3.10 NOISE

INTRODUCTION

This section addresses the potential noise impacts that could result from construction and operation of the proposed project. A Noise Impact Analysis prepared by Menlo Scientific Acoustics, Inc., dated July 3, 2013, assessed the potential for construction and operational noise impacts at noise-sensitive receptors located in the vicinity of the project site. The Noise Impact Analysis utilized data from the project's traffic study, prepared by Overland Traffic Consultants. According to the analysis prepared by Menlo Scientific Acoustics, construction-related noise levels could potentially exceed the thresholds of significance on a temporary basis. Mitigation measures are recommended to reduce construction-related noise; however, impacts would remain significant and unavoidable. Noise modeling indicated that the project would result in operational-related noise levels that would exceed the thresholds of significance due to stationary non-transportation related sources and combined transportation and non-transportation sources. Mitigation measures are recommended to reduce operational-related noise. The project would result in vibration impacts that are less than significant for construction and operation. The Noise Impact Analysis is provided in **Appendix 3.10**.

ENVIRONMENTAL SETTING

Noise Fundamentals

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called "A-weighting," written "dB(A)." The A-weighted sound level is measured on a logarithmic scale such that a doubling of sound energy results in a 3 dB(A) increase in sound level.[1] In general, changes in a community sound level of less than 3 dB(A) are not typically noticed by the human ear.[2] Changes from 3 to 5 dB(A) may be

1 US Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, (2006) 2-3.

2 US Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 81.

noticed by some individuals who are extremely sensitive to changes in noise.[3] A greater than 5 dB(A) increase is readily noticeable, while the human ear perceives a 10 dB(A) change in sound level to be a doubling or halving sound.[4] Common noise levels associated with certain activities are shown on **Figure 3.10-1, Common Noise Levels**.

When assessing community reaction to noise, there is an obvious need for a scale that averages sound pressure levels over time and quantifies the result in terms of a single numerical descriptor. Different types of scales are used to characterize the time-varying nature of sound. Scales that are applicable to this analysis are the Maximum Noise Level (Lmax), Equivalent Noise Level (Leq), and the Community Noise Equivalent Level (CNEL). The Lmax is the maximum noise level measured during a specified period. The Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. CNEL is an average A-weighted sound level measured over a 24-hour period. However, this noise scale is adjusted to account for some individuals' increased sensitivity to noise levels during the evening and nighttime hours. A CNEL noise measurement is obtained by adding 5 dB to sound levels occurring during the evening from 7:00 PM to 10:00 PM, and 10 dB to sound levels occurring during the nighttime from 10:00 PM to 7:00 AM. The 5 dB and 10 dB "penalties" are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dB(A) of the peak-hour Leq.[5] Below are brief definitions of these metrics and other terminology used in this analysis:

- **Decibel (dB):** A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-Weighted Decibel (dB(A))**: An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Sound Level (Leq)**: The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
- **Maximum Sound Level (Lmax)**: The maximum sound level measured during the measurement period.

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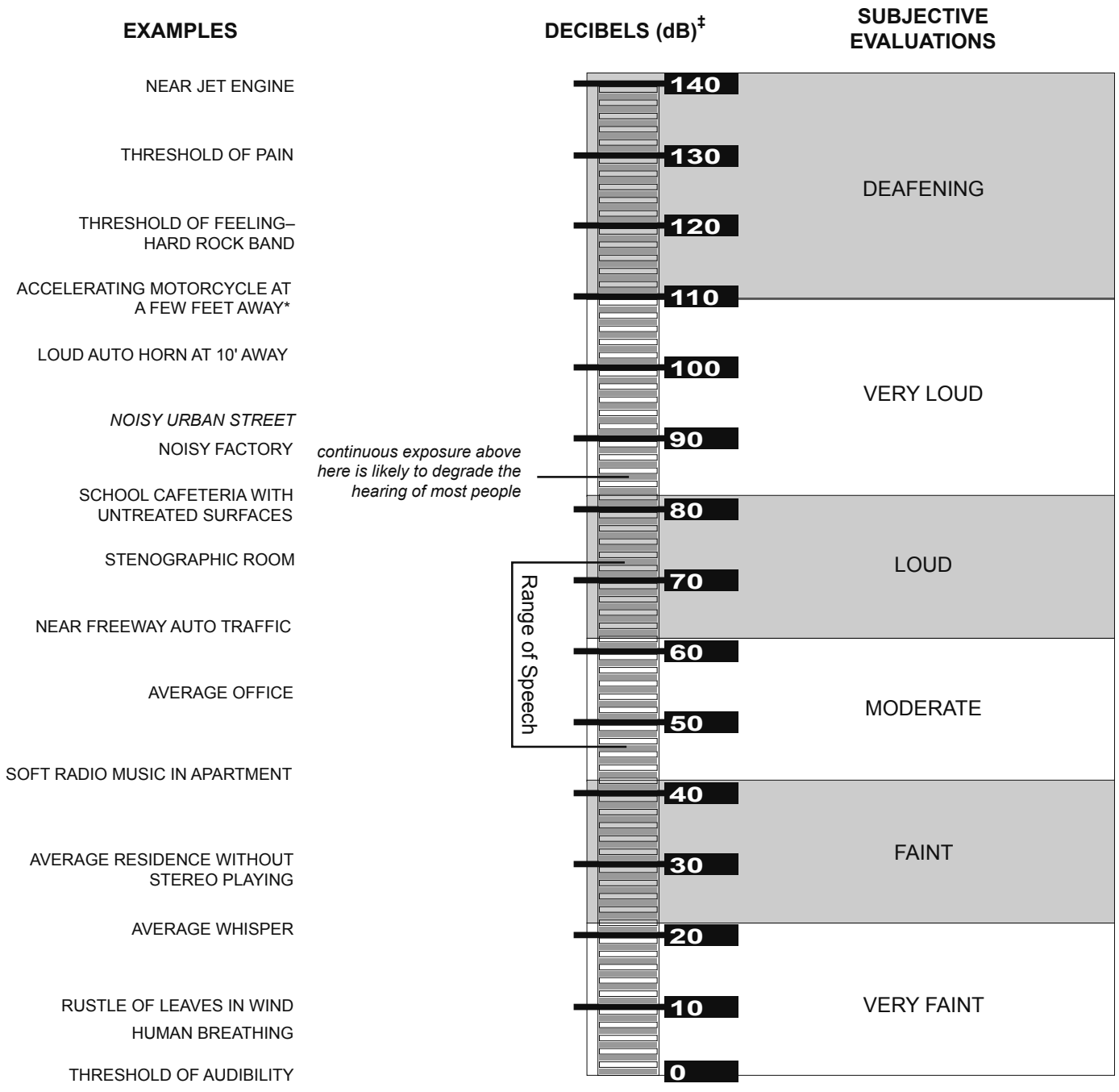
3 US Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 81.

4 US Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 81.

5 California Department of Transportation, *Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol*, (1998) N51-N54.



** NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.*

‡*NOTE: dB are "average" values as measured on the A–scale of a sound–level meter.*

FIGURE **3.10-1**

Common Noise Levels

- **Minimum Sound Level (Lmin)**: The minimum sound level measured during the measurement period.

- **n-Percent Exceeded Level (Ln)**: The sound level exceeded for n percent of the time. For instance, L50 is the noise level that was exceeded for a cumulative 50 percent of the time during a measurement period (e.g., 30 minutes during a 1-hour measurement period).

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

- **Day-Night Level (Ldn)**: The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 PM to 7:00 AM.

CNEL and Ldn values differ by less than 1 dB. As a matter of practice, Ldn and CNEL values are considered to be equivalent and are treated as such in this assessment.

Vibration Fundamentals

Vibration consists of waves transmitted through solid material. Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies, and are generally classified as broadband or random vibrations. The normal frequency range of most ground-borne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration is often measured in terms of the peak particle velocity (PPV) in inches per second (in/sec), because it is related to the stresses that are experienced by buildings. Vibration is also measured in vibration decibels (VdB). The human threshold of perception is around 65 VdB; the dividing line between barely perceptible and distinctly perceptible is around 75 VdB; and vibration levels are acceptable at 85 VdB if there are an infrequent number of events per day.[6]

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of construction activities, especially pile driving. Road vehicles rarely create enough ground-borne vibration to be perceptible to humans unless the road surface is poorly maintained and there are potholes or bumps.[7] If traffic, typically heavy trucks, induces perceptible vibration in buildings, such as window

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6 US Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, (2006), 7–8.

7 US Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, (2006), 7–9.

rattling or shaking of small loose items, then it is most likely an effect of low-frequency airborne noise or ground characteristics. Human annoyance by vibration is related to the vibration energy and the number and duration of events, as well as the setting in which the person experiences the vibration.

Surrounding Land Uses

The project site is located within the larger Civic Center area of Malibu, which occupies approximately 185 acres extending from Pacific Coast Highway (PCH) in the south to the base of the hillsides in the north. The project site is located adjacent to a vacant parcel to the west, commercial to the east, horse training facility to the north, and a commercial center to the south. Single-family residential properties are located further to the north, along the ridgeline overlooking the Civic Center area. Additional land uses in the area include Legacy Park, a passive community park, which includes an element of the City's storm water treatment system, located southwest of the project site, across Civic Center Way. Immediately to the west is the approved, but unbuilt, La Paz commercial development. The Los Angeles County Civic Center complex, which includes the Los Angeles County Sheriff's Department (LASD) substation, the Malibu Branch Public Library – Malibu Branch, and the vacated Superior Court offices, is located immediately to the west of the La Paz site. The project site is also within 0.25 mile of eastbound and westbound transit stops on the Malibu Express (Metro Line 534), which provides daily public transportation services. The project site is located approximately 920 feet (280 meters) north of PCH.

Ambient Sound Levels

Measured Sound Levels

Sound generated by vehicular traffic traveling on the local roadway network represents the predominant and most consistent noise source in the project area. Vehicles traveling in the project area generally include automobiles, trucks, buses, and motorcycles. Existing sound levels were measured at noise-sensitive receptors closest to the proposed project by Menlo Scientific Acoustics, Inc. Since the proposed project would typically operate during the daytime and evening hours, noise measurements were taken during peak afternoon traffic period and at nighttime. These two periods represent the extremes of the existing noise environment when the project would be in operation. Additional monitoring at two locations was done to reflect weekend mid-day ambient noise levels. The measured sound levels, shown as Leq and L90, are provided in **Table 3.10-1, Existing Environmental Noise Exposures**. Detailed information on measurement times and locations are provided in **Appendix 3.10**.

Table 3.10-1
Existing Environmental Noise Exposures

ID	Sensitive Receptor Location	Distance from Nearest Project Boundary (feet)	Afternoon Peak-Hour Ambient Sound Level, 15-minute (dB(A)A)		Nighttime Ambient Sound Level, 15-minute (dB(A))		Afternoon (Saturday) Mid-Day Ambient Sound Level, 15-minute (dB(A))	
			Leq	L90	Leq	L90	Leq	L90
1	Equestrian Center	30	46	43	45	42	-	-
2	Residence at 3661 Cross Creek Dr.	250	45	42	45	43	-	-
3	Malibu Public Library	430	52	49	48	39	-	-
4	Residence at 23704 Harbor Vista Dr.	760	52	49	44	39	52	48
5	Residence at 3657 Cross Creek Rd	700	43	40	42	38	46	37
6	Legacy Park	365	59	50	-	-	-	-

Source: Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 3, 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

REGULATORY FRAMEWORK

Federal

There are no federal noise regulations that bear directly on local actions of the City of Malibu. However, various federal agencies have provided guidance documents on assessing and mitigating noise impacts from construction and vehicle traffic. These guidance documents are discussed later under the project impacts section.

State

California Department of Health Services

The State of California Department of Health Services, Environmental Health Division, has published recommended guidelines for noise and land use compatibility, referred to as the *State Land Use Compatibility Guidelines for Noise* (State Noise Guidelines). The State Noise Guidelines, illustrated in **Figure 3.10-2, State Land Use Compatibility Guidelines for Noise**, indicate that residential land uses and other noise-sensitive receptors generally should locate in areas where outdoor ambient sound levels do not exceed 65 to 70 dB(A) (CNEL or Ldn). The Department of Health Services does not mandate application of this compatibility matrix to development projects; however, each jurisdiction is required to consider the State Noise Guidelines when developing its General Plan Noise Element or determining acceptable sound levels within its community.

According to the State Noise Guidelines, an exterior sound level of 60 dB(A) CNEL is considered to be "normally acceptable" for single-family, duplex, and mobile homes involving normal, conventional construction, without any special noise insulation requirements. Exterior sound levels up to 65 dB(A) CNEL are typically considered "normally acceptable" for multi-family units and transient lodging without any special noise insulation requirements. Between these values and 70 dB(A) CNEL, exterior sound levels are typically considered "conditionally acceptable," and residential construction should only occur after a detailed analysis of the noise reduction requirements and needed noise attenuation features have been included in the project design. Exterior noise attenuation features include, but are not limited to, setbacks to place structures outside the conditionally acceptable noise contour, orienting structures so no windows open to the noise source, and/or installing noise barriers such as berms and/or solid walls. Within a 65 dB(A) CNEL exterior noise environment, interior sound levels will typically be reduced to acceptable levels (to at least 45 dB(A) CNEL) with closed windows through conventional construction, but include fresh air supply systems or air conditioning in order to maintain a comfortable living environment. The minimum attenuation of exterior to interior noise provided by typical structures in California is shown in **Table 3.10-2, Outside to Inside Noise Attenuation (dB(A))**.

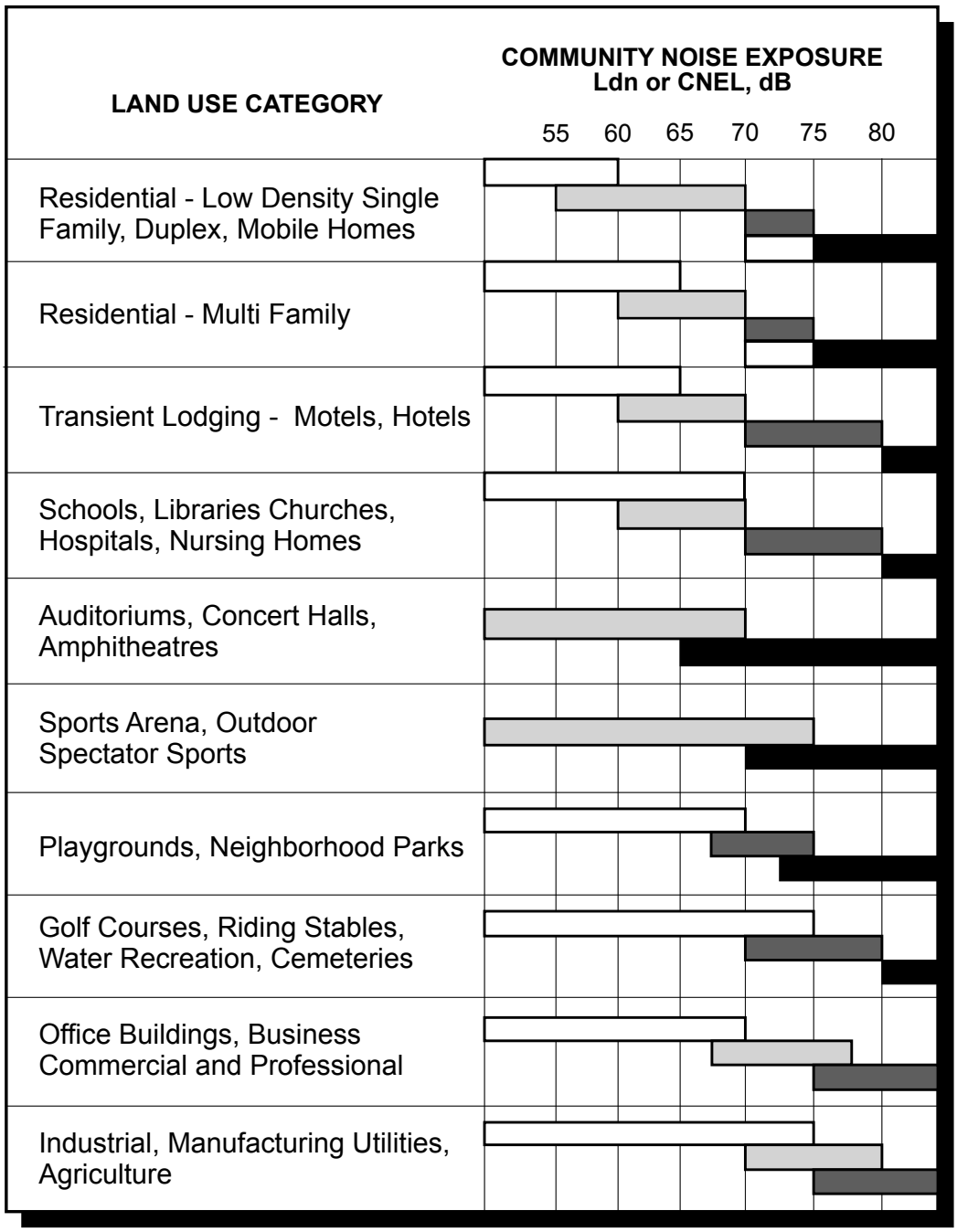
Table 3.10-2
Outside to Inside Noise Attenuation (dB(A))

Building Type	Open Windows	Closed Windows[1]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

Source: Transportation Research Board, National Research Council, Highway Noise: A Design Guide for Highway Engineers, National Cooperative Highway Research Program Report 117.

[1] *As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dB(A).*

Under the State Noise Guidelines, an exterior sound level of 70 dB(A) CNEL is typically the dividing line between an acceptable and unacceptable exterior noise environment for all noise-sensitive uses, including schools, libraries, churches, hospitals, day care centers, and nursing homes of conventional construction. Sound levels below 75 dB(A) CNEL are typically acceptable for office and commercial buildings, while levels up to 75 dB(A) CNEL are typically acceptable for industrial uses.



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.

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.

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 reduction features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, October 2003.

FIGURE **3.10-2**

State Land Use Compatibility Guidelines for Noise

California Noise Insulation Standards

The California Noise Insulation Standards (Cal. Code of Reg., Title 24, Sec. 3501 et seq.) require that interior sound levels from exterior sources be 45 dB(A) or less in any habitable room of a multi-residential use facility (e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses and other dwellings, except detached single-family dwellings) with doors and windows closed. Measurements are based on CNEL or Ldn, whichever is consistent with the noise element of the local general plan. Where exterior sound levels exceed 60 dB(A) CNEL/Ldn, an acoustical analysis for new development is required to show that the proposed construction will reduce interior sound levels to 45 dB(A) CNEL/Ldn. If the interior 45 dB(A) CNEL/Ldn limit can be achieved only with the windows closed, the residence design must include mechanical ventilation that meets applicable Uniform Building Code (UBC) requirements.

California Division of Occupational Health and Safety

The California Division of Occupational Health and Safety provides guidelines to ensure people employed in the State of California are not exposed to sound levels greater than 85 dB(A). An employer would be required to administer a continuing effective hearing conservation program whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dB(A) (referred to as the "action level"), or equivalently, a dose of 50 percent. The following procedures shall be implemented as part of the hearing conservation program when the action level is exceeded: personal or area noise monitoring, implementation of an audiometric testing program, an evaluation of an audiogram, audiometric test requirements, and audiometric calibration.[8] Furthermore, if the action level is exceeded, the employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 dB(A), and shall ensure employee participation in the program. The training program shall be repeated annually for each employee included in the hearing conservation program, and information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.[9]

Local

City of Malibu Municipal Code

The City of Malibu Municipal Code specifies noise restrictions, exemptions, and variances for noise sources. Several of these are applicable to the proposed project as summarized below.

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8 California Code of Regulations, Title 8, Section 5097, Hearing Conservation Program.

9 California Code of Regulations, Title 8, Section 5099, Training Program.

Section 8.24.040 states that:

> *No person shall make, or cause or suffer, or permit to be made upon any premises owned, occupied or controlled by such person, any unnecessary noises, sounds or vibrations which are physically annoying to reasonable persons of ordinary sensitivity or which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion unnecessary discomfort to any persons within the neighborhood from which the noises emanate or which interfere with the peace and comfort of the residents or their guests, or the operators or customers in places of business in the vicinity, or which may detrimentally or adversely affect such residences or places of business.*

Section 8.24.050 lists prohibited acts that would generate noise in violation of the Municipal Code. These acts include:

- The sustained operation or use between the hours of 10:00 PM and 7:00 AM of any electric or gasoline powered motor or engine or the repair, modification, reconstruction, testing or operation of any automobile, motorcycle, machine or mechanical device or other contrivance or facility unless such motor, engine, automobile, motorcycle, machine or mechanical device is enclosed within a sound insulated structure so as to prevent noise and sound from being plainly audible at a distance of 50 feet from such structure, or within 10 feet of any residence;

- Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 PM and 7:00 AM in such a manner as to cause noise disturbance;

- The use of combustion or gasoline powered leaf blowers.

Section 8.24.050(G) of the Municipal Code prohibits the use of construction tools, equipment, impact devices, derricks or hoists on weekdays between the hours of 7:00 PM and 7:00 AM, before 8:00 AM or after 5:00 PM on Saturday, or at any time on Sundays or holidays, unless the City Manager grants expressed written permission pursuant to Section 8.24.060(D). In addition, Section 8.24.060(D) states that the "provisions of Section 8.24.050 do not apply to the construction, repair, or excavation during prohibited hours as may be necessary for the preservation of life or property, when such necessity arises during such hours as the offices of the city are closed, or where such necessity requires immediate action prior to the time at which it would be possible to obtain a permit pursuant to this section."

City of Malibu General Plan

The City of Malibu General Plan Noise Element provides guidance on improving the safety and health of the community and abatement of excessive noise. The Noise Element provides information on the existing and projected noise environment and includes goals, objectives, policies, and implementation programs to ensure an acceptable noise environment. The predominant noise source in Malibu is vehicular traffic from PCH, major canyon roads, and the local arterials. The Noise Element recommends

that community decision makers use available community noise information to ensure that a minimum number of people are exposed to potentially harmful noise sources and recommends the use of established federal and state agency noise/land use compatibility guidelines, which are based upon single-event and cumulative noise criteria, such as Lmax, Leq, and CNEL.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

The following thresholds for determining the significance of impacts related to noise are contained in the environmental checklist form contained in Appendix G of the most recent update of the *California Environmental Quality Act (CEQA) Statutes and Guidelines*. Impacts related to noise are considered significant if the proposed project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive ground borne vibration or ground borne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.
- For a project within the vicinity of a private airstrip, would expose people residing or working in the project area to excessive noise levels.

Construction noise is governed by Municipal Code Section 8.24.050(G), which prohibits the use of construction tools, equipment, impact devices, derricks or hoists on weekdays between the hours of 7:00 PM and 7:00 AM, before 8:00 AM or after 5:00 PM on Saturday, or at any time on Sundays or holidays, unless the City Manager grants expressed written permission pursuant to Section 8.24.060(D). Construction noise is also governed by policies in the General Plan.

Maximum noise levels for non-transportation sources are provided in the Noise Element. These limits fulfill the CEQA requirement for establishing threshold limits of significance throughout the City by specifying "significant" noise levels on properties as a function of their zoning designation and the time of day. These limits are used to help judge the significance of noise impacts from both construction and

operational impacts at the project site. The exterior noise limits for non-transportation sources are provided in **Table 3.10-3, Maximum Exterior Noise Limits for Non-Transportation Sources**.

Table 3.10-3
Maximum Exterior Noise Limits for Non-Transportation Sources

Receiving Land Use Category	General Plan Land Use Districts	Time Period	Noise Level (dB(A))	
			Leq	Lmax
Rural	All RR Zones and PRF, CR, AH, OS	7:00 AM to 7:00 PM	55	75
		7:00 PM to 10:00 PM	50	65
		10:00 PM to 7:00 AM	40	55
Other Residential	All SFR, MFR, and MFBF Zones	7:00 AM to 7:00 PM	55	75
		7:00 PM to 10:00 PM	50	65
		10:00 PM to 7:00 AM	45	60
Commercial, Institutional	CN, CC, CV, CG, and I Zones	7:00 AM to 7:00 PM	65	85
		7:00 PM to 7:00 AM	60	70

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

The Noise Element provides exterior and interior noise limits for transportation sources. The noise limits for transportation sources are provided in **Table 3.10-4, Noise Limits for Transportation Sources**. According to the Noise Element, where it is not possible to reduce noise in outdoor activity areas to 50 dB Ldn/CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with the values shown in **Table 3.10-4**.

The project would not include any stationary sources of vibrations during operation. Construction equipment may produce temporary and infrequent ground-borne vibration. For purposes of evaluating the significance of the vibration impacts, the following numeric thresholds were used:

- Vibration levels that exceed approximately 85 VdB at sensitive land uses, which is the vibration level that is considered by the Federal Transit Administration (FTA) to be the threshold for human annoyance for infrequent ground-borne vibration; or
- Vibration levels that exceed approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings.

Table 3.10-4
Noise Limits for Transportation Sources

Land Use	Outdoor Activity Areas[1] (dB Ldn/CNEL)	Interior Spaces	
		dB Ldn/CNEL	dB Peak Hour Leq[2]
Residential	50 [3]	45	—
Transient Housing	60 [3]	45	—
Hospitals, long-term in-patient medical treatment and care facilities	60 [3]	45	—
Theaters, auditoria, music halls	60 [3]	—	35
Churches and meeting halls	60 [3]	—	40
Office buildings	60 [3]	—	45
Schools, libraries and museums, child care	60 [3]	—	45
Playgrounds and neighborhood parks	70	—	—

Source: City of Malibu, General Plan, Noise Element, Table 6-5.

[1] 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.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 50 dB Ldn/CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/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.

Methodology

Construction of the project would require site preparation, grading, building construction, asphalt paving, and architectural coating. These activities typically involve the use of heavy equipment, such as tractors, dozers, and cranes. While construction would be temporary, the use of these types of equipment could generate noise that would be heard both on and off the project site. Once the project becomes operational, the permanently installed equipment and project motor vehicles would generate long-term noise. The level of operational noise would depend on the equipment design specifications and any noise reduction or shielding features.

The construction noise impacts were assessed by Menlo Scientific Acoustics, Inc., using data from the US Environmental Protection Agency (EPA). The US EPA has compiled data on the noise-generating characteristics of specific types of construction equipment. Noise levels generated by heavy equipment can range from approximately 70 dB(A) to noise levels in excess of 90 dB(A) when measured at a distance of 50 feet from the noise source. The noise levels diminish rapidly with distance at a rate of approximately 6 to up to 9 dB(A) per doubling of distance for acoustically hard and soft sites, respectively. An example of an acoustically hard site would be a parking lot while an acoustically soft site would be a park. Assuming an acoustically hard site, a noise level of 75 dB(A) measured at 50 feet from the noise source would be reduced to 69 dB(A) at 100 feet and to 63 dB(A) at 200 feet. Construction noise

levels at receptors would tend to vary based on the location of construction activity and the number of equipment in operation. The project would involve the use of multiple pieces of construction equipment. However, the equipment would not all be in use at the same location because of physical space and safety considerations. For the purposes of this analysis, the maximum and average construction noise levels were estimated and compared to the City of Malibu thresholds for non-transportation noise sources. Construction would not take place during the evening and nighttime hours, in accordance with the City of Malibu Municipal Code.

The operational noise impacts would primarily result from the incremental increase in motor vehicles traveling on roadways and noise generated from stationary rooftop heating, ventilation, and air conditioning (HVAC) equipment, and the loading dock at the proposed Whole Foods Market. Traffic volumes utilized as data inputs for roadway noise were based on information provided by Overland Traffic Consultants, as part of the traffic study conducted for the project.[10]

Impact Analysis

Threshold 3.10.1 **Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

The proposed project would result in short-term construction and long-term operational noise. An analysis of the project impacts along with noise compatibility issues with the surrounding noise environmental, are provided below.

Short-Term Construction

Construction of the project would require site clearing, grading, building construction, paving, and architectural coating. These activities typically involve the use of heavy equipment, such as graders, backhoes, and trucks. While construction would be temporary, the use of these types of equipment would generate periodic noise that may be heard on and off the project site. Noise levels generated by heavy equipment can range from approximately 70 dB(A) to noise levels in excess of 90 dB(A) when measured at a distance of 50 feet from the noise source, depending on the equipment. The noise levels diminish rapidly with distance at a rate of approximately 6 to up to 9 dB(A) per doubling of distance for acoustically hard and soft sites, respectively. Typical individual equipment noise levels are provided in **Table 3.10-5, Typical Sound Levels of Construction Equipment at 50 Feet**.

10 Overland Traffic Consultants, *Traffic Impact Analysis*, (January 2015).

Table 3.10-5
Typical Sound Levels of Construction Equipment at 50 Feet

Construction Equipment	Range of Sound Levels at 50 Feet (dB(A))
Graders	80 to 93
Backhoes	72 to 92
Rollers	73 to 75
Trucks	83 to 94
Concrete Mixers	75 to 87
Air Compressors	74 to 86
Saws	72 to 82

Source: US Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, (1971).

Construction noise levels at receptors would tend to vary based on the location of construction activity and the number of equipment simultaneously in use. The construction process requires the simultaneous use of several pieces of equipment, many of which move around the site and change their operating conditions on a day-by-day and hour-by-hour basis. The typical site-wide sound levels for the construction sub-phases are provided in **Table 3.10-6, Typical Sound Levels at Construction Sites**.

Table 3.10-6
Typical Sound Levels at Construction Sites

Construction Phase	Sound Level at 50 Feet (dB(A))
Ground Clearing	84
Grading/Excavation	89
Foundations	78
Building Construction	87
Finishing	89

Source: US Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, (1971).

As shown in **Table 3.10-6**, the loudest construction sub-phases are grading/excavation and finishing, which can generate noise levels of 89 dB(A) at a distance of 50 feet. In order to estimate the construction-related noise levels at the sensitive receptors located in the vicinity of the project site, a noise level of 89 dB(A) at 50 feet was used as a baseline with which to perform the calculations. As stated above, noise levels diminish rapidly with distance at a rate of approximately 6 to up to 9 dB(A) per doubling of

distance for acoustically hard and soft sites, respectively. An attenuation rate of 6 dB(A) per doubling of distance was used in this analysis, which would provide conservative results in areas where there is grass or ground foliage between the noise sources and the receptors. For the purposes of determining the maximum construction noise levels, the distance is based on the location of the noise-sensitive receptor and the nearest project boundary. The maximum construction noise levels at the nearby noise sensitive receptors are provided in **Table 3.10-7, Estimated Maximum Construction Sound Levels and Their Impacts**.

Table 3.10-7
Estimated Maximum Construction Sound Levels and Their Impacts

Receptor ID	Receptor Description	Distance from Site Boundary (feet)	Estimated Maximum Sound Level (dB(A), Lmax)	Significance Threshold per General Plan (dB(A), Lmax)	Excess over Threshold without Mitigation (dB(A))	Significant Impact without Mitigation?
1	Equestrian Center	30	93	85	8	YES
2	Residence at 3661 Cross Creek Dr.	250	75	85	—	NO
3	Malibu Public Library	430	70	85	—	NO
4	Residence at 23704 Harbor Vista Dr.	760	65	75	—	NO
5	Residence at 3657 Cross Creek Rd	700	66	75	—	NO
6	Legacy Park	250	75	85	—	NO

*Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in **Appendix 3.10**.*

For the purposes of determining the average construction noise levels, the distance is based on the location of the noise-sensitive receptor and the approximate center of the project site. The center of the project is used as a reference point because it represents the average location of construction equipment. The average construction noise levels at the nearby noise sensitive receptors are provided in **Table 3.10-8, Estimated Average Construction Sound Levels and Their Impacts**.

Table 3.10-8
Estimated Average Construction Sound Levels and Their Impacts

Recept or ID	Receptor Description	Distance from Center of Site (feet)	Estimated Average Sound Level (dB(A), Leq)	Significance Threshold per General Plan (dB(A), Leq)	Excess over Threshold without Mitigation (dB(A))	Significant Impact without Mitigation?
1	Equestrian Center	390	71	65	6	YES
2	Residence at 3661 Cross Creek Dr.	610	67	65	2	YES
3	Malibu Public Library	710	66	65	1	YES
4	Residence at 23704 Harbor Vista Dr.	1,130	62	55	7	YES
5	Residence at 3657 Cross Creek Rd	1,030	63	55	8	YES
6	Legacy Park	680	66	65	1	YES

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

* *The impact at Receptor #4 is not considered a significant impact because the building's east façade brick wall and south façade glass wall would reduce exterior to interior transmission of noise by at least 25 dB(A), which would reduce interior noise levels to about 42 dB(A), which is less than the 45 dB(A) interior noise limit.*

As shown in **Table 3.10-7** and **Table 3.10-8**, construction would have a potentially significant impact at nearby noise sensitive receptors. Mitigation measures are recommended to require the use of feasible noise controls and to schedule construction activities consistent with Section 8.24.050 of the City's Municipal Code. Compliance with the recommended mitigation measures discussed later would reduce short-term construction noise levels.

Long-Term Operational

The operational noise impacts from the proposed project would primarily result from the incremental increase in project-related motor vehicles traveling on local roadways, delivery trucks at the Whole Foods' loading dock, and mechanical equipment on the roofs of the project buildings.

Roadway Noise Levels

Traffic volumes provided in the project's traffic study, prepared by Overland Traffic Consultants, was used to determine the potential noise impacts from roadways.[11] The traffic study indicates that from 2012

11 Overland Traffic Consultants, *Traffic Impact Analysis*, (July 2013).

to 2015, vehicular traffic in the vicinity of the proposed project due to ambient traffic plus the traffic from reasonably foreseeable new developments, without the proposed project, will increase by approximately 10 to 15 percent. The net acoustical impact of these traffic increases is a sound level increase of 2.8 dB(A) above 2012 sound levels measured at the noise-sensitive receptors at all study receptors in the afternoon and 1.9 dB(A) in the morning.[12]

The traffic study indicates that vehicular traffic from the proposed project would add up to 113 more vehicle trips onto local roads during peak travel periods. The net acoustical impact of these traffic increases is a sound level increase of less than 3.2 dB(A) above the current sound levels measured at the noise-sensitive receptors in the morning peak and less than 2.3 dB(A) in the afternoon.[13]

Based on the above calculations, the increase in roadway sound levels from project-only traffic would be approximately 0.4 dB(A) above the projected sound levels measured at the noise-sensitive receptors. An increase of 0.4 dB(A) is below the level of human perception and would not result in an audible increase in noise levels above the current sound levels measured at the noise-sensitive receptors. Additionally, an increase of 0.4 dB(A) would not result in an audible increase in interior noise levels at the noise-sensitive receptors. As a result, roadway noise level from the project would have a less than significant impact.

Whole Foods' Loading Dock Trucks

The loading dock at the proposed project would be located on the north façade of the Whole Foods Market building. The noise-sensitive use nearest to the dock would be the equestrian center's west riding ring and residence, which are approximately 150 feet and 300 feet from the dock, respectively. The Whole Foods Market would have no more than two daily truck deliveries, which both occurring during the daytime hours. The trucks may have transportation refrigeration units (TRUs). Delivery trucks are turned off while parked at loading docks; however, the TRU would remain in operation in order to provide refrigeration. An idling TRU can generate sound levels up to 66 dB(A) measured at a distance of 50 feet.[14] The estimated unmitigated sound level at the riding ring and the residence from an idling TRU would be 57 dB(A) and 51 dB(A), respectively. The loading dock would not cause an increase in sound levels that would exceed the daytime 65 dB(A) significance threshold for non-transportation noise sources at these locations; however, it may increase noise levels from existing conditions by approximately 10 to 11 dB(A), and would be audible at both locations. However, compliance with the recommended operational mitigation measures discussed later would reduce the long-term operational noise from this source to general ambient levels.

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12 Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013).

13 Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013).

14 Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013).

Rooftop Mechanical Equipment

The proposed project would include rooftop mechanical equipment on all five of the project buildings. The Whole Foods Market building (Building 5) would have the most rooftop equipment. Based on the equipment compliment used at a similarly sized Whole Foods Market, as many as 30 pieces of HVAC equipment may be required.[15] The project's other four buildings would have fewer pieces of rooftop equipment. Preliminary data from the project's mechanical engineer was used to estimate the amount of HVAC equipment that would be required on the rooftops of Buildings 1 through 4. Based on those estimates, the sound levels from the project's rooftop equipment, include the rooftop equipment on the Whole Foods Market building, was calculated at the nearby noise-sensitive receptors, assuming that all of the rooftop equipment is operating at its maximum capacity simultaneously. The results are provided in **Table 3.10-9, Estimated Sound Levels due to HVAC Equipment Noise**. As shown, noise levels could potentially exceed the Noise Element limits during the evening hours. This is a potentially significant impact at nearby noise sensitive receptors. Mitigation measures are recommended to require the use of feasible noise controls. Compliance with the recommended mitigation measures discussed later would reduce long-term operational noise impacts.

Table 3.10-9
Estimated Sound Levels due to HVAC Equipment Noise

Receptor ID	Receptor Description	HVAC Equipment Sound Levels (dB(A))							
		From Bldg 1	From Bldg 2	From Bldg 3	From Bldg 4	From Bldg 5	Total	Noise Element Limits	
								Day	Evening
1	Equestrian Center	39	35	32	35	58	58	65	60
2	Residence at 3661 Cross Creek Rd.	33	30	31	32	54	54	55	50
3	Malibu Public Library	29	30	34	34	48	48	65	60
4	Residence at 23704 Harbor Vista Dr.	25	25	26	27	45	45	55	50
5	Residence at 3657 Cross Creek Rd.	26	25	25	27	46	46	55	50
6	Legacy Park	29	30	34	34	47	47	85	65

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

When the HVAC equipment noise is combined with the daytime noise levels from the idling TRU at the Whole Foods' loading dock, the daytime noise levels at the equestrian center and residence at the equestrian center would increase to approximately 58 dB(A) and 54 dB(A), respectively. The loading

15 Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013).

docks and HVAC units would not cause an increase in sound levels that would exceed the daytime 65 dB(A) significance threshold for non-transportation noise sources at these locations; however, it may increase noise levels from existing conditions by greater than 10 dB(A), and would be audible at both locations. However, compliance with the recommended operational mitigation measures discussed below would reduce the long-term operational noise from these sources to general ambient levels.

Potential Late Restaurant Closing Times

The project may include two small restaurants that could close as late as 11:00 PM, thereby necessitating compliance with the lower General Plan Noise Element sound limits of 40 dB(A) at the three residential receptors (Receptors #3, #4, and #5) and 60 dB(A) at the other three receptors. This analysis assumes worst-case conditions that the restaurants are located in Building 1 and 2, and that the HVAC equipment in the other three buildings are shut down at 10:00 PM. The estimated HVAC equipment sound levels at the noise-sensitive receptors are provided in **Table 3.10-10, Estimated Sound Levels due to HVAC Equipment Noise Operating at Buildings 1 and 2 between 10:00 PM and 11:00 PM**. Based on the result shown, the operation of two possible restaurants until 11:00 PM would not result in noise impacts from the non-transportation rooftop equipment and impacts would be less than significant. It should be noted that the loading docks associated with the proposed Whole Foods Market would be used during the daytime and would not be used during the 10:00 PM to 11:00 PM hour.

Table 3.10-10
Estimated Sound Levels due to HVAC Equipment Noise
Operating at Buildings 1 and 2 between 10:00 PM and 11:00 PM

Receptor ID	Receptor Description	HVAC Equipment Sound Levels (dB(A)) From Building 1	From Building 2	Total	Noise Element Limits 10:00 PM to 11:00 PM
1	Equestrian Center	39	35	41	60
2	Residence at 3661 Cross Creek Rd.	33	30	35	40
3	Malibu Public Library	29	30	33	60
4	Residence at 23704 Harbor Vista Dr.	25	25	28	40
5	Residence at 3657 Cross Creek Rd.	26	25	29	40
6	Legacy Park	29	30	33	60

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

Mitigation Measures

The proposed project shall implement the following construction mitigation measures.

3.10-1: All construction machinery and delivery trucks shall be maintained to the highest level of performance, and shall be outfitted with all noise reduction accessories, e.g., mufflers, enclosures, etc. that are offered by the equipment manufacturers.

3.10-2: The contractor and all subcontractors shall be knowledgeable about the details of Chapter 8.24 NOISE of the Malibu Municipal Code, and shall conform to its requirements at all times.

3.10-3: Construction activities shall occur only during the hours permitted by the Malibu Municipal Code – 7:00 AM until 7:00 PM on weekdays, and 8:00 AM until 5:00 PM on Saturdays. Construction activities are not permitted on Sundays and holidays.

3.10-4: The construction site shall be laid out such that materials are stored and staged near the south end of the site to maximize the distance from the equestrian center.

3.10-5: Prior to construction, all residences within 1,000 feet of the site shall be individually notified of the project's construction schedule.

3.10-6: Prior to construction, a sign shall be posted on the site that is legible from at least 50 feet off-site. The sign shall include a telephone number that residents can call to inquire about the construction process and to register complaints. The project developer shall designate a "noise control coordinator" who will reply to all construction noise-related questions and complaints.

3.10-7: Prior to the commencement of general construction, the contractor shall construct a noise wall along the property's entire north boundary to minimize the noise emissions to the equestrian center, the residence at its west edge and the residences to the north. The wall shall be at least 12 feet tall, and can be made of any solid material that weighs at least 5 pounds per square foot, e.g., stucco, wood, masonry, etc. The noise wall shall be reviewed and approved by the City of Malibu Planning Department prior to its construction.

The proposed project shall implement the following operational mitigation measures.

3.10-8: The project shall retain the north boundary's 12-foot-high noise wall to minimize the operational phase noise emissions to the equestrian center, the residence at its west edge and the residences to the north. This will control the noise from such on-grade sources as cars, delivery and garbage trucks, parking lot sweepers, etc.

3.10-9: The project shall install rooftop noise barrier screens that surround all rooftop equipment on Building 5. The locations, weights, and heights of the screens will depend on the specific equipment. At a minimum, the screens shall be made of a solid material that weighs at least 4 pounds per square foot, and they shall completely shield the line-of-sight from each piece of rooftop equipment to the noise-sensitive receptors and shall be as close to the equipment as possible, while allowing for proper operation and maintenance.

3.10-10: All truck deliveries and all maintenance operations shall occur between the hours of 7:00 AM and 7:00 PM.

Residual Impacts

The construction mitigation measures would reduce both the maximum construction noise and average construction noise at the noise-sensitive receptors. The mitigated noise levels are shown in **Table 3.10-11, Estimated Maximum Mitigated Construction Sound Levels and Their Impacts**, and in **Table 3.10-12, Estimated Average Mitigated Construction Sound Levels and Their Impacts**.

Table 3.10-11
Estimated Maximum Mitigated Construction Sound Levels and Their Impacts

Receptor ID	Receptor Description	Unmitigated Maximum Sound Level (dB(A), Lmax)	Significance Threshold per General Plan (dB(A), Lmax)	Excess over Threshold without Mitigation (dB(A))	Excess over Threshold with Mitigation (dB(A))	Significant Impact with Mitigation?
1	Equestrian Center	93	85	8	—	NO
2	Residence at 3661 Cross Creek Rd.	75	85	—	—	NO
3	Malibu Public Library	70	85	—	—	NO
4	Residence at 23704 Harbor Vista Dr.	65	75	—	—	NO
5	Residence at 3657 Cross Creek Rd.	66	75	—	—	NO
6	Legacy Park	75	85	—	—	NO

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

Table 3.10-12
Estimated Average Mitigated Construction Sound Levels and Their Impacts

Receptor ID	Receptor Description	Unmitigated Average Sound Level (dB(A), Leq)	Significance Threshold per General Plan (dB(A), Leq)	Excess over Threshold without Mitigation (dB(A))	Excess over Threshold with Mitigation (dB(A))	Significant Impact with Mitigation?
1	Equestrian Center	71	65	6	—	NO
2	Residence at 3661 Cross Creek Rd.	67	65	2	—	NO
3	Malibu Public Library	66	65	1	1	YES
4	Residence at 23704 Harbor Vista Dr.	62	55	7	7	YES
5	Residence at 3657 Cross Creek Rd.	63	55	8	5	YES
6	Legacy Park	66	65	1	1	YES

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis is provided in ***Appendix 3.10****.*

The residual 1 dB(A) increase for the library proper is not considered significant because the construction of the library façade provides more outdoor-to-indoor noise reduction (OINR) than is assumed by most municipal acoustical criteria. Most municipal acoustical criteria assume that a building façade provides approximately 20 dB(A) of OINR, such that a 65 dB(A) outdoor sound environment becomes about 45 dB(A) indoors after passing through the building's façade. The library's east façade wall, which faces the proposed project, is brick, which provides approximately 35 dB(A) of OINR. We estimate that the combination of the east façade brick wall and the south façade glass wall yields a combined OINR of at least 25 dB(A). Accordingly, a 66 dB(A) outdoor noise environment will be only about 41 dB(A) inside the library, and would be less than the assumed 45 dB(A) indoor limit.

The noise wall along the property's north boundary would not reduce the sound levels at Receptor #4, the residence at 23704 Harbor Vista Drive, due to the elevation of the receptor (about 150 feet above sea level), which would require an unreasonably tall noise wall to reduce the average construction phase sound levels to less than significance. In addition, noise levels at Receptor #5, the residence at 3657 Cross Creek Road, would remain above the General Plan's threshold of significance, as would noise levels at Legacy Park. Therefore, construction impacts would be mitigated to less than significant with the exception of the receptors located at 23704 Harbor Vista Drive, 3657 Cross Creek Road, and Legacy Park, which would remain significant and unavoidable.

Retaining the project site 12-foot-high construction noise wall along the northern boundary and installing rooftop barrier screens around the rooftop equipment would reduce operational noise levels by at least 6 dB(A), which would reduce the identified significant impacts during the evening hours. Operational impacts would be mitigated to less than significant.

Threshold 3.10.2 Expose persons to or generate excessive ground borne vibration or ground borne noise levels.

Persons in the area surrounding the project could be exposed to ground-borne vibration or ground-borne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Site ground vibrations from construction activities very rarely reach the levels that can damage structures, but they can achieve the audible range and be felt in buildings very close to the site. The FTA developed a methodology and significance criteria to evaluate vibration impacts from surface transportation modes (i.e., passenger cars, trucks, buses, and rail) in Transit Noise Impact and Vibration Assessment (FTA Guidelines) (May 2006). **Table 3.10-13, Groundborne Vibration Impact Criteria for General Assessment**, shows the FTA General Assessment criteria for groundborne vibration.

Table 3.10-13
Groundborne Vibration Impact Criteria for General Assessment

Land Use Category	Impact Levels (VdB)		
	Frequent Events	Occasional Eveners	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations	65	65	65
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

a. Frequent Events are defined as more than 70 vibration events of the same source per day.
b. Occasional Events are defined as between 30 and 70 vibration events of the same source per day.
c. Infrequent Events are defined as fewer than 30 vibration events of the same source per day.
d. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels

SOURCE: Harris Miller Miller & Hanson Inc., Transit Noise and Vibration Impact Assessment, Final Report, Federal Transit Administration (May 2006).

The primary and most intensive vibration source associated with development of the project would be the use of bulldozers and loaded trucks hauling debris and materials. **Table 3.10-14, Typical Vibration Levels for Construction Equipment**, lists vibration source levels for typical construction equipment.

Table 3.10-14
Typical Vibration Levels for Construction Equipment

Equipment	Approximate VdB			
	25 Feet	50 Feet	75 Feet	100 Feet
Compressor	81	75	71	69
Loaded trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46
Backhoe	80	74	70	68
Paver	84	78	74	72

Source: Federal Railroad Administration, (2005).

Loaded trucks are capable of producing approximately 80 VdB at 50 feet. Construction associated with would require the demolition of the existing hardscape and the import of a total of 5,251 cubic yards of soil. It is anticipated that hauling would be limited to the weekday 6-hour period of 9:00 AM to 3:00 PM, and that during peak hauling operations, there would be up to 20 truckloads per day of demolished materials and/or fill soil being transported on and off-site. This would amount to 3.3 inbound and 3.3 outbound haul truck trips per hour. Therefore, the project would result in far fewer than 70 truck trips (vibration events)[16] per day. Further, given that loaded trucks would be used in excess of 50 feet from the nearest sensitive land uses and the infrequent number of vibration events per day, construction activities would not exceed the ground-borne vibration threshold for sensitive land uses and impacts would be considered less than significant.

The proposed project would not include any stationary equipment that would generate ground-borne vibration that would cause an annoyance to humans or any structural damage to buildings. During operation, the project would be served by delivery trucks and trash trucks that would collect municipal solid waste. However, the number of truck trips per day would be infrequent and would be routed in excess of 50 feet from the nearest sensitive land uses. Therefore, operational vibration events would be less than significant.

Mitigation Measures

No mitigation measures are required.

16 A vibration event refers to the number of times the piece of vibratory equipment would be operated per day.

Residual Impacts

Impacts would be less than significant.

Threshold 3.10.3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

As previously discussed, operation of the project would result in an incremental increase in area traffic volumes above those that would occur without the project. Noise generated by vehicular traffic traveling on the local roadway network represents the predominant and most consistent noise source for the project. The increase in traffic would result in a permanent increase in ambient noise levels in the project vicinity above existing levels. However, as previously discussed, the increase in roadway sound levels from project-only traffic would be approximately 0.4 dB(A) above the current existing sound levels measured at the noise-sensitive receptors. An increase of 0.4 dB(A) is below the level of human perception and would not result in an audible increase in noise levels above the current sound levels measured at the noise-sensitive receptors. Additionally, an increase of 0.4 dB(A) would not result in an audible increase in interior noise levels at the noise-sensitive receptors. As a result, roadway noise level from the project would have a less than significant impact.

The project's non-transportation noise sources would result in a permanent increase in ambient noise levels that would be considered potentially significant. The loading dock at the proposed project would be located on the north façade of the Whole Foods Market building. While the loading dock would not cause an increase in sound levels that would exceed the daytime 65 dB(A) significance threshold for non-transportation noise sources at the nearest noise-sensitive receptors, it may increase noise levels from existing conditions by approximately 10 to 11 dB(A), and would be audible at both locations. The proposed project would also include rooftop mechanical equipment on all five of the project buildings. The Whole Foods Market building (Building 5) would have the most rooftop equipment. As shown previously in **Table 3.10-9**, noise levels could potentially exceed the Noise Element limits during the evening hours. This is a potentially significant impact at nearby noise sensitive receptors. When the HVAC equipment noise is combined with the daytime noise levels from the idling TRU at the Whole Foods' loading dock, the daytime noise levels at the equestrian center and residence at the equestrian center would increase to approximately 58 dB(A) and 54 dB(A), respectively. The loading docks and HVAC units would not cause an increase in sound levels that would exceed the daytime 65 dB(A) significance threshold for non-transportation noise sources at these locations; however, it may increase noise levels from existing conditions by greater than 10 dB(A), and would be audible at both locations.

The project may include two small restaurants that could close as late as 11:00 PM, thereby necessitating compliance with the lower General Plan Noise Element sound limits of 40 dB(A) at the three residential receptors (Receptors #2, #4, and #5), 60 dB(A) at the three other receptors. However, as shown in **Table 3.10-10**, the operation of two possible restaurants until 11:00 PM would not result in noise impacts from the non-transportation rooftop equipment and impacts would be less than significant.

Mitigation Measures

Mitigation measures **3.10-8** through **3.10-10**, as previously discussed, would reduce operational noise levels.

Residual Impacts

Impacts would be mitigated to less than significant.

Threshold 3.10.4 **Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Construction of the project would generate an increase in short-term and temporary noise levels in the vicinity of the project site. Construction noise levels at receptors would tend to vary based on the location of construction activity and the number of equipment simultaneously in use. As shown previously in **Table 3.10-7**, the maximum construction noise levels at the nearby noise sensitive receptors would potentially exceed the significance threshold at the equestrian center (Receptor #1). As shown previously in **Table 3.10-8**, the average construction noise levels at the nearby noise-sensitive receptors would potentially exceed the significance thresholds at the multiple nearby noise-sensitive receptors (i.e., Receptor #s 1 through 6, described above). Therefore, construction would result in a substantial temporary or periodic increase in ambient noise levels and impacts would be potentially significant.

Mitigation Measures

Mitigation measures **3.10-1** through **3.10-7**, as previously discussed, would reduce construction noise levels.

Residual Impacts

Impacts would be mitigated to less than significant, with the exception of receptors located at 23704 Harbor Vista Drive, 3657 Cross Creek Road, and Legacy Park, which would remain significant and unavoidable.

Cumulative Impacts

Cumulative noise impacts would primarily occur as the result of increased traffic on local roadways due to ambient growth and other development in the vicinity of the project site. As previously discussed, the traffic study indicates that from 2012 to 2015, vehicular traffic generated by the proposed project in the vicinity of the project site will result in a net increase in sound level of 0.4 dB(A) above the projected 2015 sound levels measured at the noise-sensitive receptors.[17]

The cumulative impacts of the operational phase noise sources are summarized in **Table 3.10-15, Cumulative Operational Worst-Case Average Sound Levels at Noise-Sensitive Receptors**. The traffic noise contribution is based on information in the traffic study for the project, which includes traffic contributions from 13 other potential projects that could affect the overall traffic noise exposure in and around the proposed project.

Mitigation Measures

Mitigation measures **3.10-8** through **3.10-10**, as previously discussed, would reduce operational noise levels.

Residual Impacts

Impacts would be mitigated to less than significant.

Table 3.10-15
Cumulative Operational Worst-Case Average Sound Levels at Noise-Sensitive Receptors

Receptor	Without Project (dB(A))		With Project, Without Mitigation (dB(A))		With Project, With Mitigation (dB(A))		General Plan Noise Element Limits (dB(A))		Significant Impact with Mitigation?	
ID	Day	Evening	Day	Evening	Day	Evening	Day	Evening	Day	Evening
1	49	45	59	58	49	45	65	60	NO	NO
2	48	45	55	55	48	45	65	60	NO	NO
3	55	48	56	51	55	48	65	60	NO	NO
4	55	44	55	48	55	44	55	50	NO	NO
5	49	42	51	48	49	42	55	50	NO	NO
6	56	48	57	51	56	48	65	60	NO	NO

Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013). The Noise Impact Analysis and Addendum are provided in ***Appendix 3.10****.*

17 Menlo Scientific Acoustics, Inc. Whole Foods in the Park, City of Malibu, Noise Impact Analysis, (July 2013).