



4.8 NOISE

This Subsection addresses the environmental issue of noise. The information contained herein is based in part on information contained in a technical report prepared by Giroux & Associates, dated October 6, 2015, and titled “*Noise Impact Analysis Amendment No. 2 to RP2006-01, City of Lake Elsinore, California*” (Giroux, 2015a). The report is included as *Technical Appendix I* to this EIR. Refer to Section 7.0, *References*, for a complete list of reference sources.

4.8.1 SCOPE OF REVIEW

The Nichols Canyon Mine, as discussed in Section 2.0, Environmental Setting, is an existing, ongoing surface mining operation operating pursuant to vested mining rights and an approved reclamation plan (RP 2006-01A1), which was analyzed in a prior MND. Although the City has chosen to prepare an EIR for the Project here, the scope of review addresses those impacts resulting from the Project as described in Section 3.0, Project Description, and not impacts related to existing, approved operations, which form the environmental baseline, as discussed in Section 2.7, *Existing Physical Site Conditions*. Accordingly, this Subsection analyzes noise impacts related to the Project specifically. This Subsection does not analyze noise impacts related to existing, approved operations, except as part of the cumulative impacts analysis, where required

4.8.2 NOISE FUNDAMENTALS

A. Noise Definitions

Noise is generally defined as “unwanted sound.” Sound is characterized by various parameters which 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 ratioed to the faintest sound detectable by a keen human ear is called a decibel (dB). Because 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 dB(A). (Giroux, 2015a, p. 1)

Noise in the daily environment fluctuates over time. The noise descriptors Day-Night level (Ldn), Equivalent Sound Level (Leq), Community Noise Equivalent Level (CNEL), Maximum Noise Level (Leq (10 min)), and Percentile Noise Level (Lnn) describe time-varying noise levels. These are briefly described below:

- **Ldn (Day-Night Level):** Ldn is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. Ldn and CNEL values rarely differ by more than 1 dB. (City of Lake Elsinore, 2011b, p. 3.5-2)
- **Community Noise Equivalent Level (CNEL):** CNEL is the sound level that occurs at a particular location when averaged over the course of a 24-hour day and with consideration for distance, single event duration, single event occurrence, frequency, and time of day. Humans are generally more sensitive to noise during nighttime and early morning hours than they are during regular morning and daytime hours. When estimating noise readings



perceived by humans, CNEL accounts for this sensitivity by adding five dBA to sound levels in the evening from 7:00 PM to 10:00 PM, and 10 dBA to sound levels between 10:00 PM and 7:00 AM. Because CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always a higher number than the actual recorded 24-hour average. (City of Lake Elsinore, 2011b, p. 3.5-2)

- **Equivalent Sound Level (Leq):** Leq is a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period (Giroux, 2015a, p. 1). The one-hour A-weighted equivalent sound level (Leq[h]) is the energy average of the A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria used by Caltrans and the Federal Highway Administration (FHWA). (City of Lake Elsinore, 2011b, p. 3.5-2)
- **Percentile Noise Level (Lnn):** When sound travels over a distance, it changes in level and frequency content. Noise from a stationary (point) source generally attenuates (lessens) at rate of six dBA for “hard sites” and 7.5 dBA for “soft sites” for each doubling of distance because of the geometric spreading behavior of sound waves. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for these sites and the change in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to the geometric spreading, an excess ground attenuation value of 1.5 dBA is normally assumed for soft sites. (City of Lake Elsinore, 2011b, p. 3.5-2)

For highways, where the movement of the vehicles results in sound emanating from a linear source rather than a stationary source, each doubling of distance from the noise source results in a noise attenuation of three dBA for hard sites and 4.5 dBA for soft sites. Noise can also be shielded by natural or man-made features standing between the noise source and the noise receptor. (City of Lake Elsinore, 2011b, p. 3.5-2)

B. Vibration

Vibration is the periodic oscillation of a medium or object. Vibration can be described by both its amplitude and frequency. Amplitude may be characterized by displacement, velocity, and/or acceleration. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration. For purposes of discussion herein, vibration is described in units of peak particle velocity (PPV) which is measured in inches per second (in/sec). Vibration can be felt outdoors, but the perceived intensity of vibration impacts are much greater indoors due to the shaking of the structure. The most common sources of vibration in Lake Elsinore are transit vehicles, construction equipment, and large vehicles. Several land uses are especially sensitive to vibration and therefore have a lower vibration threshold. These uses include but are not limited to concert halls, hospitals, libraries, vibration-sensitive research operations, residential areas, schools, and offices. (City of Lake Elsinore, 2011a, p. 3.5-17)



4.8.3 EXISTING NOISE CONDITIONS

A. Study Area Description

The proposed Expanded Disturbance Area (EDA) is located northeast of Nichols Road and the northbound I-15 Freeway, within the portion of the Mine referred to throughout this EIR as “Nichols North.” The majority of the Nichols North site is physically removed from off-site noise-sensitive human receptors and there is a substantial distance separation for the dissipation of any possible noise effects. Between the Mine site and off-site sensitive receptor locations is irregular terrain that further shields any off-site uses from mining-related noise under existing conditions. When considering planned mining activity expansion into the EDA, and presuming that mining activities could extend to the very edge of the proposed disturbance limits, mining activity noise sources would occur 412 feet from the closest home to the southeast and 610 feet from the closest high school classroom to the south. The distribution of possible locations of noise impact from the closest point of new proposed on-site aggregate mining operations includes the following three receiving land uses and their respective distances from the Project site (Giroux, 2015a, pp. 1-2):

- Arco and AM/PM: 2,600 feet southwest
- Temescal Canyon High School Classroom: 610 feet south
- Wood Mesa Road Residence: 414 feet southeast

B. Existing Study Area Ambient Noise Conditions

Noise measurements were collected in two locations by Giroux & Associates on July 21, 2014, to document existing baseline noise levels in the Project area. The measurements were made at the far southwest and southeast corners of the fence line surrounding the existing aggregate operations at the Nichols North site. These locations were selected for existing conditions noise measurements because these locations are the nearest to sensitive receptors surrounding the Project site. Specifically, measurements taken in the southwest portion of the Nichols North site help to establish existing noise levels at the existing gas station located west of I-15, while noise levels at the southeastern corner of the Nichols North site help to characterize existing noise levels at the nearest residential structure and school structure. Due to on-going mining activities at the Nichols North site, the measured sound levels reflect noise from existing mining operations. Existing noise sources on-site include the aggregate processing plant, located in the western portion of the Nichols North site; noise from on-site mining and loading equipment; and haul truck activity between the eastern Project driveway and the I-15 on-ramps. Additionally, the site is periodically subject to noise associated with blasting activities up to a dozen times per year. Other noise sources in the Project vicinity include traffic (including large truck traffic) along I-15; background traffic along Nichols Road; and existing mining and commercial activities to the west of I-15. Measured noise levels are depicted in Table 4.8-1, *Project Site Noise Measurements (dBA)*. (Giroux, 2015a, p. 2)

24-hour weighted CNELs are typically two to three dB higher than the mid-day Leq readings. Utilizing the values shown in Table 4.8-1, this would translate into CNEL's of over 70 dB near the freeway, but rapidly dropping off eastward along Nichols Road to the mid-50 dB CNEL range when distance from the freeway is increased and the direct line-of-sight view is obstructed by irregular terrain. (Giroux, 2015a, p. 2)



Table 4.8-1 Project Site Noise Measurements (dBA)

Site	Time	Leq	Lmax	Lmin	L ₀₁	L ₀₈	L ₂₅	L ₅₀
SW	11:20-11:35	68	74	58	72	70	68	67
SE	11:40-11:50	53	66	40	60	56	46	42

(Giroux, 2015a, p. 2)

The City of Lake Elsinore does not have a noise/land use compatibility standard for extractive industries such that the proposed mining activities at the Nichols Canyon Mine. Regardless, mining is not a noise-sensitive land use. (Giroux, 2015a, p. 2)

C. Existing Groundborne Vibration

On-going mining activities at the Project site (which includes mining, haul truck, and blasting activities) produce some sources of groundborne vibration, primarily associated with mining equipment and blasting activities. Other sources of groundborne vibration in the Project vicinity include other existing mining activities located west of I-15, and truck traffic along I-15.

Blasting operations at the Mine occur on a regular basis under existing conditions, and are regulated by permits issued by the Lake Elsinore Director of Community Development. Pursuant to federal law, for a distance separation of “D” feet in the range of 300 to 5,000 feet from nearby structures, the following requirements apply to blasting activities: (Giroux, 2015a, p. 13)

- If blasting activities are monitored by an acoustical consultant, then seismic monitoring shall demonstrate that PPV does not exceed 1.00 in/sec; or
- If blasting activities are not monitored, then the allowable blasting charge weight must be less than $(D/55)^2$ pounds, where “D” equals distance in feet.

Mandatory compliance with these measures under existing blasting operations, as required by the City’s blasting permits issued for blasting events, ensures that nearby structures, including nearby residences and school structures, are not exposed to a blasting-related PPV exceeding 0.01 in/sec.

Table 4.8-2, *Reference Vibration Noise Levels for Construction Equipment*, provides the reference vibration levels for typical construction equipment as measured at a distance of 25 feet from the source. Of the equipment listed in Table 4.8-2, only one large bulldozer and loaded trucks operate at the Mine. As shown, large bulldozers have a reference peak particle velocity (PPV) of 0.089 inches per second (in/sec) at a distance of 25 feet. Based on the methodology presented in Subsection 4.8.6 for calculating vibration over distance, and given that the nearest structure is approximately 500 feet southeast of the existing disturbance limits associated with the Nichols South site (i.e., existing residence at 28454 Wood Mesa Court), worst-case groundborne vibration associated with existing mining operations would be approximately 0.003 in/sec at the residential structure.

D. Airport Noise and Vibration

The nearest airport to the Project site is the Skylark Field Airport, a small private airport located approximately 6.0 miles southwest of the Project site, and the nearest private airstrip to the Project site is the Mc Conville Airstrip located approximately 6.50 miles southwest of the Project site.



(Google Earth, 2015) Due to the Project's distance from the nearest airport and airstrip, airport activities are not considered a source of substantial noise or vibration in the Project area.

Table 4.8-2 Reference Vibration Noise Levels for Construction Equipment

Equipment	Reference PPV at 25 ft. (in/sec)
Vibratory roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
Crack-and-seat operations	2.4

(Caltrans, 2013, Table 18)

4.8.4 APPLICABLE REGULATORY REQUIREMENTS

Following is a description of the existing noise regulatory setting for the Project's study area. The applicable noise standards, policies, and regulations of the City of Lake Elsinore are presented below.

A. City of Lake Elsinore General Plan Public Safety and Welfare Element

The City of Lake Elsinore Public Safety and Welfare Element provides goals and policies that are designed to locate new development in areas with compatible noise levels and minimize intrusive noise from existing and new development. As detailed in the City's General Plan, sensitive land uses are generally defined as locations where people reside or where the presence of noise could adversely affect the use of the land. These land uses include uses such as schools, hospitals, residences, libraries, and recreation areas. (City of Lake Elsinore, 2011a, p. 3-26) As shown in Table 4.8-3, *City of Lake Elsinore Land Use Compatibility Matrix*, the City of Lake Elsinore General Plan Noise Element includes noise/land use compatibility standards that help inform whether proposed land uses are compatible. (Giroux, 2015a, p. 2)

B. City of Lake Elsinore Municipal Code

The City of Lake Elsinore Municipal Code Chapter 17.176, Noise Control sets forth noise measurement procedures, as well as exterior noise limits and interior noise standards. As set forth in the City of Lake Elsinore Municipal Code § 17.176.060, these standards are shown in Table 4.8-4, *City of Lake Elsinore Municipal Code Exterior Noise Limits*. (Giroux, 2015a, p. 3) Based on existing operations at the Mine, the Mine is closest to the "Light Industrial" category, which is allowed up to 70 dBA L₅₀, regardless as to time of day.

The noise standards are expressed in terms of a mean noise level (L_{nn}), and identifies the average noise level allowed over an established period of time. The 50th percentile (30 min/hr) is the noise level allowed for up to 30 minutes (i.e., "L₅₀") per hour. As shown in Table 4.8-4, the noise standard for residential uses within the City is 50 dBA L₅₀ during the day (between 7:00 am and 10:00 pm) and 40 dBA L₅₀ at night (between 10:00pm and 7:00 am). For school uses within the City, which are in session only during the daytime, the applicable standard is 60 dBA L₅₀, with no applicable standard at night. For the existing gas station located west of I-15, the applicable standard is 65 dBA L₅₀ during daytime hours and 60 dBA L₅₀ at night. However, when ambient noise levels exceed the



above noise levels, the ambient level becomes the standard, adjusted upward in five dB increments. (Giroux, 2015a, p. 3)

Table 4.8-3 City of Lake Elsinore 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 Homes	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 Regional Institutional Civic Center	Amphitheatre, Concert Hall	B	B	C	C	D	D	D
	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.							

(Giroux, 2015a, Table 1)



Table 4.8-4 City of Lake Elsinore Municipal Code Exterior Noise Limits

RECEIVING LAND USE	TIME	Noise level that may not be exceeded for more than a cumulative period of:				
		30 MIN/HR	15 MIN/HR	5 MIN/HR	1 MIN/HR	ANYTIME
Single-Family Residential	10:00 p.m. – 7:00 a.m.	40	45	50	55	60
	7:00 a.m. – 10:00 p.m.	50	55	60	65	70
Multiple Dwelling Residential	10:00 p.m. – 7:00 a.m.	45	50	65	70	65
	7:00 a.m. – 10:00 p.m.	50	55	60	65	70
Public Space Office	10:00 p.m. – 7:00 a.m.	55	60	65	70	75
	7:00 a.m. – 10:00 p.m.	60	65	70	75	80
General Commercial	10:00 p.m. – 7:00 a.m.	60	65	70	75	80
	7:00 a.m. – 10:00 p.m.	65	70	75	80	85
Light Industrial	Anytime	70	75	80	85	90
Heavy Industrial	Anytime	75	80	85	90	95

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.

MIN/HR = Minutes per Hour

(Giroux, 2015a, Table 2)

C. Riverside County Noise Ordinance

Riverside County Ordinance No. 847 (“County Noise Ordinance”) regulates noise for lands within unincorporated Riverside County, which includes lands to the north, east, and south. The County Noise Ordinance requires prohibits the creation of any sound that causes the exterior sound level on occupied property to exceed the values presented in Table 4.8-5, *Riverside County Noise Ordinance Sound Level Standards (dB Leq [10 min])*, based on the Riverside County General Plan land use designation for the Occupied Property, which are shown on Figure 4.8-1, *Riverside County General Plan Land Use Designations*. “Occupied Property” is defined by Ordinance No. 847 as “Property upon which is located a residence, business or industrial or manufacturing use. Occupied Property located within Riverside County has the following General Plan land use designations and associated noise level limits:

- The Temescal Canyon High School, located south of Nichols South is designated by the Riverside County General Plan for “Public Facility (PF)” land uses, which are allowed to be affected by a maximum decibel level of 65 dB Leq (10 min) (daytime). Although the County



specifies a 45 dB Leq (10 min) nighttime standard for PF uses, no sensitive receptors occur at the high school during nighttime hours.

Table 4.8-5 Riverside County Noise Ordinance Sound Level Standards (dB Leq [10 min])

GENERAL PLAN FOUNDATION COMPONENT	GENERAL PLAN LAND USE DESIGNATION	GENERAL PLAN LAND USE DESIGNATION NAME	DENSITY	MAXIMUM DECIBEL LEVEL	
				7am- 10pm	10pm- 7am
Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2--5	55	45
	MHDR	Medium High Density Residential	5--8	55	45
	HDR	High Density Residential	8--14	55	45
	VHDR	Very High Density Residential	14-20	55	45
	H'TDR	Highest Density Residential	20+	55	45
	CR	Retail Commercial		65	55
	CO	Office Commercial		65	55
	CT	Tourist Commercial		65	55
	CC	Community Center		65	55
	LI	Light Industrial		75	55
	HI	Heavy Industrial		75	75
	BP	Business Park		65	45
	PF	Public Facility		65	45
	SP	Specific Plan-Residential		55	45
		Specific Plan- Commercial		65	55
		Specific Plan-Light Industrial		75	55
		Specific Plan-Heavy Industrial		75	75
Rural Community	EDR	Estate Density Residential	2 ac	55	45
	VLDR	Very Low Density Residential	1 ac	55	45
	LDR	Low Density Residential	1/2 ac	55	45
Rural	RR	Rural Residential	5 ac	45	45
	RM	Rural Mountainous	10 ac	45	45
	RD	Rural Desert	10 ac	45	45
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation Habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral Resources		75	45

(Riverside County, 2007)

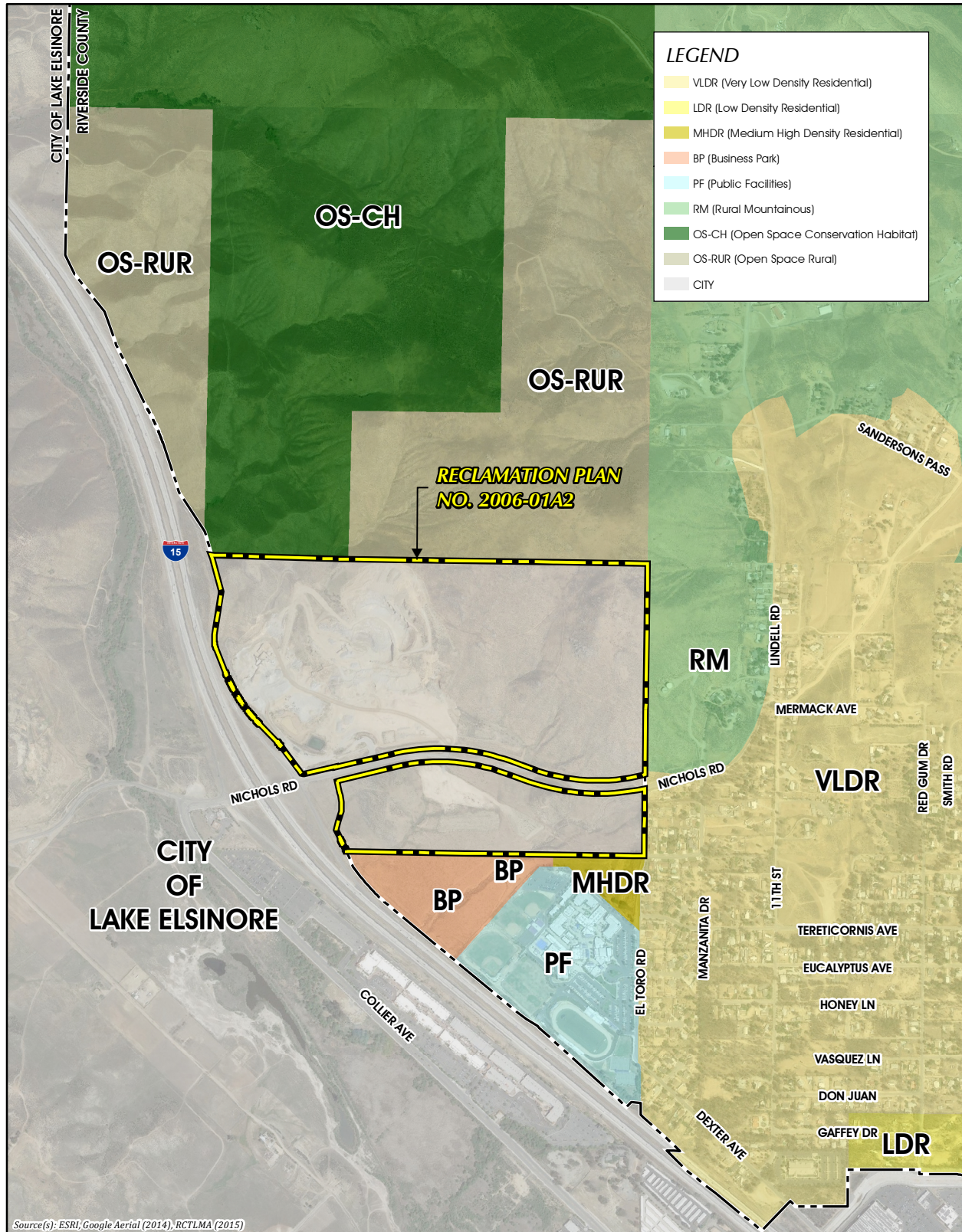
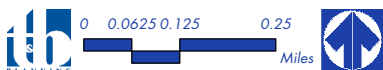


Figure 4.8-1



RIVERSIDE COUNTY GENERAL PLAN LAND USE DESIGNATIONS



- Existing rural residences located east of El Toro Road and south of Nichols Road are designated by the Riverside County General Plan for “Very Low Density Residential (CD-VLDR)” land uses, which are allowed to be affected by a maximum decibel level of 55 dB Leq (10 min) (daytime) and 45 dB Leq (10 min) (nighttime).
- Existing rural residences located east of Nichols North and north of El Toro Road are designated by the Riverside County General Plan for “Rural Mountainous (RM)” land uses, which are allowed to be affected by a maximum decibel level of 45 dB Leq (10 min) (daytime and nighttime).

D. Construction Noise Standards

The City of Lake Elsinore Municipal Code Chapter 17.176, *Noise Control*, limits the hours during which construction activities may take place. Construction and demolition activities in the City of Lake Elsinore are prohibited between the hours of 7:00 pm and 7:00 am, 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 a variance issued by the City of Lake Elsinore. (City of Lake Elsinore, 2015)

Additionally, Riverside County Ordinance No. 847 limits noise from construction activity located within ¼-mile of an occupied residential structure to between the hours of 6:00am and 6:00pm during the months of June through September, and to between the hours of 7:00am and 6:00pm during the months of October through May. (Riverside County, 2007)

E. Vibration Standards

The City of Lake Elsinore Municipal Code Chapter 17.176, *Noise Control*, controls unnecessary, excessive, and annoying vibration in the City. As detailed in § 17.176.080 of the City’s Municipal Code, the Project would have a significant impact if it resulted in “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.” As defined in § 17.176.020 of the City’s Municipal Code, “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. (City of Lake Elsinore, 2015) The County of Riverside has not identified or adopted vibration standards.

4.8.5 BASIS FOR DETERMINING SIGNIFICANCE

The proposed Project would result in a significant noise impact if the Project or any Project-related component would:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
- Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?*



- c. *A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?*
- d. *A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?*
- e. *For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?*
- f. *For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?*

The above-listed thresholds are derived directly from Section XII of Appendix G to the CEQA Guidelines and address typical adverse project effects due to noise. (OPR, 2009).

A. Operational Noise Thresholds (Threshold a.)

For evaluation under Threshold a, noise impacts would be considered significant if they were to result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the City of Lake Elsinore Noise Ordinance standards, and based on the noise levels that occur under existing conditions (refer to Subsection 4.8.4.B), impacts of the proposed Project would be considered significant if Project-related traffic or equipment were to expose the nearby gas station to noise levels exceeding 70 dBA L₅₀ between the hours of 7am and 10pm, and 65 dBA L₅₀ between the hours of 10:00 pm and 7:00 am. There are no other within the City of Lake Elsinore that could be exposed to Project-related noise exceeding the City's standards.

Lands located north, east, and south of the Mine are located within Riverside County, and are therefore subject to the County's Noise Ordinance. The proposed Project would result in operational noise impacts to surrounding properties within unincorporated Riverside County if Project-related noise would exceed the thresholds identified in Table 4.8-5.

B. Vibration Noise Threshold (Threshold b.)

For evaluation of Threshold b., a significant impact would occur if groundborne vibration associated with Project operations were to expose nearby structures to greater than a peak particle velocity (PPV) of 0.01 inches per second over the range of one to 100 hertz (Hz). (City of Lake Elsinore, 2015, § 17.176.020) Because the County of Riverside does not have an adopted standard for groundborne vibration or groundborne noise, the analysis herein applies the City of Lake Elsinore standard to lands within unincorporated Riverside County.

C. Substantial Temporary or Permanent Increase in Noise (Thresholds c. and d.)

The Project's primary source of temporary and permanent noise increases in the Project vicinity would be from haul truck trips, on-site operational equipment, and blasting events. "Substantially" is not defined in any guidelines. The accuracy of sound level meters and of sound propagation computer models is no better than approximately 1 dB. This is below the human loudness difference discrimination level even 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 (based on the noise thresholds identified above under Threshold a.) would be considered a potentially significant degradation of noise quality due to truck traffic or operational mining equipment. (Giroux, 2015a, pp. 6-7)

D. Airport-Related Noise (Thresholds e. and f.)

Given the distance to the nearest airport (Skylark Field Airport, located approximately 6.0 miles southwest of the Project site), a detailed analysis of potential aircraft noise effects on the Project is not required. (Google Earth, 2015)

4.8.6 METHODOLOGY FOR ESTIMATING PROJECT-RELATED NOISE IMPACTS

A. Construction Noise

The proposed Project includes a physical expansion of the mining activities and an increase in the allowed hours of operation. The Project comprises an expansion of an existing mining operation and does not involve any construction activities as defined in City Municipal Code § 17.176.020. The construction-related provisions of Municipal Code Chapter 17.176 accordingly do not apply to the Project. (City of Lake Elsinore, 2015) Similarly, the proposed Project does not comprise a “private construction project” pursuant to Riverside County Ordinance No. 847, and thus the Project is not subject to the County’s construction-related time restrictions. Any minor mining area improvements would be performed by the mining equipment in conjunction with normal day-to-day operations, and would not result in any generation of noise exceeding that which is discussed below under the analysis of the Project’s operational noise. (Giroux, 2015a, p. 8)

B. Operational Traffic Noise

The relationship between traffic and noise is logarithmic. It takes a large change in traffic volume to produce only a small change in noise decibels. The incremental noise impact from the increased quarry traffic would most likely be masked by the baseline condition, especially near the I-15, particularly because all Project site traffic travels toward I-15 with no trucks eastbound on Nichols Road. Noise impacts from truck intensive activities are very time sensitive. The noise produced by a single truck on a public street from 10:00 pm to 7:00 am (nighttime) is the noise equivalent of the noise from 10 trucks in a CNEL calculation. The perceived traffic noise impact could be substantially magnified by the artificial nighttime weighting penalty in a CNEL calculation if much of the “new” truck traffic from the proposed Project were to occur at night. (Giroux, 2015a, p. 6)

Long-term noise concerns from the projected increase of trucking from the Project site 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. This analysis utilized data from the traffic report prepared for this Project. (Giroux, 2015a, p. 8)

C. Operational Noise (Mining)

The Nichols Canyon Mine is an existing mining operation. The Project includes expansion of mining activities into a 24-acre area north and east of the current mining area and a change in operating hours. The existing distance between on-site mining and off-site sensitive receptors would be reduced by the proposed Project. In addition, some noise generation would be shifted from



daytime to nighttime periods from 4:00 am to 7:00 am and from 10:00 pm to midnight. As noted in Table 4.8-4, the City's noise standard is more stringent during these hours. Nighttime operations would not affect the Temescal Canyon High School because there are no classroom activities from 10:00 pm to 7:00 am, but nighttime operations could be audible at the closest homes located to the southeast of the Project site. (Giroux, 2015a, p. 6)

The FHWA Roadway Noise Construction Model (2006) is an excellent source of carefully documented heavy equipment noise. Table 1 of the model user's guide lists the reference noise level for 57 pieces of equipment and the usage factor (UF) associated with each type. The model equation for calculating the 50th percentile noise level is as follows: (Giroux, 2015a, pp. 10-11)

$$L_{50} \leq L_{eq} = \text{Ref Lvl} + 10 \log (\text{UF}/100)$$

The listed usage factor for dozers, loaders, and trucks is 40%. The reference level and associated L₅₀ for the primary mining equipment is as follows at 50 feet from the source: (Giroux, 2015a, p. 11)

$$\begin{aligned}\text{Dozer} &= 82 \text{ dB} - 4 \text{ dB (UF)} = 78 \text{ dB} \\ \text{Loader} &= 79 \text{ dB} - 4 \text{ dB (UF)} = 75 \text{ dB} \\ \text{Truck} &= 76 \text{ dB} - 4 \text{ dB (UF)} = 72 \text{ dB} \\ \text{Combined three sources:} &= 80 \text{ dB}\end{aligned}$$

Note: The model calculates the Leq metric (not L₅₀) which is typically several dB higher than the L₅₀. The use of Leq is a worst-case assumption.

The reference noise levels were allowed to decay during source to receiver propagation through spreading losses, atmospheric absorption, or possible terrain obstruction to perform an operational noise impact analysis from (Giroux, 2015a, p. 11):

- a. Physical expansion of the mining area to the north and east; and
- b. Pre-7 a.m. aggregate processing when noise limits are substantially more stringent.

D. Blasting

The Project's potential vibration impacts from blasting activities were analyzed based on the separation distance from the Project site and the existing high school to the south and the closest homes to the southeast. Blasting noise is a single event phenomenon that can vary with the charge weight and any intervening physical terrain. The amount of charge weight is limited by federal regulations as a function of the distance between the blast site and the nearest protected structure unless seismic monitoring is conducted during the blast event to verify that excessive vibration has not been created. For a distance separation in the range of 300-5,000 feet, the following blasting standards apply: 1) With seismic monitoring 1.00 inch/sec peak particle velocity and 2) With no seismic monitoring, allowable charge weight (lbs) < (D/55)². (Giroux, 2015a, p. 13)

E. Operational Vibration Impacts

Vibration effects are discussed in terms of peak particle velocity (PPV). Based on guidance from Caltrans in their publication, *Transportation and Construction Vibration Guidance Manual*, dated September 2013, vibration noise can be estimated by using the following formula: (Caltrans, 2013, p. 37)



$$PPV_{\text{Equipment}} = PPV_{\text{Ref}}(25/D)^n \text{ (in/sec)}$$

Where:

PPV_{Ref} = reference vibration levels

D = distance from equipment to the receiver in feet

n = 1.1 (the value related to the attenuation rate through ground)

Table 4.8-2, presented previously, provides the reference vibration levels for typical construction equipment as measured at a distance of 25 feet from the source.

4.8.7 IMPACT ANALYSIS

Threshold a.	<i>Would the Project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</i>
Threshold c.	<i>Would the Project result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?</i>
Threshold d.	<i>Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?</i>

A. Off-Site Noise Levels

Aggregate extraction and processing activities have highly variable noise levels. In particular, extraction is characterized by infrequent very loud noises during blasting with variable intermediate periods of bulldozing or loading or waiting for repositioning of equipment. Aggregate processing involving screening or crushing is a more steady state noise source. However, the creation of finished materials stockpiles that grow, shrink, or get relocated around the processing equipment again create problems in establishing one fixed reference noise value for the activity. The observed reference noise level for an aggregate processing plant based on studies conducted previously by Giroux & Associates is 85 dB (L_{50}) at 50 feet under semi-direct line of sight conditions. (Giroux, 2015a, p. 10)

Mining is an intermittent noise generating activity such that its L_{50} level is lower than single-event noise occurrences (Leq [10 min]). Mining equipment is semi-mobile and operates under variable power settings. The primary rock mining mobile sources are a bulldozer, loaders and haul trucks. Noise dispersion calculations presume a “point source” of noise generation. Only a finite amount of equipment can operate in sufficient proximity to each other to constitute a point source. For purposes of analysis, one bulldozer, one loader, and one haul truck were assumed to constitute a single source of mining noise. (Giroux, 2015a, p. 10)

Table 4.8-6, *Operational Activity Noise Impacts*, summarizes the noise effects of the Project and change in the hours of operation and associated easterly expansion of the areas subject to mining. As shown in Table 4.8-6, the noise levels at the nearest commercial use would be below the City’s standard of 65 dBA L_{50} during the daytime and 60 dBA L_{50} during nighttime. Likewise, the existing Temescal Canyon High School would be exposed to noise levels that are below the County’s Noise Ordinance daytime standard of 65 dB Leq (10 min).



Table 4.8-6 Operational Activity Noise Impacts

Receiver Location	Ref Level	Distance	Terrain	Absorption	Residual
Commercial Use West/					
Aggregate Plant	85	-43	0	-1	41
Mining Expansion	80	-46	0	-3	31
Total					41
Residences ESE/					
Aggregate Plant	85	-45	0	-5	35
Mining Expansion	80	-23	0	-0	57
Total					57
School Classroom					
Aggregate Plant	85	45	0	-5	35
Mining Expansion	80	27	0	0	53
Total					53

Notes: dBA L₅₀ at locations shown
(Giroux, 2015a, Table 5)

However, the reduction in the distance separation between the Project site and the closest homes to the east may cause the Riverside County Noise Ordinance standards to be exceeded at the VLDR homes located south of Nichols Road if mining activities are conducted as close as approximately 500 feet to the nearest home under direct line-of-sight conditions, which would be exposed to up to 57 dB Leq (10 minute). These findings are based upon a worst-case assumption that mining would occur directly up to the proposed disturbance limit in the EDA with no intervening terrain blocking the line-of-sight between the mining activity and the receiver. Any interruption in the direct line-of-sight between source and receiver would achieve the 2 dB of reduction needed to meet the daytime residential noise standard of 55 dB Leq (10 min). Under worst-case operating conditions (i.e., when mining activities occur in the southeastern portion of the EDA), a total of eight homes located within 500 feet of proposed mining activities could be exposed to noise levels exceeding 55 dB Leq (10 min). Meeting the nocturnal residential standard of 45 dB Leq (10 min) can only be achieved by maintaining an adequate distance separation to achieve sufficient spreading losses to meet the more stringent nocturnal standard. Thus, without mitigation, the Project could have a potentially significant day and nighttime noise impact to nearby residences located south of Nichols Road. (Giroux, 2015a, p. 11; Giroux, 2015b)

Several existing residential homes also occur east of the Nichols North portion of the site and north of El Toro Road that are designated by the Riverside County General Plan for “Rural Mountainous (RM)” land uses, which are allowed to be affected by a maximum decibel level of 45 dB Leq (10 min) (daytime and nighttime). The nearest home is approximately 995 feet from the EDA. Additionally, intervening topography between these existing residential uses obstructs the line-of-sight to areas proposed for mining within the EDA. (Google Earth, 2015) Accordingly, Project-related noise (both daytime and nighttime) would not expose these properties to noise levels exceeding 45 dB Leq (10 min), and impacts would be less than significant.

B. Transportation-Related Noise

To evaluate off-site noise increases that could result from Project-related traffic, noise levels were modeled for the traffic scenarios for Year 2016 and Year 2035. Background traffic noise was



calculated for no-Project conditions, and noise from Project-related truck and passenger vehicle trips were then superimposed upon the background traffic noise. (Giroux, 2015a, p. 8)

Existing trucking to/from the Project site currently occurs mainly from 7:00 am to 5:00 pm. As a worst-case scenario, both existing truck traffic of 260 trips per day and the possible increase to 400 trips per day were assumed to occur between 4:00 am and midnight. Because every truck from 4:00 am to 7:00 pm and 10:00 pm to midnight is the noise equivalent of 10 trucks in the CNEL calculation, this worst-case assumption increases the Project traffic noise contribution by 2 dB as compared to existing conditions. (Giroux, 2015a, p. 8)

Traffic noise is measured using a CNEL metric. CNEL by definition is an annual average. On rare occasion during nocturnal hauling events, truck traffic noise may be higher than average. Conversely, the assumption of 5,000 tons per day of hauling would consume the allowed annual production tonnage in far less than 365 days per year of hauling. Any isolated noise “spike” during a rare nocturnal haul event would be more than balanced out by the many days of near-zero truck noise in the annual average CNEL calculation. (Giroux, 2015a, p. 8)

1. Transportation-Related Noise: Year 2016 Scenario

Background traffic noise was calculated for no-Project conditions, and the truck noise increment was then superimposed upon the background. Table 4.8-7, *Traffic Noise Impact Analysis for 2016*, provides the noise impact resulting from Project implementation in 2016. The largest Project related noise impacts are on Nichols Road between driveway one and the freeway, and on the I-15 ramps. The worst-case impacts are a 2 dBA CNEL increase at 50 feet from the roadway centerline, and are less than the 3 dBA CNEL significance threshold. In addition there are no sensitive uses adjacent to the roads that would be affected by Project-related truck or passenger vehicle noise. These locations also have a substantial freeway background noise that would mask any Project-related truck noise increase. The Project’s contribution to noise levels would not be considered substantial because a 2 dBA increase is below the significance threshold of 3 dBA. Accordingly, under Year 2016 conditions, the Project would not result in a substantial permanent increase in noise levels above ambient conditions, and impacts would be less than significant. (Giroux, 2015a, pp. 8-9)

2. Transportation-Related Noise: Year 2035 Scenario

As shown in Table 4.8-8, *Traffic Noise Impact Analysis for Future Conditions Year 2035*, by 2035, with an increase in area-wide traffic, particularly on the on-and off-ramps, the Project’s contribution to vehicular noise is reduced. In 2035 the largest impact is the Project’s 2 dBA CNEL increase at 50 feet from centerline on Nichols Road adjacent to the Project site. All other Project-related noise impacts are diluted to less than a 0.5 dBA CNEL increase at all segments analyzed. Project-related traffic noise increases are considered less than significant. As previously noted, a number of days with essentially zero truck noise would more than balance rare nocturnal haul events that would be allowed from midnight to 4:00 am in calculating the annual average CNEL. (Giroux, 2015a, p. 9)

The Project’s contribution to noise levels would not be considered substantial because a 2 dBA increase is below the significance threshold of 3.0 dBA. Accordingly, under Year 2035 conditions, the Project would not result in a substantial permanent increase in noise levels above ambient conditions. Thus, the Project’s traffic-related noise impacts would be less than significant under Year 2035 with Project conditions.



Table 4.8-7 Traffic Noise Impact Analysis for 2016

Roadway Segment		Background Traffic	Project Only	Background with Project	Project Contribution
Nichols Rd/	E of I-15	69	66	71	+2
I-15/	N of Nichols NB On-Ramp	83	65	83	negligible
	NB On Ramp-SB Off Ramp	83	-	83	negligible
	S of Nichols Rd Off-Ramp	83	66	83	negligible
Nichols Rd Ramps/	I-15 NB On-Ramp	65	62	67	+2
	I-15 NB Off-Ramp	66	63	68	+2
	I-15 SB Off-Ramp	66	62	68	+2
	I-15 SB On-Ramp	67	63	68	+1
Nichols Rd/	W of I-15	69	57	69	negligible

Note: Numerical values in the table represent dBA CNEL at 50 feet from the roadway centerline (Giroux, 2015a, Table 3)

Table 4.8-8 Traffic Noise Impact Analysis for Future Conditions Year 2035

Roadway Segment		Background Traffic	Project Only	Background with Project	Project Contribution
Nichols Rd/	E of I-15	69	66	71	+2
I-15/	N of Nichols NB On-Ramp	85	65	85	negligible
	NB On Ramp-SB Off Ramp	85	-	85	negligible
	S of Nichols Rd Off-Ramp	85	66	85	negligible
Nichols Rd Ramps/	I-15 NB On-Ramp	74	62	74	negligible
	I-15 NB Off-Ramp	74	63	74	negligible
	I-15 SB Off-Ramp	75	62	75	negligible
	I-15 SB On-Ramp	74	63	74	negligible
Nichols Rd/	W of I-15	76	57	76	negligible

Note: dBA CNEL at 50 feet from centerline (Giroux, 2015a, Table 4)

Threshold b. Would the Project result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?

A. Mining Equipment Groundborne Noise and Groundborne Vibration Impacts

Table 4.8-2 presents the reference vibration noise levels for typical operational equipment. The proposed Project would not require any vibratory rollers, but may require large bulldozers (the second highest reference source for vibration). Utilizing the equation presented previously in



Subsection 4.8.6.E, and based on the distance to the nearest sensitive receptor (i.e., residential use located approximately 414 feet from the closest portion of the EDA), the following identifies the Project's worst-case impact for vibration-related noise at the nearest structure: (Caltrans, 2013, p. 37)

$$\begin{aligned} \text{PPV}_{\text{Equipment}} &= 0.089(25/414)^{1.1} \text{ (in/sec)} \\ \text{PPV}_{\text{Equipment}} &= 0.089(0.0604)^{1.1} \text{ (in/sec)} \\ \text{PPV}_{\text{Equipment}} &= 0.089(0.0456) \text{ (in/sec)} \\ \text{PPV}_{\text{Equipment}} &= 0.0041 \text{ in/sec} \end{aligned}$$

As shown above, Project-related mining equipment would result in a maximum PPV value of 0.0041 in/sec at the nearest residence. This value is below the 0.01 in/sec threshold established by the City of Lake Elsinore Municipal Code § 17.176.020. Based on these calculations, the Project would result in less-than-significant impacts associated with groundborne vibration or groundborne noise during on-going mining operations.

C. Blasting Activity Groundborne Noise and Groundborne Vibration Impacts

Blasting to loosen hard-rock deposits under the proposed Project would continue on the same frequency as occurs for current mining operations and operations that historically occurred over the baseline period. Under the proposed Project, the location of blasting would move north or east-ward in the EDA. As the area of blasting moves into the EDA, the separation distance to the Temescal Canyon High School to the south and the closest homes to the southeast will decrease. Blasting noise is a single event phenomenon that can vary with the charge weight and any intervening physical terrain. The amount of charge weight is limited by federal regulations as a function of the distance between the blast site and the nearest protected structure unless seismic monitoring is conducted during the blast event to verify that excessive vibration has not been created. For a distance separation of "D" feet, in the range of 3 to 5,000 feet, the following federal blasting standards apply: (Giroux, 2015a, p. 13)

With seismic monitoring: 1.00 inch/sec PPV

With no seismic monitoring: allowable charge weight (pounds) must be less than $(D/55)^2$

Because charge weight may be variable as a function of separation distance, and aggregate mining blasting is commonly performed into a stair-stepped hillside partially blocking the air blast wave, there is no way to generalize the sound intensity. Blasting is an existing condition and charge weights would decrease as activities move closer to existing homes for vibration protection (pursuant to the equation provided above). Blasting noise levels would not be substantially greater at off-site sensitive uses, particularly since the blasting frequency would remain unchanged on a daily or monthly basis, although the total duration that the site may be subject to blasting (i.e., years) would increase under the Project. (Giroux, 2015a, p. 13) Furthermore, all blasting operations in the City require a permit from the Director of Community Development authorizing such activities and are subject to the standards established in Lake Elsinore Municipal Code § 17.144.080, requiring the attenuation of noise. All blasting also would be subject to the conditions of the blasting permit. Accordingly, the Project would have a less-than-significant impact regarding ground borne vibration associated with blasting, and no mitigation is warranted.

Threshold e. For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the



Project expose people residing or working in the Project area to excessive noise levels?

The nearest airport to the Project site is the Skylark Field Airport, a small private airport located approximately 6.0 miles southwest of the Project site (Google Earth, 2015). The Project site is located outside of the Influence Area of this airport as shown in the Riverside County Airport Land Use Commission Skylark Airport Map, and is not subject to substantial noise levels associated with existing airport operations (RCALUC, 2004). There are no conditions associated with the proposed Project that would contribute to airport noise or the exposure of additional people to unacceptable levels of airport noise. Thus, the Project would have a less than significant impact regarding exposure of people residing or working in the Project area to excessive noise levels.

Threshold f. For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?

The Project site is not located near any private airfields or airstrips. The nearest private airstrip to the Project site is the McConville Airstrip located approximately 6.50 miles southwest of the Project site. The Project does not include construction, operation, or use of any private airstrips, and would not introduce any new sensitive receptors to the Project area. Therefore, the proposed Project has no potential to result in a safety hazard for people living or residing in the Project area. No impacts would occur as a result of implementation of the proposed Project.

4.8.8 CUMULATIVE IMPACT ANALYSIS

The cumulative impact analysis considers operation of the proposed Project in conjunction with other development projects in the vicinity of the Project site that have the potential to contribute to Project-related operational or haul truck trip noise. The analysis of potential cumulative impacts is divided into three general topics of discussion combining the Thresholds of Significance (listed in Subsection 4.8.5) into groupings of like topics.

A. Substantial Permanent or Temporary Noise Increase (Thresholds a, c, and d)

1. Short-Term Cumulative Construction-Related Noise Impacts

Because the Project does not propose to construct any new buildings, there would be no cumulative construction impacts as a result of the proposed Project (refer to the discussion under thresholds a, c, and d above).

2. Long-Term Cumulative Transportation-Related Noise Impacts

Truck traffic associated with the Project would generally not travel east on Nichols Road, due to the lack of market demand easterly of the Mine; thus, the Project would result in only nominal traffic-related noise increases along Nichols Road east of the existing eastern access driveway, which is located at a distance of more than 1,600 feet from the nearest structure at the Temescal Canyon High School and approximately 1,890 feet from the nearest residential structure. As indicated in Table 4.8-7 and Table 4.8-8, Project-related traffic noise has the greatest potential to impact the segment of Nichols Road located between the eastern access into the Mine and I-15.

Given that noise levels at 50-feet from the centerline of Nichols Road between the eastern driveway access and I-15 would increase to 71 dB with Project traffic under 2016 and Year 2035 conditions (as



shown in Table 4.8-7 and Table 4.8-8, respectively), and assuming a loss of 4.5 dBA for highway noise propagation over “soft” surfaces (which best characterizes the undeveloped nature of intervening lands), the cumulative noise levels at the nearest classroom building at Temescal Canyon High School would be 48.5 dBA, which is below the Riverside County daytime standard of 65 dB Leq (10-minute) for school uses.

Noise levels at the nearest residential structure (which is designated by the County General Plan for VLDR land uses) would be less than 48.5 dBA, which is below the Riverside County Noise Ordinance daytime noise standard of 55 dB Leq (10 min). However, it is possible that the nearest residential structure would be exposed to cumulative traffic-related noise levels exceeding the County Noise Ordinance nighttime standard of 45 dB Leq (10 min). Given that the Project’s contribution is only 2 dBA along the segment of Nichols Road located west of the Mine’s eastern driveway access, and given a distance of 1,890 feet between the eastern driveway and the nearest residential home, the Project’s contribution to noise levels at the nearest existing residence would not be readily perceptible and would be less-than-cumulatively considerable.

Additionally, although cumulative traffic noise levels would expose the nearby gas station to noise levels exceeding the City’s daytime standards under Year 2035 conditions and nighttime standards under both Year 2016 and Year 2035 scenarios, the data presented in Table 4.8-7 and Table 4.8-8 demonstrates that the Project’s contribution to noise affecting the gas station would be negligible. As such, the Project’s transportation-related noise impacts at the gas station would be less-than-cumulatively considerable.

3. Long-Term Cumulative Operational Noise Impacts

As previously shown in Table 4.8-6, Project operational activities would not expose the existing gas station or the nearest school building at the Temescal Canyon High School to noise levels in excess of the applicable daytime or nighttime standards for these uses. However, the nearest residential structures (which is designated by the County for VLDR) would be exposed to operational noise levels up to 57 dB Leq (10 min). This level of noise would exceed the County’s daytime noise standard of 55 dB Leq (10 min) and nighttime noise standard of 45 dB Leq (10 min). When the Project’s operational noise is combined with background traffic as well as traffic increases associated with the Project, the Project’s noise impact to the nearby residential uses represents a cumulatively considerable impact during daytime and nighttime hours.

B. Groundborne Vibration and Groundborne Noise (Threshold b)

The proposed Project’s mining activities in the EDA would include blasting. Blasting is an existing condition at the Mine and charge weights would decrease as activities move closer to existing homes for vibration protection, per federal standards. Blasting noise levels would not be substantially greater at off-site sensitive uses than occurs under existing conditions, particularly since the blasting frequency would remain unchanged. (Giroux, 2015a, p. 13) There are no other land uses within the Project’s vicinity that have the potential to contribute to the Project’s blasting-related noise and vibration in a manner that could result in cumulatively considerable impacts. Accordingly, Project-related groundborne noise and vibration associated with blasting activities would be less-than-cumulatively considerable.



As indicated under the analysis of Threshold b., Project-related mining equipment would result in a maximum PPV value of 0.0041 in/sec at the nearest residence. This value is below the 0.01 in/sec threshold established by the City of Lake Elsinore Municipal Code § 17.176.020. There are no other sources of groundborne vibration or noise that could contribute to the Project's less-than-significant impacts due to operational equipment-related vibration effects. Accordingly, Project impacts due to groundborne vibration and noise would be less-than-cumulatively considerable.

C. Public and Private Airport-Related Noise Levels (Thresholds e and f)

The proposed Project does not involve the construction, operation, or use of any public airports or public use airports. There are no conditions associated with the Project that would contribute airport noise or exposure of additional people to unacceptable levels of airport noise. Only two new employees would be introduced to the Project site as a result of the Project, and mining employees are not considered sensitive receptors for noise. Accordingly, the Project would have no potential to cumulatively contribute to impacts associated with noise from a public airport, public use airport, or private airstrip. Accordingly, cumulatively considerable impacts would not occur.

4.8.9 SIGNIFICANCE OF IMPACTS BEFORE MITIGATION

Threshold a, c, and d: Significant Direct and Cumulatively Considerable Impact: Impacts associated with Project-related traffic would be less than significant on both a direct and cumulatively considerable basis. Operational (mining) related noise would be less than significant at the nearest Temescal Canyon High School building and at the nearby gas station. However, noise associated with the Project's mining operations could exceed the County's Noise Ordinance criteria for eight residential structures located east of El Toro Road and south of Nichols Road during both day and nighttime hours when mining activities occur within 500 feet of the residential structures (daytime) or within between 1,250 or 500 feet (nighttime) of the residential structures, depending on whether line-of-sight exists. These operational impacts also are cumulatively considerable because the Project's operational noise would combine with background noise levels, such as traffic-related noise.

Threshold b: Less-than-Significant Impact. The Project would not expose persons to or generate excessive groundborne vibration noise levels.

Thresholds e and f: Less-than-Significant Impact. The Project would have a less than significant impact regarding impacts to airstrips and airports, due to the Project's distance and location outside of the Skylark Field Airport influence policy area and distance from the McConville airstrip. As such, the Project would not expose people to excessive noise levels associated with a public airport or public use airport.

4.8.10 MITIGATION

The following measures are recommended to reduce the proposed Project's potential noise impact to nearby residential receivers during mining operations.

- MM 4.8-1 All trucks accessing the Mine and all mining equipment operating on-site shall be equipped with mufflers that comply with the California Vehicle Code. This requirement shall be enforced by the Mine Operator.



- MM 4.8-2 A sign shall be placed at each of the Mine's egress driveways indicating that loaded truck trips are prohibited from turning onto eastbound Nichols Road except during deliveries to areas east of the Mine and/or during emergency conditions.
- MM 4.8-3 Noise-generating mining activities in the Expanded Disturbance Area (EDA) shall be prohibited from occurring during within 1,250 feet of any occupied residential structure during the nocturnal hours of 10:00 pm and 7:00 am if a direct line-of-sight exists between the mining activity and the occupied structure(s). If the line-of-site is blocked, noise-generating activities may extend to within 500 feet of occupied residential structures. The line-of-sight is considered "blocked" if bench mining maintains a minimum 15-foot high headwall between the noise-generating mining activity and any occupied residential structure to the east. Areas subject to nocturnal activity restrictions shall be identified by markers placed at the 1,250-foot or 500 foot-distance (depending on whether a line-of-sight exists), as measured from the nearest residential structure
- MM 4.8-4 When mining operations during the daytime occur within 500 feet of the nearest residential structure, the Mining Operator shall provide and maintain a minimum 15-foot high headwall between noise-generating mining activities in the EDA and off-site residences to the east, whenever feasible.

4.8.11 SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Threshold a, c, and d: Significant Direct and Cumulative Unavoidable Impact. Implementation of Mitigation Measures MM 4.8-1 through MM 4.8-3 would reduce the Project's operational-related noise impacts during the extended nocturnal hours (i.e., between 4:00 am and 7:00 am Monday through Friday, and between 7:00 pm and 12:00 am and between 4:00 am and 7:00 am on Saturdays, excluding Federal Holidays) to below a level of significance. However, during daytime operations, nearby residential structures would be periodically exposed to noise levels up to 57 dB Leq (10-min), which would exceed the County's daytime noise standard of 55 dB Leq (10 min). Although Mitigation Measure MM 4.8-4 requires the Mining Operator to design mining activities in such a manner as to maintain a minimum 15-foot high headwall, which would attenuate noise levels at residential structures to below the City's daytime standard, during the course of mining operations it is likely that there will be periods of time where mining within 500 feet of the nearest residential structure may not be fully shielded, because it is not physically feasible to maintain a 15-foot high headwall while achieving the final site elevations as proposed by RP 2006-01A2. Accordingly, the Project's daytime operational noise within the southeastern portions of the EDA represent a significant direct and cumulatively-considerable impact for which no additional feasible mitigation is available. (Giroux, 2015a; Giroux, 2015b)