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PACIFIC AGGREGATES
NOISE ANALYSIS
CITY OF LAKE ELSINORE, CALIFORNIA

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TABLE OF CONTENTS

Section Page

APPENDICES

LIST OF EXHIBITS

Exhibit Page

LIST OF TABLES

Table Page

PACIFIC AGGREGATES
NOISE ANALYSIS
CITY OF LAKE ELSINORE, CALIFORNIA

1.0 EXECUTIVE SUMMARY

This noise study has been completed in response to complaints associated with the surface mine noise impacts from the nearby Pacific Aggregates mining operations from the residents of the Ashbury community located on Poplar Circle in the City of Lake Elsinore. The existing surface mining operation utilizes heavy construction equipment that includes rock crushers and batch plant hauling trucks within the surface mine facility to provide both ready-mix and aggregate products for export. The purpose of this noise assessment is to evaluate the noise impacts associated with the operation of the Pacific Aggregates surface mining operation within the nearby residential community. The analysis provided below indicates that since the Pacific Aggregate Surface mine noise levels are lower than the ambient noise conditions during any hour of the day, the existing mining operations are in compliance with the City of Lake Elsinore exterior noise level criteria established in Section 17.176.060 of the Noise Control Ordinance.

1.1 Existing Noise Environment

The existing noise environment is dominated by traffic noise from Lake Street. Due to the elevation of the homes located on the east side of Lake Street the second floor bedrooms in the neighboring Ashbury community have an unobstructed view of the rock crushers, the major source of mining operation noise impacts located over 1,700 west of the residential community. However, while the homes located on Poplar Circle may at time hear background noise levels associated with the surface mining operations at the Pacific Aggregates, the primary source of noise in the community is from the traffic on Lake Street.

The existing exterior hourly noise levels measured at the backyard wall for homes located on Poplar Circle indicate that the unmitigated exterior noise levels will range from 58.2 dBA Leq to 71.0 dBA Leq. It is important to recognize that the unmitigated exterior noise level measurements include both traffic noise from Lake Street as well as the stationary source noise level impacts associated with the Pacific Aggregates surface mine activities. In addition, the existing unmitigated exterior noise level measurements do not account for the existing six-foot

high Plexiglas noise barrier that is provided for the noise sensitive backyard and first floor receptors.

The existing six-foot high Plexiglas noise barrier is estimated to provide an additional 5.0 dBA noise level reduction suggesting that the noise sensitive backyard and first floor receptors for homes on Poplar Circle facing Lake Street currently experience hourly noise levels ranging from 53.2 dBA Leq to 66.0 dBA Leq.

1.2 Off-Site Stationary Noise Analysis

Based upon the reference noise levels measurements collected at the Pacific Aggregates surface mining facility, it is possible to estimate the noise levels associated solely with the mining operations. The noise level calculations consider the spatial relationships between the on-site surface mining noise sources and the noise receptor locations. In addition, the off-site stationary source noise level estimates include the full operational noise level impacts associated with the two on-site rock crushers and heavy truck batch plant activities. The off-site stationary noise analysis indicates that the unmitigated exterior noise levels attributed to the Pacific Aggregates mining operations at the backyard property line are expected to range from 54.5 to 54.7 dBA Leq.

The calculated off-site stationary noise levels attributed to the Pacific Aggregates surface mine exceed the base City of Lake Elsinore stationary noise source exterior noise level standards of 50 dBA Leq for daytime hours and 40 dBA Leq for nighttime hours. However, it is important to recognize that when ambient noise levels exceed the limits of the ordinance, the ambient levels become the limit pursuant to the ordinance. In addition, while mining noise level impacts attributed solely to the mining activities may at times exceed the City of Lake Elsinore stationary source base exterior noise level standards, these noise level impacts are mostly overshadowed by the traffic noise impacts on Lake Street. The traffic noise level impacts from Lake Street are expected to range from 58.2 dBA Leq to 59.6 dBA Leq.

1.3 Noise Analysis Criteria

The City of Lake Elsinore has defined two types of noise source, mobile (transportation-related) and stationary. The City General Plan Noise Element established transportation related noise criteria using a twenty-four hour Community Noise Equivalent Level (CNEL). In contract the noise ordinance provides specific hourly performance standards to control stationary, nuisance noise

impacts to residential properties. The Ashbury residential community is impacted by both transportation related traffic noise from Lake Street as well as stationary source noise level impacts from the operations at the Pacific Aggregate surface mine.

1.4 Pacific Aggregate Surface Mine Noise Impacts

The noise analysis shows that Pacific Aggregate surface mine noise levels are less than the existing ambient noise levels measured during both daytime and nighttime hours. While the calculated mining noise level impacts may at times exceed the City of Lake Elsinore stationary source base exterior noise level standards, it is important to recognize that when ambient noise levels exceed the limits of the noise control ordinance, the ambient levels become the limit pursuant to the ordinance. Since the Pacific Aggregate Surface mine noise levels are lower than the ambient noise conditions observed at each receptor location during any hour of the day, this analysis shows that the existing mining operations satisfy the City of Lake Elsinore noise control standards.

The Pacific Aggregates mining operation is able to operate 24 hours a day based on demand for materials. However, the mine typically begins operation around 4 am and continues into the early afternoon. The typical mining operations generally coincide with the vehicle traffic noise level on Lake Street and consequently mask the majority of the stationary source noise impacts from the surface mine. Consequently, the mining activities are mostly overshadowed by the traffic noise impacts from Lake Street.

2.0 INTRODUCTION

This noise study has been completed to determine the noise impacts associated with off-site operational noise impacts from the Pacific Aggregates surface mining operation located in the City of Lake Elsinore, California. The study was prepared in response to noise complaints from nearby residents on Popular Court with rear yards facing Lake Street and the Pacific Aggregates surface mining operation.

2.1 Purpose of Report

This noise study briefly describes the project site, provides information regarding noise fundamentals, describes the local noise guidelines, provides traffic noise related contours, and presents an analysis of the off-site project-related noise impacts. This study has been prepared to satisfy the City of Lake Elsinore stationary source exterior noise standards provided in Section 17.176.060 of the Municipal Code.

2.2 Site Location

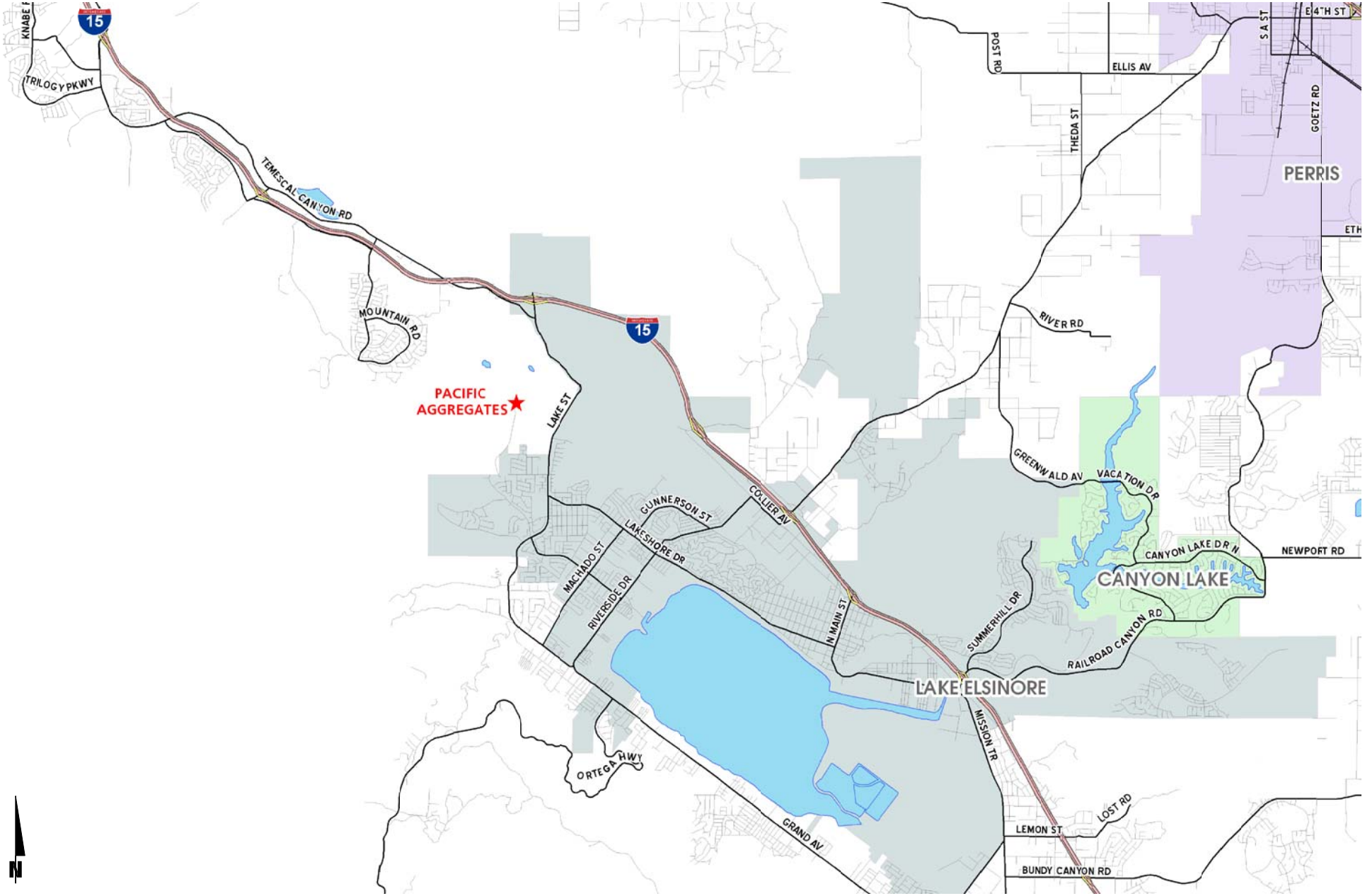
The Pacific Aggregates surface mining operation is located at 28251 Lake Street in the City of Lake Elsinore. The surface mining site is bounded to the north and west by vacant land, to the east by Lake Street and to the south by single-family homes. The location of the surface mining site within the study area is presented at Exhibit 2-A.

2.3 Project Facilities

The project utilizes heavy operating equipment including rock crushers and heavy trucks for the strip surface mine facility which provides both ready-mix and aggregate products for export. An aerial photograph of the existing Pacific Aggregates surface mining operation is shown on Exhibit 2-B.

EXHIBIT 2-A

LOCATION MAP



Pacific Aggregates Noise Analysis
City of Lake Elsinore, CA (JN - 07506:001.dwg)

URBAN CROSSROADS

EXHIBIT 2-B

SITE PLAN

Pacific Aggregates Noise Analysis
City of Lake Elsinore, CA (JN - 07506:site.mxd)

URBAN CROSSROADS

3.0 NOISE FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health.

3.1 Range of Noise

Since the range that the human ear can detect is so large, the scale used to measure sound intensity is a scale based on multiples of 10, the logarithmic scale. The unit of measure in which a sound intensity is described is the decibel (dB). Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. Exhibit 3-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

3.2 Effects of Noise

Harmful effects of noise can include speech interference; sleep disruption and loss of hearing. Speech interference begins to occur at 40 to 45 decibels and becomes severe at about 60 decibels. Background noise levels affect performance and learning processes through distraction, reduced accuracy, increased fatigue, annoyance and irritability, the inability to concentrate, and sleep prevention.

Several factors determine whether a particular noise will interfere with sleep. These factors include the noise level and characteristics, the stage of sleep, the individual's age and motivation to waken. Sleep prevention can occur when intruding noise levels exceed 50 dBA. Hearing loss, which can begin to occur at prolonged levels of 75 dBA and higher is one of the most harmful effects of noise on people.

3.3 Noise Descriptors

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure to describe the "average" is the equivalent level

EXHIBIT 3-A

TYPICAL NOISE LEVELS AND THEIR SUBJECTIVE LOUDNESS AND EFFECTS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

SOURCE: NOISE TECHNICAL SUPPLEMENT BY CALTRANS

(Leq). Leq represents a steady sound level containing the same total energy as a time-varying level over a given measurement interval. Leq's may represent any desired length of time; however, one hour is the most commonly used in environmental work. Consequently, Leq's can vary depending upon the time of day. In traffic noise measurements, the noisiest hour of the day is considered the benchmark of a road's noise emissions; therefore, the peak hour Leq is the noise metric used by Caltrans for all traffic noise impact analyses.

To describe the time-varying character of environmental noise, the statistical noise descriptors L2, L8, L25, and L50, are commonly used. They are the noise levels equaled or exceeded during 2 percent, 8 percent, 25 percent and 50 percent of a stated time. Sound levels associated with the L2 and L8 typically describe transient or short-term events, while levels associated with the L50 describe the steady state (or median) noise conditions. The City of Lake Elsinore Municipal Code relies on the percent noise levels to describe stationary source noise level impacts. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum and minimum measured sound level (Lmax and Lmin) indicators. The Lmin value obtained for a particular monitoring location is often called the acoustic floor for that location.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite twenty-four hour noise level is utilized.

The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to sound levels in the evening from 7 p.m. to 10 p.m., and the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder and it is weighted accordingly. CNEL does not represent the actual sound level heard at any particular time, but rather represents the total sound exposure. The City of Lake Elsinore relies on the CNEL noise standard to assess transportation related impacts on noise sensitive land uses.

3.4 Noise Control

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to any and all of these three elements.

3.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the view of the noise source. A noise barrier can achieve a 5 dB noise level reduction when it is tall enough to break the line-of-sight.

3.6 Community Response to Noise

Approximately ten (10) percent of the population has a very low tolerance for noise, and will object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels. An increase or decrease of 1.0 dBA cannot be perceived except in carefully controlled laboratory experiments. A 3.0 dBA increase may be perceptible outside of the laboratory. An increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e., complaints) would be expected.

Community responses to noise may range from registering a complaint by telephone or letter to initiating court action depending upon each individual's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level of the receptor;
- Noise receptor's perception that they are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Receptor's belief that the noise source can be controlled.

Recent studies have shown that changes in long-term noise levels are noticeable, and are responded to by people. For example, about ten (10) percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one (1) dBA is associated with approximately two (2) percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people begin complaining. Group or legal actions to stop the noise should be expected to begin at traffic noise levels near 70 dBA and aircraft noise levels near 65 dBA.

3.7 Land Use Compatibility With Noise

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches and residences are more sensitive to noise intrusion than are commercial or industrial activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process.

4.0 REGULATORY SETTING

The City of Lake Elsinore has identified two separate types of noise sources: (1) mobile, and (2) stationary. To control mobile or transportation related noise sources such as freeways, airport and railroads, the City of Lake Elsinore has established guidelines for acceptable community noise levels in the Noise Element of the General Plan. The most effective method to control community noise impacts from non-transportation or nuisance noise sources is through the application of a community noise ordinance.

4.1 Noise Element Criteria

The City of Lake Elsinore has adopted interior and exterior noise standards as part of the General Plan Noise Element for assessing the compatibility of land uses with transportation related noise impacts. For noise sensitive residential land use, the City requires an exterior noise level of less 60 CNEL for the outdoor living areas and an interior noise standard of 45 dBA CNEL. For the purpose of this analysis, the traffic noise impacts are controlled by the City of Lake Elsinore Noise Element. The City of Lake Elsinore Noise Element standards are included in Appendix 4.1.

4.2 Noise Ordinance Criteria

Section 17.176 of the City of Lake Elsinore Municipal Code provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, nuisance noise source impacts to residential properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize health or welfare, or degrade the quality of life. According to the stationary source exterior noise standards, no person shall operate or cause to operated, any source of sound at any location within the incorporated City or allow the creation of any noise on a property owned, leased, occupied or otherwise controlled by such person, which causes the noise levels to exceed the exterior noise limits at the property boundary.

The noise ordinance standards shown on Table 4-1 set base exterior noise limits for single-family residential land use of 50 dBA for the daytime hours and 40 dBA for the noise sensitive nighttime hours. These standards cannot be exceeded for a cumulative period of more than 30 minutes in any hour, or the standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the

Table 4-1

City of Lake Elsinore

Stationary Source Exterior Noise Level Standards[1]

Time Period	Condition	City of Lake Elsinore Noise Ordinance Section	Maximum Permissible Exterior Percent Noise Level[2]					
			L_{eq} (Average)	L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
Daytime (7am-10pm)	Base Exterior Noise Level Standards	17.176.060.A.2	50.0	70.0	65.0	60.0	55.0	50.0
	Noise Zone Adjustment	17.176.060.A.4	6.0	6.0	6.0	6.0	6.0	6.0
	Correction for Character of Sound	17.176.060.B	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
	Project Daytime Exterior Noise Level Criteria[3]	17.176.060.3	51.0	71.0	66.0	61.0	56.0	51.0
Nighttime (10pm-7am)	Base Exterior Noise Level Standards	17.176.060.A.2	40.0	60.0	55.0	50.0	45.0	40.0
	Noise Zone Adjustment	17.176.060.A.4	6.0	6.0	6.0	6.0	6.0	6.0
	Correction for Character of Sound	17.176.060.B	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
	Project Nighttime Exterior Noise Level Criteria[3]	17.176.060.3	41.0	61.0	56.0	51.0	46.0	41.0

[1] Section 17.176.060 of the City of Lake Elsinore Zoning Code.

[2] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time.

[3] If the ambient level differs from that is permissible…the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to encompass…ambient noise level.

standard plus 15 dBA for a cumulative period of more than 1 minute in any hour. The noise ordinance also provides a 6 dB adjustment when the noise level measurement location is on the boundary between two different land use categories (176.060.A.4). In addition, section 17.176.060.B includes a 5 dB correction for the potentially offensive character of the noise from the surface mining operations. With these corrections, the daytime noise ordinance threshold is 51 dBA and the nighttime threshold becomes 41 dBA.

When ambient noise levels exceed the limits of the ordinance, the ambient levels become the limit pursuant to the ordinance (17.176.060.3). The City of Lake Elsinore Noise Ordinance is included in Appendix 4.2.

5.0 EXISTING NOISE LEVEL MEASUREMENTS

To evaluate the existing noise level environment, four (4) long-term 24-hour measurements were taken at locations throughout the project study area. Exhibit 5-A shows the project study area boundaries and the long-term noise level measurement locations. The noise level measurements were recorded by Urban Crossroads, Inc. on November 17th and 18th, 2010. Appendix 5.1 includes a photo index of the project study area.

5.1 Measurement Procedure and Criteria

The 24-hour noise readings were recorded using a Quest DL Pro data logging Type 2 noise dosimeter. All noise meters were programmed in "fast" mode to record noise levels in "A" weighted form. The sound level meters and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The Quest DL noise dosimeter was calibrated using a Quest QC-10 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (Standard S1.4-1983).

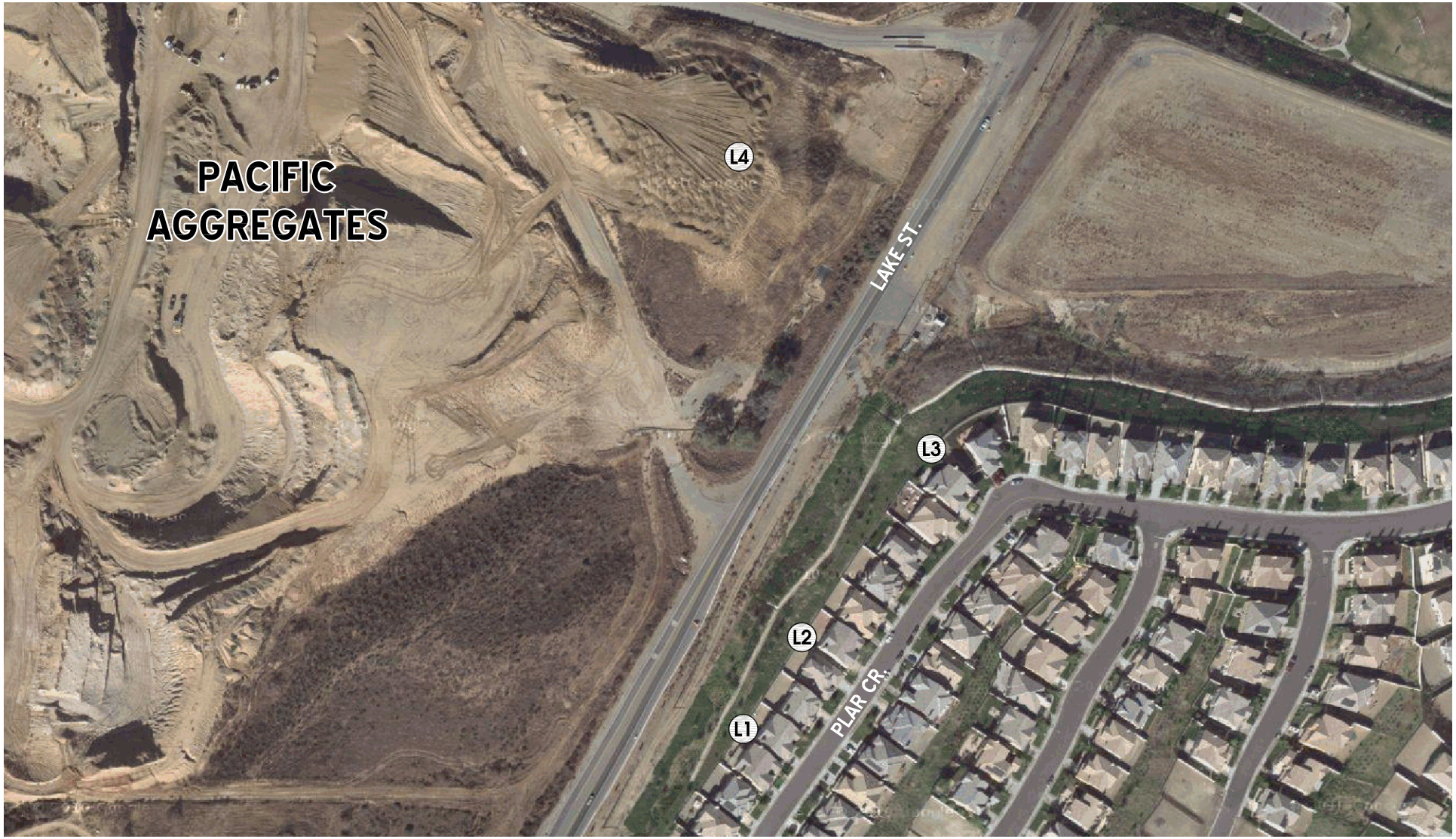
5.2 Noise Measurement Locations

The Pacific Aggregates surface mine is located at 28251 Lake Street in the City of Lake Elsinore. The surface mine is bounded to the north and west by vacant land, to the east by Lake Street and to the south by noise sensitive single-family homes. The existing noise environment is dominated by traffic noise from Lake Street. Due to the elevation of the homes on the east side of Lake Street, the residences may experience noise level impacts from operations at the Pacific Aggregates surface mine when traffic noise levels are reduced. The pad elevation of the single-family homes is approximately 30 feet above the elevation of Lake Street. Portions of the project site are also located well above the Lake Street elevation. With both the project site and single-family homes located well above the roadway elevation, the second floor façade of the homes have a direct line of site to the operational equipment at the surface mine.

Long-Term noise level measurement locations L1 through L4 were monitored for a time period of 24 hours.

EXHIBIT 5-A

LONG-TERM NOISE LEVEL MEASUREMENT LOCATIONS



LEGEND:

(L1) = LONG-TERM, 24-HOUR, NOISE MEASUREMENT LOCATION

N

- Site L1 is located at the property line wall of the single-family homes at 4112 Poplar Circle, southeast of the project site, 150 feet from the Lake Street centerline.
- Site L2 is located at the property line wall of the single-family homes on 4118 Poplar Circle, southeast of the project site, 170 feet from the Lake Street centerline.
- Site L3 is located at the property line wall of the single-family homes on 4128 Poplar Circle, east of the project site, 195 feet from the Lake Street centerline.
- Site L4 is located approximately 350 feet west of the Lake Street centerline within the Pacific Aggregates surface mine.

5.3 Noise Measurement Results

The results of the noise level measurements are presented in Table 5-1. The hourly noise levels at Site L1 range from 64.2 to 68.3 dBA Leq for daytime hours and 58.2 to 68.4 for nighttime hours. The hourly noise levels at Site L2 range from 66.7 to 70.7 dBA Leq for daytime hours and 59.6 to 71.0 for nighttime hours. The hourly noise levels at Site L3 range from 63.8 to 68.6 dBA Leq for daytime hours and 58.3 to 68.2 for nighttime hours. The hourly noise levels at Site L4 range from 60.4 to 65.0 dBA Leq for daytime hours and 54.0 to 64.8 for nighttime hours. Long-term noise monitoring results printouts are included in Appendix 5.2.

The existing exterior hourly noise levels measured at the backyard wall for homes located on Poplar Circle indicate that the unmitigated exterior noise levels will range from 58.2 dBA Leq to 71.0 dBA Leq. It is important to recognize that the exterior noise level measurements include both traffic noise from Lake Street as well as the operational noise level impacts associated with the Pacific Aggregates surface mine activities. In addition, the existing unmitigated exterior noise level measurements do not account for the existing six-foot high Plexiglas noise barrier that is provided for noise sensitive backyard and first floor receptors.

5.4 Hourly Noise Measurement Results

To assess the compliance with the City of Lake Elsinore stationary source exterior noise standards, the noise level measurements at each of the residential receptor locations were expressed using the statistical noise descriptors L2, L8, L25, and L50. The hourly statistical noise descriptors (percent noise levels) were calculated using the sixty individual one-minute

Table 5-1

Long-Term (Ambient) Noise Level Measurements[1]

Receptor Location[2]	Description	Time Of Measurement	Primary Noise Source	Daytime Hourly Noise Levels (Leq dBA)[3,4]	Nighttime Hourly Noise Levels (Leq dBA)[3,4]
L1	Located at the property line wall of 4112 Poplar Circle, southeast of the project site, approximately 150 feet from the Lake Street centerline.	November 17-18, 2010	Traffic noise on Lake Street	64.2 - 68.3	58.2 - 68.4
L2	Located at the property line wall of 4118 Poplar Circle, southeast of the project site, approximately 170 feet from the Lake Street centerline.	November 17-18, 2010	Traffic noise on Lake Street	66.7 - 70.7	59.6 - 71.0
L3	Located at the property line wall of 4128 Poplar Circle, east of the project site, approximately 195 feet from the Lake Street centerline.	November 17-18, 2010	Traffic noise on Lake Street	63.8 - 68.6	58.3 - 68.2
L4	Located approximately 350 feet west of the Lake Street centerline within the Pacific Aggregate surface mining operation.	November 17-18, 2010	Operations at the Pacific Aggregates Strip Mine, Traffic noise on Lake Street	60.4 - 65.0	54.0 - 64.8

[1] Long-term noise level measurements taken by Urban Crossroads, Inc. on November 17-18, 2010.

[2] See Exhibit 5-A for the location of the long-term noise level measurement locations, and Appendix 5.1 for Study Area Photos.

[3] The long-term noise level measurements printouts are included in Appendix 5.2.

[4] Unmitigated exterior noise level measurements do not account for the existing six-foot high Plexiglas noise barrier.

average noise level measurements observed during the twenty-four hour noise level measurement. Tables 5-2 through 5-4 present a summary of the existing ambient hourly noise level measurements at each of the residential locations.

It is important to note that the existing (ambient) hourly noise level measurements each include the operations of the Pacific Aggregate Surface mine and traffic noise from Lake Street. During the noise level measurement period of November 17-18, 2010, the mining facility operating hours were between 4:00 am and 2:00 pm.

Table 5-2

L1 - (4112 Poplar Circle)

Existing (Ambient) Hourly Noise Level Measurements[1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	59.1	63.2	62.8	61.8	60.5	58.8
1	58.4	64.6	64.3	62.8	59.2	57.0
2	58.2	66.7	65.7	61.4	59.6	56.4
3	61.0	67.6	65.2	64.2	61.7	59.9
4	67.3	70.0	69.8	68.9	68.3	67.0
5	68.4	70.8	70.4	70.0	69.3	68.3
6	68.4	71.2	70.3	69.8	69.0	68.4
7	68.3	71.5	70.9	70.4	69.2	68.4
8	66.5	69.2	69.0	68.6	67.3	66.2
9	65.2	75.5	68.3	67.2	66.4	65.2
10	64.3	69.0	67.7	66.6	65.0	63.5
11	64.3	67.7	67.3	66.5	65.5	64.0
12	68.6	71.9	71.4	70.8	69.3	68.6
13	69.2	74.7	73.3	71.7	70.4	69.1
14	65.5	76.3	69.2	67.8	66.7	65.6
15	65.7	71.5	68.2	67.1	66.3	65.6
16	66.6	69.0	68.7	68.3	67.4	66.4
17	67.2	71.5	70.8	69.2	67.9	66.8
18	67.2	70.5	69.7	68.9	67.7	67.1
19	64.9	69.8	68.6	67.1	65.5	64.6
20	65.0	68.6	68.1	66.8	65.9	64.7
21	64.7	68.7	68.1	66.8	65.9	64.1
22	63.0	71.2	67.5	65.3	64.3	61.8
23	60.8	67.5	66.5	63.2	61.7	60.0

Note: Shaded area reflects the Pacific Aggregates operating hours.

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010.

[2] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time. The percentile noise levels were calculated using the sixty one-minute average noise levels collected for each hour. The percent noise are consistent with the percent noise levels identified in Section 17.176.060 of the City of Lake Elsinore Zoning Code.

Table 5-3

L2 - (4118 Poplar Circle)

Existing (Ambient) Hourly Noise Level Measurements[1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	61.4	71.9	65.3	64.8	62.7	60.1
1	60.6	68.8	67.3	64.6	61.3	58.4
2	59.6	66.2	65.5	64.3	60.5	58.1
3	63.6	68.8	68.1	67.3	64.9	63.0
4	69.8	73.0	72.8	71.5	70.7	69.5
5	70.7	74.3	73.3	72.2	71.6	70.6
6	70.9	73.7	73.6	72.4	71.6	70.9
7	70.7	74.0	73.5	72.6	71.9	70.5
8	69.1	72.5	71.7	71.1	70.1	68.9
9	68.1	76.3	71.3	70.4	69.3	68.0
10	67.7	71.8	71.6	70.0	68.7	67.1
11	67.6	71.4	71.2	70.0	68.5	66.9
12	68.2	71.4	70.8	69.9	68.9	68.1
13	69.2	74.0	73.0	71.2	70.3	68.8
14	68.9	72.5	72.2	70.8	69.8	68.7
15	68.7	75.3	71.8	70.9	69.8	68.7
16	69.9	73.0	72.4	71.7	70.6	69.8
17	70.0	75.0	73.8	72.2	71.0	69.9
18	69.9	76.2	74.1	72.2	70.6	69.5
19	67.6	72.3	71.0	69.6	68.3	67.0
20	67.2	70.5	70.1	69.1	68.2	67.1
21	66.7	71.3	70.2	69.1	67.7	66.3
22	64.9	73.1	69.2	67.7	66.1	64.1
23	63.0	68.6	67.9	66.0	64.3	62.2

Note: Shaded area reflects the Pacific Aggregates operating hours.

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010.

[2] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time. The percentile noise levels were calculated using the sixty one-minute average noise levels collected for each hour. The percent noise are consistent with the percent noise levels identified in Section 17.176.060 of the City of Lake Elsinore Zoning Code.

Table 5-4

L3 - (4128 Poplar Circle)

Existing (Ambient) Hourly Noise Level Measurements[1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	58.3	62.3	62.3	61.4	59.9	57.8
1	58.3	64.1	63.4	62.3	59.2	57.2
2	58.3	66.2	63.9	61.9	59.7	57.1
3	61.3	66.6	65.8	63.9	62.4	60.8
4	66.6	69.7	69.1	68.5	67.7	66.4
5	68.2	71.0	70.3	69.7	69.0	68.1
6	68.3	71.1	70.2	69.5	68.8	68.2
7	68.6	71.5	70.7	70.4	69.5	68.5
8	66.9	69.7	69.3	68.6	67.7	66.7
9	65.7	69.3	69.1	67.7	66.6	65.4
10	65.2	69.1	68.0	66.8	66.3	64.8
11	64.9	67.4	67.3	66.8	65.9	65.1
12	65.4	67.9	67.8	67.4	66.2	65.3
13	66.3	70.4	69.4	68.0	67.3	66.2
14	66.1	69.0	68.6	67.8	66.8	66.1
15	66.3	69.5	69.3	67.7	66.8	66.2
16	67.0	69.9	69.8	68.8	67.5	66.9
17	67.2	71.0	69.9	68.4	67.8	67.1
18	67.0	71.1	69.7	68.7	67.4	66.8
19	65.0	69.7	68.6	66.9	65.6	64.6
20	64.6	68.3	67.2	66.8	65.3	64.3
21	63.9	67.6	66.5	66.3	64.9	63.7
22	62.3	70.3	66.2	65.0	63.0	61.3
23	60.3	66.2	66.1	63.0	61.4	59.3

Note: Shaded area reflects the Pacific Aggregates operating hours.

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010.

[2] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time. The percentile noise levels were calculated using the sixty one-minute average noise levels collected for each hour. The percent noise are consistent with the percent noise levels identified in Section 17.176.060 of the City of Lake Elsinore Zoning Code.

6.0 OFF-SITE STATIONARY NOISE ANALYSIS

A review of the Pacific Aggregate surface mining operations indicates that the primary stationary noise sources will includes rock crushers and batch plant hauling trucks within the surface mine facility to provide both ready-mix and aggregate products for export. On-site vehicle activity is considered a stationary noise source when operated on private property.

6.1 Project Related Stationary Source Noise

The stationary noise impacts associated with the project operations include rock crushers and the movement of the batch plant heavy trucks on-site. The project is surrounded the west and north by vacant land, to the east by Lake Street, and single-family homes to the south.

6.2 Reference Noise Levels

In order to evaluate future off-site stationary source noise impacts, reference stationary source noise level measurements were taken at the Pacific Aggregate on November 17, 2010 as shown on Table 6-1. These levels were utilized as reference stationary source noise levels to calculate the noise levels associated solely with the mining operations. The reference noise level measurements indicate that the batch plant heavy truck activities generate a noise level of 78.3 dBA Leq at a distance of 10 feet. At a distance of 35 feet, the unmitigated exterior noise levels associated with the two on-site rock crushers were measured at 88.7 dBA Leq.

6.3 Stationary Source Noise Impacts

It is important to note that the following projected noise levels assume the worst-case noise environment with the rock crushers and two heavy trucks all operating simultaneously. In reality, these noise level impacts will vary throughout the day. Based upon the reference noise levels provided on Table 6-1 and the ambient noise level measurements shown on Table 5-1 through 5-4, it is possible to calculate the noise levels associated with the Pacific Aggregate surface mining operation to the adjacent noise-sensitive residential receptors on Poplar Circle. The noise level calculations consider the spatial relationships between the on-site surface mining noise sources and the noise receptor locations. Exhibit 6-A presents the noise receptor locations for homes facing the Pacific Aggregate surface mining operation and Lake Street.

Table 6-1

Reference Noise Level Measurements[1]

Noise Source	Duration (mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Drop-Off Rate[2] (dBA)	Reference Percent Noise Levels					
					L_{eq} (Avg.)	L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
Batch Plant Heavy Truck Activity	5:00	10	8	6.0	78.3	81.2	79.5	79.1	78.6	78.1
Rock Crushers	5:00	35	15	6.0	88.7	90.6	90.6	90.1	89.4	88.8

[1] Noise measurements taken by Urban Crossroads, Inc. on November 17, 2010. See Appendix 5.1 for Study Area Photos and Appendix 5.2 for Noise Monitoring Printouts.

[2] Noise level (dBA) drop-off rate per doubling of distance.

EXHIBIT 6-A

NOISE RECEIVER LOCATIONS

LEGEND:

RC = ROCK CRUSHER

BT = BATCH TRUCK

R1 = NOISE RECEPTOR LOCATION

N

Table 6-2 presents the stationary source noise level projections for the Pacific Aggregates surface mining operations. The stationary source noise level projections identify the distance from each stationary noise source, and the combined unmitigated exterior noise levels at each noise receptor location. The unmitigated exterior noise levels at receptor locations R1, R2 and R3 are expected to range from 54.5 dBA Leq to 54.8 dBA Leq. The stationary source noise prediction calculations are included in Appendix 6.1.

The calculated off-site stationary noise levels attributed to the Pacific Aggregates surface mine exceed the City of Lake Elsinore stationary source base exterior noise level standards of 50 dBA Leq for daytime hours and 40 dBA Leq for nighttime hours. However, it is important to recognize that when the ambient noise levels exceed the limits of the ordinance, the ambient levels become the limit pursuant to the ordinance. In addition, while mining noise level impacts attributed solely to the mining activities may at times exceed the City of Lake Elsinore stationary source base exterior noise level standards, these noise level impacts are mostly overshadowed by the traffic noise impacts on Lake Street.

6.4 Pacific Aggregates Surface Mine Noise Impacts

Tables 6-3 through 6-5 show the ambient hourly noise levels without the Pacific Aggregates mining noise level impacts. Since the existing ambient noise level measurements include both the stationary source noise levels from the surfacing mining operations and the traffic noise from Lake Street, the calculated Pacific Aggregate stationary source noise levels (Table 6-2) were mathematically removed from the existing ambient noise levels to estimate the ambient hourly noise levels without the Pacific Aggregates mining activities. To account for the actual mining operations on November 17-18, the mining noise levels were only removed from the hours of 4:00 a.m. to 2:00 p.m.

Tables 6-3 shows that existing ambient hourly noise levels at the backyard wall at Receptor Location 1 (4112 Poplar Circle) will range from 58.2 dBA Leq at 2:00 a.m. to 69.0 dBA Leq at 1:00 p.m. The noise levels associated with the Pacific Aggregates mining activities (Table 2) at Receptor Location 1 (4112 Poplar Circle) are estimated at 54.7 dBA Leq. Table 6-3 indicates that the mining activity noise levels are less than the existing ambient hourly noise level conditions.

Tables 6-4 shows that existing ambient hourly noise levels at the backyard wall at Receptor Location 2 (4118 Poplar Circle) will range from 59.6 dBA Leq at 2:00 a.m. to 70.8 dBA Leq at 6:00

Table 6-2

Unmitigated Pacific Aggregates
Exterior Noise Level Projections

Receptor Location[1]	Noise Source	Distance From Source To Receptor (Feet)	Unmittigated Exterior Noise Levels[2]					
			L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}
R1	Rock Crushers	1795'	54.5	56.4	56.4	55.9	55.2	54.6
	Batch Truck #1	1330'	35.8	38.7	37.0	36.6	36.1	35.6
	Batch Truck #2	735'	41.0	43.9	42.2	41.8	41.3	40.8
		Combined Total:	**54.7**	**56.7**	**56.6**	**56.1**	**55.4**	**54.8**
R2	Rock Crushers	1770'	54.6	56.5	56.5	56.0	55.3	54.7
	Batch Truck #1	1250'	36.4	39.3	37.6	37.2	36.7	36.2
	Batch Truck #2	730'	41.0	43.9	42.2	41.8	41.3	40.8
		Combined Total:	**54.8**	**56.8**	**56.7**	**56.2**	**55.5**	**54.9**
R3	Rock Crushers	1830'	54.3	56.2	56.2	55.7	55.0	54.4
	Batch Truck #1	1130'	37.2	40.1	38.4	38.0	37.5	37.0
	Batch Truck #2	1070'	37.7	40.6	38.9	38.5	38.0	37.5
		Combined Total:	**54.5**	**56.4**	**56.4**	**55.9**	**55.2**	**54.6**

[1] See Exhibit 6-A for the noise receptor locations, noise level calculations are provided in Appendix 6.1.

[2] Unmitigated exterior noise levels do not account for the existing six-foot high Plexiglas noise barrier.

Table 6-3

R1 - (4112 Poplar Circle)

Ambient Hourly Noise Levels (Without Pacific Aggregates) [1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	59.1	63.2	62.8	61.8	60.5	58.8
1	58.4	64.6	64.3	62.8	59.2	57.0
2	58.2	66.7	65.7	61.4	59.6	56.4
3	61.0	67.6	65.2	64.2	61.7	59.9
4	67.1	69.8	69.6	68.7	68.1	66.7
5	68.2	70.6	70.2	69.8	69.1	68.0
6	68.2	71.0	70.2	69.6	68.8	68.2
7	68.1	71.4	70.7	70.2	69.0	68.2
8	66.2	68.9	68.7	68.3	67.0	65.9
9	64.8	75.4	68.0	66.8	66.0	64.8
10	63.8	68.7	67.3	66.2	64.5	62.9
11	63.8	67.3	66.9	66.1	65.1	63.4
12	68.4	71.8	71.3	70.7	69.1	68.4
13	69.0	74.6	73.2	71.6	70.3	68.9
14	65.1	76.3	68.9	67.4	66.4	65.2
15	65.7	71.5	68.2	67.1	66.3	65.6
16	66.6	69.0	68.7	68.3	67.4	66.4
17	67.2	71.5	70.8	69.2	67.9	66.8
18	67.2	70.5	69.7	68.9	67.7	67.1
19	64.9	69.8	68.6	67.1	65.5	64.6
20	65.0	68.6	68.1	66.8	65.9	64.7
21	64.7	68.7	68.1	66.8	65.9	64.1
22	63.0	71.2	67.5	65.3	64.3	61.8
23	60.8	67.5	66.5	63.2	61.7	60.0
Minimum Noise Level	58.2	63.2	62.8	61.4	59.2	56.4
Pacifiic Aggregates	54.7	56.7	56.6	56.1	55.4	54.8

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010 without the Pacific Aggregates project only noise levels shown on Table 6-2.

Table 6-4

R2 - (4118 Poplar Circle)

Ambient Hourly Noise Levels (Without Pacific Aggregates) [1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	61.4	71.9	65.3	64.8	62.7	60.1
1	60.6	68.8	67.3	64.6	61.3	58.4
2	59.6	66.2	65.5	64.3	60.5	58.1
3	63.6	68.8	68.1	67.3	64.9	63.0
4	69.7	72.9	72.7	71.3	70.6	69.3
5	70.6	74.2	73.2	72.1	71.5	70.5
6	70.8	73.6	73.5	72.3	71.5	70.8
7	70.6	73.9	73.4	72.5	71.8	70.3
8	68.9	72.4	71.6	71.0	69.9	68.7
9	67.9	76.3	71.1	70.2	69.1	67.7
10	67.5	71.7	71.5	69.8	68.5	66.8
11	67.4	71.2	71.1	69.8	68.3	66.6
12	68.0	71.2	70.7	69.7	68.7	67.9
13	69.0	73.9	72.9	71.1	70.2	68.6
14	68.7	72.4	72.1	70.6	69.7	68.5
15	68.7	75.3	71.8	70.9	69.8	68.7
16	69.9	73.0	72.4	71.7	70.6	69.8
17	70.0	75.0	73.8	72.2	71.0	69.9
18	69.9	76.2	74.1	72.2	70.6	69.5
19	67.6	72.3	71.0	69.6	68.3	67.0
20	67.2	70.5	70.1	69.1	68.2	67.1
21	66.7	71.3	70.2	69.1	67.7	66.3
22	64.9	73.1	69.2	67.7	66.1	64.1
23	63.0	68.6	67.9	66.0	64.3	62.2
Minimum Noise Level	59.6	66.2	65.3	64.3	60.5	58.1
Pacifiic Aggregates	54.8	56.8	56.7	56.2	55.5	54.9

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010 without the Pacific Aggregates project only noise levels shown on Table 6-2.

Table 6-5

R3 - (4128 Poplar Circle)

Ambient Hourly Noise Levels (Without Pacific Aggregates) [1]

Hour Beginning	L_{eq} (Average)	Percent Exterior Noise Level[2]				
		L_{max} (0 min)	L_2 (1 min)	L_8 (5 min)	L_{25} (15 min)	L_{50} (30 min)
0	58.3	62.3	62.3	61.4	59.9	57.8
1	58.3	64.1	63.4	62.3	59.2	57.2
2	58.3	66.2	63.9	61.9	59.7	57.1
3	61.3	66.6	65.8	63.9	62.4	60.8
4	66.3	69.5	68.9	68.2	67.5	66.1
5	68.0	70.8	70.1	69.5	68.8	67.9
6	68.1	70.9	70.0	69.3	68.6	68.0
7	68.4	71.4	70.5	70.2	69.3	68.3
8	66.6	69.5	69.1	68.4	67.5	66.4
9	65.4	69.1	68.9	67.4	66.2	65.0
10	64.8	68.9	67.7	66.5	66.0	64.4
11	64.5	67.0	66.9	66.5	65.5	64.7
12	65.0	67.6	67.5	67.1	65.8	64.9
13	66.0	70.2	69.1	67.7	67.1	65.9
14	65.8	68.8	68.4	67.5	66.5	65.8
15	66.3	69.5	69.3	67.7	66.8	66.2
16	67.0	69.9	69.8	68.8	67.5	66.9
17	67.2	71.0	69.9	68.4	67.8	67.1
18	67.0	71.1	69.7	68.7	67.4	66.8
19	65.0	69.7	68.6	66.9	65.6	64.6
20	64.6	68.3	67.2	66.8	65.3	64.3
21	63.9	67.6	66.5	66.3	64.9	63.7
22	62.3	70.3	66.2	65.0	63.0	61.3
23	60.3	66.2	66.1	63.0	61.4	59.3
Minimum Noise Level	58.3	62.3	62.3	61.4	59.2	57.1
Pacifiic Aggregates	54.5	56.4	56.4	55.9	55.2	54.6

[1] Noise level measurements collected by Urban Crossroads, Inc. on November 17-18, 2010 without the Pacific Aggregates project only noise levels shown on Table 6-2.

a.m. The noise levels associated with the Pacific Aggregates mining activities (Table 2) at Receptor Location 2 (4118 Poplar Circle) are estimated at 54.8 dBA Leq. Table 6-4 indicates that the mining activity noise levels are less than the existing ambient hourly noise level conditions.

Tables 6-5 shows that existing ambient hourly noise levels at the backyard wall at Receptor Location 3 (4128 Poplar Circle) will range from 58.3 dBA Leq at 2:00 a.m. to 68.4 dBA Leq at 7:00 a.m. The noise levels associated with the Pacific Aggregates mining activities (Table 2) at Receptor Location 3 (4128 Poplar Circle) are estimated at 54.5 dBA Leq. Table 6-5 indicates that the mining activity noise levels are less than the existing ambient hourly noise level conditions.

Tables 6-3 through 6-5 shows that the minimum ambient noise levels at each of the noise sensitive residential receptor location is greater than the expected noise level impacts associated with the Pacific Aggregate mining activities. In other words, the existing traffic noise levels on Lake Street are greater than the noise level impacts associated with the Pacific Aggregate mining activities.

This noise analysis shows that Pacific Aggregate surface mine noise levels are less than the existing ambient noise levels measured during both daytime and nighttime hours. While the calculated mining noise level impacts may at times exceed the City of Lake Elsinore stationary source base exterior noise level standards, it is important to recognize that when ambient noise levels exceed the limits of the noise control ordinance, the ambient levels become the limit pursuant to the ordinance. Since the Pacific Aggregate surface mine noise levels are lower than the ambient noise conditions observed at each receptor location during any hour of the day, this analysis shows that the existing mining operations satisfy the City of Lake Elsinore exterior noise level criteria established in Section 17.176.060 of the Noise Control Ordinance.

APPENDIX 4.1

City of Lake Elsinore Noise Element

X. NOISE ELEMENT

A. INTRODUCTION

1. OVERVIEW

The Noise Element of a general plan is a comprehensive program for including noise control in the planning process. It is a tool for local planners to use in achieving and maintaining compatible land use with environmental noise levels. The Noise Element identifies noise sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing programs to ensure that Lake Elsinore residents will be protected from excessive noise intrusion.

The Noise Element follows the revised state guidelines in Government Code Section 653021(g) and in Section 46050.1 of the Health and Safety Code. This element quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. The information will become a guideline for the development of land use policies to achieve compatible land uses and provide baseline levels and noise source identification for local noise ordinance enforcement.

2. ISSUE IDENTIFICATION

a. Transportation Noise Control

Within the City of Lake Elsinore are a number of transportation related noise sources including two freeways, major arterials, collector roadways, aircraft operations, as well as ultralight and power boat activity. These sources are the major contributors of noise in Lake Elsinore. Cost effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.

b. Noise and Land Use Planning Integration

Information relative to the existing and forecast noise environment within Lake Elsinore should be integrated into future land use planning decisions. The noise

environment is presented in order that the city may include noise impact considerations in development programs.

c. Community Noise Control for Non-Transportation Noise Sources

Residential land uses and areas identified as noise sensitive must be protected from excessive noise from non-transportation sources including industrial activities and equipment. These impacts are most effectively controlled through the adoption and application of a city Noise Ordinance.

B. INVENTORY OF CURRENT AND FORECAST CONDITIONS

The following is a detailed description of the current and projected noise environment within the City of Lake Elsinore. This description of the noise environment is based on an identification of noise sources and noise sensitive land uses, a community noise measurement survey and noise contour maps.

1. SOURCES OF NOISE

The most common sources of noise in urban areas are transportation related noise sources. These include automobiles, trucks, motorcycles, railroads, and aircraft. Motor vehicle noise is of concern because it is characterized by a high number of individual events which often create a sustained noise level and its proximity to areas sensitive to noise exposure. Aircraft operations, though less frequent, may generate high noise levels that can be disruptive to human activity.

The sources of noise in Lake Elsinore fall into five basic categories. These are: freeways and principal arterials (the I-15 and Highway 74); aircraft (from Skylark Airport); major and minor arterial roadways; recreational (power boats and ultralights); and stationary sources. Each of these sources and their impacts on the noise environment of Lake Elsinore are summarized in the following paragraphs.

The Corona Freeway (I-15) runs in a northwest/southeast direction cross the city. Highway 74 orients in a east/west direction. Residences exist along both the I-15 and Highway 74. The I-15 is elevated quite a bit above the adjacent residences, which eliminates the need for sound walls in several areas. Highway 74 is generally at grade with the adjacent residences where it passes through the city and becomes Riverside Drive. No sound walls presently exist along Highway 74.

Skylark Airport is a small general aviation airstrip located in the southeastern portion of the city. Operations from this airport overfly the lake and consist primarily of small piston aircraft such as single engine Cessnas. Aircraft departures for the dirt airstrip are minimal (less than 20 per day) and do not have a significant impact on sensitive land uses within the city.

Traffic noise on surface streets is a significant source of noise within the community. The major roadways in the city include: Lakeshore Drive, Mission Trail, Grand Avenue, Central Street and Railroad Canyon Road.

In general, most of the land uses along the major roadways are residential, commercial, and industrial, with several parcels of open space zoned for similar types of development.

Recreational activities associated with Lake Elsinore include power boats and ultralight aircraft. Peak noise levels generated by these sources could periodically create annoyance at sensitive land uses around the lake.

The City of Lake Elsinore has commercial and industrial sources of noise at a number of locations throughout the city. These include commercial centers that range in size from major industrial projects to smaller developments. The city has a number of locations with residential land uses adjacent to commercial or industrial land uses. Sources of noise include air compressors, generators and outdoor loudspeakers.

2. NOISE SENSITIVE RECEPTORS

The City of Lake Elsinore has a number of noise sensitive land uses. Within the city are public and private schools, day care centers

and rest homes. The distribution of these uses varies from moderately quiet residential areas to major transportation corridors.

3. COMMUNITY NOISE MEASUREMENT SURVEY

The determination of the major noise sources and the identification of noise sensitive receptors provide the basis of developing a community noise survey. A noise measurement survey was conducted at locations which reflect the noise levels at these facilities. Each site was monitored for 15 minutes. The results of the survey and the methodology used in the measurements are summarized in the Technical Appendices.

4. COMMUNITY NOISE CONTOURS

The community noise contours for the City of Lake Elsinore are presented in Exhibits X-1 and X-2 for existing 1988 and post-2010 conditions, respectively. The contours in Exhibit X-1 are based on the existing traffic volumes and other sources of noise in the community. The contours in Exhibit X-2 represent expected traffic conditions after the year 2010.

Noise contours represent lines of equal noise exposure, just as the contour lines on a topographic map are lines of equal elevation. The contours shown on the maps are the 60, 65 and 70 dB Ldn noise level. The noise contours presented should be used as a guide for land use planning. The 60 dB Ldn contour defines the Noise Referral Zone. This is the noise level for which noise considerations are included when making land use policy decisions.

Topography and intervening buildings or barriers have a very complex effect on the propagation of noise. To present a worst case estimate, the topographic effect is not included in these contours.

C. FINDINGS

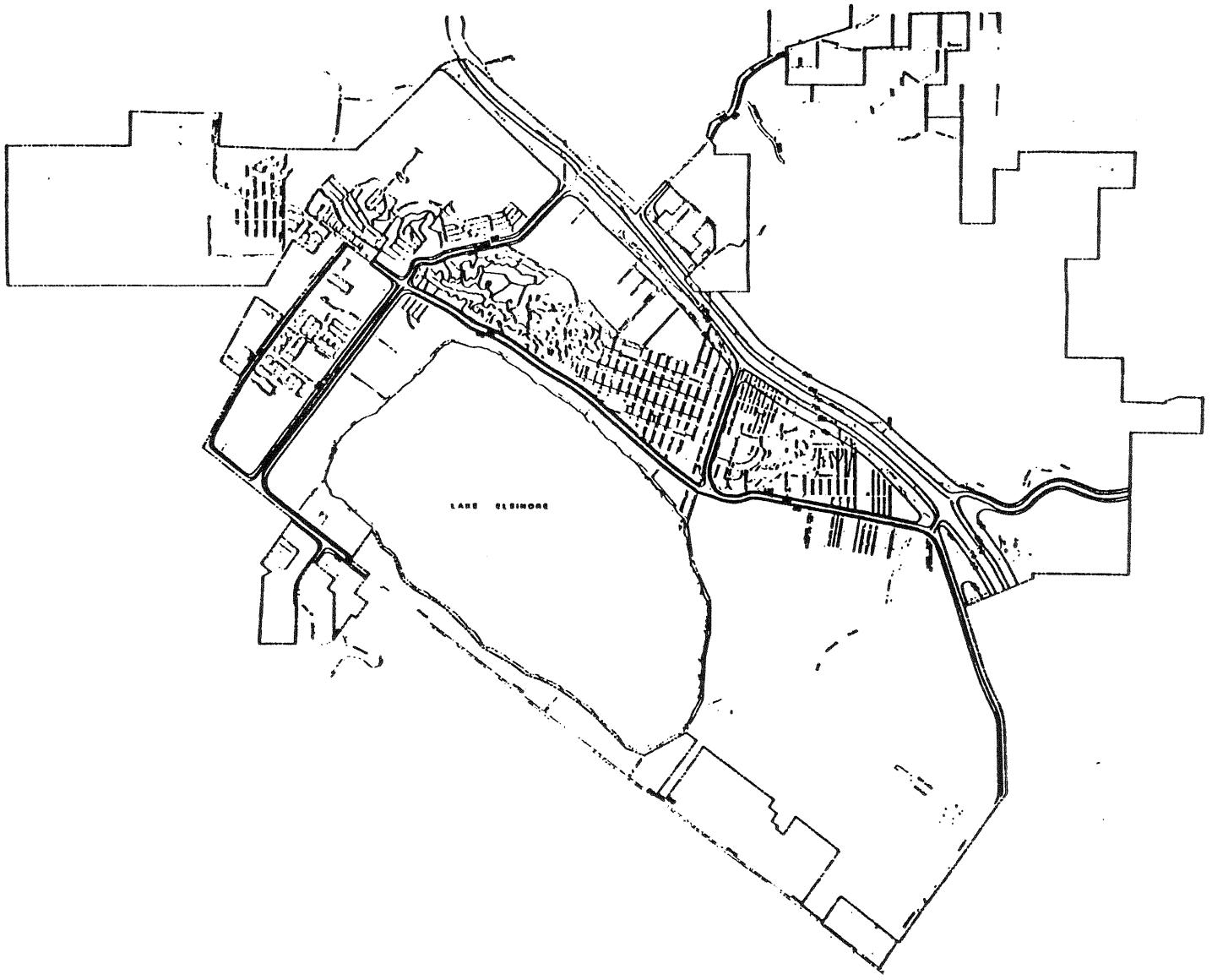
The predominant noise in Lake Elsinore, as in most other communities, comes from mobile noise sources including motor vehicles. Interstate 15, Highway 74, and several arterial roadways expose portions of the city to significant noise levels, particularly in

those areas directly adjacent to these sources. General aviation aircraft operations from Skylark Airport, ultralight operations over the lake, and power boats also contribute to the noise environment. The noise impacts due to planes originating from Skylark and ultralight flights are considered minimal. Noise from power boat and jet ski activity on the lake create short term peak noise impacts on nearby residential uses. Other sources of noise within the city are from non-transportation sources including industrial and commercial plants. The noise environment in Lake Elsinore is typical of a rural setting, except at locations affected by these transportation, recreational, and non-transportation noise sources.

Noise affects all types of land uses and activities, although some are more sensitive to high noise levels than others. Land uses identified as noise sensitive include residences of all types; hospitals, rest homes, convalescent hospitals, places of worship and schools. Within the city are sensitive uses such as public and private schools, day care centers and rest homes.

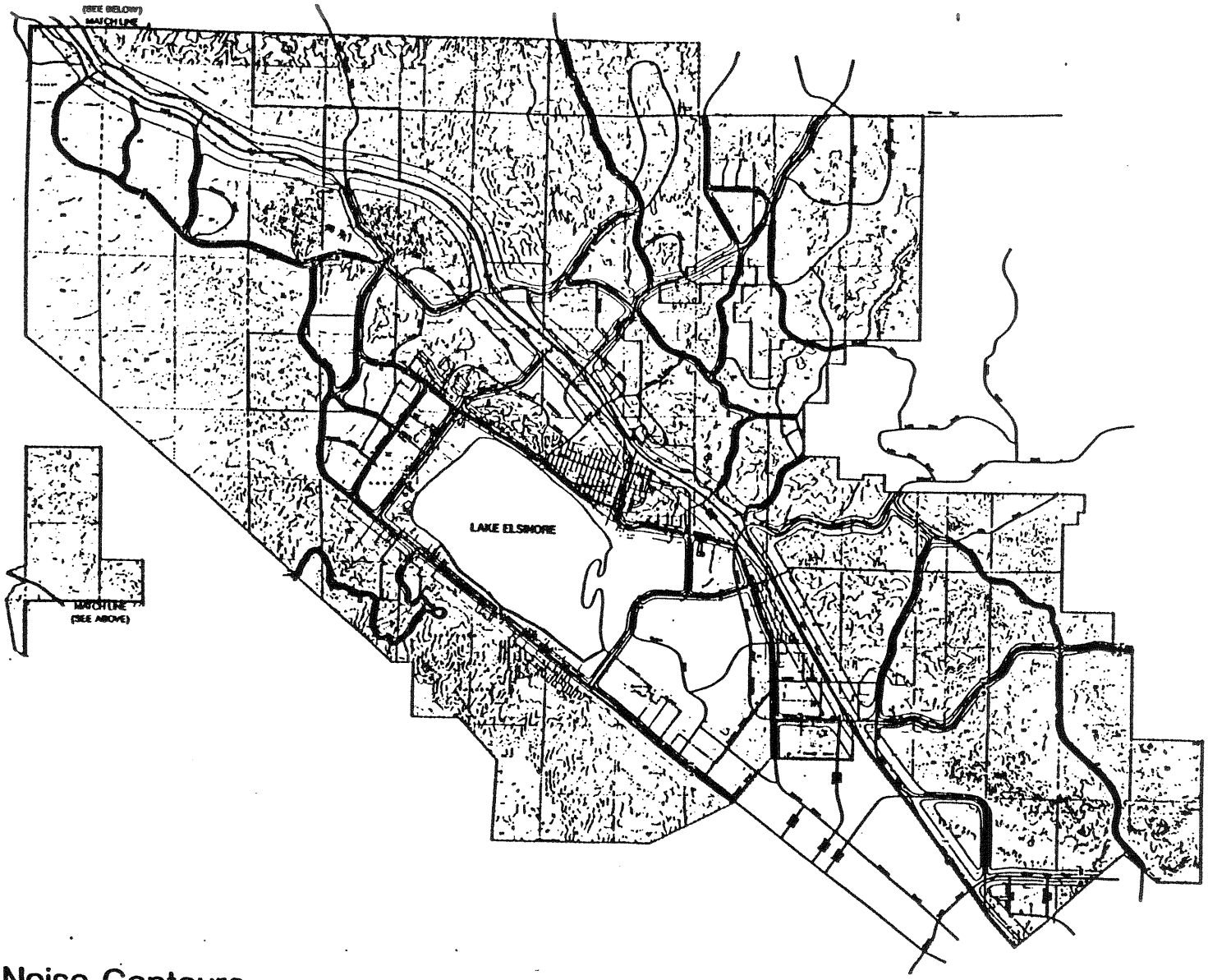
The noise environment for Lake Elsinore has been described using noise contours developed for the major noise sources within the city. The 60 dB Ldn contour represents the Noise Referral Zone for which any proposed noise sensitive land use within this zone should be evaluated on a project specific basis and the project may require mitigation to meet city or state (Title 25) standards. Most cities use 65 Ldn as the cut-off point for a Noise Referral Zone, and the corresponding exterior noise standard for residential and other sensitive land uses. An exterior standard of 60 Ldn has been established in order to preserve the rural, natural and desired environment of Lake Elsinore. For Lake Elsinore, the 65 Ldn contour represents zones where residential development should be discouraged without proper mitigation as part of the project.

The sources of noise in Lake Elsinore can be divided into two basic categories, transportation sources and non-transportation sources. A local government has little direct control of transportation noise at the source. State and federal agencies have the responsibility to control the noise from the source, such as vehicle noise emission levels. The most effective method the city has to mitigate transportation noise is through reducing the impact of the noise onto the community, such as noise barriers and site design review.



Existing Noise Contours
LAKE ELSINORE GENERAL PLAN
CITY OF LAKE ELSINORE

pbr
EXHIBIT X-1



Future Noise Contours
LAKE ELSINORE GENERAL PLAN
CITY OF LAKE ELSINORE

pbr
EXHIBIT X-2

Mitigation through the design and construction of a noise barrier (wall, berm, or combination wall/berm) is the most common way of alleviating traffic noise impacts. The effect of a noise barrier is critically dependent on the geometry between the noise source and the receiver. A noise barrier effect occurs when the "line of sight" between the source and receiver is penetrated by the barrier. The greater the penetration the greater the noise reduction.

Noise concerns should be incorporated into land use planning to reduce future noise and land use incompatibilities. This is achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the city. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts. Table X-1 presents criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for the development of specific Noise Standards. These standards, presented in Table X-2, present the recommended city policies related to land uses and acceptable noise levels. These tables are the primary tools which will allow the city to ensure integrated planning for compatibility between land uses and outdoor noise.

The most effective method to control community noise impacts from non-transportation noise sources is through the application of a community noise ordinance. The city will consider amending and adopting a new comprehensive community noise ordinance to help ensure that city residents are not exposed to excessive noise levels from non-transportation noise sources. The ordinance is designed to protect quiet residential areas from stationary noise sources. The noise levels encouraged by the ordinance would be typical of a quiet residential area.

D. NOISE ELEMENT IMPLEMENTATION PROGRAM

To achieve the goals and objectives of the Noise Element, an effective implementation program developed within the constraints of the city's financial and staffing capabilities is necessary. The underlying purpose is to reduce the number of people exposed to excessive noise and to minimize the future effect of noise in the city. The city should consider the following implementation measures to control the impacts of noise in Lake Elsinore.

Table X-1
NOISE AND LAND USE COMPATIBILITY MATRIX

LAND USE CATEGORIES		DAY-NIGHT NOISE LEVEL LDN						
CATEGORIES	USES	≤55	60	65	70	75	80≥	
RESIDENTIAL	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank Restaurant, Movie Theatre	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation INSTITUTIONAL Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL Recreation	Childrens Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL General, Special INDUSTRIAL INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL General	Hospital, Church, Library Schools' Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

INTERPRETATION

ZONE A
CLEARLY COMPATIBLE

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

ZONE B
NORMALLY COMPATIBLE

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

ZONE C
NORMALLY INCOMPATIBLE

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

ZONE D
CLEARLY INCOMPATIBLE

New construction or development should generally not be undertaken.

Table X-2
RECOMMENDED INTERIOR AND EXTERIOR NOISE STANDARDS

LAND USE CATEGORIES		ENERGY AVERAGE LDN	
CATEGORIES	USES	INTERIOR [1]	EXTERIOR [2]
RESIDENTIAL	Single Family, Duplex, Multiple Family	45 [3,5]	60
	Mobile Home	—	60 [4]
COMMERCIAL INSTITUTIONAL	Hotel, Motel, Transient Lodging	45 [5]	—
	Hospital, Schools' classroom	45	—
	Church, Library	45	—

INTERPRETATION

1. Indoor environment excluding: Bathrooms, toilets, closets, corridors.

2. Outdoor environment limited to:
   Private yard of single family
   Multi-family private patio or balcony which is served by a means of exit from inside.
   Mobile home Park

3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.

4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

5. As per California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Section T25-28

1. Transportation Noise Control: The most efficient and effective means of controlling noise from transportation systems is reducing noise at the source. However, since the city has little direct control over source noise levels because of state and federal preemption (ie., state Motor Vehicle Noise Standards and federal Air Regulations), policies should be focused on reducing the impact of the noise on the community. Cooperative efforts with state and federal offices are essential.

2. Coordinate with Caltrans for the possible future installation of freeway noise barriers along the Corona Freeway (I-15) to attenuate freeway noise effectively for existing noise sensitive land uses. Ensure the employment of noise mitigation measures in the design or improvement of arterial roadways consistent with funding capability and support efforts by the California Department of Transportation to provide for acoustical protection of existing noise sensitive land uses affected by these projects.

3. Provide for continued evaluation of truck movements and routes in the city to provide effective separation from residential or other noise sensitive land uses.

4. Encourage the enforcement of state Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Police Department.

5. Any future plans to expand Skylark Airport should include an airport Master Plan to insure compatibility with surrounding land uses and future development plans in the area.

6. Noise and Land Use Planning Integration: Community noise considerations are to be incorporated into land use planning. These measures are intended to prevent future noise and land-use incompatibilities.

7. Establish standards that specify acceptable limits of noise for various land uses throughout the city. These criteria are designed to integrate noise considerations into land use planning to prevent new noise/land use conflicts. Table X-1 shows criteria used to assess the compatibility of proposed land

uses with the noise environment. These criteria are the basis for the development of specific noise standards. These standards, presented in Table X-2, define the city policies related to land uses and acceptable noise levels. These tables are the primary tools which allow the city to ensure noise integrated planning for compatibility between land uses and outdoor noise.

8. Incorporate noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. The noise referral zones identified in Exhibit X-2 (areas exposed to noise levels greater than 60 dB Ldn) can be used to identify locations of potential conflict. New developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are met.

9. Enforce the State of California Uniform Building Code that specifies that the indoor noise levels for residential living spaces not exceed 45 dB Ldn due to the combined effect of all noise sources. The state requires implementation of this standard when the outdoor noise levels exceed 60 dB Ldn. The Noise Referral Zones (60 dB Ldn) can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that, "Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room." The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings. The city should also, as a matter of policy, apply this standard to single family dwellings.

10. Community Noise Control for Non-Transportation Noise Sources: The focus of control of noise from non-transportation sources is a community noise ordinance. The ordinance can be used to protect people from noise generated on adjacent properties. Amend and adopt a new comprehensive community noise ordinance to ensure that city residents are not exposed to excessive noise levels from stationary noise sources. A Model Noise Ordinance is contained in the Technical Appendices Report. The purpose of the ordinance is to protect people

from non-transportation related noise sources such as music, machinery and pumps and air conditioners. The ordinance does not apply to motor vehicle noise on public streets, but it does apply to vehicles on private property. The ordinance is designed to protect quiet residential areas from stationary noise sources. The noise levels encouraged by the ordinance are typical of a quiet residential area.

11. Enforce the Noise Ordinance. The most effective method to control community noise impacts from non-transportation noise sources is through application of the community noise ordinance.

12. Require that new industrial or commercial projects, to be built near existing residential land use, demonstrate compliance with the city ordinance regulations for noise prior to approval of the project.

13. Limit the hours of construction activity in residential areas in order to reduce the intrusion of noise in the early morning and late evening hours and on weekends and holidays. Hours of construction should be limited to 7 a.m. to 6 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends and holidays. Ensure adequate noise control measures at all construction sites through the provision of mufflers and the physical separation of machinery maintenance areas from adjacent residential uses.

14. Designate one agency in the city to act as the noise control coordinator. This will ensure the continued operation of noise enforcement efforts of the city.

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APPENDIX 4.2

City of Lake Elsinore Municipal Code

Chapter 17.176
NOISE CONTROL

Sections:

17.176.010 Purpose.

In order to control unnecessary, excessive and annoying noise and vibration in the City, it is hereby declared to be the policy of the City to prohibit such noise and vibration generated from or by all sources as specified in this chapter. It shall be the policy of the City to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the City where noise levels are above acceptable values.

It is determined that certain noise levels and vibrations are detrimental to the public health, welfare and safety, and are contrary to public interest. Therefore, the City Council does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter, is a public nuisance and shall be punishable as such. [Ord. 772 § 17.78.010, 1986. Code 1987 § 17.78.010].

17.176.020 Definitions.

All terminology used in this chapter, not defined below, shall be in conformance with applicable publications of the. American National Standards Institute (ANSI) or its successor body.

The following words, phrases and terms as used in this chapter shall have the meaning as indicated below:

“A-weighted sound level” means the sound level in decibels as measured on a sound level meter using the A-weighting network. The level so read is designated dB(A) or dBA.

“Agricultural property” means a parcel of real property of not less than 10 contiguous acres in size, which is undeveloped for any use other than agricultural purposes.

“Ambient noise level” means the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal of existing level of environmental noise at a given location.

“Commercial area” means property which is zoned for commercial purposes, including, but not limited to, retail and wholesale businesses, personal services, and professional offices.

“Construction” means any site preparation, assembly, erection, substantial repair, alteration, or similar action, for or of public or private rights-of-way, structures, utilities or similar property.

“Cumulative period” means an additive period of time composed of individual time segments which may be continuous or interrupted.

“Decibel” means a unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the ratio of the sound measured to the reference pressure, which is 20 micropascals.

“Demolition” means any dismantling, intentional destruction or removal of structures, utilities, public or private right-of-way surfaces, or similar property.

“Emergency work” means any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

“Fixed noise source” means a stationary device which creates sounds while fixed or motionless, including, but not limited to, residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners, and refrigeration.

“Gross vehicle weight rating (GVWR)” means the value specified by the manufacturer as the recommended maximum loaded weight of a single motor vehicle. In cases where trailers and tractors are separable, the gross combination weight rating, which is the value specified by the manufacturer as the recommended maximum loaded weight of the combination vehicle, shall be used.

“Impulsive sound” means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and the discharge of firearms.

“Industrial area” means property which is zoned for manufacturing and related uses.

“Intrusive noise” means that noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency and time of occurrence, and tonal or informational content as well as the prevailing ambient noise level.

“Licensed” means the possession of a formal license or a permit issued by the appropriate jurisdictional authority; or, where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

“Mobile noise source” means any noise source other than a fixed source.

“Motor vehicle” shall include any and all self-propelled vehicles as defined in the California Motor Vehicle Code, including all on-highway type motor vehicles subject to registration under said code, and all off-highway type motor vehicles subject to identification under said

code.

“Motorboat” means any vessel propelled by machinery, whether or not such machinery is the principal source of propulsion but shall not include a vessel which has a valid marine document issued by the Bureau of Customs of the United States government or any Federal agency successor thereto (Section 651(d), Harbors and Navigation Code).

“Muffler or sound dissipative device” means a device consisting of a series of chambers or baffle plates, or other mechanical design, for the purpose of receiving exhaust gas from an internal combustion engine, and effective in reducing noise.

“Noise Control Officer (NCO)” means a person or persons designated by the Community Development Director as responsible for enforcement of this chapter.

“Noise disturbance” means any sound which, as judged by the Noise Control Officer, (1) endangers or injures the safety or health of human beings or animals, or (2) annoys or disturbs reasonable persons of normal sensitivities, or (3) endangers or injures personal or real property, or (4) violates the factors set forth in LEMC 17.176.040. Compliance with the quantitative standards as listed herein shall constitute elimination of a noise disturbance.

“Noise sensitive zone” means any area designated pursuant to LEMC 17.176.070 for the purpose of ensuring exceptional quiet.

“Noise zone” means any defined areas or regions of a generally consistent land use wherein the ambient noise levels are within a range of five dB.

“Person” means any individual, association, partnership, or corporation, and includes any officer, employee, department, agency or instrumentality of a State or any political subdivision of a State.

“Powered model vehicle” means any self-propelled, airborne, waterborne, or land-borne plane, vessel, or vehicle, which is not designed to carry persons, including, but not limited to, any model airplane, boat, car, or rocket.

“Public right-of-way” means any street, avenue, boulevard, highway, sidewalk or alley or similar place which is owned or controlled by a governmental entity.

“Public space” means any real property or structures thereon which are owned or controlled by a governmental entity.

“Pure tone” means any sound which can be judged as audible as a single pitch or a set of single pitches by the Noise Control Officer. For the purposes of this chapter, a pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by five dB for center frequencies of 500 Hz and above and by eight dB for center frequencies between 160 and 400 Hz and by 15 dB for center frequencies less than or equal to 125 Hz.

“Real property boundary” means an imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one person from that owned by another person, but not including intrabuilding real property divisions.

"Residential area" means property which is zoned for residential uses.

"Sound amplifying equipment" means any device for the amplification of the human voice, music, or any other sound, excluding standard automobile radios when used and heard only by the occupants of the vehicle in which the radio is installed, and, as used in this chapter, warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

"Sound level meter" means an instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of sound levels, which meets or exceeds the requirements pertinent for type S2A meters in American National Standards Institute specifications for sound level meters, S1.4-1971, or the most recent revision thereof.

"Sound truck" means any motor vehicle, or any other vehicle, regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.

"Vibration perception threshold" means the minimum ground- or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 inches per second over the range of one to 100 Hz.

"Weekday" means any day, Monday through Friday, which is not a legal holiday. [Ord. 772 § 17.78.020, 1986. Code 1987 § 17.78.020].

17.176.030 Authority and duties of the Noise Control Office(r) (NCO).

A. Lead Agency. The noise control program established by this chapter shall be administered by the Community Development Director.

B. Powers. In order to implement and enforce this chapter and for the general purpose of noise abatement and control, the NCO shall have, in addition to any other authority vested in it, the power to:

1. Conduct, or cause to be conducted, studies, research, and monitoring related to noise, including joint cooperative investigation with public or private agencies, and the application for, and acceptance of, grants.

2. On all public and private projects which are likely to cause noise in violation of this chapter and which are subject to mandatory review or approval by other departments.

a. Review for compliance with the intent and provisions of this chapter.

b. Require sound analyses which identify existing and projected noise sources and associated noise levels.

c. Require usage of adequate measures to avoid violation of any provision of this chapter.

3. Upon presentation of proper credentials, enter and/or inspect any private property,

place, report, or records at any time when granted permission by the owner or by some other person with apparent authority to act for the owner. When permission is refused or cannot be obtained, a search warrant may be obtained from a court of competent jurisdiction upon showing of probable cause to believe that a violation of this chapter may exist. Such inspection may include administration of any necessary tests.

4. Prepare recommendations, to be approved by the City Council, for the designation of noise sensitive zones which contain noise sensitive activities.

5. Prepare recommendations, based upon noise survey data and analytical studies, to be approved by the City Council, for the designation of zones of similar ambient environmental noise within regions of generally consistent land use. These zones shall be identified in terms of their day and nighttime ambient noise levels and their land use classifications as given in LEMC 17.176.060, Table 1. [Ord. 772 § 17.78.030, 1986. Code 1987 § 17.78.030].

17.176.040 General noise regulations.

Notwithstanding any other provision of this chapter, and in addition thereto, it shall be unlawful for any person to willfully or negligently make or continue, or cause to be made or continued, any loud, unnecessary, or unusual noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

The factors which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

A. The sound level of the objectionable noise.

B. The sound level of the ambient noise.

C. The proximity of the noise to residential sleeping facilities.

D. The nature and zoning of the area within which the noise emanates.

E. The number of persons affected by the noise source.

F. The time of day or night the noise occurs.

G. The duration of the noise and its tonal, informational or musical content.

H. Whether the noise is continuous, recurrent, or intermittent.

I. Whether the noise is produced by a commercial or noncommercial activity. [Ord. 772 § 17.78.040, 1986. Code 1987 § 17.78.040].

17.176.050 Noise measurement procedure.

A. Upon receipt of a complaint from a citizen, the Noise Control Office(r) or his agent, equipped with sound level measurement equipment satisfying the requirements specified in LEMC 17.176.020, shall investigate the complaint. The investigation shall consist of a measurement and the gathering of data to adequately define the noise problem and shall include the following:

1. Nonacoustic Data.

a. Type of noise source.

b. Location of noise source relative to complainant's property.

c. Time period during which noise source is considered by complainant to be intrusive.

d. Total duration of noise produced by noise source.

e. Date and time of noise measurement survey.

B. Noise Measurement Procedure. Utilizing the A-weighting scale of the sound level meter and the "slow" meter response (use "fast" response for impulsive type sounds), the noise level shall be measured at a position or positions at any point on the receiver's property.

In general, the microphone shall be located four to five feet above the ground; 10 feet or more from the nearest reflective surface where possible. However, in those cases where another elevation is deemed appropriate, the latter shall be utilized. If the noise complaint is related to interior noise levels, interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling, or floor nearest the noise source, with windows in the normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibration, shall be performed immediately prior to recording any noise data. [Ord. 772 § 17.78.050, 1986. Code 1987 § 17.78.050].

17.176.060 Exterior noise limits.

A. Maximum Permissible Sound Levels by Receiving Land Use.

1. The noise standards for the various categories of land use identified by the Noise Control Office(r) as presented in Table 1 shall, unless otherwise specifically indicated, apply to all such property within a designated zone.

2. No person shall operate, or cause to be operated, any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, either incorporated or unincorporated, to exceed:

a. The noise standard for that land use as specified in Table 1 for a cumulative period of more than 30 minutes in any hour; or

b. The noise standard plus five dB for a cumulative period of more than 15 minutes in any hour; or

c. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour; or

d. The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or

e. The noise standard plus 20 dB or the maximum measured ambient level, for any period of time.

3. If the measured ambient level differs from that permissible within any of the fast four noise limit categories above, the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to encompass or reflect said ambient noise level.

In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level

4. If the measurement location is on a boundary between two different zones, the noise level limit applicable to the lower noise zone plus six dB shall apply.

5. If possible, the ambient noise shall be measured at the same location along the property line utilized in subsection (A)(2) of this section with the alleged offending noise source inoperative. If, for any reason, the alleged offending noise source cannot be shut down, the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance such that the noise from the source is at least 10 dB below the ambient in order that only the ambient level be measured. If the difference between the ambient and the noise source is five to 10 dB, then the level of the ambient itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the source.

B. Correction for Character of Sound. In the event the alleged offensive noise, as judged by the Noise Control Officer, contains a steady, audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech conveying informational content, the standard limits set forth in Table 1 shall be reduced by five dB.

TABLE 1
EXTERIOR NOISE LIMITS
(Levels Not to Be Exceeded More Than 30 Minutes in Any Hour)

Receiving Land Use Category	Time Period	Noise Level (dBA)
Single-Family Residential	10:00 p.m. – 7:00 a.m.	40
	7:00 a.m. – 10:00 p.m.	50
Multiple Dwelling Residential	10:00 p.m. – 7:00 a.m.	45
	7:00 a.m. – 10:00 p.m.	50
Public Space		
Limited Commercial and Office	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60
General Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Light Industrial	Anytime	70
Heavy Industrial	Anytime	75

[Ord. 772 § 17.78.060, 1986. Code 1987 § 17.78.060].

17.176.070 Interior noise standards.

A. Maximum Permissible Dwelling Interior Sound Levels.

1. The interior noise standards for multifamily residential dwellings as presented in Table 2 shall apply, unless otherwise specifically indicated, within all such dwellings with windows in their normal seasonal configuration.

TABLE 2

Noise Zone	Type of Land Use	Time Internal	Allowable Interior Noise Level (dBA)
All	Multifamily Residential	10:00 p.m. – 7:00 a.m.	35
		7:00 a.m. – 10:00 p.m.	45

2. No person shall operate or cause to be operated within a dwelling unit, any source of sound or allow the creation of any noise which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed:

a. The noise standard as specified in Table 2 for a cumulative period of more than five minutes in any hour; or

b. The noise standard plus five dB for a cumulative period of more than one minute in any hour; or

c. The noise standard plus 10 dB or the maximum measured ambient, for any period of time.

3. If the measured ambient level differs from that permissible within any of the noise limit categories above, the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to reflect said ambient noise level.

B. Correction for Character of Sound. In the event the alleged offensive noise, as judged by the Noise Control Officer, contains a steady, audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech conveying informational content, the standard limits set forth in Table 2 shall be reduced by five dB. [Ord. 772 § 17.78.070, 1986. Code 1987 § 17.78.070].

17.176.080 Prohibited acts.

No person shall unnecessarily make, continue, or cause to be made or continued, any noise disturbance. The following acts, and the causing or permitting thereof, are declared to be in violation of this chapter:

A. Operating, playing or permitting the operation or playing of any radio, television set, phonograph, drum, musical instrument, or similar device which produces or reproduces sound:

1. Between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to create a noise disturbance across a residential or commercial real property line or at any time to violate the provisions of LEMC 17.176.060(A), except for which a variance has been

issued by the City.

2. In such a manner as to exceed the levels set forth for public space in Table 1, measured at a distance of at least 50 feet (15 meters) from such device operating on a public right-of-way or public space.

B. Using or operating for any purpose any loudspeaker, loudspeaker system, or similar device between the hours of 10:00 p.m. and 7:00 a.m., such that the sound therefrom creates a noise disturbance across a residential real property line, or at any time violates the provisions of LEMC 17.176.060(A), except for any noncommercial public speaking, public assembly or other activity for which a variance has been issued by the City.

C. Offering for sale, selling anything, or advertising by shouting or outcry within any residential or commercial area or noise sensitive zone of the City except by variance issued by the City. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food, and beverages at licensed sporting events, parades, fairs, circuses, or other similar licensed public entertainment events.

D. Owning, possessing or harboring any animal or bird which frequently or for long duration, howls, barks, meows, squawks, or makes other sounds which create a noise disturbance across a residential or commercial real property line or within a noise sensitive zone. This provision shall not apply to public zoos.

E. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to cause a noise disturbance across a residential real property line or at any time to violate the provisions of LEMC 17.176.060(A).

F. Construction/Demolition.

1. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the City.

2. Noise Restrictions at Affected Properties. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:

AT RESIDENTIAL PROPERTIES:

Mobile Equipment

Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:

	Type I Areas Single-Family	Type II Areas Multifamily	Type III Areas Semi-Residential/Commercial

	Residential	Residential	
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	60 dBA	65 dBA	70 dBA

Stationary Equipment

Maximum noise levels for repetitively scheduled and relatively long-term operation (period of 10 days or more) of stationary equipment:

	Type I Areas Single-Family Residential	Type II Areas Multifamily Residential	Type III Areas Semi-Residential/Commercial
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	50 dBA	55 dBA	60 dBA

AT BUSINESS PROPERTIES:

Mobile Equipment

Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 85 dBA.

Stationary Equipment

Maximum noise levels for repetitively scheduled and relatively long-term operation of stationary equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 75 dBA.

3. All mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with suitable exhaust and air intake silencers in proper working order.

G. Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property or at 150 feet (46 meters) from the source if on a public space or public right-of-way.

H. Powered Model Vehicles. Operating or permitting the operation of powered model vehicles:

1. Between the hours of 7:00 p.m. and 7:00 a.m. so as to create a noise disturbance across a residential or commercial real property line or at any time to violate the provisions of LEMC 17.176.060(A).

2. In such a manner as to exceed the levels set forth for public space land use in Table 1, measured at a distance not less than 100 feet (30 meters) from any point on the path of a vehicle operating on public space or public right-of-way.

I. Stationary Nonemergency Signaling Devices.

1. Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device, intended primarily for nonemergency purposes, from any place, for more than 10 seconds in any hourly period.

2. Houses of religious worship shall be exempt from the operation of this provision.

3. Sound sources covered by this provision and not exempted under subsection (I)(2) of this section shall be exempted by a variance issued by the City.

J. Emergency Signaling Devices.

1. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in subsection (J)(2) of this section.

2. a. Testing of a stationary emergency signaling system shall not occur before 7:00 a.m. or after 7:00 p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed 60 seconds.

b. Testing of the complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall not occur before 7:00 a.m., or after 10:00 p.m. The time limit specified in subsection (J)(2)(a) of this section shall not apply to such complete system testing.

3. Sounding or permitting the sounding of any exterior burglar or fire alarm or any motor vehicle burglar alarm unless such alarm is terminated within 15 minutes of activation.

K. Noise Sensitive Zones.

1. Creating or causing the creation of any sound within any noise sensitive zone, so as to exceed the specified land use noise standards set forth in LEMC 17.176.060(A); provided, that conspicuous signs are displayed indicating the zone; or

2. Creating or causing the creation of any sound within or adjacent to any noise sensitive zone, containing a hospital, nursing home, school, court or other designated area, so as to interfere with the functions of such activity or annoy the occupants in the activity; provided, that conspicuous signs are displayed indicating the presence of

the zone.

L. Domestic Power Tools and Machinery.

1. Operating or permitting the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool, or similar tool between 10:00 p.m. and 7:00 a.m., so as to create a noise disturbance across a residential or commercial real property line.

2. Any motor, machinery, pump, such as swimming pool equipment, etc., shall be sufficiently enclosed or muffled and maintained so as not to create a noise disturbance in accordance with LEMC 17.176.060.

M. Residential Air-Conditioning or Air-Handling Equipment. Operating or permitting the operation of any air-conditioning or air-handling equipment in such a manner as to exceed any of the following sound levels:

Measurement Location	Units Installed before 1-1-80 dB(A)	Units Installed on or after 1-1-80 dB(A)
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60	55
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55	50
Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface.	55	50

N. Places of Public Entertainment. Operating or permitting the operation or playing of any loudspeaker, musical instrument, motorized racing vehicle, or other source of sound in any place of public entertainment that exceeds 95 dBA as read on the slow response of a sound level meter at any point normally occupied by a customer, without a conspicuous and legible sign stating:

WARNING! SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT.

[Ord. 772 § 17.78.080, 1986. Code 1987 § 17.78.080].

17.176.090 Motor vehicles operating on public right-of-way.

Motor vehicles noise limits on a public right-of-way are regulated as set forth in the California Motor Vehicle Code, Sections 23130 and 23130.5. Equipment violations which create noise problems are covered under Sections 27150 and 27151. Any peace officer of any jurisdiction in California may enforce these provisions. Therefore, it shall be the policy of the City to enforce these sections of the California Motor Vehicle Code.

A. Refuse Collection Vehicles.

1. No person shall collect refuse with a refuse collection vehicle between the hours of 7:00 p.m. and 7:00 a.m. within or adjacent to a residential area or noise sensitive zone.

2. No person authorized to engage in waste disposal service or garbage collection shall operate any truck-mounted waste or garbage loading and/or compacting equipment or similar device in any manner so as to create any noise exceeding the following levels, measured at a distance of 50 feet from the equipment in an open area:

a. New equipment purchased or leased on or after a date six months from the effective date of the ordinance codified in this chapter: 80 dBA.

b. New equipment purchased or leased on or after 36 months from the effective date of the ordinance codified in this chapter: 75 dBA.

c. Existing equipment, on or after five years from the effective date of the ordinance codified in this chapter: 80 dBA.

B. Motor Vehicle Horns. It is unlawful for any person to sound a vehicular horn except as a warning signal (Motor Vehicle Code, Section 27001).

C. Motorized Recreational Vehicles Operating off Public Right-of-Way. No person shall operate or cause to be operated any motorized recreational vehicle off a public right-of-way in such a manner that the sound levels emitted therefrom violate the provisions of LEMC 17.176.060(A). This section shall apply to all motorized recreational vehicles whether or not duly licensed and registered, including, but not limited to, commercial or noncommercial racing vehicles, motorcycles, go carts, amphibious craft, campers, snowmobiles and dune buggies, but not including motorboats.

D. *Reserved*.

E. Vehicle, Motorboat, or Aircraft Repair and Testing.

1. Repairing, rebuilding, modifying, or testing any motor vehicle, motorboat, or aircraft in such a manner as to create a noise disturbance across a residential real property line, or at any time to violate the provisions of LEMC 17.176.060(A).

2. Nothing in this section shall be construed to prohibit, restrict, penalize, enjoin, or in any manner regulate the movement of aircraft which are in all respects conducted in accordance with, or pursuant to, applicable Federal laws or regulations.

F. Standing Motor Vehicles. No person shall operate or permit the operation of any motor vehicle with a gross vehicle weight rating (GVWR) in excess of 10,000 pounds, or any auxiliary equipment attached to such a vehicle, for a period longer than 15 minutes in any hour while the vehicle is stationary, for reasons other than traffic congestion, on a public right-of-way or public space within 150 feet (46 meters) of a residential area or designated noise sensitive zone, between the hours of 10:00 p.m. and 7:00 a.m. [Ord. 984, 1994; Ord. 772 § 17.78.090, 1986. Code 1987 § 17.78.090].

17.176.100 Special provisions – Exemptions.
The following activities shall be exempted from the provisions of this chapter:

A. The emission of sound for the purpose of alerting persons to the existence of an emergency.

B. The emission of sound in the performance of emergency work.

C. Warning devices necessary for the protection of public safety, as for example, police, fire and ambulance sirens, and train horns.

D. Regularly scheduled school bands, school athletic and school entertainment events between the hours of 8:45 a.m. and 10:00 p.m., provided a special events permit is also required for band activities on City streets.

E. Regularly scheduled activities conducted on public parks, public playgrounds, and public or private school grounds. However, the use of public address or amplified music systems is not permitted to exceed the exterior noise standard of adjacent property at the property line.

F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

G. Mobile noise sources associated with agricultural pest control through pesticide application; provided, that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.

H. Mobile noise sources associated with agricultural operations, provided such operations take place on Monday through Friday, excepting legal holidays, between the hours of 7:00 a.m. and 6:00 p.m. All other operations shall comply with this chapter.

I. Noise sources associated with the maintenance of real property, provided such operations take place on Monday through Friday, excepting legal holidays, between the hours of 7:00 a.m. and 6:00 p.m., or on holidays and weekends between the hours of 9:00 a.m. and 6:00 p.m. All other operations shall comply with this chapter.

J. Any activity to the extent that regulation thereof has been preempted by State or Federal law. [Ord. 772 § 17.78.100, 1986. Code 1987 § 17.78.100].

17.176.110 Special variances.

A. The NCO is authorized to grant variances for exemption from any provision of this chapter, subject to limitations as to area, noise levels, time limits, and other terms and conditions as the NCO determines are appropriate to protect the public health, safety, and welfare from the noise emanating therefrom. This section shall in no way affect the duty to obtain any permit or license required by law for such activities.

B. Any person seeking a variance pursuant to this section shall file an application with the NCO. The application shall contain information which demonstrates that bringing the source of sound or activity for which the variance is sought into compliance with this chapter would constitute an unreasonable hardship on the applicant, on the community, or on other persons. The application shall be accompanied by a fee. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Notice of an application for a variance shall be published according to City code. Any individual who claims to be adversely affected by allowance of the variance may file a statement with the NCO containing any information to support his claim. If at any time

the NCO finds that a sufficient controversy exists regarding an application, a public hearing will be held.

C. In determining whether to grant or deny the application, the NCO shall balance the hardship on the applicant, the community, and other persons of not granting the variance against the adverse impact on the health, safety, and welfare of persons affected, the adverse impact on property affected, and any other adverse impacts of granting the variance. Applicants for variances and persons contesting variances may be required to submit such information as the NCO may reasonably require. In granting or denying an application, the NCO shall keep on public file a copy of the decision and the reasons for denying or granting the variance.

D. Variances shall be granted by notice to the applicant containing all necessary conditions, including a time limit on the permitted activity. The variance shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any condition of the variance shall terminate the variance and subject the person holding it to those provisions of this chapter for which the variance was granted.

E. A variance will not exceed 365 days from the date on which it was granted. Application for extension of time limits specified in variances or for modification of other substantial conditions shall be treated like applications for initial variances under subsection (B) of this section. [Ord. 772 § 17.78.110, 1986. Code 1987 § 17.78.110].

This page of the Lake Elsinore Municipal Code is current through Ordinance 1285, passed August 24, 2010.
Disclaimer: The City Clerk's Office has the official version of the Lake Elsinore Municipal Code. Users should contact the City Clerk's Office for ordinances passed subsequent to the ordinance cited above.

City Website: http://www.lake-elsinore.org/ (http://www.lake-elsinore.org/)
City Telephone: (951) 674-3124
Code Publishing Company (http://www.codepublishing.com/)

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APPENDIX 5.1

Study Area Photos


Ashbury
AT
ALBERHILL RANCH
A Castle & Cooke Community


Poplar Cir
Ladrillo St
4100

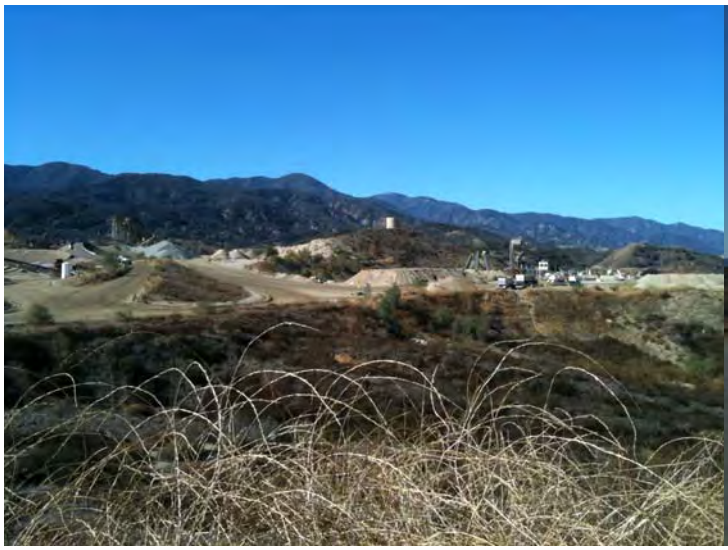
















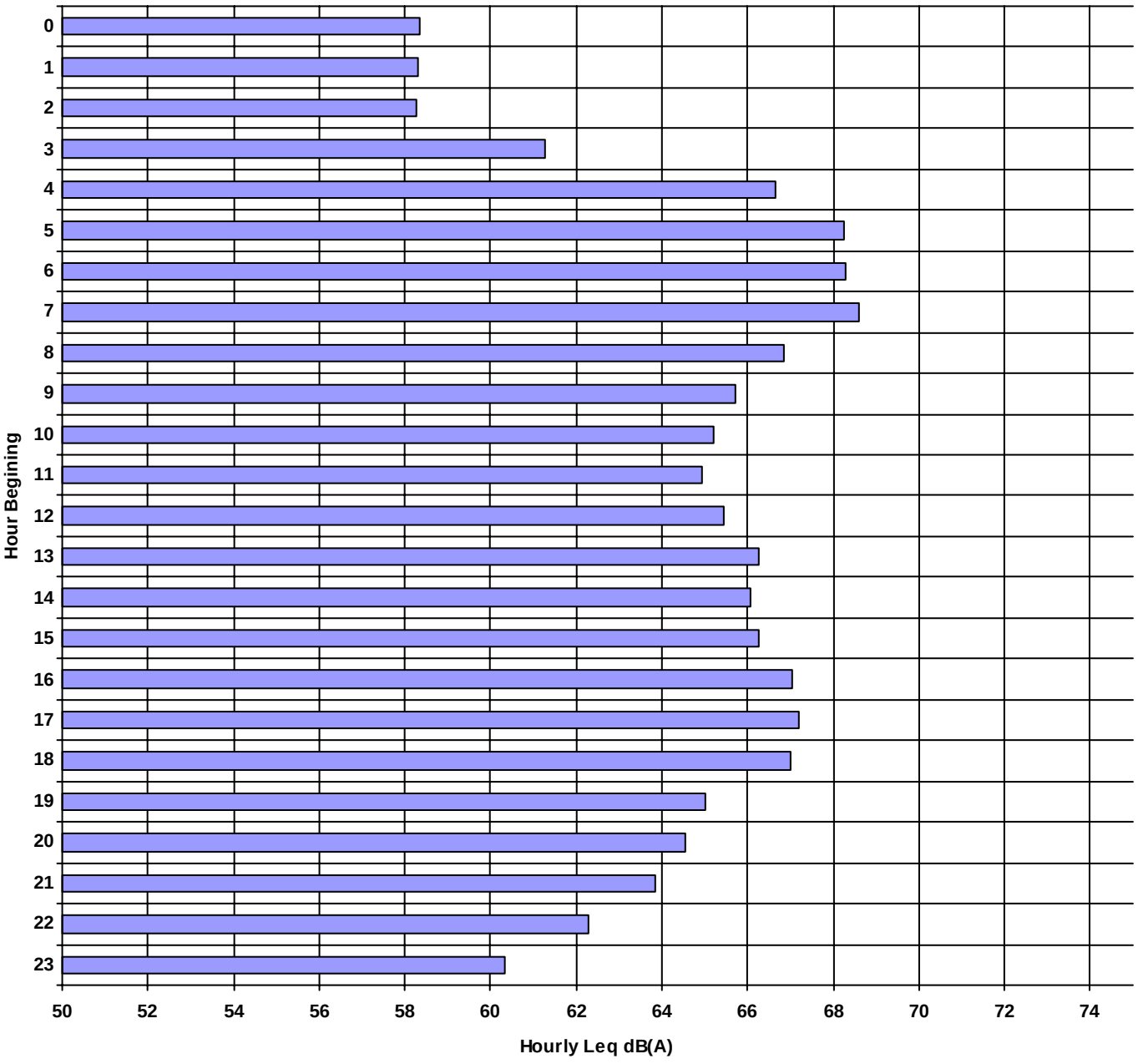

APPENDIX 5.2

Noise Monitoring Data Printouts

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L3
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 7

Measured Peak Hour dBA Leq: 68.6

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L3
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Leq To CNEL Noise Calculations

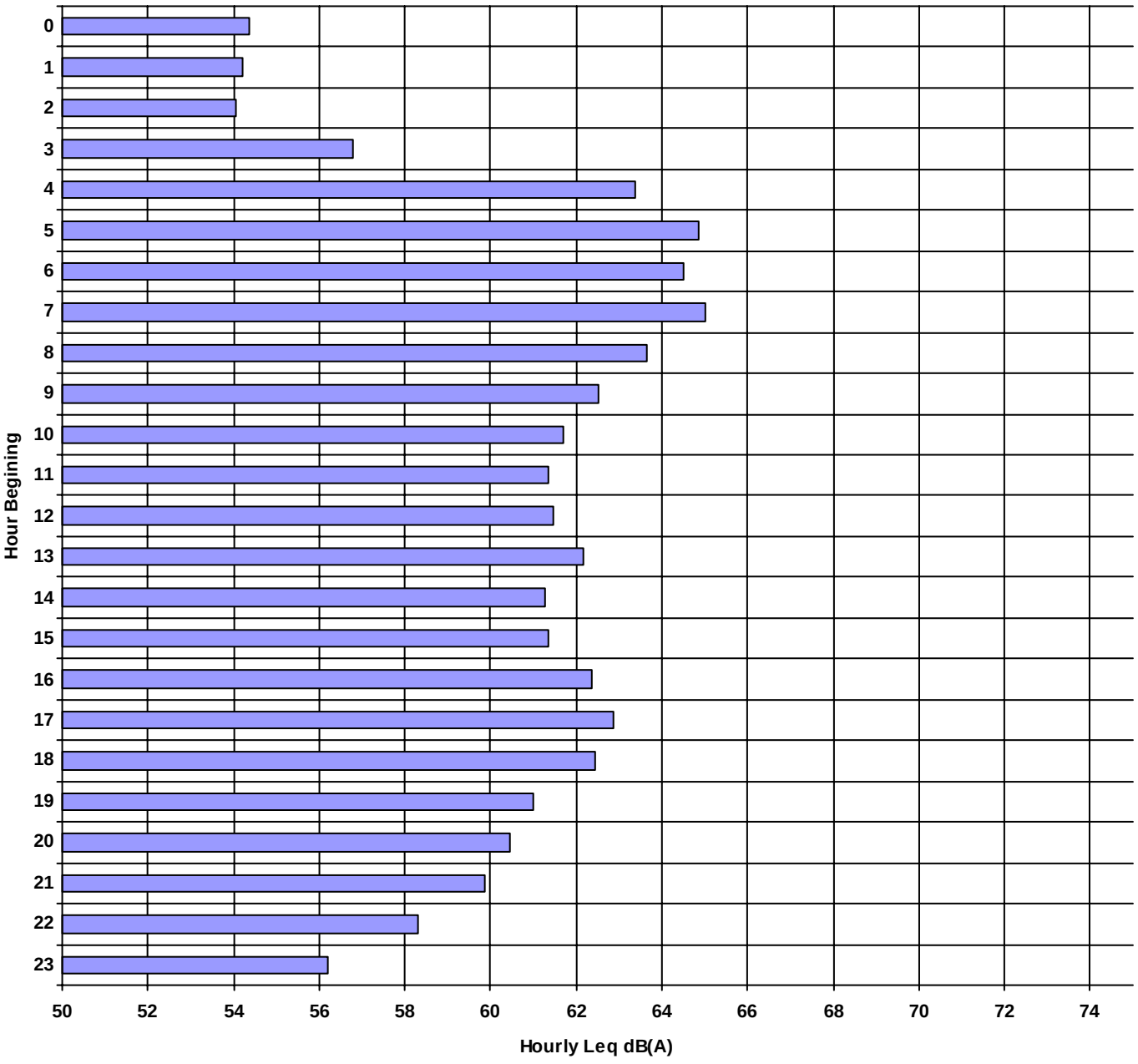
Noise Hour	*Hourly Leq*	*CNEL Penalty*	*Adjusted Hourly Leq*
0	58.3	10	68.3
1	58.3	10	68.3
2	58.3	10	68.3
3	61.3	10	71.3
4	66.6	10	76.6
5	68.2	10	78.2
6	68.3	10	78.3
7	68.6	0	68.6
8	66.9	0	66.9
9	65.7	0	65.7
10	65.2	0	65.2
11	64.9	0	64.9
12	65.4	0	65.4
13	66.3	0	66.3
14	66.1	0	66.1
15	66.3	0	66.3
16	67.0	0	67.0
17	67.2	0	67.2
18	67.0	0	67.0
19	65.0	5	70.0
20	64.6	5	69.6
21	63.9	5	68.9
22	62.3	10	72.3
23	60.3	10	70.3

Calculated CNEL: 71.3

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L4
Analyst: B. Lawson
Description: On-Site at Pacific Aggregates
Start Date: Wednesday, November 17, 2010

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 7

Measured Peak Hour dBA Leq: 65.0

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L4
Analyst: B. Lawson
Description: On-Site at Pacific Aggregates
Start Date: Wednesday, November 17, 2010

Leq To CNEL Noise Calculations

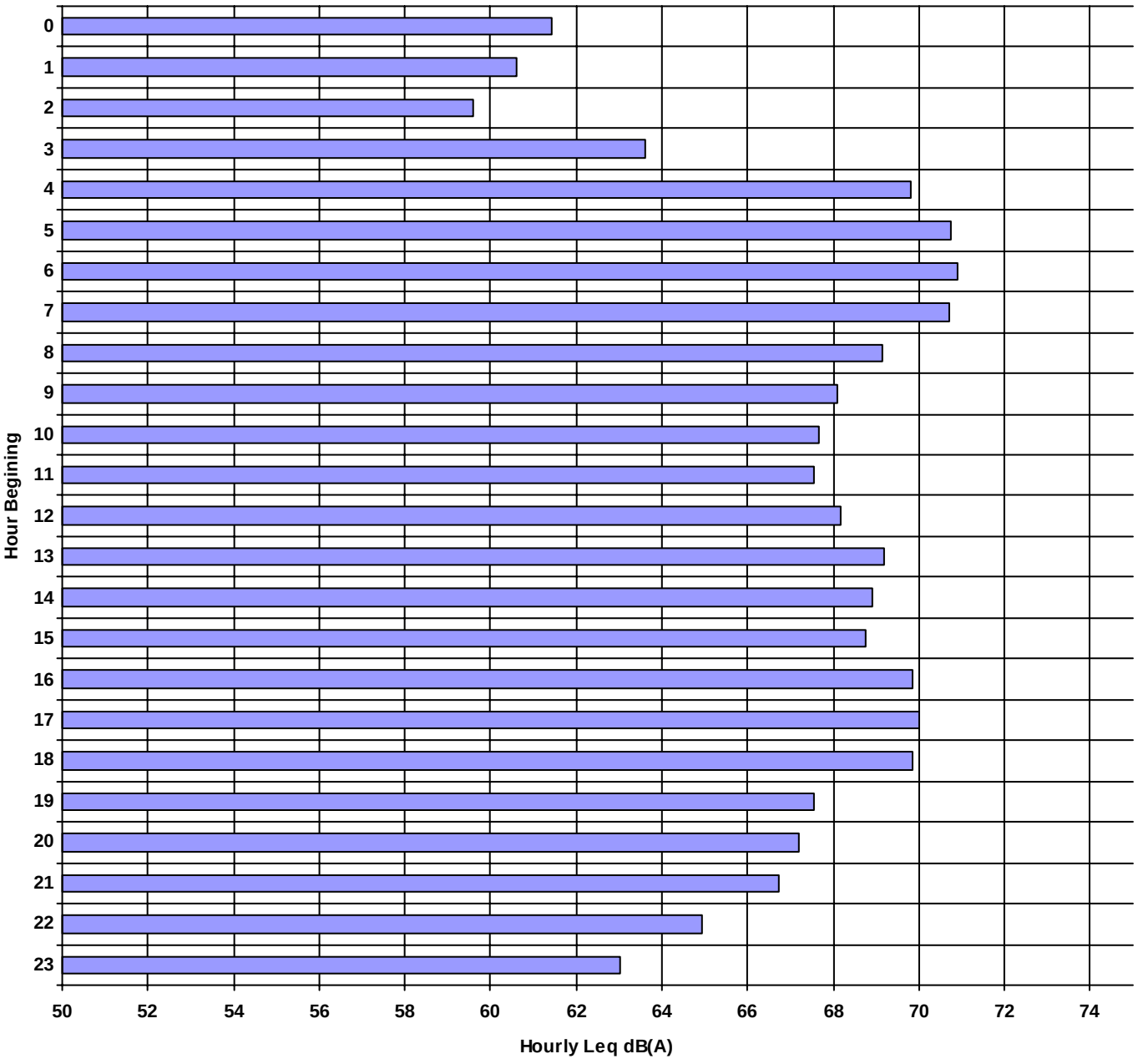
Noise Hour	*Hourly Leq*	*CNEL Penalty*	*Adjusted Hourly Leq*
0	54.4	10	64.4
1	54.2	10	64.2
2	54.0	10	64.0
3	56.8	10	66.8
4	63.4	10	73.4
5	64.8	10	74.8
6	64.5	10	74.5
7	65.0	0	65.0
8	63.7	0	63.7
9	62.5	0	62.5
10	61.7	0	61.7
11	61.4	0	61.4
12	61.5	0	61.5
13	62.2	0	62.2
14	61.3	0	61.3
15	61.4	0	61.4
16	62.4	0	62.4
17	62.9	0	62.9
18	62.4	0	62.4
19	61.0	5	66.0
20	60.4	5	65.4
21	59.9	5	64.9
22	58.3	10	68.3
23	56.2	10	66.2

Calculated CNEL: 67.5

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L2
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 6

Measured Peak Hour dBA Leq: 70.9

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L2
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Leq To CNEL Noise Calculations

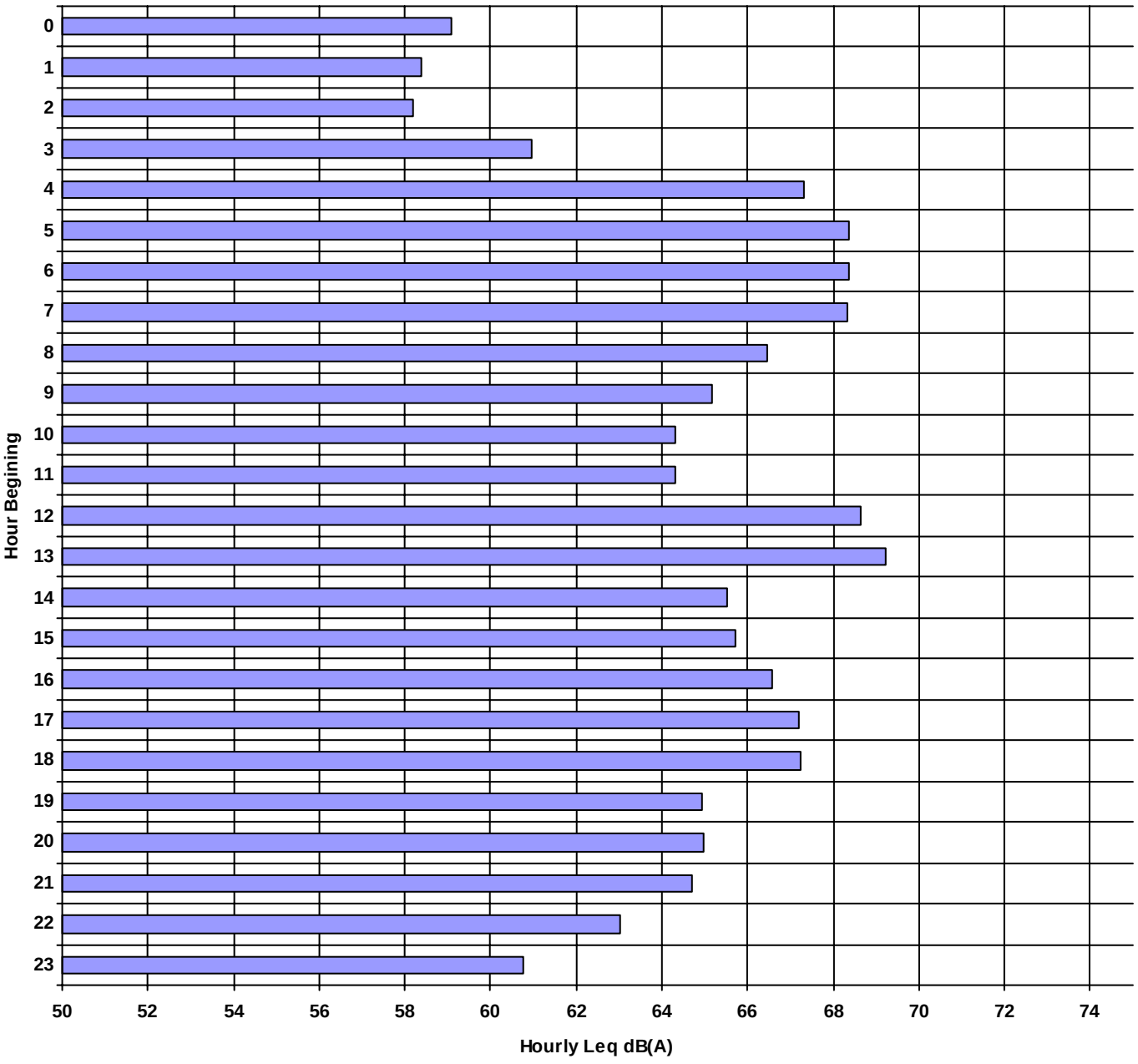
Noise Hour	***Hourly Leq***	***CNEL Penalty***	***Adjusted Hourly Leq***
0	61.4	10	71.4
1	60.6	10	70.6
2	59.6	10	69.6
3	63.6	10	73.6
4	69.8	10	79.8
5	70.7	10	80.7
6	70.9	10	80.9
7	70.7	0	70.7
8	69.1	0	69.1
9	68.1	0	68.1
10	67.7	0	67.7
11	67.6	0	67.6
12	68.2	0	68.2
13	69.2	0	69.2
14	68.9	0	68.9
15	68.7	0	68.7
16	69.9	0	69.9
17	70.0	0	70.0
18	69.9	0	69.9
19	67.6	5	72.6
20	67.2	5	72.2
21	66.7	5	71.7
22	64.9	10	74.9
23	63.0	10	73.0

Calculated CNEL: 73.9

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L1
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 13

Measured Peak Hour dBA Leq: 69.2

24-Hour Noise Level Measurement Summary

Project Name: Lake Elsinore Strip Mine Noise Study
Job Number: 07506
Location #: L1
Analyst: B. Lawson
Description: In Front of Backyard Wall Facing Lake Street
Start Date: Wednesday, November 17, 2010

Leq To CNEL Noise Calculations

Noise Hour	*Hourly Leq*	*CNEL Penalty*	*Adjusted Hourly Leq*
0	59.1	10	69.1
1	58.4	10	68.4
2	58.2	10	68.2
3	61.0	10	71.0
4	67.3	10	77.3
5	68.4	10	78.4
6	68.4	10	78.4
7	68.3	0	68.3
8	66.5	0	66.5
9	65.2	0	65.2
10	64.3	0	64.3
11	64.3	0	64.3
12	68.6	0	68.6
13	69.2	0	69.2
14	65.5	0	65.5
15	65.7	0	65.7
16	66.6	0	66.6
17	67.2	0	67.2
18	67.2	0	67.2
19	64.9	5	69.9
20	65.0	5	70.0
21	64.7	5	69.7
22	63.0	10	73.0
23	60.8	10	70.8

Calculated CNEL: 71.6

APPENDIX 6.1

Stationary Source Reference Noise Calculations

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,795.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,785.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,795.0	-34.2	-34.2	-34.2	-34.2	-34.2	-34.2
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,795.0**	**54.5**	**56.4**	**56.4**	**55.9**	**55.2**	**54.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,330.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,320.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,330.0	-42.5	-42.5	-42.5	-42.5	-42.5	-42.5
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,330.0**	**35.8**	**38.7**	**37.0**	**36.6**	**36.1**	**35.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	735.0 feet		***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	725.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet			
Noise Height:	8.0 feet			
Observer Height (Above Pad):	5.0 feet		*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet		*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet			

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	735.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**735.0**	**41.0**	**43.9**	**42.2**	**41.8**	**41.3**	**40.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,770.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,760.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,770.0	-34.1	-34.1	-34.1	-34.1	-34.1	-34.1
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,770.0**	**54.6**	**56.5**	**56.5**	**56.0**	**55.3**	**54.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,250.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,240.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,250.0	-41.9	-41.9	-41.9	-41.9	-41.9	-41.9
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,250.0**	**36.4**	**39.3**	**37.6**	**37.2**	**36.7**	**36.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	730.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	720.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0.0	
Barrier Distance to Observer:	10.0	feet			
Noise Height:	8.0	feet			
Observer Height (Above Pad):	5.0	feet	*Barrier Breaks Line of Sight:*	No	
Observer Elevation:	0.0	feet	*Wall Located at Noise Source Elevation:*	No	
Noise Source Elevation:	0.0	feet			

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	730.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**730.0**	**41.0**	**43.9**	**42.2**	**41.8**	**41.3**	**40.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,830.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,820.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,830.0	-34.4	-34.4	-34.4	-34.4	-34.4	-34.4
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,830.0**	**54.3**	**56.2**	**56.2**	**55.7**	**55.0**	**54.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,130.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,120.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,130.0	-41.1	-41.1	-41.1	-41.1	-41.1	-41.1
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,130.0**	**37.2**	**40.1**	**38.4**	**38.0**	**37.5**	**37.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,070.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,060.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	No
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,070.0	-40.6	-40.6	-40.6	-40.6	-40.6	-40.6
Shielding (Barrier Attenuation)		0.0	0.0	0.0	0.0	0.0	0.0
Adjusted (Distance + Barrier)	**1,070.0**	**37.7**	**40.6**	**38.9**	**38.5**	**38.0**	**37.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,795.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,785.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,795.0	-34.2	-34.2	-34.2	-34.2	-34.2	-34.2
Shielding (Barrier Attenuation)		-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Adjusted (Distance + Barrier)	**1,795.0**	**49.1**	**51.0**	**51.0**	**50.5**	**49.8**	**49.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,330.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,320.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,330.0	-42.5	-42.5	-42.5	-42.5	-42.5	-42.5
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**1,330.0**	**30.3**	**33.2**	**31.5**	**31.1**	**30.6**	**30.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R1

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	735.0	feet	***Barrier Height:***	**6.0**	**feet**
Noise Distance to Barrier:	725.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0.0	
Barrier Distance to Observer:	10.0	feet			
Noise Height:	8.0	feet			
Observer Height (Above Pad):	5.0	feet	*Barrier Breaks Line of Sight:*	Yes	
Observer Elevation:	0.0	feet	*Wall Located at Noise Source Elevation:*	No	
Noise Source Elevation:	0.0	feet			

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	735.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**735.0**	**35.5**	**38.4**	**36.7**	**36.3**	**35.8**	**35.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,770.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,760.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,770.0	-34.1	-34.1	-34.1	-34.1	-34.1	-34.1
Shielding (Barrier Attenuation)		-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Adjusted (Distance + Barrier)	**1,770.0**	**49.2**	**51.1**	**51.1**	**50.6**	**49.9**	**49.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,250.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,240.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,250.0	-41.9	-41.9	-41.9	-41.9	-41.9	-41.9
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**1,250.0**	**30.9**	**33.8**	**32.1**	**31.7**	**31.2**	**30.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R2

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	730.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	720.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet			
Noise Height:	8.0 feet			
Observer Height (Above Pad):	5.0 feet		*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet		*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet			

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	730.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**730.0**	**35.5**	**38.4**	**36.7**	**36.3**	**35.8**	**35.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Rock Crushers
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,830.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,820.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	15.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	35.0	88.7	90.6	90.6	90.1	89.4	88.8
Distance Attenuation	1,830.0	-34.4	-34.4	-34.4	-34.4	-34.4	-34.4
Shielding (Barrier Attenuation)		-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Adjusted (Distance + Barrier)	**1,830.0**	**48.9**	**50.8**	**50.8**	**50.3**	**49.6**	**49.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,130.0	feet	***Barrier Height:***	**6.0**	**feet**
Noise Distance to Barrier:	1,120.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0.0	
Barrier Distance to Observer:	10.0	feet			
Noise Height:	8.0	feet			
Observer Height (Above Pad):	5.0	feet	*Barrier Breaks Line of Sight:*	Yes	
Observer Elevation:	0.0	feet	*Wall Located at Noise Source Elevation:*	No	
Noise Source Elevation:	0.0	feet			

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,130.0	-41.1	-41.1	-41.1	-41.1	-41.1	-41.1
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**1,130.0**	**31.7**	**34.6**	**32.9**	**32.5**	**32.0**	**31.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

Source: Batch Plant Trucks
Observer Location: R3

Project Name: Pacific Aggregates
Job Number: 7506
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,070.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,060.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0.0
Barrier Distance to Observer:	10.0 feet		
Noise Height:	8.0 feet		
Observer Height (Above Pad):	5.0 feet	*Barrier Breaks Line of Sight:*	Yes
Observer Elevation:	0.0 feet	*Wall Located at Noise Source Elevation:*	No
Noise Source Elevation:	0.0 feet		

Drop Off Coefficient: 20.0 (20 = 6 dBA per doubling of distance, 15 = 4.5 dBA per doubling of distance)

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*Lmax*	*L2*	*L8*	*L25*	*L50*
Reference (Sample)	10.0	78.3	81.2	79.5	79.1	78.6	78.1
Distance Attenuation	1,070.0	-40.6	-40.6	-40.6	-40.6	-40.6	-40.6
Shielding (Barrier Attenuation)		-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Adjusted (Distance + Barrier)	**1,070.0**	**32.2**	**35.1**	**33.4**	**33.0**	**32.5**	**32.0**

NOISE IMPACT ANALYSIS

ALBERHILL VILLAGES SPECIFIC PLAN

CITY OF LAKE ELSINORE, CALIFORNIA

Prepared for:

The Planning Associates
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Costa Mesa, CA 92626

Date:

June 2, 2010

Project No.: P10-026 N

NOISE DESCRIPTORS

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of sound pressure expressed as a ratio to the lowest sound level detectable by a young person with good auditory acuity is called a decibel (dB). Because sound or noise can vary in intensity by over one million times within the range of human hearing, decibels are a logarithmic progression used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called "A-weighting" written as dBA. Any further reference to decibels written as "dB" should be understood to be A-weighted.

Time variations in noise exposure are normally expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called Leq), or, alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL).

CNEL also differs from Leq in that it applies a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when quiet time and sleep disturbance is of particular concern). Noise occurring during the daytime period (7:00 AM to 7:00 PM) receives no penalty. Noise produced during the evening time period (7:00 PM to 10:00 PM) is penalized by 5 dBA, while nighttime noise (10:00 PM to 7:00 AM) is penalized by 10 dBA.

A similar noise planning metric is called the “day-night level” (LDN). LDN is equivalent to CNEL except that the evening hours (7:00 PM to 10:00 PM) are not adjusted. In practice, CNEL and LDN differ by less than one decibel. They are considered interchangeable in the following analysis.

CITY OF LAKE ELSINORE NOISE STANDARDS

The City of Lake Elsinore has adopted noise/land use compatibility guidelines for acceptable community noise levels that are based upon the CNEL/LDN rating scale. The guidelines rank noise/land use compatibility in terms of varying degrees of acceptability of noise levels for various land use types.

Table 1, from the City of Lake Elsinore General Plan Noise Element, presents the City of Lake Elsinore Noise and Land Use Compatibility Matrix, adopted and slightly modified from the State of California guidelines. "Clearly Compatible" levels for proposed project residential uses are up to 60 dB CNEL, and "Normally Compatible" are up to 70 dB CNEL. Exterior noise levels of 70 dB CNEL are intrusive into conversations of other personal interaction. The City of Lake Elsinore General Plan Noise Element thus recommends mitigation to 60 dB CNEL/LDN for exterior residential recreational space where possible. The California Building Code requires adequate structural protection to achieve 45 dB CNEL in habitable interior space. In a "Normally Compatible" noise category, new construction should be undertaken only after a noise analysis has been made and needed noise insulation features have been incorporated.

Conventional construction, with closed windows and fresh air supply systems or air conditioning will normally achieve 25 dB of reduction. In areas of up to 70 dB CNEL, the interior standard of 45 dB CNEL is readily achieved. Typical perimeter walls generally achieve 6-8 dB of noise level reduction. A small amount of additional attenuation (increased set-back, partial structural screening, grade separation) may be necessary to achieve the 60 dB CNEL exterior goal when exterior levels are as high as 70 dB CNEL. Exterior noise levels of 70 dB CNEL can thus normally be mitigated to within General Plan/Building Code standards. If project residential uses are proposed within noise environments exceeding 70 dB CNEL, extra-ordinary mitigation measures would be required.

The City of Lake Elsinore considers office uses "Clearly Compatible" with noise environments of 65 dB CNEL or less and "Normally Compatible" with CNEL's of 75 dB or less. A level of 80 dB CNEL is considered normally compatible for commercial/retail uses. Unless commercial projects include noise-sensitive uses such as outdoor dining, noise exposure is generally not considered a commercial facility siting constraint for typical project area noise. In most instances, commercial uses are conducted in enclosed space such that exterior noise levels are not critical.

Noise Use Compatibility Standards apply to those noise sources not amenable to local control such as on road traffic, aircraft, trains, etc. For commercial uses, noise issues would center more on noise from on-site operations possibly impacting off-site sensitive receivers rather than from site suitability to the ambient noise environment. On-site noise generation is regulated by the City of Lake Elsinore Municipal Code.

Table 1
City of Lake Elsinore Land Use Compatibility Matrix

Land Use Categories		Community Noise Equivalent Level dBA CNEL						
Categories	**Uses**	**<55**	**60**	**65**	**70**	**75**	**80>**	
RESIDENTIAL	*Single Family, Duplex, Multiple Family*	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
COMMERCIAL, INDUSTRIAL INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation	Amphitheater, Concert Hall	B	B	C	C	D	D	D
INSTITUTIONAL Civic Center	Auditorium, Meeting Hall							
COMMERCIAL *Recreation*	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL *General, Special* INDUSTRIAL, INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL *General*	Hospital, Church, Library, Schools Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

Interpretation:

Zone A: Clearly Compatible	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B: Normally Compatible	New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Zone C: Normally Incompatible	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D: Clearly Incompatible	New construction or development should generally not be undertaken.

LAKE ELSINORE NOISE ORDINANCE

The City's noise standards for non-transportation sources are articulated in the Noise Ordinance. Noise from one land use crossing the property line of an adjacent property are regulated by Section 17.78.060of the Lake Elsinore Municipal Code. These noise standards are expressed in terms of a mean (50^{th} percentile) noise level, which is the noise level allowed for up to 30 minutes. Some short-term noise levels may exceed the 50^{th} percentile standard, up to a maximum of 20 dB above the allowable mean.

The Lake Elsinore Noise Ordinance allowable exterior noise levels for various land uses are shown in Table 2. A mean noise level of 50 dB (50^{th} percentile, or "L_{50}") by day and 45 dBA L_{50} at night is the standard applicable at the nearest multi-family existing homes. Commercial and office uses are allowed higher noise exposures.

Because this project includes mixed use development and because several scattered residential developments abut the project site, unacceptable noise levels at the residential uses emanating from commercial uses could arise. The noise ordinance states that at a boundary between two different noise uses, the applicable noise threshold is the lower noise zone plus six dB. Therefore, for this project site where commercial uses abut multi-family residential uses the applicable noise standard (L_{50}) at the residential boundary is 51 dB nocturnal and 56 dB L_{50} daytime. For single family developments the noise standard is 46 dB L_{50} nocturnal and 56 dB L_{50} daytime.

When these noise levels are already exceeded by ambient noise levels, then the ambient level becomes the standard, adjusted upward in 5 dB increments. At project components closest to the I-15 this upward adjustment will likely be necessary.

Table 2

Lake Elsinore Exterior Noise Standards

Land Use (Receptor Property)	Time Intervals	(L_{50})
Single Family Residential	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	40 50
Multi Family Residential	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	45 50
Limited Commercial and Office	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	55 60
General Commercial	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime	60 65
Light Industrial	Any Time	70
Heavy Industrial	Any Time	75

L_{50}: Noise levels which may not be exceeded for a cumulative period of more than 30 minutes in any hour. If the ambient L_{50} exceeds the levels listed above, then the ambient L_{50} becomes the exterior noise level adjusted upward in five dB increments.

The Noise Standards shall not exceed:
+5 dB for a cumulative period of more than 15 minutes in any hour, or
+10 dB for more than 5 minutes in any hour, or
+15 dB for a cumulative period of more than 1 minute in any hour, or
+20 dB or the maximum measured ambient level for any period of time.

If the measured ambient level differs from that permissible within any of the noise limit categories above, the allowable noise exposure standard shall be adjusted upward in five dB increments for each category as appropriate to reflect said ambient noise level.

In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on a boundary between two different zones, the noise level limit applicable to the lower noise zone plus six dB shall apply.

BASELINE NOISE LEVELS

The proposed Alberhill Villages Specific Plan area is currently a predominately undeveloped parcel of land surrounded to the north by the I-15 and to the east by Lake Street. The ambient noise environment at the project site and local vicinity is dominated by noise from transportation sources that includes Lake Street and the I-15. Secondary noise sources include traffic from other nearby roadways and stationary-source noise generated at the scattered surrounding residential and commercial uses.

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. Reducing the average motor vehicle speed reduces the noise exposure of receptors adjacent to the road. Each reduction of five miles per hour reduces noise by about 1.3 dBA. In order to assess the potential for mobile-source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling on the roadways surrounding the project area. This data can be modeled utilizing procedures and methodologies as specified by Caltrans and the Federal Highway Administration (FHWA) to determine associated noise levels.

Average daily traffic (ADT) volumes for Lake Street were based on the existing daily traffic volumes provided by Linscott, Law & Greenspan Engineers (LLG) for this project. Existing traffic volumes for the I-15 in the project vicinity were obtained from the Department of Transportation (DOT) Traffic Data Branch 2008 traffic counts. The results of this modeling indicate that average noise levels along adjacent Lake Street segments are currently 70 dB CNEL as calculated at a distance of 50 feet from the centerline of the road. Noise levels from the I-15 at approximately 250 feet from the freeway centerline are calculated to be 73.5 dB CNEL.

NOISE IMPACTS

Two characteristic noise sources are typically identified with land use intensification such as that proposed for the Alberhill Villages Specific Plan project. Initially, construction activities, especially heavy equipment, will create short-term noise increases near the project site. These impacts may be important because there is phased development and one phase will be under construction adjacent to an already completed and occupied phase.

Upon completion, project-related traffic will cause an incremental increase in area-wide noise levels throughout the project area. Traffic noise impacts are generally analyzed both to insure that the project does not adversely impact the acoustic environment of the surrounding community, as well as to insure that the project site is not exposed to an unacceptable level of noise resulting from the ambient noise environment acting on the project. This project will cause an increase in area wide traffic but the increase must be evaluated relative to the overall cumulative traffic projections.

STANDARDS OF SIGNIFICANCE

CEQA Guidelines identify significant impacts as those that cause standards to be exceeded when the standards are currently met. Impacts are also considered significant if they "substantially" worsen an existing unacceptable noise environment.

"Substantially" is not defined in any guidelines. The accuracy of sound level meters and of sound propagation computer models is no better than ±1 dB. This is also below the human loudness difference discrimination level under ideal laboratory conditions. Most people cannot distinguish a change in the noise environment that differs by less than 3 dB between the pre- and post-project exposure if the change occurs under ambient conditions. For the purposes of this analysis, an increase of +3 dB which creates or worsens an area of noise/land use incompatibility would be considered a significant degradation of noise quality.

Because of the logarithmic relationship between traffic volumes and noise levels, it requires a dramatic increase in traffic to create even a perceptible change in noise levels. A +1 dB increase requires a 25 percent greater traffic volume. A +3 dB noise increase occurs when volumes double. In those areas where traffic levels are already high enough to create a noise concern, few projects would individually cause traffic volumes to double. Off-site traffic noise impacts tend therefore to be more of a cumulative, rather than an individual impact.

Construction noise is typically governed by ordinance limits on allowable times of equipment operations. CEQA Appendix G guidelines state that if an impact is regulated by a rule or regulation specifically designed to control a given type of impact (such as construction noise), then compliance with that rule may be used in support of a finding that the impact is less-than-significant. Construction noise impacts therefore will be less-than-significant if they comply with the applicable ordinance limits. The Lake Elsinore Municipal Code restricts and regulates both the hours of construction operation as well as the levels of construction noise. In Chapter 17.78, Section 17.78.080 (F), construction noise is restricted from 7:00 p.m. to 7:00 a.m.

weekdays and at any time on Sundays or holidays when it creates a noise disturbance across a residential or commercial property line. Section 17.78.080 (F) (2) regulates construction activity noise levels as follows:

B. Noise Restrictions at Affected Structures. When technically and economically feasible, the contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings will not exceed those levels listed in the following schedule:

1. At Residential Structures.

a. Mobile Equipment. Maximum noise levels for non-scheduled, intermittent, and short-term operation (less than 10 days) of mobile equipment:

	Single-family Residential (dBA)	**Multi-family Residential (dBA)**	**Semi-residential/ Commercial (dBA)**
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays.	60	65	70

b. Stationary Equipment Maximum noise level for repetitively scheduled and relatively long-term operation (period of 10 days or more) of stationary equipment:

	Single-family Residential (dBA)	**Multi-family Residential (dBA)**	**Semi-residential/ Commercial (dBA)**
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays.	50	55	60

2. At Business Structures.

    a. Mobile equipment. Maximum noise levels for non-scheduled, intermittent, short-term operation of mobile equipment: Daily, including Sunday and legal holidays, all hours: maximum of 85 dBA.

CONSTRUCTION NOISE IMPACTS

Construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. As shown in Figure 1, heavy equipment noise can exceed 90 dB(A) and averages about 85 dB(A) at 50 feet from the source when the equipment is operating at typical loads. Most heavy equipment operates with varying load cycles over any extended period of time.

Construction noise exposure can be further worsened when several pieces of equipment operate in close proximity. Because of the logarithmic nature of decibel addition, two equally loud pieces of equipment will be +3 dB louder than either one individually. Three simultaneous sources are +5 dB louder than any single source. Thus, while average operational equipment noise levels are perhaps 5 dB less than at peak power, simultaneous equipment operation can still yield an apparent noise strength equal to any individual source at peak noise output. Whereas the average heavy equipment reference noise level is 85 dB(A), short-term levels from either peak power or from several pieces operating in close proximity can be as high as 90 dB(A).

Point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance. The loudest construction activities would require 280 feet of distance between the source and a nearby receiver to reduce the peak 90 dB source strength to the generally acceptable 75 dB exterior exposure level for existing residential uses closest to project construction as specified in Chapter 17.78, Section 17.78.080 (F) of the City Municipal Code. The closest existing residences are approximately 240 feet to the east from the nearest project site perimeter along Lake Street and may therefore experience construction noise levels just above the allowable envelope if activities occur in daytime hours of lesser noise sensitivity (7 a.m. to 8 p.m.). However, these existing homes are shielded by sound walls and have an extensive landscape buffer that will dampen reflected sound waves. Construction noise at these homes will also be masked by truck traffic noise on Lake Street. Noise exposure to existing residents closest to the eastern project perimeter at Planning Areas 5b and 6b will be within allowable ordinance limit.

Since site development is planned to be phased, any on-site residents or tenants of an already completed phase may be subject to construction noise from subsequent phases. Discretionary scheduling of noisiest activities may be required to minimize such possible construction noise intrusion. Noise can also be mitigated by locating all stationary noise generating construction equipment as far as practical from existing residences. If impulsive noise generation such as pile driving or jack-hammers is necessary close to noise-sensitive users, activity scheduling to minimize off-site impacts, or erection of temporary barriers, may be necessary.

Figure 1
Typical Construction Equipment Noise Generation Levels

PROJECT-RELATED VEHICULAR NOISE IMPACTS

Long-term noise concerns from the increase of residential uses at the project site center primarily on vehicular operations on project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). This model calculates the Leq noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, speeds, or noise barriers. A travel speed of 45 mph was assumed as an average speed on non-freeway roadways.

Table 3 summarizes the 24-hour CNEL level at 50 feet from the roadway centerline along area roadway segments. The noise analysis utilizes data from the project traffic analysis, prepared by Linscott, Law & Greenspan, Engineers, for this project. Three time frames were evaluated; existing, build-out, and build-out with project.

Many of the roadway segments examined in this study are to be built in the future to support this project; such as Nichols Road and the Temescal Canyon Road realignment, as well as Alberhill Villages interior roadways. Since these roadways do not currently exist and will be built to facilitate project development, a "with project" comparison to "existing" traffic noise levels is not possible. However traffic noise on these segments must be mitigated to below significance thresholds for any possible adjacent residential user.

Project only impacts are defined as the difference between build-out without project traffic noise and build-out with project traffic noise. As seen in Table 4, several roadway segments are predicted to exceed the +3 db CNEL threshold. However, these segments are all along the yet to be built Nichols Road, and will not impact existing sensitive uses. Impacts will be confined to the project site. Predicted build-out with project noise levels along this roadway will be in the 68-72 dB CNEL range at 50 feet from the roadway centerline. As long as possible residential incorporate adequate mitigation measures, traffic noise levels will not be significant and do not impact existing sensitive receptors.

Cumulative impacts are the difference between build-out with project traffic noise and existing traffic noise levels. Cumulatively, traffic noise will increase both from area growth and from the implementation of other area projects. By area build-out, traffic noise will have increased substantially along most roadways modifying the area's acoustic environment. Almost every currently existing roadway analyzed for this project will experience a noise increase greater than +3 dB at build-out. Most of these noise increases would occur with or without Alberhill Villages implementation and are attributed to other area projects. Of the segments experiencing a potentially significant impact, only the Lake Street segments (between Alberhill Ranch Road and Mountain Street and Mountain Street to Lakeshore Drive) and Lakeshore Drive segments have existing adjacent residential uses. These segments are predicted to be in excess of 70 dB CNEL at 50 feet from the roadway centerline at build-out without project implementation and the project itself only contributes a small incremental change (about +1 dB). Therefore, cumulative impacts due to project implementation are judged to be less-than-significant.

Table 3
Alberhill Villages Specific Plan
Traffic Noise Impact Analysis
(dBA CNEL at 50 feet from centerline)

Segment		Existing	Build-Out	Build-Out w/Project
Temescal Cyn Rd/	Horsethief Cyn- I-15	63.0	73.9	74.0
Lake St/	I-15 SB-Temescal Cyn	70.5	75.1	76.2
	Temescal Cyn-Nichols	70.1	73.0	74.1
	Nichols-Alberhill Ranch	69.9	72.5	73.6
	Alberhill Ranch-Mountain	69.9	72.5	73.6
	Mountain-Lakeshore	69.5	73.2	74.1
Grand Ave/	Lakeshore-Lincoln	68.8	70.1	70.6
Lakeshore Dr/	Lake-Terra Cotta	67.8	71.8	73.0
Nichols Rd/	Lake-Alberhill Ranch	NA	69.0	72.0
	Alberhill-Terra Cotta	NA	72.3	74.1
	Terra Cotta-Collier	NA	73.5	74.5
Lake St/	A St - B St	NA	73.0	74.1
	D St North-Nichols	NA	73.2	74.3
	Nichols-D St South	NA	72.6	73.6
Temescal Cyn Rd/	I-15 Fwy-A St	NA	73.4	73.9
	A St - B St	NA	69.0	71.6
	B St - F St	NA	69.0	71.5
	F St - Nichols	NA	69.0	71.5
	Nichols-Mountain	NA	69.6	71.1
E St/	F St-Temescal Cyn	NA	NA	65.6
F St North/	E St-Temescal Cyn	NA	NA	60.9
F St South/	E St-Temescal Cyn	NA	NA	64.8
A St/	Temescal Cyn-Lake	NA	72.0	72.6
B St/	Temescal Cyn-C St	NA	NA	68.3
	C St - Lake	NA	NA	66.9
C St/	B St-Nichols	NA	NA	67.4
Nichols Rd/	Temescal Cyn-C St	NA	62.6	68.3
	C St - D St	NA	62.6	69.0
	D St - Lake	NA	62.6	70.4
D St North/	Lake-Nichols	NA	NA	65.6
D St South/	Nichols-Lake	NA	NA	67.4

NA=Not Available (roadways only constructed as part of project development)

Table 4
Alberhill Villages Specfic Plan
Traffic Noise Impact
(dBA CNEL at 50 feet from centerline)

Segment		**Project Only**	**Cumulative Impacts**
Temescal Cyn Rd/	Horsethief Cyn- I-15	0.1	**10.9***
Lake St/	I-15 SB-Temescal Cyn	1.1	**5.8***
	Temescal Cyn-Nichols	1.0	**4.0**
	Nichols-Alberhill Ranch	1.2	**3.7**
	Alberhill Ranch-Mountain	1.2	**3.7**
	Mountain-Lakeshore	0.9	**4.6**
Grand Ave/	Lakeshore-Lincoln	0.5	1.8
Lakeshore Dr/	Lake-Terra Cotta	1.2	**5.3**
Nichols Rd/	Lake-Alberhill Ranch	**3.0**	NA
	Alberhill-Terra Cotta	1.8	NA
	Terra Cotta-Collier	0.9	NA
Lake St/	A St - B St	1.0	NA
	D St North-Nichols	1.1	NA
	Nichols-D St South	1.0	NA
Temescal Cyn Rd/	I-15 Fwy-A St	0.5	NA
	A St - B St	2.7	NA
	B St - F St	2.5	NA
	F St - Nichols	2.5	NA
	Nichols-Mountain	1.5	NA
E St/	F St-Temescal Cyn	NA	NA
F St North/	E St-Temescal Cyn	NA	NA
F St South/	E St-Temescal Cyn	NA	NA
A St/	Temescal Cyn-Lake	0.6	NA
B St/	Temescal Cyn-C St	NA	NA
	C St - Lake	NA	NA
C St/	B St-Nichols	NA	NA
Nichols Rd/	Temescal Cyn-C St	**5.6**	NA
	C St - D St	**6.4**	NA
	D St - Lake	**7.8**	NA
D St North/	Lake-Nichols	0.1	**10.9**
D St South/	Nichols-Lake	1.1	**5.8**

NA=Not Available (roadways only constructed as part of project development)
Bolded entries indicate the significance threshold of +3.0 dB CNEL is exceeded

*ambient noise environment along these segments is dominated by I-15 traffic

ON-SITE NOISE ANALYSIS

Freeway Adjacent Planning Areas

Planning Areas (PA) 1b and 1c lie immediately south of Interstate 15 (I-15). These project areas are to be sited with several differing land uses; residential, office and commercial uses. To determine future traffic noise levels produced by the I-15 Freeway, build-out traffic volumes were obtained from the Urban Crossroads Traffic Analysis for the Lake Elsinore General Plan Update project. Exhibit H in the General Plan Update shows a predicted traffic volume of 266,000 vehicles traveling the I-15 in the project vicinity at build-out. This corresponds with a noise level of 81 dB CNEL at 100 feet from the roadway centerline using a 55 mile per hour travel speed and standard vehicle mix.

The closest perimeter of either PA 1b or 1c appear to be approximately 250 feet south of the I-15 centerline. At this distance, roadway noise is attenuated to 77 dB CNEL, still in excess of the recommended 70 dB CNEL residential compatibility standard. Approximately 1,500 feet of separation distance is required to mitigate traffic noise from 266,000 vehicles per day to below 70 dB CNEL based on distance alone.

Alternatively, several design strategies exist to attenuate traffic noise to within compatibility thresholds. The simplest strategy is to place less noise-sensitive uses immediately adjacent to the I-15 Freeway to provide a noise buffer for sensitive uses farther south by creating a break in the line-of-sight. Siting commercial or office uses along the I-15 perimeter will allow the buildings themselves to shield interior residential structures. Such a design strategy will allow for approximately -10 dB of noise attenuation and provide a noise level within the 70 dB CNEL compatibility threshold.

Additionally, residential uses can place their recreational space on the side of the structure away from the I-15 to afford additional noise protection for exterior recreational uses. In this case, the recreational space for these residences is afforded a noise reduction because of partial noise shielding from the houses themselves.

Development of a cluster of homes surrounding an interior courtyard, or a row of single-family homes facing southward, would also allow for noise protection. If possible, community common areas such as parks and pools in the center of the complex should be considered to meet the recreational space requirements such that individual home decks and yards can then be treated as an architectural feature not requiring noise protection. With such site plan creativity, noise from the I-15 will not provide an over-whelming constraint to development, but should be evaluated once detailed site plans are available. If residential uses are sited immediately adjacent to the I-15, although the exterior tier of development will help shield any interior units, the high traffic noise generated by the I-15 may require additional tiers of homes to be evaluated for possible acoustic impacts.

Project Interior Roadways

Although detailed site plans are not yet available, within the project site, several area roadways will experience traffic noise impacts exceeding 70 dB CNEL at 50 feet from roadway centerline and may impact possible adjacent residential uses. Specifically, these roadways are:

Interior Roadway Traffic Noise >70 dB CNEL at 50 feet from Centerline
Build-Out With Project

Roadway Segment		dB CNEL at 50 feet from centerline	Distance to 70 dB CNEL (feet)
Nichols Rd/	Lake-Alberhill Ranch	72	68
	Alberhill-Terra Cotta	74	93
	Terra Cotta-Collier	75	108
Temescal Cyn Rd/	I-15 Fwy-A St	74	93
	A St - B St	72	68
	B St - F St	72	68
	F St - Nichols	72	68
	Nichols - Mountain	71	58
A St/	Temescal Cyn-Lake	73	79
Lake Street/	I-15 SB-Temescal Cyn	76	126
	Temescal Cyn-Nichols	74	93
	Nichols-Alberhill Ranch	74	93
	I-15 SB-Temescal Cyn	74	93

Noise impacts along the above roadway segments would be potentially significant for possible residential uses if built closer than the 70 dB indicated setbacks. If it is not possible to meet these setbacks then additional mitigation may be required. Such mitigation includes taller noise walls or orienting patios or outdoor recreational space away from the roadway. These measures must be evaluated when a detailed site plan is available. Therefore, with recommended mitigation, on-site traffic noise impacts for possible residential uses are reduced to less than significant.

Residential uses along the other interior roadways not listed above, would require only a 50 feet setback to achieve 70 dB CNEL with no special mitigation.

INTERIOR NOISE

Planning Area (PA) 1b and 1c are just south of the I-15 and are planned for mixed uses. Interior noise levels of 45 dB CNEL are required for residential use. A noise level of 77 dB CNEL is predicted at build-out along the projects boundary with the I-15. If commercial use structures are closest to the freeway, they will assist in shielding the residential uses such that the noise loading at residential facades will be less than the maximal 77 dB. As site plans do not yet exist, the maximum façade noise loading for residential uses in PA 1b and 1c is not known.

Typical noise attenuation with closed, double-paned windows in modern frame and stucco construction is about 25-30 dB. Double-paned windows are a standard requirement for new residential construction in California. With a 70-75 dB CNEL noise loading and with dual-paned windows, interior noise levels can be maintained at 45 dB CNEL or less as required by the building code. No enhanced structural features would be required for planned residences within the Specific Plan other than the ability to close the windows within a 70-75 dB CNEL noise zone. However, noise levels greater than 75 dB CNEL require additional mitigation measures such as upgraded windows and doors.

A supplemental acoustical analysis should be submitted in conjunction with the issuance of building permits to verify that adequate structural noise protection exists in perimeter residences adjacent to the I-15 (PA 1b and 1c) to meet the 45 dBA CNEL interior standard. Supplemental ventilation, in conjunction with air conditioning, is required in any livable space where window closure to shut out roadway noise is needed to meet interior standards

ON-SITE NOISE GENERATION

In addition to residential uses, the project proposes the development of residential, educational, commercial and office land uses within the Alberhill Villages Specific Plan areas. Several planning areas will contain mixed uses, while others are strictly residential. The City will require the developer of this the specific plan to evaluate any potential noise impacts that may be associated with any commercial land uses that may be proposed. Although detailed users have not yet been identified for the commercial and commercial land uses, they will be restricted to "Community Commercial Uses" which are typically lower in intensity than larger retail and commercial areas. Typical noises that may be generated by commercial land uses include alarm systems, truck deliveries, landscaping maintenance and maintenance services. General Plan Policies 8.3 and 8.12 relate to possible mixed-use noise conflicts and state as follows:

> **8.3** Require that mixed use structures and areas be designed to prevent transfer of noise and vibration form commercial areas to residential areas.
>
> **8.12** Discourage the placement of residences and other sensitive uses in proximity to commercial and industrial and outdoor recreational uses that feature substantial stationary noise sources.

Uses for large and more noise prone commercial uses such as grocery stores or restaurants operate under conditional use permits (CUP). CUP's contain specific conditions to minimize noise impacts to adjacent uses. Although the exact mix of commercial tenants is unknown, mechanisms, such a permit conditions, are in place to ensure that future mixed use nature of the project site will maintain compatibility with respect to noise generation. The City of Lake Elsinore Municipal Code further restricts the level of noise that may be created upon residential properties from commercial activities. The code restricts the increased level of noise as no more than 5 dB greater than ambient conditions without such a source. While care must be taken in mixed-use communities to minimize noise conflict between dissimilar uses, adequate remedies

exist to maintain impact potential at less than significant. Noise from the future commercial area are not anticipated to create a noise nuisance for adjacent residential uses, but should be evaluated once occupancy is known, to assure compatibility.

SUMMARY

Construction activities from project development should not affect the nearest off-site residential uses. However, compliance with City of Lake Elsinore Noise Standards requires that:

- Construction activities are limited to the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday. Construction is not permitted on any national holiday or on any Sunday.

- All construction equipment shall use properly operating mufflers.

On-site roadway traffic noise levels are compatible for proposed Alberhill Villages commercial and office uses.

Several on-site roadway traffic noise levels are predicted to exceed the residential compatibility threshold of 70 dB CNEL at 50 feet from the centerline. Residential uses can remain within recommended compatibility design levels either with site design (adequate setback from the roadway or orienting patios or outdoor recreational space away from the roadway) or supplemental controls (e.g. noise walls).

Noise impacts for possible residential uses along the I-15 perimeter (PA 1b and 1c) could substantially exceed exterior noise compatibility standards. However, several design strategies exist to attenuate I-15 traffic noise to within residential compatibility thresholds. The simplest strategy is to place less noise-sensitive uses immediately adjacent to the I-15 to provide a noise buffer for sensitive uses farther south. Additionally, residential uses can place their recreational space on the side of the structure away from the I-15. In this case, the recreational space for these residences is afforded a noise reduction because of partial noise shielding from the houses themselves. With such site plan creativity, noise from the I-15 will not provide a constraint to development, but should be evaluated once detailed site plans are available.

Interior noise levels at residences within most of the Specific Plan areas can achieve the 45 dB CNEL building code standard with standard construction practice and the ability to close windows. Supplemental ventilation, in conjunction with air conditioning, is required in any livable space where window closure to shut out roadway noise is needed to meet interior standards

Because of proximity to the I-15, interior noise levels for residential uses in PA 1b and 1c may require upgraded construction measures. Verification of code compliance for any future residential uses within PA 1b and 1c shall be provided to the Building Department at building plan submittal.

On-site residential mixed uses will utilize design measures to minimize conflicts. Additionally conditional use permits (CUPs) will contain specific conditions to minimize noise impacts to adjacent uses.

Mixed use development may create noise conflicts between noise sensitive residences and less noise-sensitive commercial uses. Since specific development plans have not been prepared for

the build-out of the individual Specific Plan areas, subsequent noise studies may be required on a project by project basis and mitigation to meet applicable noise standards may be required once specific development design is known