4. ENVIRONMENTAL IMPACT ANALYSIS
9. NOISE

1. INTRODUCTION

This section evaluates the potential for construction (short term) and operational (long term) noise impacts resulting from implementation of the Proposed Project. This includes the potential for the Project to result in impacts associated with a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the Project Site; exposure of people in the vicinity of the Project Site to excessive noise levels; and whether this exposure is in excess of standards established in the local general plan or noise ordinance. Mitigation measures intended to reduce the Proposed Project's noise impacts are proposed, where appropriate, to avoid or reduce significant impacts of the Proposed Project.

Data used to prepare this analysis were obtained from the City of Malibu General Plan Noise Element, the City Municipal Code, and by measuring and modeling existing and future noise levels at the Project Site and the surrounding land uses.

a. Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Since the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by emphasizing frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound audible at such a level that the sound becomes an undesirable by-product of society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, causes actual physical harm, or has an adverse health effect. The definition of noise as unwanted sound implies that it has an adverse effect, or causes a substantial annoyance, to people and their environment. However, not every unwanted audible sound interferes with normal activities, causes harm, or has adverse health effects. For unwanted audible sound, i.e. noise, to be considered adverse, it must occur with sufficient frequency and at such a level that these adverse impacts are reasonably likely to occur. Thresholds of significance (set forth below) are established to differentiate between benign unwanted audible sound and potentially significant and adverse unwanted audible sound.

A typical noise environment consists of a base of steady ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 4.9.1, Representative Environmental Noise Levels, illustrates representative noise levels in the environment.

Table 4.9.1
Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

Source: California Department of Transportation, Technical Noise Supplement, October 1998.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. Those that are applicable to this analysis are as follows:

- L_{eq} – An L_{eq}, or equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

- L_{max} – The maximum instantaneous noise level experienced during a given period of time.

- L_{min} – The minimum instantaneous noise level experienced during a given period of time.

- CNEL – The Community Noise Equivalent Level is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 P.M. to 10:00 P.M. and a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the evening

and nighttime, respectively. The logarithmic effect of these additions is that a constant 60 dBA 24 hour L_{eq} would result in a CNEL of 66.7 dBA.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day, night, or over a 24-hour period. For residential uses, environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60–70 dBA range, and high above 70 dBA. Frequent exposure to noise levels greater than 85 dBA over time can cause temporary or permanent hearing loss. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet suburban residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate level noise environments are urban residential or semi-commercial areas (typically 55–60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60–75 dBA) or dense urban or industrial areas (65–80 dBA).

It is widely accepted that in the community noise environment the average healthy ear can barely perceive CNEL noise level changes of 3 dBA. CNEL changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA CNEL increase is readily noticeable to most people, while the human ear perceives a 10 dBA CNEL increase as a doubling of sound. However, there is no direct correlation between increasing or even doubling noise-generating uses and what is detectable by the human ear as an increase in noise level. The human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound volume, but doubling the sound energy, i.e., the noise-generating activity, only results in a 3 dB(A) increase in sound. This means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level to the human ear. Thus, relatively sizeable increases in baseline noise generation are not necessarily perceived as significant noise increases by the human ear.

Noise levels from a particular source generally decline as distance to the receptor increases. Other factors, such as the weather and reflective barriers, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source (assume a starting point of 50 feet), the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels are also generally reduced by about 1 dBA for each 1,000 feet of distance due to air absorption. Noise levels may also be reduced by intervening structures – generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 10 dBA. The

normal noise attenuation within residential structures with open windows is about 17 dBA, while the noise attenuation with closed windows is about 25 dBA.[1]

2. ENVIRONMENTAL SETTING

a. Regulatory Framework

(1) Federal Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Proposed Project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise.

(2) State Standards

The California Department of Health Services has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility were incorporated by reference into the City's Noise Element and are shown in Table 4.9.2, Community Noise Exposure (CNEL). In addition, Section 65302(f) of the California Government Code requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

(3) Local

(a) City of Malibu Noise Regulations

The City of Malibu Municipal Code (M.M.C.) Noise Control Ordinance of the City of Malibu sets allowances and defines what noise uses are permitted under a given set of circumstances. Under M.M.C. Section 8.24.050(g) construction activities between the hours of 7:00 PM and 7:00 AM on weekdays, before 8:00 AM or after 5:00 PM on Saturday, or at any time on Sundays or holidays constitutes a violation of the Noise Control Ordinance (City of Malibu, 2009). However, M.M.C. Section 8.24.060(D) states that under special circumstances, construction exemptions from the time restrictions established by M.M.C. Section 8.24.050 may be granted with the express written permission of the City Manager. The Applicant must submit an application to the City Manager in writing stating the facts and reasons for the

[1] *National Cooperative Highway Research Program Report 117, Highway Noise: A Design Guide for Highway Engineers, 1971.*

Table 4.9.2
Community Noise Exposure (CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	above 75
Multi-Family Homes	50 - 65	60 - 70	70 - 75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 - 70	70 - 80	above 75
Auditoriums, Concert Halls, Amphitheaters	---	50 - 70	---	above 70
Sports Arena, Outdoor Spectator Sports	---	50 - 75	---	above 75
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business and Professional Commercial	50 - 70	67 - 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	above 75	---

[a] Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
[b] 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 included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
[c] Normally Unacceptable: 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.
[d] Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: City of Malibu General Plan Noise Element (1995), Figure N-2: Noise and Land Use Compatibility Guidelines, and California Department of Health Guidelines for the Preparation and Content of Noise Elements of the General Plan, February 1976.

request, and the City Manager may approve the request according to specific criteria outlined in the Section. Pursuant to M.M.C. Section 8.24.060(A), the emission of sound for the purpose of alerting persons to the existence of an emergency or the emission of sound in the performance of emergency work is exempt from the provisions of the Noise Control Ordinance. Additionally, M.M.C. Section 8.24.060(C) exempts activities conducted on public playgrounds and public or private school grounds including but not limited to school athletic and school entertainment events from the limits established in the Noise Control Ordinance.

(b) City of Malibu General Plan Noise Element

The Noise Element of the City of Malibu General Plan addresses the issue of noise by identifying common sources of noise in the City and providing objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment. The goals, objectives, and policies of the City's General Plan are to ensure that new development is compatible with existing land uses, and alternately, to

ensure that new developments are sited, designed and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development.

As shown in Table 4.9.3, below, the City of Malibu General Plan has established maximum exterior noise limits for non-transportation-related sources (categorized by zone). For the Institutional Zone, the established maximum exterior noise limits for non-transportation-related sources ranges from 60 dBA L_{eq} / 70 dBA L_{max} during the daytime hours (7:00 a.m. to 7:00 p.m.) to 65 dBA L_{eq} / 85 dBA L_{max} during the evening hours (7:00 p.m. to 10:00 p.m.). No restrictions are set in place from 10:00 p.m. to 7:00 a.m., as institutional land uses are generally not occupied during this time period.

Table 4.9.3
Maximum Exterior Noise Limits for Non-Transportation Sources

Receiving Land Use Category	General Plan Land Use Districts	Time Period	Noise Level dBA	
			L_{eq}	L_{max}
Rural	All RR Zones and PRF, CR, AH, OS	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 40	75 65 55
Other Residential	All SFR, MFR, and MFBF Zones	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45	75 65 60
Commercial, Institutional	CN, CC, CV, CG, and I Zones	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m.	65 60	85 70

Source: City of Malibu General Plan, Noise Element, Table 6-4, (1995).

As shown in Table 4.9.4, below, the City of Malibu General Plan has established maximum allowable noise exposure levels from transportation sources for outdoor areas and indoor areas (categorized by land use). The maximum allowable noise exposure from transportation sources for office buildings, schools, and libraries is 60 dBA (L_{dn}/CNEL, dB). The maximum allowable noise exposure from transportation sources for residential areas is decreased to 50 dBA (L_{dn}/CNEL, dB), and for playgrounds and neighborhood parks the maximum allowable exposure level is increased to 70 dBA (L_{dn}/CNEL, dB). The allowable noise exposure level for interior spaces within residential land uses is 45 dB (L_{dn}/CNEL, dB). For office, school, and library land uses the allowable interior noise exposure level is 45 dB (L_{eq}/CNEL, dB) as determined for a typical worst-case hour during periods of use.

Table 4.9.4
Maximum Allowable Noise Exposure From Transportation Sources

Land Use	Outdoor Activity Areas [a] L_{dn}/CNEL/dB	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}/dB [b]
Residential	50 [c]	45	--
Transient Housing	60 [c]	45	--
Hospitals, long-term patient medical treatment and care facilities	60 [c]	45	--
Theaters, auditoria, music halls	60 [c]	--	35
Churches and meeting halls	60 [c]	--	40
Office Buildings	60 [c]	--	45
Schools, libraries, and museums, child care	60 [c]	--	45
Playgrounds and neighborhood parks	70	--	--

Notes:
[a] *Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.*
[b] *As determined for a typical worst-case hour during periods of use.*
[c] *Where it is not possible to reduce noise in outdoor activity areas to 50 dB L_{dn}/CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.*
Source: City of Malibu General Plan, Noise Element, Table 6-4, (1995).

The maximum exposure noise levels cited in Tables 4.9.3 and 4.9.4, above, are consistent with the U.S. Environmental Protection Agency (USEPA) protective noise levels for the most sensitive receptors. The Noise Element goals, objectives, and policies that are relevant to the Proposed Project are identified below.

Noise (N) Goal 1: Acceptable Noise Levels.

N Objective 1.1 A comprehensive noise control program.

N Policy 1.1.1: The City shall protect residences, parks, and recreational areas from excessive noise to permit the enjoyment of activities;

N Policy 1.1.2: The City shall protect noise sensitive land uses from negative impacts of proximity to noise generating uses;

N Policy 1.1.3: The City shall reduce noise along PCH;

N Policy 1.1.4: The City shall work with businesses and residents in a joint effort to plan, control, and attain an acceptable noise environment;

N Policy 1.1.5: The City shall encourage new construction and remodels which utilize designs and materials that reduce exposure to noise sources; and

N Policy 1.1.6: The City shall review proposed development to ensure the average ambient noise is as low as feasible to maintain the rural atmosphere.

b. Existing Conditions

(1) Existing Ambient Daytime Noise Levels

The Project Site is currently improved with the former Los Angeles County Sheriff's Station, which was decommissioned in the early 1990s. The Project Site consists of an approximately 2.94 acre irregularly shaped ground lease area within the larger 9.18-acre Los Angeles County-owned and operated Civic Center complex. The existing portions of the Malibu Civic Center complex that include the Los Angeles County Superior Court and Public Works buildings, the helipad, the newly renovated library, and associated parking and maintenance areas are located outside of the Project Site. To establish baseline noise conditions, existing daytime noise levels were monitored at surrounding locations within 500 feet of the Project Site.

The noise survey was conducted using a Larson-Davis 824 precision noise meter, which exceeds the minimum industry standard performance requirements for "Type 1" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. This noise meter complies with "Type S2A" standard instruments or better, and was calibrated and operated according to the manufacturer's written specifications. At the measurement sites, the microphone was placed at a height of approximately five feet above the local grade.

At the noise measurement locations, listed in Table 4.9.5, Existing Daytime Noise Levels, the sound level meter was programmed to record the average sound level (L_{eq}) over a cumulative period of 15 minutes. The average noise levels and sources of noise monitored at these locations are shown below in Table 4.9.5, with the locations displayed on Figure 4.9.1, Noise Monitoring Location Map.

Table 4.9.5
Existing Daytime Noise Levels

Noise Measurement Location	Primary Noise Sources	Noise Level Statistics		
		L_{eq}	L_{min}	L_{max}
1. Eastern driveway near Malibu Public Library.	Traffic on Civic Center Way and parking lot/pedestrian activity.	62.6	45.4	75.8
2. Western driveway on Project Site.	Traffic on Civic Center Way and parking lot/pedestrian activity.	60.9	47.9	73.0
3. Courtyard area within the Project Site near the Malibu Courthouse.	Pedestrian activity.	50.1	43.9	67.3

Source: Parker Environmental Consultants, noise measurements collected on 8/16/2012. See also Figure 4.9.1, Noise Monitoring Location Map. Noise measurement data sheets are provided in Appendix I.

LEGEND

[#] Noise Monitoring Locations

Aerial Source: Google Earth, August 2012.

PARKER ENVIRONMENTAL CONSULTANTS

NORTH

0 100 200

Scale (Feet)

Figure 4.9.1
Noise Monitoring Location Map

3. ENVIRONMENTAL IMPACTS

a. Methodology

The City of Malibu General Plan Noise Element recognizes that certain land uses are more sensitive to increases in ambient noise levels than others. These noise sensitive land uses include single and multiple family residences, schools, libraries, medical facilities, retirement and rest homes, and places of religious worship. For purposes of this analysis, the adjacent Malibu Public Library and residences located north of the Project Site on Harbor Vista Drive and Colony View Circle have been identified as noise-sensitive uses. The Malibu Public Library is located approximately 180 feet to the east of the Project Site. The residences to the north are located over 1,000 feet from the Project Site. However, due to the topographical gradient and direct line of sight between the Project Site and the residences, these sensitive land uses were identified as being within the potential areas of noise impact.

Implementation of the Proposed Project could result in the introduction of noise levels that may exceed permitted City noise levels. The primary sources of noise associated with the Proposed Project would be construction activities at and around the identified campus locations and project-related traffic volumes associated with operation of the Proposed Project. Secondary sources of noise would include new stationary sources (such as heating, ventilation, and air conditioning (HVAC) units) and increased human activity throughout the Proposed Project. The net increase in project noise levels generated by these activities and other sources have been quantitatively estimated and compared to the applicable noise standards and thresholds of significance. Construction noise levels were estimated by data published by the U.S. Environmental Protection Agency (U.S. EPA). Potential noise levels are identified for off-site locations that are sensitive to noise, including existing residences.

Roadway noise levels have been calculated for selected study street segments around the identified campuses of the Proposed Project. As previously noted, the noise levels were calculated using the FHWA Model and have been modified to reflect average vehicle noise rates identified for California by Caltrans.

b. Thresholds of Significance

(1) Appendix G to the State CEQA Guidelines

In accordance with Appendix G to the State *CEQA Guidelines*, the project would have a significant impact on noise if it would cause any of the following conditions to occur:

(a) 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;

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airstrip, expose people residing or working in the project area to excessive noise levels; or

(f) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

With respect to checklist questions (e) and (f), the Initial Study prepared for the Project (see Appendix A to this Draft EIR) concluded that the Project Site is not located within an airport land use plan or private airstrip. Therefore, no impact would occur and no further analysis of this issue is required.

Construction-related impacts would be significant if the Proposed Project results in exposure of persons to or generation of noise in levels in excess of the maximum exterior noise limits for non-transportation sources as identified in Table 4.9.3, above.

With respect to operational noise, project-related activities associated with the emergency operations of the proposed Sheriff's Station and any outdoor activities and entertainment events within the campus are exempt from the City's Noise Control Ordinance (See M.M.C. Section 8.24.060(A) and 8.24.060(C). For the Project's mobile noise sources, a significant noise impact would result if the Project's mobile source noise impacts exceed the maximum allowable noise exposure levels for transportation related noise levels as identified previously in this Section in Table 4.9.4.

c. Project Impacts

(1) Construction Noise

Construction of the Proposed Project would require the use of heavy equipment for the demolition of the existing on-site structures, grading/site preparation, installation of new utilities, and building fabrication for the proposed development. Development activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development, a different mix of equipment would be operating and noise levels would vary based on the amount of equipment in operation and the location of the activity.

The U.S. EPA has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities. The data pertaining to the types of construction equipment and activities that would occur at the Project Site are presented in Table 4.9.6, Noise Range of Typical Construction Equipment, and Table 4.9.7, Typical Outdoor Construction Noise

Table 4.9.6
Noise Range of Typical Construction Equipment

Construction Equipment	Noise Level (dBA L_{eq} at 50 Feet) [a]
Front Loader	73-86
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Vibrator	68-82
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammers	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Back Hoe	73-95
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88

[a] *Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.*

Source: United States Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Levels, respectively, at a distance of 50 feet from the noise source (i.e., reference distance). The noise levels shown in Table 4.9.7 identify representative noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. As shown in Table 4.9.7, construction noise during the heavier initial periods of excavation and grading can reach up to 86 dBA L_{eq} when measured at a reference distance of 50 feet from the center of construction activity.[2] These noise levels would diminish notably with distance from the construction site at a rate of 6 dBA per doubling of distance at acoustically hard locations (i.e., within the developed area of the Civic Center), and up to 7.5 dBA per doubling of distance at acoustically soft environs (i.e., the vegetated hillside to the north). For example, a noise level of 86 dBA L_{eq} measured at 50 feet from the noise source to the receptor at a hard location would decline to 80 dBA L_{eq} at 100 feet from the source to the receptor, and fall by another 6 dBA L_{eq} to 74 dBA L_{eq} at 200 feet from the source to the receptor. These noise attenuation rates assume a flat and unobstructed distance between the noise generator and the receptor. Intervening structures, temporary noise barriers, and vegetation would further attenuate the noise level.

[2] *Although the peak noise levels generated by certain construction equipment may be greater than 86 dBA at a distance of 50 feet, the equivalent composite noise level would be approximately 86 dBA L_{eq} (i.e., the equipment does not operate at the peak noise level over the entire duration).*

Table 4.9.7
Typical Outdoor Construction Noise Levels

Construction Phase	Noise Levels at 50 Feet with Mufflers (dBA L_{eq})	Noise Levels at 100 Feet with Mufflers (dBA L_{eq})	Noise Levels at 200 Feet with Mufflers (dBA L_{eq})
Ground Clearing	82	76	70
Excavation, Grading	86	80	74
Foundations	77	71	65
Structural	83	77	71
Finishing	86	80	74

Source: United States Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Due to the use of construction equipment, surrounding land uses would be exposed to increased ambient exterior noise levels. For purposes of this analysis, the sensitive noise receptors are identified as the Malibu Public Library, located east of the Project Site within the Civic Center, and the residential homes on Harbor Vista Drive and Colony View Circle, to the north of the Project Site. The remaining non-sensitive land uses located within 500 feet of the Project Site include undeveloped vacant properties to the west and north, the County of Los Angeles Public Works building, to the east, and Legacy Park to the south across Civic Center Way. The Malibu Courthouse is vacant and thus would not be affected by construction noise. Table 4.9.8, Exterior Noise Levels at Off-Site Sensitive Uses From Project Construction, shows the peak composite construction noise levels that would occur at off-site land uses during construction at the Project Site. As shown in Table 4.9.8, the Project's construction noise impacts would exceed the maximum allowable exterior noise levels for non-transportation sources at the County Public Works building, the Malibu Public Library, and Legacy Park. The construction noise levels would be below the threshold for the residential land uses to the north. Thus, the Proposed Project's construction noise impacts would be considered a significant impact on a short term and intermittent basis during the construction period.

(3) Operational Noise

(a) Traffic Noise

During the Proposed Project's operational phase, noise would primarily be generated by traffic associated with implementation of the Project. The Proposed Project's mobile noise impacts were assessed based on the peak hour traffic volumes for Existing Conditions (2014), Future Cumulative Without Project Conditions (2017), and Future Cumulative with Project Conditions (2017). The expected net increases in ambient noise levels at each modeled street segment upon completion of the Project are shown in Table 4.9.9. As shown in Table 4.9.9, Project traffic would not increase the ambient noise level at any intersection by more than 3 dBA. As a result, the Project's mobile source noise impacts would not cause an exceedance of the maximum allowable noise exposure levels from transportation sources. Therefore, Project impacts associated with a permanent increase in ambient noise levels to the surrounding noise environment from mobile noise sources would be less than significant.

Table 4.9.8
Exterior Noise Levels at Off-Site Sensitive Uses From Project Construction

Adjacent Land Uses	Distance of Receptor to Project Site Boundary (ft.)[a]	Estimated Peak Construction Noise Levels at Receptor (dBA L_{eq})[b]	Maximum Allowable Non-Transportation Noise Exposure From 7 a.m. – 7 p.m. (dBA L_{eq} / dBA L_{max})	Exceed Threshold?
1. County Public Works Building	100 ft	79.98	65 / 85	Yes
2. Malibu Public Library	280 ft	71.04	65 / 85	Yes
3. Legacy Park	270 ft	71.35	65 / 85	Yes
4. Residences on Harbor Vista Drive and Malibu Colony Circle	1,100 ft	52.44	55 / 75	No

[a] *The distance was based on the receptor's proximity to the existing building footprint, as the highest construction noise levels would be generated from demolition of the existing structure and reconstruction of the building foundations.*

[b] *It should be noted that the peak noise level increase at the nearby sensitive receptors during project construction represents the highest composite noise level of 86 dBA Leq that would be generated periodically during a worst-case construction day, and does not represent continuous noise levels occurring throughout the construction day or period.*

Source: Parker Environmental Consultants.

Table 4.9.9
Project Roadway Noise Impacts Associated With the Project

Roadway	Roadway Segment	Noise Levels in dBA CNEL						
		Existing Traffic [1]	Existing Plus Project [2]	*Project Increase [2]-[1]*	Future 2017 Without Project [3]	Future 2017 With Project [4]	*Future Project Increase [4]-[3]*	*Future Cumulative Increase [4]-[1]*
Civic Center Way	West of Stuart Ranch Rd/Webb Way	66.5	66.5	*0.0*	66.7	66.8	*0.1*	*0.3*
	East of Stuart Ranch Rd/Webb Way	61.7	62.3	*0.6*	62.9	63.4	*0.5*	*1.7*
Stuart Ranch Rd./Webb Way	North of Civic Center Way	52.7	52.7	*0.0*	52.8	52.8	*0.0*	*0.1*
	South of Civic Center Way	62.3	62.6	*0.3*	62.8	63.0	*0.2*	*0.7*

[a] *A project would normally have a significant impact on noise levels from project operations if the project would increase the ambient noise levels by 3 dBA CNEL.*

Source: Parker Environmental Consultants. Calculation data and results are provided in Appendix I.

(b) Operational Event Noise

Operational impacts from the Proposed Project, particularly from outdoor events are predicted to occasionally exceed exterior noise standards at surrounding sensitive noise receptors; however, the types of uses from operation of proposed projects in the Civic Center area (i.e., supermarket, retail shopping) are not anticipated to result in substantial onsite noise generation. As such, Civic Center noise would incrementally increase but would not combine with the proposed Project to contribute to a cumulatively substantial operational increase in Civic Center area noise levels. Therefore, long-term operational impacts from special events would be less than significant.

(c) HVAC Noise

HVAC equipment involves rotating machinery and air compressors, which generate noise that can propagate through the open air to nearby noise sensitive land uses. Noise impacts resulting from HVAC systems can vary considerably depending on the equipment selected, the system design, and the location of the equipment relative to the noise sensitive use. Noise levels from commercial HVAC systems are typically in the range of 70 to 92 dBA L_{eq} at a distance of 15 feet. As shown in Figure 2.7, Roof Plan, the building's mechanical and HVAC equipment would be located on the green roof and would be screened from public view. The location and placement of the mechanical equipment on the lower roof and adjacent to a higher wall of the building also would serve to attenuate noise levels at the property's boundaries. Installation and operation of the HVAC equipment would also be done in accordance with the American Society of Heating and Air-Conditioning Engineers (ASHRAE) Noise and Vibration Control Standards and Best Practices to ensure indoor noise levels are maintained at an acceptable level. As such, noise from HVAC and mechanical equipment would not exceed the ambient noise at the property line and noise impacts would be less than significant.

d. Cumulative Impacts

This cumulative impact analysis considers development of the Proposed Project in combination with the 27 related projects identified in Section 3.0, Environmental Setting. As noise is a localized phenomenon, and decreases in magnitude as distance from the source increases, only projects and ambient growth in the nearby area could combine with the Proposed Project to result in cumulatively considerable noise impacts.

Development of the Project in combination with related projects would result in an increase in construction-related and traffic-related noise in the Civic Center area, especially if construction phases overlap. The Proposed Project could occur at the same time as several projects in the Civic Center area. Construction of the proposed Whole Foods in the Park, La Paz Project, and the Rancho Malibu Hotel would result in substantial levels of construction and construction equipment operating within the Civic Center area and on area roadways, which is anticipated to occur roughly between 2015 and 2017. The Proposed Project is conditioned upon connecting to the proposed Civic Center Wastewater Treatment Facility (CCWTF), and thus the Project's construction period would not overlap with the CCWTF Project. The addition of cumulative construction activities, if the construction schedules were to overlap, would increase existing area ambient noise levels on a temporary and intermittent basis during periods of

active construction. The Proposed Project's contribution to these potential cumulative noise impacts would be less than cumulatively considerable given the Project's construction noise levels would be reduced to less than significant levels with mitigation. Therefore, the Project's cumulative construction noise impacts would be considered less than significant.

Cumulative mobile source noise impacts would occur primarily as a result of increased traffic on local roadways due to the Proposed Project, ambient growth, and related projects within the area. Therefore, cumulative traffic-generated noise impacts have been assessed based on the contribution of the Proposed Project on the roadway segments in the Project vicinity. As discussed above, the Proposed Project would not be expected to audibly increase roadway noise levels. As the increase in roadway noise would not be perceptible, the Proposed Project's contribution to cumulative roadway noise levels would not be considered cumulatively considerable. Therefore, the cumulative impact associated with mobile source noise would be less than significant.

4. MITIGATION MEASURES

a. Construction

N-1 Consistent with the City of Malibu Noise Ordinance (Section 4204 G), construction shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on Saturdays, and prohibited on Sundays and holidays. Special circumstances may arise where construction activities are permitted during prohibited hours by expressed written permission of the City Manager, or if construction is necessary to preserve life or property when such necessity arises (Section 4205 D).

N-2 Noise and groundborne vibration construction activities whose specific location on the Project Site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) shall situated away from the nearest noise- and vibration-sensitive land uses wherever feasible to do so.

N-3 When possible, construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.

N-4 Barriers such as plywood structures or flexible sound control curtains shall be erected around the perimeter of the Project Site to minimize the amount of construction noise impacting adjacent off-site land uses. Plywood barriers should have a minimum thickness of ¾ inch (21 mm) and extend to a height of eight (8) feet above grade to effectively block the line of sight from the noise source to the noise receptor.

N-5 The Project construction contractors shall ensure that equipment is properly maintained per the manufacturers' specifications and fitted with the best available noise suppression devices (i.e., mufflers, silencers, wraps, etc) or as required by the City's Department of Building and Safety, whichever is the more stringent.

N-6 The Project construction contractors shall shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power equipment.

N-7 The Project construction contractors shall ensure that construction equipment does not idle for extended periods of time.

b. Operational

No operational mitigation measures are required.

5. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure N-1 would ensure that the proposed construction activities occur within the permissible hours of construction and thus would not trigger any noise increases to ambient noise levels after 7:00 p.m. when the expectation to maintain quieter ambient noise is highest.

Mitigation Measures N-2 through N-7 would serve to reduce the source of construction noise during the construction activities. Assuming a conservative noise attenuation factor of 11.2 dBA based on diffraction loss and the respective distances to the land use receptors, Mitigation Measure N-4 would be expected to reduce construction noise levels to below the maximum allowable non-transportation noise exposure level for the daytime hours for the Public Library and Legacy Park. As shown in Table 4.9.10, the exterior noise levels at the adjacent Public Works building would be reduced, but would still exceed the allowable exterior exposure level of 65 dBA L_{eq}. As such, the Proposed Project would result in a significant and unavoidable temporary construction noise impact at this location.

Operational noise impacts would be less than significant prior to mitigation and thus no mitigation measures are required.

Table 4.9.10
Exterior Noise Levels at Off-Site Sensitive Uses From Project Construction

Adjacent Land Uses	Estimated Peak Construction Noise Levels Without Mitigation (dBA L_{eq})	Estimated Peak Construction Noise Levels With Mitigation Measure N-4 (dBA L_{eq}) [a]	Maximum Allowable Non-Transportation Noise Exposure From 7 a.m. – 7 p.m. (dBA L_{eq} / dBA L_{max})	Exceed Threshold?
1. County Public Works Building	79.98	68.78	65 / 85	Yes
2. Malibu Public Library	71.04	59.84	65 / 85	No
3. Legacy Park	71.35	60.15	65 / 85	No
4. Residences on Harbor Vista Drive	52.44	--	55 / 75	No

[a] *A plywood sheet with a minimum thickness of ¾-in (21 mm) has a presumed noise transmission loss factor of 21 dBA. At a height of 8 feet above grade, the temporary noise barriers would reduce noise levels at the receptor sites by approximately 11.2 dBA.*

Source: Parker Environmental Consultants.