 Construction Noise.txt 54.0 N/A None N/A None

\*\*\*\* Receptor #18 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
18: 18189 Slover Ave	Residential	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1351.0	10.0
Excavator	No	40		80.7	1351.0	10.0
Dozer	No	40		81.7	1351.0	10.0
Tractor	No	40	84.0		1351.0	10.0
Grader	No	40	85.0		1351.0	10.0
Scraper	No	40		83.6	1351.0	10.0
Crane	No	16		80.6	1351.0	10.0
Generator	No	50		80.6	1351.0	10.0
Welder / Torch	No	40		74.0	1351.0	10.0
Paver	No	50		77.2	1351.0	10.0
Roller	No	20		80.0	1351.0	10.0
Compressor (air)	No	40		77.7	1351.0	10.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
Calculated (dBA)			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	50.9	44.0	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	42.1	38.1	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	43.0	39.1	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	45.4	41.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	46.4	42.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	44.9	41.0	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	41.9	34.0	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	42.0	39.0	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
welder / Torch	35.4	31.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	38.6	35.6	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	41.4	34.4	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	39.0	35.1	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	50.9	50.2	N/A	64.7	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #19 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
19: 10471 Locust Ave	Industrial	61.7	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

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Concrete Saw	No	20		89.6	1038.0	5.0
Excavator	No	40		80.7	1038.0	5.0
Dozer	No	40		81.7	1038.0	5.0
Tractor	No	40	84.0		1038.0	5.0
Grader	No	40	85.0		1038.0	5.0
Scraper	No	40		83.6	1038.0	5.0
Crane	No	16		80.6	1038.0	5.0
Generator	No	50		80.6	1038.0	5.0
Welder / Torch	No	40		74.0	1038.0	5.0
Paver	No	50		77.2	1038.0	5.0
Roller	No	20		80.0	1038.0	5.0
Compressor (air)	No	40		77.7	1038.0	5.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	58.2	51.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Excavator	49.4	45.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	50.3	46.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	52.7	48.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	53.7	49.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	52.2	48.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Crane	49.2	41.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Generator	49.3	46.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Welder / Torch	42.7	38.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Paver	45.9	42.9	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Roller	48.7	41.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Compressor (air)	46.3	42.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	58.2	57.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #20 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
20: 10441 Locust Ave	Industrial	61.7	70.0	70.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1201.0	5.0
Excavator	No	40		80.7	1201.0	5.0
Dozer	No	40		81.7	1201.0	5.0
Tractor	No	40	84.0		1201.0	5.0
Grader	No	40	85.0		1201.0	5.0
Scraper	No	40		83.6	1201.0	5.0
Crane	No	16		80.6	1201.0	5.0
Generator	No	50		80.6	1201.0	5.0
Welder / Torch	No	40		74.0	1201.0	5.0
Paver	No	50		77.2	1201.0	5.0
Roller	No	20		80.0	1201.0	5.0
Compressor (air)	No	40		77.7	1201.0	5.0

Results

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Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	57.0	50.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Excavator	48.1	44.1	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	49.1	45.1	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	51.4	47.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	52.4	48.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	51.0	47.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Crane	47.9	40.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Generator	48.0	45.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Welder / Torch	41.4	37.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Paver	44.6	41.6	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Roller	47.4	40.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Compressor (air)	45.1	41.1	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	57.0	56.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #21 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
21: 10450 Locust Ave	Industrial	61.7	70.0	70.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	1024.0	5.0
Excavator	No	40		80.7	1024.0	5.0
Dozer	No	40		81.7	1024.0	5.0
Tractor	No	40	84.0		1024.0	5.0
Grader	No	40	85.0		1024.0	5.0
Scraper	No	40		83.6	1024.0	5.0
Crane	No	16		80.6	1024.0	5.0
Generator	No	50		80.6	1024.0	5.0
Welder / Torch	No	40		74.0	1024.0	5.0
Paver	No	50		77.2	1024.0	5.0
Roller	No	20		80.0	1024.0	5.0
Compressor (air)	No	40		77.7	1024.0	5.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	58.4	51.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Excavator	49.5	45.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	50.4	46.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	52.8	48.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	53.8	49.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	52.4	48.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Crane	49.3	41.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Generator	49.4	46.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Welder / Torch	42.8	38.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

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Paver	46.0	43.0	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Roller	48.8	41.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Compressor (air)	46.4	42.5	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	58.4	57.6	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #22 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
22: 17887 Slover Ave	Industrial	70.0	70.0	70.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	775.0	0.0
Excavator	No	40		80.7	775.0	0.0
Dozer	No	40		81.7	775.0	0.0
Tractor	No	40	84.0		775.0	0.0
Grader	No	40	85.0		775.0	0.0
Scraper	No	40		83.6	775.0	0.0
Crane	No	16		80.6	775.0	0.0
Generator	No	50		80.6	775.0	0.0
Welder / Torch	No	40		74.0	775.0	0.0
Paver	No	50		77.2	775.0	0.0
Roller	No	20		80.0	775.0	0.0
Compressor (air)	No	40		77.7	775.0	0.0

Results

Equipment	Noise Limits (dBA)										Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night				Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	65.8	58.8	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Excavator	56.9	52.9	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Dozer	57.9	53.9	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Tractor	60.2	56.2	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Grader	61.2	57.2	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Scraper	59.8	55.8	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Crane	56.7	48.8	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Generator	56.8	53.8	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Welder / Torch	50.2	46.2	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Paver	53.4	50.4	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Roller	56.2	49.2	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Compressor (air)	53.9	49.9	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None
Total	65.8	65.0	N/A	69.0	N/A	69.0	N/A	69.0			N/A	None	N/A	None	N/A	None

\*\*\*\* Receptor #23 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
23: 10592 Laurel Ave	Residential	47.2	55.0	45.0

Equipment			
Spec	Actual	Receptor	Estimated



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Description	Impact Device	Usage (%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	784.0	0.0
Excavator	No	40		80.7	784.0	0.0
Dozer	No	40		81.7	784.0	0.0
Tractor	No	40	84.0		784.0	0.0
Grader	No	40	85.0		784.0	0.0
Scraper	No	40		83.6	784.0	0.0
Crane	No	16		80.6	784.0	0.0
Generator	No	50		80.6	784.0	0.0
Welder / Torch	No	40		74.0	784.0	0.0
Paver	No	50		77.2	784.0	0.0
Roller	No	20		80.0	784.0	0.0
Compressor (air)	No	40		77.7	784.0	0.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	65.7	58.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	8.5	N/A	4.7	N/A	4.7
Excavator	56.8	52.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	2.6	N/A	None	N/A	None
Dozer	57.8	53.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.6	N/A	None	N/A	None
Tractor	60.1	56.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	5.9	N/A	2.1	N/A	2.1
Grader	61.1	57.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	6.9	N/A	3.1	N/A	3.1
Scraper	59.7	55.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	5.5	N/A	1.7	N/A	1.7
Crane	56.6	48.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	56.7	53.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.5	N/A	None	N/A	None
Welder / Torch	50.1	46.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	53.3	50.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	0.1	N/A	None	N/A	None
Roller	56.1	49.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	53.8	49.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	65.7	64.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	14.7	N/A	10.9	N/A	10.9

\*\*\*\* Receptor #24 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
24: 17888 Otilla St	Residential	47.2	55.0	45.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	794.0	10.0
Excavator	No	40		80.7	794.0	10.0
Dozer	No	40		81.7	794.0	10.0
Tractor	No	40	84.0		794.0	10.0
Grader	No	40	85.0		794.0	10.0
Scraper	No	40		83.6	794.0	10.0
Crane	No	16		80.6	794.0	10.0
Generator	No	50		80.6	794.0	10.0
Welder / Torch	No	40		74.0	794.0	10.0
Paver	No	50		77.2	794.0	10.0
Roller	No	20		80.0	794.0	10.0
Compressor (air)	No	40		77.7	794.0	10.0

4 Construction Noise.txt

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	55.6	48.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	46.7	42.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	47.7	43.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	50.0	46.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	51.0	47.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	49.6	45.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	46.5	38.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	46.6	43.6	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	40.0	36.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	43.2	40.2	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	46.0	39.0	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	43.7	39.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	55.6	54.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	4.6	N/A	0.8	N/A	0.8

\*\*\*\* Receptor #25 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
25: 17877 Otilla St	Residential	47.2	55.0	45.0

Description	Equipment		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
	Impact Device	Usage (%)				
Concrete Saw	No	20		89.6	917.0	10.0
Excavator	No	40		80.7	917.0	10.0
Dozer	No	40		81.7	917.0	10.0
Tractor	No	40	84.0		917.0	10.0
Grader	No	40	85.0		917.0	10.0
Scraper	No	40		83.6	917.0	10.0
Crane	No	16		80.6	917.0	10.0
Generator	No	50		80.6	917.0	10.0
Welder / Torch	No	40		74.0	917.0	10.0
Paver	No	50		77.2	917.0	10.0
Roller	No	20		80.0	917.0	10.0
Compressor (air)	No	40		77.7	917.0	10.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	54.3	47.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	45.4	41.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	46.4	42.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	48.7	44.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	49.7	45.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	48.3	44.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None

4 Construction Noise.txt														
Crane	45.3	37.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	45.4	42.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Welder / Torch	38.7	34.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	42.0	38.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	44.7	37.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	42.4	38.4	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	54.3	53.5	N/A	50.2	N/A	54.0	N/A	54.0	N/A	3.3	N/A	None	N/A	None

\*\*\*\* Receptor #26 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
26: 10666 Laurel Ave	Residential	47.2	55.0	45.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	986.0	10.0
Excavator	No	40		80.7	986.0	10.0
Dozer	No	40		81.7	986.0	10.0
Tractor	No	40	84.0		986.0	10.0
Grader	No	40	85.0		986.0	10.0
Scraper	No	40		83.6	986.0	10.0
Crane	No	16		80.6	986.0	10.0
Generator	No	50		80.6	986.0	10.0
Welder / Torch	No	40		74.0	986.0	10.0
Paver	No	50		77.2	986.0	10.0
Roller	No	20		80.0	986.0	10.0
Compressor (air)	No	40		77.7	986.0	10.0

Results

Equipment	Noise Limits (dBA)								Noise Limit Exceedance (dBA)					
	Calculated (dBA)													
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	53.7	46.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Excavator	44.8	40.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Dozer	45.8	41.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Tractor	48.1	44.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Grader	49.1	45.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Scraper	47.7	43.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Crane	44.7	36.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Generator	44.7	41.7	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
welder / Torch	38.1	34.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Paver	41.3	38.3	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Roller	44.1	37.1	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Compressor (air)	41.8	37.8	N/A	50.2	N/A	54.0	N/A	54.0	N/A	None	N/A	None	N/A	None
Total	53.7	52.9	N/A	50.2	N/A	54.0	N/A	54.0	N/A	2.7	N/A	None	N/A	None

\*\*\*\* Receptor #27 \*\*\*\*

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
27: 18060 Slover Ave	Industrial	61.7	70.0	70.0

4 Construction Noise.txt

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Saw	No	20		89.6	737.0	0.0
Excavator	No	40		80.7	737.0	0.0
Dozer	No	40		81.7	737.0	0.0
Tractor	No	40	84.0		737.0	0.0
Grader	No	40	85.0		737.0	0.0
Scraper	No	40		83.6	737.0	0.0
Crane	No	16		80.6	737.0	0.0
Generator	No	50		80.6	737.0	0.0
Welder / Torch	No	40		74.0	737.0	0.0
Paver	No	50		77.2	737.0	0.0
Roller	No	20		80.0	737.0	0.0
Compressor (air)	No	40		77.7	737.0	0.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.2	59.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Excavator	57.3	53.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Dozer	58.3	54.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Tractor	60.6	56.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Grader	61.6	57.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Scraper	60.2	56.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Crane	57.2	49.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Generator	57.3	54.2	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Welder / Torch	50.6	46.7	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Paver	53.9	50.8	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Roller	56.6	49.6	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Compressor (air)	54.3	50.3	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None
Total	66.2	65.4	N/A	69.0	N/A	69.0	N/A	69.0	N/A	None	N/A	None	N/A	None

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## **APPENDIX C: TRAFFIC NOISE**

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## Existing Conditions

### TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 156590  
Project Name: JM Realty Bloomington

#### Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.  
Source of Traffic Volumes: Michael Baker International (2017)  
Community Noise Descriptor:  $L_{dn}$ : \_\_\_\_\_ CNEL: \_\_\_\_\_ x \_\_\_\_\_

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition		Median	ADT	Design	Vehicle Mix		Distance from Centerline of Roadway					
				Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
Roadway, Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	75 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
Slover Avenue												
West of Sierra Avenue	6	10	19,200	45	0	2.0%	4.0%	69.6	68	215	681	2,153
Sierra Avenue to Production Avenue	6	10	27,300	45	0	2.0%	4.0%	71.1	97	306	968	3,061
Production Avenue to Empire Center Boulevard	5	10	17,600	45	0	2.0%	4.0%	69.0	60	189	598	1,892
Empire Center Boulevard to Tamarind Avenue	3	10	16,100	45	0	2.0%	4.0%	68.4	52	164	518	1,639
Tamarind Avenue to Alder Avenue	3	0	15,900	45	0	2.0%	4.0%	68.3	51	160	505	1,597
Alder Avenue to Laurel Avenue	4	0	16,400	45	0	2.0%	4.0%	68.5	53	168	530	1,675
Laurel Avenue to Locust Avenue	4	0	16,400	45	0	2.0%	4.0%	68.5	53	168	530	1,675
Locust Avenue to Linden Avenue	4	0	14,600	50	0	2.0%	4.0%	68.8	57	181	573	1,812
Linden Avenue to Cedar Avenue	4	4	10,700	50	0	2.0%	4.0%	67.5	-	134	423	1,338
East of Cedar Avenue	4	0	8,500	50	0	2.0%	4.0%	66.5	-	105	334	1,055
Sierra Avenue												
North of Slover Avenue	6	10	43,400	50	0	2.0%	4.0%	74.0	187	591	1,870	5,913
Cedar Avenue												
Slover Avenue to Orange Street	4	0	30,300	40	0	2.0%	4.0%	70.3	80	252	796	2,518
North of Orange Street	4	0	30,300	40	0	2.0%	4.0%	70.3	80	252	796	2,518

## 2018 (Opening Year) Without Project Conditions

### TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 156590  
Project Name: JM Realty Bloomington

#### Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.  
Source of Traffic Volumes: Michael Baker International (2017)  
Community Noise Descriptor:  $L_{dn}$ : \_\_\_\_\_ CNEL: \_\_\_\_\_ x \_\_\_\_\_

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway				
				Speed		Alpha	Medium	Heavy	CNEL at	Distance to Contour		
Roadway, Segment	Lanes	Median	ADT	(mph)	Factor	Trucks	Trucks	75 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
Slover Avenue												
West of Sierra Avenue	6	10	19,400	45	0	4.6%	12.3%	73.0	148	468	1,479	4,678
Sierra Avenue to Production Avenue	6	10	27,600	45	0	4.6%	12.3%	74.5	210	666	2,105	6,656
Production Avenue to Empire Center Boulevard	5	10	17,800	45	0	4.6%	12.3%	72.4	130	412	1,302	4,116
Empire Center Boulevard to Tamarind Avenue	3	10	16,300	45	0	4.6%	12.3%	71.8	113	357	1,129	3,569
Tamarind Avenue to Alder Avenue	3	0	16,100	45	0	4.6%	12.3%	71.7	110	348	1,100	3,478
Alder Avenue to Laurel Avenue	4	0	16,600	45	0	4.6%	12.3%	71.9	115	365	1,153	3,647
Laurel Avenue to Locust Avenue	4	0	16,600	45	0	4.6%	12.3%	71.9	115	365	1,153	3,647
Locust Avenue to Linden Avenue	4	0	14,800	50	0	4.6%	12.3%	72.0	119	377	1,193	3,772
Linden Avenue to Cedar Avenue	4	4	10,800	50	0	4.6%	12.3%	70.7	88	277	877	2,772
East of Cedar Avenue	4	0	8,000	50	0	4.6%	12.3%	69.3	64	204	645	2,039
Sierra Avenue												
North of Slover Avenue	6	10	43,800	50	0	4.6%	12.3%	77.1	387	1,225	3,875	12,254
Cedar Avenue												
Slover Avenue to Orange Street	4	0	30,600	40	0	4.6%	12.3%	73.8	182	574	1,815	5,740
North of Orange Street	4	0	30,600	40	0	4.6%	12.3%	73.8	182	574	1,815	5,740



## 2018 (Opening Year) With Project Conditions

### TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 156590  
Project Name: JM Realty Bloomington

#### Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.  
Source of Traffic Volumes: Michael Baker International (2017)  
Community Noise Descriptor:  $L_{dn}$ : \_\_\_\_\_ CNEL: \_\_\_\_\_ x \_\_\_\_\_

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
						Medium Trucks	Heavy Trucks	CNEL at 75 Feet	70 CNEL	Distance to Contour 65 CNEL	60 CNEL	55 CNEL
Slover Avenue												
West of Sierra Avenue	6	10	19,600	45	0	4.6%	12.3%	73.0	149	473	1,495	4,727
Sierra Avenue to Production Avenue	6	10	28,000	45	0	4.6%	12.3%	74.5	214	675	2,135	6,752
Production Avenue to Empire Center Boulevard	5	10	18,200	45	0	4.6%	12.3%	72.5	133	421	1,331	4,209
Empire Center Boulevard to Tamarind Avenue	3	10	16,700	45	0	4.6%	12.3%	71.9	116	366	1,156	3,657
Tamarind Avenue to Alder Avenue	3	0	16,500	45	0	4.6%	12.3%	71.8	113	356	1,127	3,565
Alder Avenue to Laurel Avenue	4	0	17,000	45	0	4.6%	12.3%	72.0	118	373	1,181	3,735
Laurel Avenue to Locust Avenue	4	0	17,200	45	0	4.6%	12.3%	72.0	119	378	1,195	3,779
Locust Avenue to Linden Avenue	4	0	15,200	50	0	4.6%	12.3%	72.1	122	387	1,225	3,874
Linden Avenue to Cedar Avenue	4	4	11,200	50	0	4.6%	12.3%	70.8	91	288	909	2,875
East of Cedar Avenue	4	0	8,800	50	0	4.6%	12.3%	69.8	71	224	709	2,243
Sierra Avenue												
North of Slover Avenue	6	10	44,200	50	0	4.6%	12.3%	77.2	391	1,237	3,910	12,365
Cedar Avenue												
Slover Avenue to Orange Street	4	0	30,900	40	0	4.6%	12.3%	73.9	183	580	1,833	5,796
North of Orange Street	4	0	30,900	40	0	4.6%	12.3%	73.9	183	580	1,833	5,796

## Future Without Project Conditions

### TRAFFIC NOISE LEVELS AND NOISE CONTOURS

**Project Number:** 156590  
**Project Name:** JM Realty Bloomington

#### Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.  
 Source of Traffic Volumes: Michael Baker International (2017)  
 Community Noise Descriptor:  $L_{dn}$ : \_\_\_\_\_ CNEL: \_\_\_\_\_ x \_\_\_\_\_

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
						Medium Trucks	Heavy Trucks	CNEL at 75 Feet	70 CNEL	Distance to Contour		
										65 CNEL	60 CNEL	55 CNEL
<b>Slover Avenue</b>												
West of Sierra Avenue	6	10	23,100	45	0	4.6%	12.3%	73.7	176	557	1,762	5,571
Sierra Avenue to Production Avenue	6	10	33,300	45	0	4.6%	12.3%	75.3	254	803	2,539	8,031
Production Avenue to Empire Center Boulevard	5	10	21,800	45	0	4.6%	12.3%	73.3	159	504	1,594	5,042
Empire Center Boulevard to Tamarind Avenue	3	10	20,100	45	0	4.6%	12.3%	72.7	139	440	1,392	4,401
Tamarind Avenue to Alder Avenue	3	0	20,000	45	0	4.6%	12.3%	72.6	137	432	1,366	4,321
Alder Avenue to Laurel Avenue	4	0	20,600	45	0	4.6%	12.3%	72.8	143	453	1,431	4,525
Laurel Avenue to Locust Avenue	4	0	20,700	45	0	4.6%	12.3%	72.8	144	455	1,438	4,547
Locust Avenue to Linden Avenue	4	0	18,400	50	0	4.6%	12.3%	73.0	148	469	1,483	4,689
Linden Avenue to Cedar Avenue	4	4	13,600	50	0	4.6%	12.3%	71.7	110	349	1,104	3,491
East of Cedar Avenue	4	0	11,000	50	0	4.6%	12.3%	70.7	89	280	886	2,803
<b>Sierra Avenue</b>												
North of Slover Avenue	6	10	52,500	50	0	4.6%	12.3%	77.9	464	1,469	4,645	14,687
<b>Cedar Avenue</b>												
Slover Avenue to Orange Street	4	0	44,600	40	0	4.6%	12.3%	75.5	265	837	2,645	8,366
North of Orange Street	4	0	44,600	40	0	4.6%	12.3%	75.5	265	837	2,645	8,366

## **Future Without Project Conditions**

## **Future Without Project Conditions**

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<sup>1</sup> Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

## Future With Project Conditions

### TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 156590  
Project Name: JM Realty Bloomington

#### Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.  
Source of Traffic Volumes: Michael Baker International (2017)  
Community Noise Descriptor:  $L_{dn}$ : \_\_\_\_\_ CNEL: \_\_\_\_\_ x \_\_\_\_\_

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
						Medium Trucks	Heavy Trucks	CNEL at 75 Feet	70 CNEL	Distance to Contour		
										65 CNEL	60 CNEL	55 CNEL
<b>Slover Avenue</b>												
West of Sierra Avenue	6	10	23,300	45	0	4.6%	12.3%	73.7	178	562	1,777	5,619
Sierra Avenue to Production Avenue	6	10	33,700	45	0	4.6%	12.3%	75.3	257	813	2,570	8,127
Production Avenue to Empire Center Boulevard	5	10	22,200	45	0	4.6%	12.3%	73.4	162	513	1,624	5,134
Empire Center Boulevard to Tamarind Avenue	3	10	20,500	45	0	4.6%	12.3%	72.8	142	449	1,419	4,489
Tamarind Avenue to Alder Avenue	3	0	20,400	45	0	4.6%	12.3%	72.7	139	441	1,394	4,407
Alder Avenue to Laurel Avenue	4	0	21,000	45	0	4.6%	12.3%	72.9	146	461	1,459	4,613
Laurel Avenue to Locust Avenue	4	0	21,300	45	0	4.6%	12.3%	73.0	148	468	1,480	4,679
Locust Avenue to Linden Avenue	4	0	18,800	50	0	4.6%	12.3%	73.1	152	479	1,515	4,791
Linden Avenue to Cedar Avenue	4	4	14,000	50	0	4.6%	12.3%	71.8	114	359	1,136	3,594
East of Cedar Avenue	4	0	11,200	50	0	4.6%	12.3%	70.8	90	285	903	2,854
<b>Sierra Avenue</b>												
North of Slover Avenue	6	10	52,900	50	0	4.6%	12.3%	78.0	468	1,480	4,680	14,799
<b>Cedar Avenue</b>												
Slover Avenue to Orange Street	4	0	44,900	40	0	4.6%	12.3%	75.5	266	842	2,663	8,422
North of Orange Street	4	0	44,900	40	0	4.6%	12.3%	75.5	266	842	2,663	8,422

## **Future With Project Conditions**



## **Future With Project Conditions**

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<sup>1</sup> Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.