3.8 NOISE

During the public scoping period for this Master EIR concern was expressed about the proposed project's potential impacts related to noise. The concern involved potential increases in noise from project related traffic along Workman Mill Road. Therefore, the issue of noise has been included in the analysis in this Master EIR. This analysis of noise includes existing conditions of the proposed project area, thresholds to determine if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation.

The potential for impacts from noise has been analyzed in accordance with the methodologies provided by the State CEQA Guidelines.[1]

3.8.1 Noise Terminology

Noise is defined as unwanted sound. The method commonly used to quantify environmental noise involves evaluation of all frequencies of sound, with an adjustment to reflect the fact that human hearing is less sensitive to low and high frequencies than to midrange frequencies. This measurement adjustment is called "A-weighting." A noise level so measured is called the A-weighted sound level measured in A-weighted decibels (dBA). In practice, environmental noise is conveniently measured using a sound level meter that includes an electronic filter corresponding to the A-weighted curve. Table 3.8.1-1 provides examples of typical A-weighted noise levels, their subjective loudness and effects.

To account for the fluctuation in noise levels over time, noise impacts are commonly evaluated using time-averaged noise levels. Time averages are typically expressed in terms of the Equivalent Level (Leq), a steady-state energy level equal to the energy content of the time varying period. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, an artificial decibel increment is added to quiet time noise levels in a 24 hour noise descriptors called the Community Noise Equivalent Level (CNEL) or the Day-Night Level (Ldn). Another measure used to characterize noise exposure is the variations in sound levels over time, percentage exceedance level.

[1] California, 2005. *Guidelines for the Implementation of the California Environmental Quality Act Title 14 California Code of Regulations. Chapter 3.* Available at: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/

Table 3.8.1-1 Common Noise Levels, Loudness and Effects

Common Noise Source	A-Weighted Sound Level dBA	Subjective Loudness	Effects of Noise
Threshold of Pain	140	**Intolerable or Deafening**	**Hearing Loss**
Near jet engine	130		
Hard rock band	120		
Automatic punch press	110		
Loud auto horn	100	**Very Noisy**	
Power mower	90		
Garbage Disposal	80		
Commercial jet interior during flight	70	**Loud**	**Speech Interference**
Normal conversation at 5 – 10 feet	60		
Residential Air Conditioner at 50 feet	50	**Moderate**	**Sleep Disturbance**
Background Level within Residence			
	40		
Bird Calls			
Whisper	30	**Faint**	**No Effect**
Interior of Recording Studio	20		
Rustling Leaves	10	**Very Faint**	
Threshold of Hearing	0		

The human response to environmental noise is subjective and varies considerably from individual to individual. The effects of noise can range from interference with sleep, concentration, and communication, to the causation of physiological and psychological stress, and, at the highest intensity levels, hearing loss.

Noise is attenuated as it propagates from the source to the receiver. Attenuation is logarithmic, rather than linear, so that for instance, a doubling of traffic volumes will result in a 3-dBA increase in traffic-dominated noise environments. For line sources, such as streets, noise levels decrease by 3 to 5 dBA for every doubling of distance from the source. For point sources, noise levels decrease quicker, about 6 dBA, for every doubling of distance from the source. Topography and the type of surface (paved or vegetated) also play a role in noise attenuation characteristics.

One way of estimating a person's subjective reaction to a new noise is to compare the new noise environment with the existing noise environment to which the person has become adapted; i.e.,

the increase over the so-called "ambient" noise level. Research in the area of perceived impacts of various degrees of increase in A-weighted noise levels, indicates the following:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in noise level of at least 5 dBA is required before any noticeable change in community response would be expected. A 5-dBA increase is often considered a significant impact.
- A 10-dBA increase is subjectively heard as approximately a doubling in loudness and almost always causes an adverse community response.

In assessing the impact of noise upon the environment, the nature and level of activities that generate the noise, the pathway through which the noise travels, the sensitivity of the receptor, the period of exposure and the increase over the ambient noise levels are all considered.

Ground borne Vibration/Noise

Vibration is an oscillatory motion, which can be described in terms of the displacement, velocity or acceleration. Because motion is oscillatory, there is no net movement of the vibrating element and the average of any of the motion descriptors is zero. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the movement and the acceleration the rate of change of speed.

Although displacement is easier to understand than velocity and acceleration, it is rarely used for describing ground-borne vibration. This is because most transducers used for ground-borne vibration use either velocity or acceleration, and even more important, the response of humans, buildings and equipment to vibration is more accurately described using velocity or acceleration. The effects of groundborne vibration include fellable movements of the building floors, rattling of windows, shaking of items on shelves or hangings on walls. The rumble is the noise radiated from the motion of the room surfaces. In essence the room surfaces act like a loudspeaker. This is called groundborne noise. In extreme cases vibrations can cause damage to buildings. Typical vibration levels are presented in **Table 3.8.1-2**.

Table 3.8.1-2: Typical Levels of Groundborne Vibration

Response	Velocity Level (10^{-6} inches/sec)	50 Feet from Typical Source
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks	90	Bulldozer and other heavy tracked construction equipment
Residential annoyance infrequent events	80	Rapid transit upper range
Human response begins Residential annoyance frequent events	70	Rapid transit typical
Sensitive equipment criteria Threshold of perception	60	Bus or truck typical
No impact	50	Typical background vibration level

Groundborne vibration is almost never annoying to people who are outdoors, although the motion of the ground may be perceived. Without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction. In additional the rumbling noise that usually accompanies the building vibration can only occur inside buildings.

The following is a brief discussion of noise terminology used in this analysis.

- *Sound:* A vibratory disturbance created by a vibrating objects, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- *Noise:* Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- *Decibel (dB):* A unit less measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- *A-Weighted Decibel (dBA):* Overall frequency-weighted sound level in decibels which approximates the frequency response of the human ear.

- *Equivalent Sound Level (Leq)*: The equivalent steady state sound or vibration level, which in a stated period of time would contain the same acoustical or vibration energy.

- *Day-Night Level (Ldn):* 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.

- *Community Noise Equivalent Level (CNEL):* The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB and 10 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10:00 p.m. to 7:00 a.m., respectively.

- *Percentage Exceedance Level* (L5, L50, L90): The number notes the percentage of time that the noise level was exceeded during the measurement period. Example L50 represents the noise level that is exceeded 50 percent of the time while L50 represents the noise level exceeded 50 percent of the time. The L50 is the median noise level and the L90 represents the background noise level.

- *The Lmax*: Maximum noise levels during the measurement period.

- *Ambient:* The total of all noise in the environment, other than the noise from the source of interest. This term is used interchangeably with background noise.

- *Frequency:* The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself. Expressed in hertz (Hz)

- *Vibration:* An oscillatory motion of solid bodies described by displacement, velocity, or acceleration with respect to a given reference point.

3.8.1.1 Regulatory Framework

State and local governments have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. The guidelines and regulations which pertain to noise conditions in the project vicinity are discussed below.

State

California Code of Regulations: Title 25, Section 1092 of the California Code of Regulations sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. The State indicates that locating units in areas where exterior ambient noise levels exceed 65 dBA is undesirable. Whenever such units are to be located in such areas, the developer must incorporate into

building design construction features, which reduce interior noise levels to 45 dBA CNEL.

Local

County of Los Angeles General Plan Noise Element The County has adopted local guidelines based on the community noise compatibility guidelines established by the State Department of Health Services for use in assessing the compatibility of various land use types with a range of noise levels. These guidelines are set forth in the County of Los Angeles General Plan Noise Element (Noise Element) and are expressed in terms of CNEL. CNEL guidelines for specific land uses are classified into four categories: (1) "clearly acceptable"; (2) "normally acceptable"; (3) "normally unacceptable"; and (4) "clearly unacceptable." A CNEL value of 65 dBA is considered the dividing line between a "normally acceptable" and "normally unacceptable" noise environment for noise sensitive land uses, including single-family and multi-family residences, parks, schools, and playgrounds. The CNEL guidelines are used in the analysis of the traffic-related noise levels on roadways in the vicinity of the project site.

County of Los Angeles Noise Ordinance The County of Los Angeles Noise Ordinance (Noise Ordinance) establishes exterior noise standards to regulate noise associated with mobile and stationary equipment construction operations and intrusive noises within specific land use zones. This includes non-scheduled, intermittent, short -term operation (less than 10 days) of mobile equipment, repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment, and intrusive noises (e.g., stationary mechanical equipment, vehicles other than those traveling on public streets). The Noise Ordinance prohibits construction on Sundays and on legal holidays.

Table 3.5.1-2 Noise Land Use Compatibility Matrix

Land Use Categories		Community Noise Equivalent Level (CNEL)						
Categories	**Uses**	55	60	65	70	75	80	80>
RESIDENTIAL	Single Family, Duplex, Multiple Family, Mobile Home	A	A	B	B	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 Theater	A	A	B	B	C	C	D
COMMERCIAL INDUSTRIAL	Office Building, Research and Development, Professional Offices,	A	A	A	A	B	B	C

Land Use Categories		Community Noise Equivalent Level (CNEL)						
Categories	**Uses**	55	60	65	70	75	80	80>
INSTITUTIONAL	City Office Building							
COMMERCIAL • Recreation	Amphitheater, Concert Hall	B	B	C	C	D	D	D
INSTITUTIONAL • Civic Center	Auditorium, Meeting Hall	B	B	C	C	D	D	D
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 Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A
Zone A Clearly Compatible	Specified land use is satisfactory based on the assumption that any buildings involved are or 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 normally be discouraged. If new construction or development does proceed a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.							
Zone D Clearly Incompatible	New construction or development should generally not be undertaken.							

3.8.2 Existing Conditions

The areas surrounding the proposed project include the Puente Hills Landfill, warehouses, single family and multifamily residences, a school, the Rose Hills Memorial Garden, a sensitive natural resources area, and commercial spaces. The existing noise environment in the vicinity of the project site is typical of urban areas characterized by noise levels generated by vehicular traffic on nearby streets and highways, passing trains, occasional aircraft flyovers, barking dogs, lawn mowers, etc.

To characterize the existing noise environment at the proposed project site, short term (5 minutes) and long terms (24 hours) ambient noise measurements were made during a typical weekday. The measured noise levels are depicted in Table 3.8.4.1-1 *Workman Mill Road Increase in Future CNEL Noise Levels.* Noise contours are depicted in Figure 3.8.2-1, *Existing and Future Noise Contours.*

3.8.2.1 Ground borne Vibration/Noise Setting

Vibration is an oscillatory motion, which can be described in terms of the displacement, velocity or acceleration. Because motion is oscillatory, there is no net movement of the vibrating element and the average of any of the motion descriptors is zero. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the movement and the acceleration the rate of change of speed.

Although displacement is easier to understand than velocity and acceleration, it is rarely used for describing ground-borne vibration. This is because most transducers used for ground-borne vibration use either velocity or acceleration, and even more important, the response of humans, buildings and equipment to vibration is more accurately described using velocity or acceleration.

The effects of ground borne vibration include fellable movements of the building floors, rattling of windows, shaking of items on shelves or hangings on walls. The rumble is the noise radiated from the motion of the room surfaces. In essence the room surfaces act like a loudspeaker. This is called ground borne noise. In extreme cases vibrations can cause damage to buildings. Ground borne vibration is almost never annoying to people who are outdoors, although the motion of the ground may be perceived. Without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction. In additional the rumbling noise that usually accompanies the building vibration can only occur inside buildings.

Existing vibration sources in the project area are also typical of urbanized areas.

Figure 3.8.2-1, *Existing and Future Noise Contours.*

3.8.3 Significance Thresholds

Pursuant to the State CEQA Guidelines, Appendix G, a significant impact related to noise would occur if the proposed project would result in:

1. 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;
2. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; and
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

3.8.4 Environmental Impact Analysis

NOISE

3.8.4.1 Project Related Impacts

Noise sources and noise levels associated with project include:

- Demolition/Construction Noise Levels
- Project Operations: Noise Levels

Each of the State CEQA Guidelines questions are analyzed in the following sub-sections.

Generation of Noise Levels in Excess of Standards

The exposure of persons to or generation of noise levels in excess of standards established by the County of Los Angeles, or applicable standards of other agencies is expected to be below the level of significance.

Temporary Construction Noise

Construction activities associated with the subsequent projects contained in the Rio Hondo College Master Plan are expected to generate short-term adverse noise impacts. Sound muffling devices and restricted construction time periods would be employed. Although construction noise would be noticeable in the project area, construction noise levels would be in compliance with the County requirements. With this appropriate mitigation, the temporary adverse noise impacts are anticipated to be less than significant during each construction phase.

Operations Noise

The analysis of noise along Workman Mill Road from additional vehicle trips generated by the proposed project is based on the hourly peak noise levels. (See Table 3.8.4.1-1 and Figure 3.8.2.-1). The increase in noise levels at all locations around the proposed project is estimated to be less than 1 dB, which would not be perceivable by the human ear. No significant impact related to operations noise is anticipated.

Table 3.8.4.1-1

Workman Mill Road Increase in Future CNEL Noise Levels

Roadway Segment Workman Mill Road	Existing CNEL, dB	Future CNEL, dB	Project Increase
East of Peck Road	75.7	76.3	0.8%
South of Rose Hills Road	75.3	75.7	0.5%
South of Mission Mill Road	76.2	76.6	0.5%
South of Rose Hills Gate	76.1	76.8	0.9%
South of College Drive	76.7	77.1	0.5%
South of Peck Road	74.8	75.1	0.4%

Generation of Excessive Ground borne Vibration/Noise Levels

The proposed project is not expected to result in a significant adverse impact due to exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels.

Construction Vibration/Noise:

The existing conditions in the project area include ground borne vibration from passing trains and large semi-trucks. The proposed project may involve temporary vibration/noise impacts during the construction phases. Typical standards for noise vibration are that motion velocities do not exceed 70 micro inch/second over the range of 8 to 100 Hertz. Ground-borne vibration levels typically associated with major grading activities can exceed this vibration threshold level at distances within 100 feet. Mass grading at the project sites could cause perceptible ground vibration at sensitive receptors and other locations off site. These vibration/noise levels are not

expected to be substantially different from existing project area noise levels. Temporary adverse construction impacts are expected to be less than significant.

Operational Impacts

The proposed project would result in a less than significant impact from noise related to exposure to or generation of excessive ground-borne vibration. Significant ground-borne vibration and noise levels are based on 0.001 g's in the frequency range between 1 and 30 hertz and 0.003 g's in the frequency range between 30 and 100 hertz. The vibration generated during building operations would be minimal (i.e., less than 0.0005 g's in the frequency range of 1 and 30 hertz and less than 0.0015 g's in the frequency range between 30 and 100 hertz) and well below the criteria. Most of the operations-related noise would be confined to indoor spaces. Operations of the proposed project are not expected to generate noise levels that exceed the threshold of significance.

Substantial Permanent Increase in Ambient Noise Levels

The proposed project is expected to result in less than significant impacts to noise in relation to permanent increases in ambient noise levels. As stated earlier, a 5-dBA increase in the ambient noise environment is often considered a substantial increase resulting in a significant impact. Therefore an increase in the noise levels of 5 dB would be considered significant. The highest generated noise levels by the project would likely occur within the timeframe 7:00 AM to 10:00 PM. During this period the lowest measured ambient noise levels are 75 dBA. Therefore noise levels up to 80 dBA would result in less than substantial increase. As discussed above the estimated maximum noise levels from the project and cumulative related traffic at 20 feet would be 77.1 dBA. Therefore, the proposed project is not expected to result in significant impacts related to permanent increases in ambient noise levels.

Substantial Temporary Increase in Ambient Noise Levels

The impact to noise related to temporary or periodic increases in ambient noise levels from the proposed project is expected to be reduced to below the level of significance with the incorporation of mitigation measures. Construction activities would be limited to the hours 7:00 AM and 7:00 PM. The lowest measured ambient noise during this period is 66 dBA. Therefore, as discussed in the previous section, noise levels up to 71 dBA would result in less than substantial increase.

The noise generated during demolition and construction is estimated below. Primary construction activities would include:

- Grading
- Paving
- Utilities
- Septic sewer facility
- Storm drains
- Building construction

Actual noise levels associated with construction of the proposed project would vary widely during the course of construction depending on which phase of the project was under development, where the equipment was located and what pieces of equipment were in use at any given time. Maximum noise levels associated with all construction equipment operating simultaneously would probably never occur during construction. Typically, noise levels from construction activities on this type of project would range from 65 dBA to 75 dBA at a distance of 50 feet within the proposed project site or 50 feet from the property line of the construction site to the surrounding area. This would translate to noise levels that do not exceed 65 dBA at the closest residential property outside of the project area. Therefore, construction activities at the proposed project site would comply with the requirements of the County of Los Angeles Noise Element. Average noise levels associated with various construction phases where all pertinent equipment is present and operating at a reference distance of 50 feet are presented in Table 3.5.4.1-1.

Table 3.5.4.1-1: Average Construction Noise Levels at 50 Feet

Activity	Noise Level
Ground Clearing	84±6 dBA
Excavations	89±6 dBA
Foundations	78±3 dBA
Erection of Structures	85±5 dBA
Finishing (i.e., Paving)	89±6 dBA
(Source: Bolt, et. al. for the Environmental Protection Agency, 1971)	

Cumulative Impact Analysis

The incremental impact of the combined components of the proposed project, when added to the related past, present, or reasonably foreseeable, probable future projects listed in Section 2, Project Description, would not be substantial. Existing noise levels along Workman Mill Road exceed the County of Los Angeles General Plan noise standards. The project related would not contribute substantially to existing exceedances of noise standards along Workman Mill Road. Therefore no significant cumulative impact is anticipated.

3.8.5 Mitigation Measures

The following mitigation measures address temporary construction noise and permanent operations noise:

Rio Hondo College shall minimize the potential for construction noise levels to exceed the County of Los Angeles Noise Element standards by requiring the construction contractor to properly maintain all heavy equipment used for construction of each element of the proposed project:

The Rio Hondo College shall ensure that the plans and specifications include a requirement that all construction equipment shall be properly maintained. All vehicles and compressors shall utilize exhaust mufflers. Engine enclosure covers as designed by the manufacturer shall be in place at all times. The College shall monitor the use of heavy equipment during construction to ensure conformance with the requirements of properly maintained heavy equipment.

The Rio Hondo College shall minimize the potential for excessive construction noise levels by requiring the plans and specifications to specify restricted periods for grading and construction for each element of the proposed project: Prior to the completion of final plans and specifications, the College shall ensure that the plans and specifications include a provision that restricts grading and construction activities to daily operation from 7:00 a.m. to 10:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays, and Sundays as needed. .

The Rio Hondo College shall ensure that the occupants of the child care facility are not subjected to excessive noise by enforcing the provisions of the State of California Uniform Building Code which specifies that the indoor noise levels not exceed 45 dB CNEL due to the combined effect of all noise sources. A sound wall shall be placed between the South Entry Road and the childcare facility during construction of the South Entry Road to protect the childcare facility from excessive noise.

3.8.6 Level of Significance After Mitigation

Implementation of these mitigation measures would reduce potential impacts related to noise to below the level of significance.