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## V. ENVIRONMENTAL IMPACT ANALYSIS

### F. NOISE

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#### ENVIRONMENTAL SETTING

##### Noise Descriptors and Definitions

Noise is defined as an unwanted sound and is an important factor in the quality of urban life. There are two main types of sound: ambient and intrusive. Ambient sound is the background sound that aggregates all sound emissions, far and near, as received within a particular locale. Intrusive sound is greater than the ambient sound level and is generally perceived as “noise.” The word “noise” conveys the psychological response of humans to the physical phenomenon of sound. Noise can also be defined as sound that causes adverse effects on people such as hearing loss or annoyance. In every case, noise involves the judgment of someone and puts noise in the realm of psychology, not physics.

Because sound (or noise) can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale similar to the Richter Scale is used to keep sound intensity numbers at a manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity (middle A and its higher harmonics) are factored more heavily into sound descriptions in a process called “A-weighting,” written as dB(A). Under controlled conditions in an acoustical laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA, when exposed to steady, single frequency (“pure tone”) signals in the mid-frequency range. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA outside of the laboratory.<sup>1</sup> To assist the reader in understanding the various noise descriptors, commonly used terms relating to noise are defined in Table V.F-1. Figure V.F-1 illustrates typical noise levels for common noise sources.

Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called  $L_{eq}$ ), or, alternately, as statistical descriptions of the sound level that exceed over some fraction of a given observation period. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL). An interior CNEL of 45 dB(A) is mandated for multiple family dwellings in Title 24 of the California Code of Regulations, and is considered a desirable noise exposure for single family dwelling units as well. Since typical sound attenuation within noise-sensitive structures such as homes, schools, medical facilities, etc. is about 15-20 dB, an exterior noise exposure of 60-65 dB CNEL is generally the noise/ land use compatibility guideline for new residential dwellings in California.

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<sup>1</sup> California Department of Transportation (Caltrans), *Technical Noise Supplement*, October 1998.

**Table V.F-1  
Commonly-Used Terms Relating To Noise**

<b>Terms</b>	<b>Definitions</b>
<b>Decibel (dB)</b>	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound level to a reference pressure (20 micro-pascals).
<b>A-Weighted Decibel (dBA)</b>	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the average human ear is between 2,000 and 4,000 cycles per second, or hertz.
<b>Equivalent Sound Level</b>	The sound level containing the same total energy as a time varying signal over a given time period. The $L_{eq}$ is a value that expresses the time-averaged total energy of a fluctuating sound level.
<b>Maximum Sound Level (<math>L_{max}</math>)</b>	The highest individual sound level (in dBA) occurring over a given time period.
<b>Minimum Sound Level (<math>L_{min}</math>)</b>	The lowest individual sound level (in dBA) occurring over a given time period.
<b>CNEL</b>	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. A + 4.77 dBA penalty is added to noise levels during the hours of 7:00 p.m. to 10:00 p.m. A + 10 dBA penalty is added to noise levels during the hours of 10:00 p.m. to 7:00 a.m.

### **Regional Conditions**

The Coliseum is located in an urbanized environment. The primary noise sources in the vicinity of the Coliseum are associated with traffic on the elevated Harbor Freeway (Interstate 110) as well as traffic on surface streets such as Vermont Avenue, Exposition Boulevard, Figueroa Street, and Martin Luther King Jr. Boulevard. The Coliseum is located within Exposition Park, which includes passive recreational spaces as well as County and State Museums. The majority of these areas are located north of the Coliseum. Within this park/institutional setting, the ambient noise environment is dominated by the Coliseum activities during special events. As stated previously in Section III, Project Description, the Coliseum currently operates with an average of 34 events per year (not including non-ticketed events).

**Figure V.F-1 Typical Noise Levels**

### **Sensitive Land Uses**

There are a number of land uses in the Coliseum vicinity that can be considered sensitive to noise. These uses include:

- Passive recreational and open space areas in Exposition Park north and east of the Coliseum.
- Los Angeles County and State Museums in Exposition Park, including the Rose Garden.
- Multi-family housing located on the east side of Figueroa Street north of 39th Street.
- Multi-family housing located on the south side of Martin Luther King Jr. Boulevard between Figueroa Street and Menlo Avenue.
- Multi-family housing located on the south side of Martin Luther King Jr. Boulevard between Menlo Avenue and Vermont Avenue.
- USC Parkside Dormitories located on the north side of Exposition Boulevard near Vermont Avenue.
- The Los Angeles Child Guidance Center on the west side of Vermont between 39<sup>th</sup> Street and 38<sup>th</sup> Street.

### **Noise Sources**

The noise produced at Coliseum events includes the following sources:

- Crowd noise (particularly yells and cheers at high attendance sports or concert events).
- Public Address System (amplified public announcements and/or play-by-play announcements).
- Amplified concert music.
- Traffic-related noise from motorists traveling to and from Coliseum events.
- Helicopters and other aircrafts covering events.

Noise generated at the Coliseum is largely contained within the bowl structure. There are circumstances and conditions, however, when the public address system or amplified concert music is discernible within Exposition Park. Infrequently, amplified sound generated at the Coliseum is

discernible (greater than five decibels above the ambient sound level) in surrounding residential areas. In the past, concert music at the Coliseum has been discernible for areas such as Baldwin Hills that are located as far as three miles away from the facility. The reasons for this are as follows:

- Baldwin Hills is on a direct line-of-sight to the top rim of the Coliseum. There are no intervening obstructions that would act as noise barriers.
- Noise complaints were received in the evening hours when other community noise sources were relatively low.
- Concerts that have been noticeable have had sound systems produce levels in excess of 110 decibels at the top rim of the Coliseum. At a distance of three miles (assuming the speaker cluster is located 500 feet from the rim of the Coliseum), noise levels of 80 decibels would occur.
- The rock concert sound spectrum tends to favor the lower sound wave frequencies created by drums and bass instruments. In the evening hours, similar to train noise, these lower frequencies are quite discernible when other community noise sources are relatively low.

For concerts using a central speaker cluster, located 500 feet or more from the rim of the Coliseum, a discernible change (five decibel increase above ambient) can be achieved three to four miles away in residential areas when the ambient residential noise levels are between 50-60 decibels and the sound level at the rim of the Coliseum ranges from 90-94 decibels.

### ***Amplified Concert Music***

As indicated elsewhere in this report, the Coliseum is host to major music concerts on average of three times per year. These events do not use the Coliseum sound system, which is not suited for music. The sound system for concerts consists of the use of a central speaker cluster located on or adjacent to the stage erected for the event. This central speaker cluster is sometimes reinforced by relays located on the Coliseum field. Relay speakers are often elevated eight to 12 feet above the Coliseum floor. The acoustical objective of these systems is to ensure that concert goers can discern the dynamic range of the music. It is typically expected that the sound level achieved at the listener for concert music, particularly popular or rock type music, would be in the 95 to 110 decibel range. The lower end of the range would be representative of ballad-type popular music while the upper end is representative of very loud rock or soul music.

In most instances the speaker system used for music concerts places the speakers at greater distances from the audience as compared to a public address system. The results of this mean that sound levels on the exterior of the Coliseum are higher for concerts than for public address announcements. For example, the public address system could produce a sound level of 95 decibels with speakers located

approximately 150 feet from the listener on the upper Coliseum rim. A central cluster concert could also produce 95 decibels for a listener at the rim of the Coliseum but the speakers would be typically located farther away (approximately 300 feet from the listener). For a location 500 feet from the speaker source (outside of the Coliseum), the resulting sound level for the public address system would be approximately 65 decibels (this assumes that the walls of the Coliseum would function as a noise barrier). By comparison, the sound level for the concert music at the same distance would be 71 decibels.

### ***Noise from Sporting Events***

As the Coliseum is mainly used for sporting events, and the main objective of the Proposed Project is to renovate the Coliseum to house a Los Angeles NFL team, the impact on noise created by such events is critical to evaluate. Ambient noise measurements were conducted in 2002 by Ove Arup & Partners which measured sound in and around the Coliseum during two separate football games and compared this with sound data collected during a non-event day at the Coliseum. The first football game occurred on November 16, 2002, between Arizona State University (ASU) and the University of Southern California (USC). This game had a recorded attendance of 63,241 persons, or approximately 70 percent of the Coliseum's maximum capacity. Acoustic measurements were also obtained during a game on November 30, 2002, between the University of Notre Dame (ND) and USC with a recorded attendance of 87,944 (approximately 95 percent capacity). The noise data for the non-event day at the Coliseum occurred on December 7, 2002. For each of the two games and the non-event day, Ove Arup & Partners recorded sound levels at five locations outside and one location inside the Coliseum. A description of the location and site characteristics for each of these receptor locations is provided in Table V.F-2. The locations of these six monitoring stations are depicted in Figure V.F-2.

Table V.F-3 summarizes the measurement duration for each receptor location during each recorded noise event. Table V.F-4 summarizes the main findings of the noise impact from the study. In three of the five recording stations outside the stadium (R2, R3, and R5), no audible Coliseum noise occurred during either football game. In the other two recording stations, R1 and R4, the percentage of time Coliseum noise was audible during the two games was minimal. The observed noise level from outside the Coliseum during the two football games ranged from 60 to 69 dBA, with the Coliseum press box recording station (R6) having obviously the highest noise levels of 84 and 86 dBA, respectively. It is a reasonable assumption that if the Proposed Project is constructed with a partial roof structure, it will absorb and reflect some of the noise produced inside the stadium, thus lowering the spill-over noise effect in the neighboring community. In addition, however, it must also be noted that helicopters associated with the football games were measured in the study. Such occurrences are directly attributable to the events at the Coliseum and thus contribute to the game day noise impacts. It was found that the helicopters produced sound at locations R1 through R5 that was noticeable for about 50% of the measurement times and reached sound levels of up to 70 dBA. Figure V.F-3 illustrates noise levels over time as measured at the Coliseum roof and at Location 4. The graphs display sound levels and their causes.

**Table V.F-2  
Sound Measurement Locations**

<b>Sound Measurement Location</b>	<b>Description of Location</b>	<b>Estimated Distance from the Coliseum</b>	<b>Intervening Structures</b>	<b>Existing Land Uses <sup>1</sup></b>
R1	Intersection of Wisconsin St. & 39 <sup>th</sup> Place	550	No	Residential- Single Family Homes
R2	Intersection of Menlo Ave. & W. 40 <sup>th</sup> Place	650	Yes	Residential- Apartments
R3	Intersection of W. 40 <sup>th</sup> Place & S. Hoover St.	550	No	Residential- Apartments
R4	702 W. 40 <sup>th</sup> Place	600	No	Residential- Mix of Single Family Homes and Apartments
R5	USC Watt Way Entrance	900	Yes	USC Campus
R6	Coliseum Press Box Roof	0	No	Coliseum

<sup>1</sup> Based on site observations of Ove Arup Acoustics.

Source: Ove Arup & Partners California Ltd. Los Angeles Memorial Coliseum Acoustics Report, December 2002.

### **Noise from Event-Related Traffic**

As discussed in Chapter V.I, Traffic, Access and Parking, the predominant mode of travel for Coliseum patrons is the automobile. Although there is considerable automobile activity prior to and following a Coliseum event, noise levels from this traffic are not significantly different from peak hour traffic noise. The reason for the relatively low increase in traffic noise is because of the lower vehicle speeds. Noise levels increase directly with vehicle speed. For example, 1,000 vehicles traveling at 35 miles per hour (mph) would produce a noise level of approximately 64 decibels at a distance of 50 feet. In comparison, vehicles operating in heavy traffic or congested conditions (approximately 15-20 mph) would produce noise levels of approximately 55-57 decibels. In terms of Coliseum events, field measurements and noise modeling from existing traffic volumes indicate that street traffic volumes can be as much as four to five times greater than typical non-event traffic volumes along Figueroa Street or Martin Luther King Jr. Boulevard without increasing ambient levels. The increase in event traffic is offset by the fact that the traffic is operating at extremely low speeds.

**Figure V.F-2 Location of Noise Receptor Sites**

**Figure V.F-3, Time History Correlation of Noise Levels During Football Games**

**Table V.F-3  
Sound Measurement Duration**

Sound Measurement Location	Measurement Duration (Start and Finish Times)		
	ASU vs. USC 11/16/02	Notre Dame vs. USC 11/30/02	No Event 12/07/02
R1	4:46 p.m. – 5:01 p.m.	5:30 p.m. – 5:45 p.m.	5:20 p.m. – 5:35 p.m.
R2	5:16 p.m. – 5:31 p.m.	5:51 p.m. – 6:06 p.m.	5:39 p.m. – 5:54 p.m.
R3	5:38 p.m. – 5:53 p.m.	6:09 p.m. – 6:24 p.m.	5:57 p.m. – 6:12 p.m.
R4	6:03 p.m. – 6:18 p.m.	7:08 p.m. – 7:23 p.m.	6:13 p.m. – 6:28 p.m.
R5	6:31 p.m. – 6:46 p.m.	7:44 p.m. – 7:59 p.m.	6:43 p.m. – 6:58 p.m.
R6	3:45 p.m. – 7:19 p.m.	5:12 p.m. – 8:20 p.m.	N/A

*Source: Ove Arup & Partners California Ltd. Los Angeles Memorial Coliseum Acoustics Report, December 2002.*

## ENVIRONMENTAL IMPACTS

### Thresholds of Significance

Construction-related impacts would be significant if, as indicated in the City of Los Angeles Noise Ordinance (No. 156,363), a noise-sensitive use is located within 500 feet of the Project Site and on-site construction noise levels exceed 75 dBA, measured 50 feet from the source.

For purposes of this analysis, a significant operational noise impact would occur if the Proposed Project causes an increase in ambient noise by 5 dBA, thus causing a violation of the City Noise Ordinance.

### Project Impacts

#### ***Construction-Related Noise***

The Proposed Project is anticipated to be constructed over an 18-20-month period. Construction noise would be generated on-site, within the Coliseum and surrounding perimeter grounds, and off-site as a result of construction equipment and haul trucks entering and leaving the site. As shown in Table V.F-5, outdoor construction noise levels at a distance of 50 feet from the source can range from 78 dBA  $L_{eq}$  to 89 dBA  $L_{eq}$  without any noise attenuating devices (e.g., mufflers, sound walls, etc.). With the use of mufflers, typical construction-related noise levels can range from 77 dBA  $L_{eq}$  to 86 dBA  $L_{eq}$  at a 50 feet

distance from the source.<sup>2</sup> The impact of demolition and construction noise from within the Coliseum would be reduced by the fact that the existing walls of the Coliseum will act as sound attenuation barriers. With an attenuation factor of up to 10 dBA for the exterior wall of the Coliseum breaking the line-of-sight from the noise source to surrounding areas, noise levels would be reduced to approximately 79 dBA at a distance of 50 feet from the source. Noise generated by the demolition of the outbuildings and other landscaping improvements outside the Coliseum would not be attenuated, as there are no intervening structures or obstacles separating the Coliseum grounds from the rest of Exposition Park. The nearest sensitive receptors within Exposition Park that would be affected by construction noise are the Senior Center and Child Care Center within the newly constructed Intergenerational Community Center (EPICC), the California Science Center, and the open space areas on the south lawn fronting the Natural History Museum. Portions of these uses are within 100 feet of the proposed active construction areas and will experience significant noise levels (above 75 dBA).

As a matter of distance and spherical spreading of sound energy, noise energy is attenuated by a factor of 6 dBA for each doubling of distance. As such, noise levels would be on the order of 69 dBA at a distance of 100 feet from the perimeter of the Coliseum, decreasing to a level of 63 dBA at a distance of 200 feet from the Project Site. Other sensitive uses within Exposition Park would not be exposed to significant construction noise levels. Since the properties adjacent to Exposition Park west of Vermont Avenue and south of Martin Luther King Jr. Boulevard are farther than 500 feet from the Coliseum, sensitive uses in those areas would not experience significant noise impacts from on-site construction activities.

Off-site construction noise will likely result from the ingress and egress of haul trucks used to transport excavated materials. Based upon preliminary estimates, approximately 250,000 cubic yards of earth and building material are estimated to be excavated and removed from the site during the construction process. The demolition and excavation process is anticipated to last approximately 6 months. Given the expansive parking areas associated with the Coliseum, haul trucks will not have to queue in any residential area or adjacent to any museum or park areas. Assuming the use of tandem bottom dump trucks with a hauling capacity of 15 cubic yards per truck, the demolition/excavation phase of the Proposed Project would generate approximately 118 haul trips per day, or up to 15 haul truck trips per hour. These trucks, however, will not use residential streets for access. The most direct and likely haul route from the site is from Martin Luther King Jr. Boulevard eastward to the Harbor Freeway.<sup>3</sup> There is one sensitive land use along this route, which is a multi-family housing project (Gilbert Lindsey Manor). Martin Luther King Jr. Boulevard east of Menlo Avenue experiences 32,310 car trips

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<sup>2</sup> USEPA, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, PB 206717, 1971.

<sup>3</sup> *The final haul route will be determined in consultation with the Los Angeles Department of Transportation, prior to the construction process.*

**Table V.F-4**  
**Sound Measurements (in dBA) and Percentage of Audible Noise from the Coliseum**

Sound Measurement Location <sup>a</sup>	L <sub>eq</sub> in dBA (15 minutes)			% Time Noise Audible (Over Meas. Time)		Notes <sup>b</sup> Field Observations
	ASU vs. USC	Notre Dame vs. USC	No Event	ASU vs. USC	Notre Dame vs. USC	
R1	69	64	64	13%	13%	<ul style="list-style-type: none"> <li>Announcer is <u>clearly heard</u> (PA System)</li> <li>Crowed cheer is <u>audible</u></li> <li>Referee whistle and band also <u>heard</u></li> <li>General ambient noise is primarily due to traffic on Vermont Ave. and 39<sup>th</sup> Place, residents talking and street music</li> </ul>
R2	61	66	59	0%	0%	<ul style="list-style-type: none"> <li>Noise directly from Coliseum <u>not audible</u></li> <li>Buildings block line-of-sight to Coliseum</li> <li>General ambient noise is mainly due to traffic on Martin Luther King (MLK) Jr. Blvd. and children playing</li> </ul>
R3	67	58	66	0%	0%	<ul style="list-style-type: none"> <li>Coliseum noise is <u>not audible</u> during ASU game</li> <li>Band is barely heard at this location during Notre Dame game</li> <li>General ambient noise was from traffic on MLK Jr. Blvd.</li> </ul>
R4	61	64	64	4%	6%	<ul style="list-style-type: none"> <li>Announcer's voice (PA system) is fairly <u>audible</u>, but muffled</li> <li>Crowd and band can also be heard (faintly)</li> <li>General ambient noise was from traffic on MLK Jr. Blvd.</li> </ul>
R5	60	65	63	0%	0%	<ul style="list-style-type: none"> <li>Coliseum is <u>not audible</u> at this location due to distance</li> <li>Exposition Blvd. was closed to thru traffic during both games thus lower general ambient sound levels are recorded during the games</li> <li>During the games general ambient noise was primarily from row of idling buses parked along the Exposition Park near the USC campus</li> </ul>
R6	84	86	N/A	100%	100%	

<sup>a</sup> See Figure V.F-2 for a map showing the physical location of these measurements and Table V.F-2 for location addresses.

<sup>b</sup> Helicopters associated with the football game produced sound at locations R1 through R5 that was noticeable for about 50% of the measurement times and reached sound levels up to 70 dBA.

Source: Ove Arup & Partners California Ltd. Los Angeles Memorial Coliseum Acoustics Report, December 2002.

**Table V.F-5  
Outdoor Construction Noise Levels**

Construction Phase	Duration <sup>b</sup>	Noise Levels (dBA L <sub>eq</sub> ) <sup>a</sup>	
		at 50 Feet (dBA L <sub>eq</sub> )	at 50 feet with Mufflers (dBA L <sub>eq</sub> )
Ground Clearing/Demolition	12 weeks	84	82
Excavation, Grading	12 weeks	89	86
Foundations	28 weeks	78	77
Structural	52 weeks	85	83
Finishing	26 weeks	89	86

<sup>a</sup> USEPA, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, PB 206717, 1971.

<sup>b</sup> The construction phasing is based on a 18-20-month (approx. 1.5 year) construction schedule and is approximate and subject to change.

Source: Christopher A. Joseph & Associates, 2003.

per day.<sup>4</sup> As depicted in Table V.F-4, the ambient noise levels along Martin Luther King Jr. Boulevard on days when no Coliseum events are scheduled range from 59 to 66 dBA. Previous studies along the same roadway segment have noted much higher ambient levels (i.e., up to 70.9 dBA) along this roadway segment.<sup>5</sup> Haul trucks can generate noise levels up to 85 dBA at a distance of 50 feet. The combined effect of the haul trucks and the existing volume of cars traveling along Martin Luther King Jr. Boulevard would have the potential to increase the ambient noise levels by more than 15 dBA on an intermittent basis between 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays, for approximately 24 weeks.<sup>6</sup> This would result in a relatively short-term and temporary noise impact for this sensitive receptor.

### ***Coliseum Event Noise***

At this preliminary stage in the design of the Proposed Project, information on the future sound system is conceptual in nature and subject to change. However, it is expected that the basic sound reinforcement system would provide coverage to:

<sup>4</sup> *Exposition Park Intergenerational Community Center Environmental Impact Report, Community Redevelopment Agency of the City of Los Angeles, January 1999, (Table 15).*

<sup>5</sup> *Ibid (Table 16).*

<sup>6</sup> *The referenced times and days of construction noise are based on compliance with the City of Los Angeles Municipal Code Noise Ordinance, Chapter IV, Section 41.40.*

- All ticketed seats within the stadium.
- Press box areas.
- Public areas such as concourse areas, concession areas, rest rooms, elevators and offices.
- Private boxes, lounges and suites.
- Ticket booth areas.
- College and NFL team lockers.

The design for the stadium would include a distributed sound system including hundreds of small sound speakers throughout the stadium and concourse areas. The arrangement and location of speakers would be designed to provide intelligible and clear sound coverage throughout the stadium seating areas with sufficient quality to allow reinforcement of a music program. The loudspeaker system would be developed and oriented to direct speakers in a manner that would minimize sound reflections, and the creation of echoes, from the structure. In addition, as part of the Proposed Project, a tensile fabric canopy would be erected above the north and south seating areas which would help absorb and deflect noise produced during an event.

Currently the Coliseum utilizes a typical older sound system, having one or two “sound clusters” that operate at high volumes to service the entire stadium. With distributed sound systems, hundreds of small speakers positioned throughout the stadium would require lower volumes to provide clear and audible sound. Since individual speakers would be placed closer to the patrons, the sound volume would be much lower than with the current sound cluster system. It should be noted that it is unlikely that the improved public address system or “house system” would be utilized as the main speakers for concert events. Typically, each concert holder sets up their own free-standing central speaker cluster system with relays located on and adjacent to the performance stage. The improvement of musical sound through the public address system would largely improve the intelligibility of band music during football games. It is anticipated that the intermittent public address system noise would be discernible (a three to five decibel change) in the portions of Exposition Park shielded from street traffic with ambient noise levels in the 55-60 decibel range. For areas affected by street traffic (residences on the east side of Figueroa Street and on the west side of Vermont Avenue), public address system noise would be masked by this traffic (ambient levels 65-70 decibels) and would not result in a three to five decibel change above ambient conditions. Noise sources during special events and football games would be substantially similar to the levels that are currently generated during events held at the Coliseum. Football events and music concert noise is likely to exceed ambient conditions by five decibels in residential adjacent areas (including Baldwin Hills) during off-peak traffic times when noise levels in surrounding communities are low. As a result, some residents may continue to occasionally find evening concert noise intrusive or annoying. However, as the Proposed Project involves the renovation of an existing recreational facility that already creates significant noise impacts, and the Project would not increase the intensity of crowds, the Project’s operational noise impacts for any one

event would be reduced and thus considered less than significant. Additionally, the increase in the annual use of the Coliseum with an additional 12 events added to the typical event schedule would be less than significant.

### ***Noise from Event Traffic***

The maximum attendance at any one event at the Coliseum under the Proposed Project would be less than the recorded attendance level at the ND vs. USC football game had a recorded attendance of 87,944 persons. Therefore, sound levels recorded during this single event are representative of a worst-case scenario and exceeds the future capacity of the Coliseum by approximately 9,944 persons. Continued use of the Coliseum would result in ongoing nuisance noise effects similar to existing conditions. Such nuisances include loud voices from patrons leaving or returning to their cars, door slams, automobile alarms, automobile horns and radios, and engine run-ups. While it is highly unlikely that the Proposed Project would increase traffic-related noise levels above the existing maximum noise levels, the number of events, or days in which high noise levels are experienced, would be expected to increase by approximately 35 percent, or an additional 10-12 events a year. Since the Proposed Project involves the renovation and re-use of an existing recreational facility that already creates significant noise impacts, and the project would not increase the intensity of crowds, and would not substantially increase the existing average annual usage of venue, the Project's operational noise impacts from event-related traffic would be less than significant.

## **CUMULATIVE IMPACTS**

Short-term cumulative construction-noise impacts in the immediate vicinity of the Project Site could occur if related projects in close proximity to the Project Site are under construction during the same time period as the Proposed Project. A number of renovation and expansion projects within Exposition Park are currently planned or underway. Such projects are detailed in Section IV.C, Related Projects and include the following: #28 - Manual Arts New Elementary School, #30 - California Science Center Phase II & III Expansion, #31 - Science Museum School and Science Education Resource Center, #32 - California Science Center/African American Museum Parking Structure, #33 - Exposition Park Intergenerational Community Center (EPICC), and #37 - renovation and expansion of the Natural History Museum. The combined effect of these related projects in addition to the Proposed Project would result in cumulatively considerable noise impacts. However, the construction process for each of these related projects would not coincide as each project is involved with unrelated project teams and schedules. For example, the EPICC Center and California Science Center/African American Museum Parking Structure are near completion and would be operational by time construction commences on the Proposed Project. In other instances, such as for the Natural History Museum Expansion, the construction process would likely be delayed until after the Proposed Project is completed, as it is currently in the initial planning process and dependent upon future funding. The impacts of these cumulative projects, however, were previously analyzed in the Exposition Park Master Plan EIR, which

concluded that with adherence to the City's Noise Ordinance regulations, along with implementation of reasonable noise reduction control measures during the construction process, cumulative noise impacts would be less than significant.

Future traffic growth and associated noise from related projects would not result in significant changes in ambient noise levels. As mentioned previously, the traffic patterns around the Coliseum are dramatically altered during periods when Coliseum events are scheduled. As a result, the incremental effect of ambient traffic growth and traffic growth generated by the related projects is diminished as a result of lower traffic speeds and altered roadway patterns (road closures and detours). Since the Proposed Project will reduce the seating capacity of the Coliseum, the average number of vehicles generated by Coliseum events would not substantially alter the traffic-related noise levels that are currently generated prior to and after Coliseum events. Cumulative noise impacts from traffic would therefore be less than significant.

## **MITIGATION MEASURES**

1. The Applicant shall comply with the construction hours as specified by the City LAMC Noise Ordinance, Chapter IV, Section 41.40., which prohibits construction before 7:00 a.m. or after 6:00 p.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday or any national holiday, and at anytime on Sunday.
2. The Applicant shall prepare a construction-related traffic plan detailing proposed haul routes and staging areas for the transportation of materials and equipment, with consideration for sensitive uses in the neighborhood. A traffic and parking plan for the construction phase will be submitted for approval by LADOT and the Department of Building and Safety prior to the issuance of any permits.
3. Adjacent museums and residents shall be given regular notification of major construction activities and their durations. A visible and readable sign (at a distance of 50 feet) shall be posted on the construction site identifying a telephone number where residents can inquire about the construction process and register complaints.
4. During construction, the Project contractors shall muffle and shield intakes and exhaust, shroud and shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible.
5. The perimeter of the Project Site (including the ancillary outbuildings proposed to be demolished) shall be enclosed with a temporary barrier wall for security and noise protection purposes. This barrier wall shall consist of a solid, heavy vinyl material or ¾-inch plywood positioned to block direct line of sight from the active construction areas and other open space areas and sensitive uses within Exposition Park.

## **LEVEL OF IMPACT AFTER MITIGATION**

Based on the analysis above, significant construction noise impacts would result from construction activities in close proximity to two sensitive land uses within Exposition Park, the new Senior Citizen and Child Care Centers to be opened within EPICC, and the south lawn fronting the Natural History Museum. These areas could be exposed to noise levels of up to 75 dBA during the construction period. Implementation of the noise reduction measures listed above (i.e., construction of a temporary sound attenuation barrier during the construction process) and compliance with the City of Los Angeles Noise Ordinance (Section 41.40) would reduce construction-related noise impacts to less than significant levels.

While no new significant operational noise impacts would occur as a result of the Proposed Project, the recommended mitigation measures listed above would act to further reduce the operational noise impacts that already occur during major Coliseum events.