

3.9 NOISE

As a result of the *Initial Study*,¹ the City of Pasadena determined that the *Arroyo Seco Master Plan* (proposed project) had the potential to result in impacts to ambient noise levels. Therefore, this issue was carried forward for detailed analysis in this draft *Master Environment Impact Report (Master EIR)*. This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to noise. This analysis considers impacts to ambient noise levels and sensitive noise receptors that would occur from all phases of the proposed project and noise sources related to the project, including construction activities and operation.

The analysis of noise includes a definition of the regulatory framework that guides the decision-making process, a description of the existing conditions, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts, mitigation measures, and level of significance after mitigation. The potential for the proposed project to result in impacts on ambient noise levels has been examined in accordance with applicable state, county, and city statutes and guidelines that regulate noise. The analysis of potential impacts to ambient noise levels and sensitive noise receptors is based on on-site noise measurements, site reconnaissance, and modeling of anticipated noise from construction and operation of the proposed project. The evaluation of noise considered the intensity, frequency characteristics, and variations with time (Appendix E, Arroyo Seco Master Plan Noise Analysis).

Noise is sometimes defined as unwanted sound. Both noise and sound are caused by mechanical oscillations in the air, and there are no physical differences between noise and sound. At certain levels, noise can cause speech interference, sleep disturbance or awakening, and interference with activities or recreation.

Community noise levels are normally evaluated using a metric termed "A-weighting." Noise levels described with this metric are listed in dBA values.

¹ City of Pasadena, 2000. *Initial Study Arroyo Seco Mater Plan Project*. Contact: Department of Planning and Permitting, 175 North Garfield, Pasadena, CA 91109. Prepared by: Sapphos Environmental Inc., 133 Martin Alley, Pasadena, CA 91105.

A-weighted noise levels are filtered or weighted to quantitatively reduce the effect of low frequency noise. This metric was designed to approximate the response of the human ear to noise. A-weighted noise levels are measured in decibels with a standard sound level meter that includes an A-weighting filter. A-weighted levels provide a simple measure that correlates well with human subjective assessment of the loudness or noisiness of several types of noise.

The Community Noise Equivalent Level (CNEL) was developed as a land-use planning tool in the State of California to assess the potential impact of highway and airport noise in residential areas.² CNEL is fully defined in Appendix E.

CNEL is the energy averaged noise level measured over a 24-hour period with different weighing factors for the noise levels occurring during the day, evening, and night. Evening (7:00 p.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.) noise events are increased in level by 5 and 10 dB respectively to account for the lower tolerance of people to noise during those time periods. There is no increase for noise events occurring during daytime hours (7:00 a.m. to 7:00 p.m.).

Some land uses are considered more sensitive to intrusive noise than others, due to the amount of noise exposure (in terms of both exposure time and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than are commercial and industrial land uses.

3.9.1 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. This regulatory framework identifies state and local statutes and regulations that regulate ambient noise levels within the City of Pasadena. The City of Pasadena must consider this regulatory framework when rendering decisions on projects where the associated construction, operations, or maintenance have the potential to affect the ambient noise environment or sensitive

² California Department of Aeronautics, *Noise Standards*, California Administrative Code, Chapter 9, Title 4 (Register 70, No. 48, November 28, 1970)

receptors.

FEDERAL

National Environmental Policy Act

Elements of the Arroyo Seco Master Plan Project could potentially be funded by federal grant monies. The National Environmental Policy Act (NEPA) and its supporting federal regulations establish certain requirements that must be adhered to for any project "...financed, assisted, conducted or approved by a federal agency..." In making a decision on the issuance of federal grant monies for elements of the Arroyo Seco Master Plan Project, the federally designated lead agency pursuant to NEPA is required to "...determine whether the proposed action may significantly affect the quality of the human environment."

STATE

State General Plan Guidelines

To limit human exposure to physically and/or psychologically damaging noise levels, the State of California, through the State General Plan Guidelines (Government Code Section 65302 (f)) requires that cities include a noise element in their general plan. The California Department of Health Services (DHS) Office of Noise Control has studied the correlation of noise levels and the effects of these noise levels on different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land uses, including Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable. The interpretation of the four categories is as follows:

- ?? Normally Acceptable: specified land use is satisfactory without special insulation
- ?? Conditionally Acceptable: new development requires detailed analysis of noise insulation requirements
- ?? Normally Unacceptable: new development is discouraged, and requires a detailed analysis of insulation features

?? Clearly Unacceptable: new development should not be undertaken

Table 3.9.1-1, *Guidelines for Determining Acceptable CNEL Values*, denotes CNEL levels that are Normally and Conditionally Acceptable and Normally and Clearly Unacceptable.

**TABLE 3.9.1-1
GUIDELINES FOR DETERMINING ACCEPTABLE CNEL VALUES**

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L _{dn} OR CNEL, dBA													
RESIDENTIAL - LOW-DENSITY SINGLE-FAMILY, DUPLEX, MOBILE HOMES	■	■	■	■	■	■								
RESIDENTIAL - MULTIPLE-FAMILY	■	■	■	■	■	■								
TRANSIENT LODGING - MOTELS, HOTELS	■	■	■	■	■	■								
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES	■	■	■	■	■	■								
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES	■	■	■	■	■	■								
SPORTS AREAS, OUTDOOR SPECTATOR SPORTS	■	■	■	■	■	■								
PLAYGROUNDS, NEIGHBORHOOD PARKS	■	■	■	■	■	■								
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES	■	■	■	■	■	■								
OFFICE BUILDINGS, BUSINESS, COMMERCIAL, AND PROFESSIONAL	■	■	■	■	■	■								
INDUSTRIAL, MANUFACTURING, UTILITIES, AGRICULTURE	■	■	■	■	■	■								
<p>INTERPRETATION</p> <table border="0"> <tr> <td data-bbox="186 1276 235 1329">■</td> <td data-bbox="251 1308 535 1339">NORMALLY ACCEPTABLE</td> <td data-bbox="808 1276 857 1329">■</td> <td data-bbox="873 1308 1193 1339">NORMALLY UNACCEPTABLE</td> </tr> <tr> <td colspan="2" data-bbox="186 1350 787 1486"> <p>Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.</p> </td> <td colspan="2" data-bbox="808 1350 1373 1560"> <p>New construction or development should generally 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.</p> </td> </tr> </table>							■	NORMALLY ACCEPTABLE	■	NORMALLY UNACCEPTABLE	<p>Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.</p>		<p>New construction or development should generally 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.</p>	
■	NORMALLY ACCEPTABLE	■	NORMALLY UNACCEPTABLE											
<p>Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.</p>		<p>New construction or development should generally 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.</p>												



CONDITIONALLY ACCEPTABLE

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



CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

As demonstrated in Table 3.9.1-1, the dividing line between Normally Acceptable and Conditionally Acceptable for sensitive spaces such as residential, multi-family, and schools and libraries is CNEL 55 to 60; the dividing line between Conditionally Acceptable and Normally Unacceptable for the same land use categories is CNEL 70.

The State Building Code (Part 2, Title 24, CCR) establishes uniform minimum noise insulation performance standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and residential units other than detached single-family residences from the effects of excessive noise, including but not limited to hearing loss or impairment and interference with speech and sleep. Residential structures to be located in areas exposed to noise levels in excess of CNEL 60 dBA are required to provide sound insulation to limit interior noise levels to a maximum CNEL 45. An acoustical analysis report prepared by a person experienced in the field of acoustical engineering is required for the issuance of a building permit for these structures.

Noise in the “normally acceptable” range places no undue burden on affected receptors and would need no mitigation. As noise rises into the “conditionally acceptable” range, some mitigation of exposure, as established by an acoustic study, would be warranted. At the next level, noise intrusion is so severe that it is classified “normally unacceptable” and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the “clearly unacceptable” range is so severe that it cannot be mitigated.

California Sound Transmission Control Standards

The California Sound Transmission Control Standards (CAC, Title 24, Building Standards, Chapter 2-35) require that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. Residential buildings or structures to be located within exterior CNEL contours of 60 dB or greater of an existing or proposed freeway, major thoroughfare, rail line, rapid transit line, or industrial noise source require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior CNEL of 45 dB.

CITY OF PASADENA

Noise Element of the *City of Pasadena Comprehensive General Plan*

The Noise Element of *The City of Pasadena Comprehensive General Plan*³ states specific goals, policies, and plans to reduce the growth rate of community noise level as well as the overall noise environment. The Noise Element is focused primarily on non-stationary sources of noise by establishing outdoor and indoor noise limits (through the enforcement of the CAC Title 24 as described above) by land-use designation.

Noise Ordinance

The City of Pasadena has for some years been addressing stationary noise sources through its Noise Ordinance (Ord. No. 5118 adopted July 3, 1973). The Noise Ordinance is designed to protect residential and other sensitive land uses from stationary or non-mobile, transit-related noise sources. This ordinance established maximum permitted noise levels in different parts of the City by time of day. Based on a noise study performed by the Environmental Health Division of the Health Department in 1972, it is enforced by this same division. The noise levels are shown in Table 3.9.1-2, *Sound Level "A" Decibels*.

**TABLE 3.9.1-2
SOUND LEVEL "A" DECIBELS**

NOISE DISTRICT	DAY (Maximum) 6:00 a.m. - 11:00 a.m.	NIGHT (Maximum) 11:00 p.m. - 6:00 p.m.
I	50	40
II	55	45
III	60	50

SOURCE: City of Pasadena Noise Ordinance (Ordinance No. 5118), 1978.

³ City of Pasadena, Planning Division, 1994. *City of Pasadena Comprehensive General Plan*. Contact: Community Planning Section, 175 North Garfield Avenue, Pasadena, CA 91109-7215.

The noise ordinance generally limits intrusive noises from exceeding the ambient level at the property line by more than 5 dB.

Chapter 9.36, titled Noise Restrictions, contains the noise regulations of the City of Pasadena.

Amplified music would fall under the paragraph 9.36.050. This prohibits noise levels that would disturb the peace, quiet and comfort of neighboring residents between 10:00 p.m. and 7:00 a.m. the following day.

It is considered to be a violation of the Pasadena City Noise Ordinance if noise levels exceed ambient noise at the same location by more than 5 dB.

3.9.2 Existing Conditions

Ambient noise data were collected at two locations adjacent to the Arroyo Seco (Figure 3.9.2-1, *Ambient Noise Monitoring*). These noise measurements were made over a 24-hour period. The locations that were monitored included the following:

Ambient Noise Monitoring Locations

1. East Side - Opposite 1010 Armada Drive
2. West Side - East end of Charles Street

The location on the east side of the Arroyo Seco was located in the vicinity of 1010 Armada Drive. Noise sources at this location included distant traffic and birds. The second location, on the west side of the Arroyo Seco, was near the intersection of Charles Street and Linda Vista Avenue. Noise sources at this location included local traffic, birds, wind noise, and aircraft fly-overs.

Ambient noise data were collected over a 24-hour period starting at 4:00 p.m. on February 3, 2001 and ending at 4:00 p.m. on February 4, 2001. The noise data were collected at one-hour increments, using Larson Davis Model 700 sound level meters (Appendix E). Following the 24-hour monitoring, data collected from the Larson Davis units were downloaded from the sound level meters for analysis (Appendix E). The average noise level (LEQ) was calculated for the measurement period. The minimum

noise level (LMIN) and the maximum noise level (LMAX) were recorded. The LEQ values measured at both locations was utilized to determine the CNEL value at both locations.

The results of the ambient noise monitoring and analysis of CNEL values at the two locations are summarized in Table 3.9.2-1, *Measured Ambient CNEL Noise Levels in dB*.

**TABLE 3.9.2-2
MEASURED AMBIENT CNEL NOISE LEVELS IN dB**

Location	CNEL (dBA)
East Side – Opposite 1010 Armada Drive	63
West Side – East Side of Charles Street	59

3.9.3 Significance Thresholds

Appendix G of the State California Environmental Quality Act (CEQA) Guidelines recommends consideration of five standards when considering the potential for significant impacts to ambient noise levels and sensitive noise receptors:

- ?? Expose people to noise levels that exceed established standards;
- ?? Expose people to excessive ground-borne vibration;
- ?? Substantially increase ambient noise; and
- ?? Expose people to excessive noise near a public-use airport or private airstrip.

If noise levels from the project exceed the allowable levels under the City of Pasadena Noise Ordinance or if the project results in a substantial increase in existing ambient noise levels, then a significant environmental impact would occur.

In addition to the requirements of the City of Pasadena Noise Ordinance, it is important to consider ambient noise level increases. Ambient noise levels are most appropriately defined in terms of CNEL values since these account for a full day of noise exposure.

If a given area is characterized by a quiet noise environment and a new noise source is introduced that increases the noise exposure in the area without violating the City's Noise Ordinance, then a noise impact might occur. Objective standards for evaluating such impacts have not been adopted formally within the City of Pasadena or even within the State of California. The CNEL values listed in Table 3.9.1-1 are only guidelines.

It is generally accepted that most people will consider an increase in the existing CNEL ambient level of 5 dB or more as noticeable. Therefore, a CNEL increase of 5 dBA or more is generally considered to be a significant environmental impact. A change in the CNEL value from 3 to 5 dBA may be noticed by some people. Therefore, this level of change is generally considered to constitute an adverse impact because these conditions could lead to complaints. Changes in the CNEL values of less than 3 dBA are generally not noticeable and are therefore considered not to be significant impacts.

Operational Noise

A significant impact would result if operation of the project, including traffic-generated noise, creates a substantial permanent increase in ambient noise levels. Even though increases in CNEL values of 3 to 5 dBA are generally not considered to be significant noise impacts, if there is a category change in the Land Use Compatibility Guidelines (Table 3.9.1-1), the overall impact would be considered to be significant (Table 3.9.3-1, *Significance Thresholds for CNEL of less than 5 dBA*). For example, a category change would occur if the CNEL value moves from normally acceptable to conditionally acceptable.

**TABLE 3.9.3-1
SIGNIFICANCE THRESHOLDS FOR CNEL OF LESS THAN 5 dBA**

CNEL Increases (dBA)	Category Change	Impact
5 or more	No	Significant
3 to 5	No	Adverse
3 to 5	Yes	Significant

Construction Noise

The City Noise Ordinance also places limits on construction noise. A significant impact would result if construction generates noise levels in excess of standards established by the City of Pasadena Municipal Code. The noise ordinance of the Pasadena Municipal Code prohibits construction noise levels in excess of 85 dBA when measured at the property line of any lot within a 100-foot radius of the noise source. As sensitive receptors have been identified within 100 feet of the project site, a significant impact would occur if the noise level at the property line of any of these sensitive receptors exceeds 85 dBA. In addition, when within 500 feet of residential areas, construction activities are limited to the hours between 7:00 a.m. and 9:00 p.m., Monday through Sunday.

3.9.4 Impacts

The proposed project elements would be expected to result in short-term construction impacts on noise, requiring the consideration of mitigation measures. Most of the proposed improvements are consistent with the existing range of recreation uses that occur in the Upper Arroyo Seco, Central Arroyo Seco, and Lower Arroyo Seco and would be expected to have a limited effect on ambient noise levels or sensitive noise receptors.

The acoustical engineer used empirical data for noise levels at 50 feet for the types of construction equipment (Appendix E) required to construct the range of improvements considered in the Hahamongna Watershed Park Master Plan (HWP), Central Arroyo Seco Master Plan (CAMP), and Lower Arroyo Seco Master Plan (LAMP) (Table 3.9.4-1, *Construction Equipment Noise Levels at 50 Feet*).

**TABLE 3.9.4-1
CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET**

Construction Equipment	Noise Levels at 50 Feet (dBA)
Bulldozers/sheepsfoot	77
Scrapers	76
Motor Graders	76
Water Cat/Water Truck/Water Tank/Vibratory Compactor	81
Bottom Dump Trucks	75
Backhoe/Dump Trucks	75
Track Excavator/Water Truck	81
Air Compressors/Jackhammer/Concrete Saw	74
Trenches/Forklifts	85
Small Crane/Concrete Pump	80
Concrete Finishing Machines	70
Skill Saws	79
Pick Up Trucks	65

Actual noise levels associated with construction for the proposed project improvements would vary widely during the course of construction depending on where the equipment is located and what pieces of equipment are in use at any one time.

Maximum noise levels associated with all construction equipment operating at the same time would probably never occur during construction. Typically, noise levels from construction activity would range from 70 dBA to 80 dBA at a distance of 100 feet.

The Pasadena Noise Ordinance exempts noise sources associated with construction and grading provided that the Building Official has received a petition that indicates the consent of 65 percent of the households within 500 feet of the construction site.

Construction would not be permitted within a radius of 500 feet between the hours of 9:00 p.m. and 7:00 a.m. the next day or between the hours 9:00 p.m. Saturday and 7:00 p.m. on Monday. Additionally, operation of equipment producing a noise level in excess of 85 dBA at a distance of 100 feet would not be permitted. Depending on the number of construction projects underway concurrently, temporary construction noise impacts would have the potential to produce such noise levels and thus were analyzed for these improvements anticipated to require concurrent use of multiple pieces of construction equipment.

3.9.4.1 Hahamongna Watershed Park

3.9.4.1.1 Significant Impacts

3.9.4.1.1.1 Operational Impacts

The operational components of the HWP element of the proposed project were analyzed by an acoustical engineer and it was determined that they would not create any significant noise impacts (Appendix E).

3.9.4.1.1.2 Construction Impacts

The operational components HWP were analyzed by an acoustical engineer and it was determined that they would not create any significant noise impacts (Appendix E).

3.9.4.1.2 Issues Not Found to Be Significant

3.9.4.1.2.1 Operational Impacts

None of the operational elements of the HWP element of the proposed project would be expected to create any significant noise impacts.

Outdoor Amphitheater

The existing amphitheater located just west of Oak Grove Field would be restored. The amphitheater that accommodates approximately 150 children would not be expanded. Since there would be no expansion of the capacity of the outdoor amphitheater, continued operation of the facility at existing capacity levels would not constitute a new source of noise with a potential to affect ambient noise levels or sensitive noise receptors.

Expanded Oak Grove Field Parking Area

The existing parking lot immediately east of the Oak Grove Field would be expanded from 100 spaces to 220 spaces. The operation of 100 additional parking spaces constitutes a new source of noise with the potential to affect ambient noise levels. In

particular, the loudest noise from the additional parking spaces would result from car door slams and engine start-up noise.

Noise levels would be expected to increase in the same ratio as the increase in number of parking spaces; therefore, CNEL and maximum noise levels would be expected to increase by 3 dB (Appendix E). Most people would not consider a noise level increase of less than 5 dB to be significant. Therefore, the expanded parking area east of Oak Grove Field would not result in a significant impact to ambient noise levels. La Cañada High School, the nearest sensitive noise receptor, is located more than 100 feet from the proposed parking area and would not be adversely affected by operational noise levels.

Supervised Overnight Camping Areas, New Parking Area

The proposed new parking area associated with the supervised overnight camping area would provide 20 spaces for overnight campers next to the Ranger Station. Noise levels from this parking lot would include door slams and engine start-up noise.

Source levels for typical car door slams were measured in the 61 dBA range at 30 feet. Based on this, noise levels from these door slams would be expected to range from 61 dBA at 30 feet to 45 dBA at 200 feet (Table 3.9.4.1.2-1, *Calculated A-Weighted Noise Levels in dB from Vehicle Door Slams*).

**TABLE 3.9.4.1.2-1
CALCULATED A-WEIGHTED NOISE LEVELS IN dB FROM VEHICLE
DOOR SLAMS**

Distance (Feet)	Noise Level (dBA)
30	61
100	51
200	45

Noise levels from vehicle door slams should be less than ambient levels at distances in excess of 100 feet. For the limited number of parking spaces that would be provided, noise levels at the edge of the park would not exceed the threshold for significance. Noise levels were also measured for vehicle engine start-ups. These noise levels would be expected to range from 62 dBA at 30 feet to 46 dBA at 200 feet (Table 3.9.4.1.2-2, *Calculated A-Weighted Noise Levels in dB From Engine Start-Ups*).

**TABLE 3.9.4.1.2-2
CALCULATED A-WEIGHTED NOISE LEVELS IN dB FROM ENGINE
START-UPS**

Distance (Feet)	Noise Level (dBA)
30	62
100	52
200	46

Impacts on ambient noise levels from engine start-ups at the new parking area would not exceed the level of significance. The nearest sensitive receptor is the Child Education Center located more than 500 feet away from the proposed parking area. Noise experienced by the Child Education Center would be less than 45 dBA, which would not constitute a significant impact on ambient noise levels or sensitive noise receptors.

West Arroyo Parking

The HWP element of the proposed project would replace two existing surface parking areas with a 6-level parking structure with a capacity of 1,200 parking spaces at the site of the existing west parking lot. The lot would be accessed from Oak Grove Drive and the Jet Propulsion Laboratory (JPL) Facility.

The major noise source associated with parking structures is car alarms. Due to the partial enclosure of the structure, car door slams and engine start-up noises would not

be considered to be as audible as car alarms. Noise levels from typical car alarms have been measured to be in the range of 86 dBA at 25 feet and require a distance of approximately 400 feet to be reduced below 65 dBA (Table 3.9.4.1.2-3, *Calculated A-Weighted Noise Levels in dB from Car Alarms*).

**TABLE 3.9.4.1.2-3
CALCULATED A-WEIGHTED NOISE LEVELS IN dB FROM CAR ALARMS**

Distance (Feet)	Noise Level (dBA)
25	86
100	74
200	68
400	62

The proposed parking structure would consolidate JPL parking on the west side of the Arroyo Seco. At this location, the parking structure would be located approximately 2,500 feet from Edison Elementary School, 3,000 feet from La Cañada High School, and approximately 1,500 feet from the nearest residence, which are the three nearest sensitive receptors. Noise from the parking structure would not affect sensitive noise receptors. Noise levels of the nearest buildings on the JPL campus from the 1,200-parking-space enclosed parking structure would be comparable to those currently experienced from the 600-space surface parking lot at the site location.

Renovation of Johnson Field

Johnson Field would be upgraded to accommodate both soccer and softball. The proposed improvements would provide a youth-size soccer field and two practice fields. The acoustical engineer based anticipated noise levels on empirical data from constructed youth soccer fields (Appendix E). Noise levels were calculated at various distances based on these measured source levels and determined to range from 61 dBA at 20 feet to 41 dBA at 200 feet (Table 3.9.4.1.2-4, *Calculated A-Weighted Noise Levels in dBA from Johnson Field Soccer Fields*).

**TABLE 3.9.4.1.2-4
CALCULATED A-WEIGHTED NOISE LEVELS IN dB
FROM JOHNSON FIELD SOCCER FIELDS**

Distance (Feet)	Noise Level (dBA)
20	61
100	47
200	41

It was determined that noise levels from soccer fields would not be audible at distances in excess of 100 feet. The proposed soccer fields would be separated from the nearest residences by at least 400 feet. Therefore, noise levels from operation of youth soccer fields would not exceed thresholds of significance.

The acoustical engineer based anticipated noise levels from softball games on empirical data from constructed adult softball fields (Appendix E). Noise levels were calculated at various distances based on these measured source levels and determined to range from 53 dBA at 20 feet to 33 dBA at 200 feet (Table 3.9.4.1.2-5, *Calculated A-Weighted Noise Levels in dB from Johnson Field Softball Fields*).

**TABLE 3.9.4.1.2-5
CALCULATED A-WEIGHTED NOISE LEVELS IN dB FROM
JOHNSON FIELD SOFTBALL FIELDS**

Distance (Feet)	Noise Level (dBA)
20	53
100	39
200	33

Noise levels from softball fields would not be audible at distances in excess of 100 feet. The proposed softball fields would be separated from the nearest residences by at least 250 feet. Therefore, the renovation of Johnson Field to include soccer fields and softball fields would not be expected to exceed thresholds of significance.

3.9.4.2 Central Arroyo Seco Master Plan

3.9.4.2.1 Significant Impacts

3.9.4.2.1.1 Operational Impacts

All operational components of the Central Arroyo Seco Master Plan element of the proposed project were analyzed by an acoustical engineer and it was determined that they would not create any significant noise impacts (Appendix E).

3.9.4.2.1.2 Construction Impacts

Construction of the proposed improvement described in the Central Arroyo Seco Master Plan (CAMP) element of the proposed project would be expected to result in short-term significant impacts to ambient noise levels within several hundred feet of locations where heavy equipment would be operating, thus requiring the consideration of mitigation measures.

3.9.4.2.2 Issues Found Not to Be Significant

Central Arroyo Seco Band Stand

The existing band stand would be upgraded by removing overgrown vegetation and repairing the seating. Additionally, trails to the band would be made accessible pursuant to the Americans with Disabilities Act (ADA). Restoration would not increase the capacity of the existing band stand. Continued operations of the facility of the existing capacity levels would not constitute a new source of noise with a potential to affect ambient noise levels or sensitive noise receptors. Therefore, this is considered to be an insignificant noise impact.

Soccer Field Overlay

The existing Baseball Diamond No. 2 within the developed recreation area on the east side of the Central Arroyo would be re-oriented to accommodate a soccer overlay field. This would allow the existing sports field area to accommodate two baseball fields and

a soccer field. As demonstrated in Table 3.9.4.1.2-4 and Table 3.9.4.1.2-5, noise levels from softball fields and soccer fields would not be audible at distances of greater than 100 feet. Baseball fields are characterized as having comparable noise levels to softball fields for this evaluation. The proposed ball fields with soccer field overlay would be separated from the nearest residence by at least 500 feet. Therefore, noise levels from operation of the ball fields would not exceed thresholds for significance.

Traffic Calming Methods

Traffic calming methods would be installed in the roadways adjacent to the 3-mile Recreation Loop. A stop sign would be installed at Salvia Canyon Road and steps would be taken to reduce speed limits within the Central Arroyo from 40 mph to 25 mph. Vehicular noise levels are reduced at slower rates of travel. Therefore, these traffic calming methods would result in a reduction of noise levels in the community.

Rose Bowl Use Plan

The Rose Bowl Operating Company has recommended that the City Council approve a Rose Bowl Use Plan that would allow 25 major events a year. Currently, 16 major events are allowed.

UCLA football games have been identified as Weekend Event No. 1 for the purpose of the noise evaluation. Typically, UCLA football games are fall events and draw approximately 88,700 spectators. Weekend Event No. 2 is Galaxy soccer games. These games typically draw 26,000 spectators.

Noise measurements were made east of the Rose Bowl opposite 1010 Armada Drive during the UCLA-Stanford football game on November 4, 2000. These noise levels were measured at the approximate distances of residences on both sides of Arroyo Seco opposite the Rose Bowl. Both maximum noise levels and average noise levels were measured (Table 3.9.4.2.2-1, *Measured Average and Maximum Noise Levels in dB during Weekend Event No. 1 – UCLA-Stanford Football Game*).

TABLE 3.9.4.2.2-1 MEASURED AVERAGE AND MAXIMUM NOISE LEVELS IN dB

**DURING WEEKEND EVENT NO. 1
(UCLA-STANFORD FOOTBALL GAME)**

Location	Avg. Noise Level (dBA)	Max. Noise Level (dBA)
Armada Drive	65	83

Increasing the number of major events from 16 per year to 25 per year would allow maximum noise levels in the 83 dBA range to occur more frequently.

On a CNEL noise impact basis, noise level increases would be much lower due to the averaging effect of the CNEL metric. Assuming that both football games and soccer games last for approximately 5 hours and assuming that they are all evening games between 7:00 p.m. and 12:00 a.m., the daily CNEL values at the residential areas closest to the Rose Bowl have been calculated to be CNEL 66, which is 3 to 7 dB higher than typical daily ambient noise levels at the residences adjacent to the Rose Bowl.

To determine the impact of increasing the number of major events from 16 to 25 would require that the CNEL value be calculated on an annual basis. The results of this annual CNEL analysis are summarized in Table 3.9.4.2.2-2, *Calculated Annual CNEL Values in dB for 16 Major Events versus 25 Major Events*.

**TABLE 3.9.4.2.2-2
CALCULATED ANNUAL CNEL VAULES IN dB FOR
16 MAJOR EVENTS VERSUS 25 MAJOR EVENTS**

Major Events	CNEL (dB)
16	52
25	54

As can be seen from the data summarized in Table 3.9.4.2.2-2, increasing the number of major events form 16 to 25 will result in a 2 dB increase in the CNEL values adjacent to the Rose Bowl.

Whereas residents near the Rose Bowl would be disturbed nine additional days per year with 25 major events, the over all CNEL increase is only 2 dB. Hence, on an annual CNEL basis, the impact on community noise levels would be less than significant.

Traffic Noise Impact Analysis

Operational noise includes traffic-generated noise, which would create a substantial permanent increase in ambient noise levels. Existing Average Daily Traffic (ADT) Volumes for Existing Conditions as well as Existing with Project Conditions were analyzed (Table 3.9.4.2.2-3, *Average Daily Traffic (ADT) Volumes for Weekday Conditions*).

The increases in traffic volumes with and without the proposed project have been calculated and are also shown in Table 3.9.4.2.2-3. Utilizing standard accepted acoustical engineering methods, future year noise level increases were calculated with and without the proposed project. These CNEL increases for Weekend Special Event No. 1, a UCLA football game with approximately 88,700 in attendance listed in Table 3.9.4.2.2-4, *Average Daily Traffic (ADT) Volumes for Weekend Event No. 1* and Weekend Special Event No. 2, Los Angeles Galaxy soccer game with 26,000 in attendance are listed in Table 3.9.4.2.2-5, *Average Daily Traffic (ADT) Volumes for Weekend Event No. 2*.

**TABLE 3.9.4.2.2-3
AVERAGE DAILY TRAFFIC (ADT) VOLUMES FOR WEEKDAY
CONDITONS**

Location	Existing (ADT)	Existing W/ Project (ADT)	Difference Due to Project (ADT)
1- Linda Vista S. of Mt. Vernon	4,080	4,260	180
2- Linda Vista S. of Charles St.	8,190	8,310	120
3- Linda Vista S. of Seco St.	11,850	11,890	40
4- Salvia Cyn. Rd. E. of Linda Vista	1,510	1,570	60
5- Rosemount N. of W. Washington	1,910	1,930	20
6- W. Washington E. of N. Arroyo	1,300	1,420	120
7- N. Arroyo E. of Rosemount	500	500	0
8- Seco E. of Rosemount	3,800	3,900	100
9- Rosemount S. of Seco	3,930	3,970	40
10- Oak Grove S. of Foothill	13,410	13,410	0
11- Windsor S. of Mountain View	9,750	9,750	0
12- Arroyo N. of Arbor	1,910	2,070	160
13- Arroyo N. of California	1,990	2,150	160
SOURCE: (Appendix F, <i>Traffic Impact Study Arroyo Seco Master Plan</i>)			

**TABLE 3.9.4.2.2-4
AVERAGE DAILY TRAFFIC (ADT) VOLUMES
FOR WEEKEND EVENT NO. 1**

Location	Existing (ADT)	Existing W/ Project (ADT)	Difference Due to Project (ADT)
1- Linda Vista S. of Mt. Vernon	6,460	6,660	200
2- Linda Vista S. of Charles St.	10,330	10,450	120
3- Linda Vista S. of Seco St.	17,770	17,810	40
4- Salvia Cyn. Rd. E. of Linda Vista	4,430	4,490	60
5- Rosemount N. of W. Washington	7,360	7,380	20
6- W. Washington E. of N. Arroyo	3,590	3,710	120
7- N. Arroyo E. of Rosemount	930	930	0
8- Seco E. of Rosemount	7,500	7,600	100
9- Rosemount S. of Seco	6,760	6,800	40
10- Oak Grove S. of Foothill	9,470	10,190	720
11- Windsor S. of Mountain View	6,530	7,730	1,200
12- Arroyo N. of Arbor	5,120	5,280	160
13- Arroyo N. of California	1,990	2,150	160
SOURCE: (Appendix F, <i>Traffic Impact Study Arroyo Seco Master Plan</i>)			

**TABLE 3.9.4.2.2-5
AVERAGE DAILY TRAFFIC (ADT) VOLUMES
FOR WEEKEND EVENT NO. 2**

Location	Existing (ADT)	Existing W/ Project (ADT)	Difference Due to Project (ADT)
1- Linda Vista S. of Mt. Vernon	3,420	3,620	200
2- Linda Vista S. of Charles St.	7,800	7,920	120
3- Linda Vista S. of Seco St.	13,780	13,820	40
4- Salvia Cyn. Rd. E. of Linda Vista	1,300	1,360	60
5- Rosemount N. of W. Washington	2,990	3,010	20
6- W. Washington E. of N. Arroyo	1,260	1,380	120
7- N. Arroyo E. of Rosemount	360	360	0
8- Seco E. of Rosemount	5,950	6,050	100
9- Rosemount S. of Seco	6,000	6,040	40
10- Oak Grove S. of Foothill	-	-	-
11- Windsor S. of Mountain View	-	-	-
12- Arroyo N. of Arbor	-	-	-
13- Arroyo N. of California	1,990	2,150	160
SOURCE: (Appendix F, <i>Traffic Impact Study Arroyo Seco Master Plan</i>)			

As can be seen from the data in Table 3.9.4.2.2-6, *CNEL Increases Due to Project for Weekday Conditions*, CNEL increases for weekday conditions would range from 0.0 dB to 0.4 dB. As shown in Table 3.9.4.2.2-7, *CNEL Increases Due to Project for Weekend Event No. 1*, for Weekend Event No. 1 conditions, the CNEL increases would be expected to range from 0.0 dB to 0.7 dB. Finally, in Table 3.9.4.2.2-8, *CNEL Increases Due to Project for Weekend Event No. 2*, CNEL vales would be expected to increase in the range of 0.0 to 0.4 dB for Weekend Event No. 2 conditions.

**TABLE 3.9.4.2.2-6
CNEL INCREASES DUE TO PROJECT
FOR WEEKDAY CONDITIONS**

Location	CNEL Increase (dB)
1- Linda Vista S. of Mt. Vernon	0.2
2- Linda Vista S. of Charles St.	0.1
3- Linda Vista S. of Seco St.	0.0
4- Salvia Cyn. Rd. E. of Linda Vista	0.2
5- Rosemount N. of W. Washington	0.1
6- W. Washington E. of N. Arroyo	0.1
7- N. Arroyo E. of Rosemount	0.0
8- Seco E. of Rosemount	0.1
9- Rosemount S. of Seco	0.0
10- Oak Grove S. of Foothill	0.0
11- Windsor S. of Mountain View	0.0
12- Arroyo N. of Arbor	0.4
13- Arroyo N. of California	0.3

**TABLE 3.9.4.2.2-7
CNEL INCREASES DUE TO PROJECT
FOR WEEKEND EVENT NO. 1**

Location	CNEL Increase (dB)
1- Linda Vista S. of Mt. Vernon	0.1
2- Linda Vista S. of Charles St.	0.1
3- Linda Vista S. of Seco St.	0.0
4- Salvia Cyn. Rd. E. of Linda Vista	0.1
5- Rosemount N. of W. Washington	0.0
6- W. Washington E. of N. Arroyo	0.1
7- N. Arroyo E. of Rosemount	0.0
8- Seco E. of Rosemount	0.1
9- Rosemount S. of Seco	0.0
10- Oak Grove S. of Foothill	0.3
11- Windsor S. of Mountain View	0.7
12- Arroyo N. of Arbor	0.1
13- Arroyo N. of California	0.1

**TABLE 3.9.4.2.2-8
CNEL INCREASES DUE TO PROJECT
FOR WEEKEND EVENT NO. 2**

Location	CNEL Increase (dB)
1- Linda Vista S. of Mt. Vernon	0.1
2- Linda Vista S. of Charles St.	0.3
3- Linda Vista S. of Seco St.	0.0
4- Salvia Cyn. Rd. E. of Linda Vista	0.2
5- Rosemount N. of W. Washington	0.0
6- W. Washington E. of N. Arroyo	0.4
7- N. Arroyo E. of Rosemount	0.0
8- Seco E. of Rosemount	0.1
9- Rosemount S. of Seco	0.0
10- Oak Grove S. of Foothill	-
11- Windsor S. of Mountain View	-
12- Arroyo N. of Arbor	-
13- Arroyo N. of California	-

Noise level change of less than 3 dB would not normally be noticed by most people. Therefore, based on this analysis, CNEL increases due to traffic associated with the proposed increase from 16 special events per year to 25 special events per year would not exceed the level of significance.

Lower Arroyo Seco Master Plan

3.9.4.3.1 Significant Impacts

3.9.4.3.1.1 Operational Impacts

All of the operational elements of the Lower Arroyo Seco Master Plan (LAMP) element of the proposed project were analyzed by an acoustical engineer and it was determined that they would not create any significant noise impacts (Appendix E). Most of the elements planned for the Lower Arroyo Seco would be low-impact activities that would not significantly increase ambient noise levels.

3.9.4.3.1.2 Construction Impacts

Construction of the proposed improvement described in the LAMP element of the proposed project would be expected to result in short-term significant impacts to ambient noise levels within several hundred feet of locations where heavy equipment would be operating, thus requiring the consideration of mitigation measures.

3.9.4.3.3 Issues Found Not to be Significant

The recreation improvements proposed pursuant to the LAMP element of the proposed project would be consistent with the scope of existing used and would not constitute a new or different source of noise. Therefore, none of the operational elements of the Lower Arroyo Seco Master Plan would be expected to result in significant noise impacts.

3.9.5 Mitigation Measures

Measure Noise – 1

Construction impacts to ambient noise levels shall be minimized through limits on the times and days when construction shall be allowed. Prior to completion of final plans and specifications for each improvement recommended pursuant to HWP, CAMP, or LAMP elements of the proposed project that requires concurrent operation by more than one piece of heavy construction equipment, the City of Pasadena Department of Public Works shall ensure that the construction contractor is apprised of the plans and specifications of the requirement to ensure that all grading and construction activities shall be restricted to daily operations between 7:00 a.m. and 7:00 p.m. and that there shall be no work on Sundays or federal holidays. Enforcement shall be the

responsibility of the City of Pasadena Police Department.

Measure Noise – 2

Construction impacts to ambient noise levels shall be minimized through use of properly maintained heavy construction equipment. Prior to completion of final plans and specifications for each improvement recommended pursuant to HWP, CAMP, or LAMP elements of the proposed project that requires concurrent operation by more than one piece of heavy construction equipment, the City of Pasadena Department of Public Works shall ensure that the construction contractor is apprised of the plans and specifications of the requirement to ensure that all construction and grading equipment is 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. Enforcement shall be the responsibility of the City of Pasadena Department of Public Works, who shall undertake inspections on a random basis, at least at weekly intervals.

Measure Noise – 3

Construction impacts to ambient noise levels shall be minimized through requirements to shut down equipment motors when not in use. Prior to completion of final plans and specifications for each improvement recommended pursuant to HWP, CAMP, or LAMP elements of the proposed project that requires concurrent operation by more than one piece of heavy construction equipment, the City of Pasadena Department of Public Works shall ensure that the construction contractor is apprised of the plans and specifications of the requirement to ensure that all construction and grading equipment is turned off when not in use. Enforcement shall be the responsibility of the City of Pasadena Department of Public Works, who shall undertake inspections on a random basis, at least at weekly intervals.

3.9.6 Level of Significance After Mitigation

Implementation of Mitigation Measures Noise-1 through Noise-3 would minimize construction impacts on ambient noise levels at a distance of 100 feet from construction work sites to below the level of significance.