City of Malibu

Malibu Memorial Cemetery Project

Noise Study

March 2016

rincon

Environmental Scientists Planners Engineers

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455
FAX 644 4240

info@rinconconsultants.com
www.rinconconsultants.com

March 3, 2016
Project No. 15-02065

Jake Jesson
Assistant Project Manager
Green Acres, LLC
22837 Pacific Coast Highway #775
Malibu, California 90265
jjesson@weintraubre.com

RE: NOISE STUDY
Malibu Memorial Cemetery Project, Malibu, California

Dear Mr. Jesson:

Rincon Consultants, Inc. is pleased to submit the attached Noise Study for the proposed Malibu Memorial Cemetery project in Malibu, California. The proposed project could potentially result in noise levels that would exceed the maximum noise limits in the City of Malibu's General Plan Noise Element. Mitigation was provided, recommending timing restriction on heavy-duty truck deliveries to the project site, and timing limits on the use of heavy construction equipment on the project site in order to reduce noise levels produced by the proposed project to below the City's the maximum noise limits. As such, impacts related to noise as a result of the proposed project would not be significant, with the incorporation of recommended mitigation. If you have any questions regarding this study or if we can provide you with other environmental consulting services, please feel free to contact us.

Sincerely,

RINCON CONSULTANTS, INC.

Chris Bersbach
Technical Services Program Supervisor

Joe Power, AICP
Principal

Malibu Memorial Cemetery Project

Noise Study

Prepared for:

Green Acres, LLC
22837 Pacific Coast Highway, #775
Malibu, California 90265

Prepared with the assistance of:

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

March 2016

This report is printed on 50% recycled paper.

Malibu Memorial Cemetery Project
Noise Study

Table of Contents

Page

Cover Letter
Project Description....1
Setting....1
Overview of Sound Measurement....1
Sensitive Receptors....2
Project Site Setting....3
Regulatory Setting....7
Impact Analysis....7
Methodology and Significance Thresholds....7
Temporary Construction Noise....7
Long-Term Operational Noise Exposure....10
Long-Term Regional Impacts....12
References....14

List of Figures

Figure 1 – Noise Measurement Locations....5

List of Tables

Table 1 City of Malibu General Plan Noise Measurements....4
Table 2 Roadway Noise Contours....4
Table 3 Roadway Noise Contours – Summer Months....4
Table 4 On-Site Noise Monitoring Results....5
Table 5 Sensitive Receptor Noise Monitoring Results....5
Table 6 Maximum Exterior Noise Limits – Non-Transportation Sources....8
Table 7 Maximum Allowable Noise Exposure – Transportation Noise Sources....8
Table 8 Typical Noise Levels at Construction Sites....9
Table 9 Construction Noise at Sensitive Receptors....9
Table 10 Existing Traffic....13

MALIBU MEMORIAL CEMETERY PROJECT
MALIBU, LOS ANGELES COUNTY
NOISE STUDY

This report is an analysis of the potential noise impacts of the proposed Malibu Memorial Cemetery project located in Malibu, California in Los Angeles County. The report has been prepared by Rincon Consultants, Inc. under contract to Green Acres, LLC for use by the City of Malibu, in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the proposed project's potential temporary noise impacts relating to construction activity and long-term noise impacts associated with operation of the proposed project, including roadway noise from vehicle trips generated by the proposed project.

PROJECT DESCRIPTION

Green Acres, LLC, is developing the Malibu Memorial Cemetery Park and Chapel Project, comprised of approximately 21.0 acres of a 28.7-acre property located east of Malibu Canyon Road, west of Civic Center Way, and north of Pacific Coast Highway in the City of Malibu, California (the "Project"). The unstable slope areas along the perimeter of the site comprise the remaining 7 acres of the parcel that Green Acres has elected not to develop. The proposed Memorial Park project contains approximately 17,500 GSF of FAR development and would include the construction of a 8,500 SF Main Chapel facility, 8,500 SF subterranean parking basement, 48 free-standing Mausoleum structures totaling approximately 9,000 SF (approximately 186 SF/each), approximately 30,600 plot spaces for various crypt configurations, cremation and fractional burial options, as well as surface unenclosed parking for guest vehicles along the entry drive and Chapel ring.

The original Project EIR was approved by the City of Malibu in 1998. To satisfy Mitigation Measure 8.1 of the Rancho Malibu Hotel Environmental Impact Report (City of Malibu 1997), a Cultural Resources Management Plan (CRMP) was developed to reduce potential impacts to an archaeological site located on the property (Wlodarski 1995). The revised CRMP was developed in response to three basic factors: 1) the need to incorporate burial crypts within areas of the site previously slated to be grubbed and capped; 2) changes in the condition of the site over the past 15 years since the plan was developed; and, 3) new grading of unstable slopes and required retaining walls on the site. The project was revised in October 2015 to exclude work in unstable slope areas, remove mounding within sensitive areas, and contain grading within the City-stipulated thresholds of 1,000 cubic yards per acre, reducing the overall project footprint to 21 acres.

SETTING

Overview of Sound Measurement

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies

around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).
Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources (such as industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance.

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) – recognize this fact by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dB to actual nighttime (10 p.m. to 7 a.m.) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dB penalty for noise occurring during the evening (7 p.m. to 10 a.m.).

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. The City of Malibu General Plan Noise Element includes a variety of land use and development types that are noise sensitive. Noise sensitive land uses include single and multiple family residences, schools, libraries, medical facilities, retirement/rest homes, and places of religious worship. The predominant land uses in the City are noise sensitive residential uses.

Noise-sensitive receptors near the project site include:

- *Condominiums located approximately 400 feet east of the project site boundary, across Civic Center Way;*
- *Single-family residences located in the Malibu Knolls neighborhood approximately 700 feet east of the project site boundary, across Civic Center Way;*
- *Our Lady of Malibu Church, located approximately 350 feet north of the project site boundary, across Civic Center Way;*
- *Webster Elementary School, located approximately 550 feet northeast of the project site boundary, across Civic Center Way; and*
- *Housing at Pepperdine University, the closest of which is the Brock House, located approximately 1,600 feet northwest of the project site boundary, across Malibu Canyon Road.*

In addition to these existing sensitive receptors, there are single-family residential units proposed on the Crummer Site Subdivision project site, located south of the project site, across Pacific Coast Highway. Based on the current proposal for the Crummer Site Subdivision, the nearest residential units would be approximately 350 feet south of the project site boundary.

It should be noted that the distances provided above are from the proposed project site boundary. Analysis of potential future noise levels at nearby sensitive receptors will be based on the distance between these receptors and anticipated noise sources.

Project Site Setting

The most common and primary existing sources of noise in the project site vicinity are motor vehicles (e.g., automobiles, buses, trucks, and motorcycles) along Pacific Coast Highway, Malibu Canyon Road, and Civic Center Way. Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create a sustained noise level, and because of its proximity to noise sensitive uses. Additional sources of noise in the project site vicinity include activities associated with nearby institutional, residential, and recreational uses. There are no existing sources of noise on the project site, as the site is currently undeveloped.

A community noise survey was conducted on July 16, 1992, to document the existing noise environment within Malibu. Noise measurements were conducted at 10 sites that were representative of residential, commercial and public use areas, including the intersection of Pacific Coast Highway and Malibu Canyon Road. Each site was measured for 15 minutes. The quantities measured are in Leq, Lmin, and Lmax. The noise measurement results for the intersection of Pacific Coast Highway and Malibu Canyon Road are summarized in Table 1.

The City of Malibu General Plan Noise Element provides noise contours, which represent lines of equal noise exposure. The contours provide a visualization of estimates of sound level. Land forms and man-made structures have very complex effects on sound transmission and on noise contours. Generally, barriers between a source and receiver absorb or reflect noise resulting in a quieter environment. Where barriers or land forms do not interrupt the noise transmission path from source to receiver, the contours prove to be good estimates of the average noise level. In areas where barriers or land forms interrupt the sound transmission, the noise contours

overestimate the extent to which a source intrudes into the community. The noise contour distances describe worst-case conditions because they do not account for any obstructions to the noise path, such as walls, berms, or buildings. The General Plan Noise Element included analysis of 16 roadway segments. Table 2 provides the results of the analysis along Pacific Coast Highway and Malibu Canyon Road near the project site. Table 3 provides the results of the analysis for similar roadway segments during the summer months, which are the peak traffic months.

Table 1
City of Malibu General Plan Noise Measurements

Location	Time	Noise Levels (in dBA)		
		Leq	Lmin	Lmax
PCH and Malibu Canyon Road	10:54 a.m.	68	51	75

Source: City of Malibu General Plan Noise Element

Table 2
Roadway Noise Contours

	Distance to CNEL from Roadway Centerline				
Roadway Segment	**75′**	**70′**	**65′**	**60′**	**55′**
PCH west of Cross Creek, east of Civic Center Way	-	87.0	172.3	351.7	708.2
PCH west of Civic Center Way, east of Ramirez Canyon Road	-	73.8	143.0	291.5	590.6
Malibu Canyon Road north of PCH, south of Civic Center Way	-	-	50.6	103.5	215.3
Malibu Canyon Road north of Civic Center Way	-	-	81.5	169.3	350.0

Source: City of Malibu General Plan Noise Element; Harland Bartholomew & Associates, 1992

Table 3
Roadway Noise Contours – Summer Months

	Distance to CNEL from Roadway Centerline				
Roadway Segment	**75′**	**70′**	**65′**	**60′**	**55′**
PCH west of Cross Creek, east of Civic Center Way	51.7	92.2	183.6	374.9	752.9
PCH west of Civic Center Way, east of Ramirez Canyon Road	-	78.0	152.4	310.8	628.5

Source: City of Malibu General Plan Noise Element; Harland Bartholomew & Associates, 1992

The data in Tables 1, 2, and 3 represent noise levels circa 1992. In order to determine existing noise levels on the project site, two weekday afternoon 20-minute noise measurements and two evening 20-minute noise measurements were taken on the project site using an ANSI Type II integrating sound level meter in March 2012. These on-site noise measurements provide existing sound levels, which are primarily due to roadway noise from Pacific Coast Highway

and Malibu Canyon Road. Table 4 identifies the on-site noise measurement locations and measured noise levels. Figure 1 shows noise measurement locations.

Table 4
On-Site Noise Monitoring Results

Measurement Location		Primary Noise Source	Sample Time	Leq (dBA)
1	North side of Pacific Coast Highway, approximately 750 feet east of Malibu Canyon Road, and 40 feet from roadway centerline	Traffic on Pacific Coast Highway	Weekday afternoon peak hour	76.0
			Weekday evening (off-peak)	70.8
2	East side of Malibu Canyon Road, approximately 200 feet north of Pacific Coast Highway, and 100 feet from roadway centerline	Traffic on Malibu Canyon Road	Weekday afternoon peak hour	66.9
			Weekday evening (off-peak)	56.0

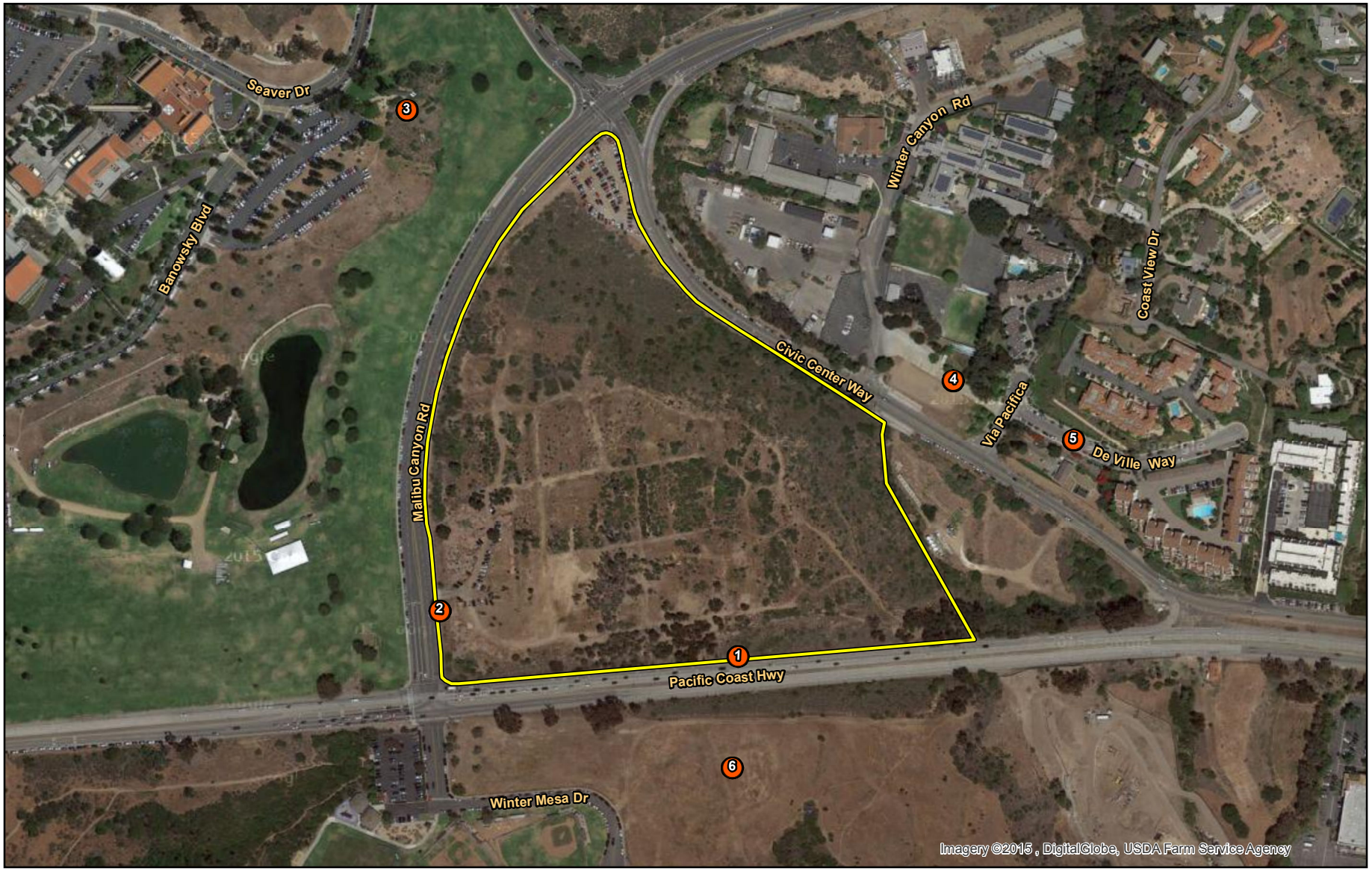
Source: Field visit using ANSI Type II Integrating sound level meter.
See Appendix for noise monitoring data sheets

In addition, four noise measurements were taken at or near the existing sensitive receptors described above, in order to establish baseline noise levels at these locations. Table 5 identifies the off-site sensitive receptor noise measurement locations and measured noise levels. Figure 1 shows noise measurement locations. All of the measurements taken show noise levels that are less than the CNEL roadway contours. This is most likely due to the fact that the contours took into account higher traffic levels on these streets than were present when noise measurements were taken. The noise contours most likely anticipated traffic at full buildout, which has not been achieved.

Table 5
Sensitive Receptor Noise Monitoring Results

Measurement Location		Primary Noise Source	Sample Time	Leq (dBA)
3	Pepperdine University main lawn, approximately 350 feet east of Malibu Canyon Road	Traffic on Malibu Canyon Road	Weekday afternoon peak hour	57.6
4	Northeast of Civic Center Way, south of the nearest residences in the Malibu Knolls neighborhood	Traffic on Civic Center Way	Weekday afternoon peak hour	59.1
5	Northeast of Civic Center Way, near condominiums south of the Malibu Knolls neighborhood	Traffic on Civic Center Way	Weekday afternoon peak hour	58.6
6	Approximate location of future residential use on Crummer Site Subdivision	Traffic on Pacific Coast Highway	Weekday afternoon peak hour	61.2

Source: Field visit using ANSI Type II Integrating sound level meter.
See Appendix for noise monitoring data sheets.



Imagery provided by Google and its licensors © 2015.

Legend

Site Boundary

Noise Measurement Location

N

0 190 380 Feet

Noise Measurement Locations

Figure 1

Regulatory Setting

In 1976, the California Department of Health, State Office of Noise Control published a recommended noise/land use compatibility matrix which many jurisdictions have adopted as a standard in their general plan noise elements. This matrix indicates that residential land uses and other noise sensitive receptors generally should locate in areas where outdoor ambient noise levels do not exceed 65 to 70 dBA (CNEL or Ldn).

The City of Malibu has adopted noise standards policies in its General Plan Noise Element. These policies establish both interior and exterior noise limits for non-transportation noise sources and transportation noise sources, and are shown in Table 6 and Table 7. The noise level standard for outdoor activity areas is 70 dBA Ldn. A maximum noise exposure for indoor living areas in new residential units is not to exceed 45 dBA Ldn.

IMPACT ANALYSIS

Methodology and Significance Thresholds

Construction noise estimates are based upon noise levels reported in the U.S. Environmental Protection Agency document *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Reference noise levels from that document were then used to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation). Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a reasonable worst-case estimate of actual construction noise.

For traffic-related noise, impacts are considered significant if project-generated traffic results in exposure of sensitive receptors to an unacceptable increase in noise levels. If sensitive receptors would be exposed to a substantial traffic noise increases as a result of project-generated vehicle trips, impacts would be considered significant. Impacts related to onsite activities are considered significant if project activities would potentially create noise levels exceeding City standards.

Temporary Construction Noise

Project construction could intermittently generate high noise levels on and adjacent to the project site during the construction period. Temporary noise impacts associated with construction may adversely affect adjacent residential and institutional noise sensitive uses. The main sources of noise during construction activities would be the heavy machinery used in grading and clearing the site. As shown in Table 8, average noise levels associated with the use of heavy equipment at construction sites can range from about 76 to 95 dBA at 25 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (Hanson, Towers, and Meister, May 2006).

Table 6
Maximum Exterior Noise Limits – Non-Transportation Sources

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

Table 7
Maximum Allowable Noise Exposure – Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq/dB[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	-	-

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.

Table 8
Typical Noise Levels at Construction Sites

Construction Phase	Typical Noise Level (dBA) 25 Feet from the Source
Air Compressor	87
Backhoe	86
Concrete Mixer	91
Paver	95
Saw	76
Scraper	95
Truck	94

Source: Hanson, Towers, and Meister, May 2006

At the time of this analysis, a grading plan has not yet been finalized for this project; therefore, it is assumed for the purpose of this study that construction activities would occur up to the edge of the project site. Consequently, construction activities may occur within approximately 350 feet of Our Lady of Malibu Church, 350 feet of the nearest condominiums to the east of the project site, 550 feet of Webster Elementary School, 700 feet of the nearest single-family residences to the east of the project site, and 950 feet of housing on the Pepperdine University campus. Construction noise levels were extrapolated using the line-of-sight method of sound attenuation described above and are shown in Table 9. Delivery truck trips to the proposed religious memorial center would be a sporadic source of noise, the maximum exterior noise limits (Lmax) shown in Table 6 are the appropriate threshold for these noise sources. The estimated noise level using this method results in a reasonable worst-case noise estimate, which does not account for potential attenuation resulting from noise barriers such as buildings or topography.

Table 9
Construction Noise at Sensitive Receptors

Receptor	Distance from Construction	Maximum Noise Level at Receptor	Maximum Exterior Noise Limit (Lmax)[1]	Limit Exceeded?
Our Lady of Malibu Church	350 feet	72 dBA	85 dBA	No
Condominiums Across Civic Center Way	350 feet	72 dBA	75 dBA	No
Webster Elementary School	550 feet	68 dBA	85 dBA	No
Single-Family Residences Across Civic Center Way	700 feet	65 dBA	75 dBA	No
Pepperdine University	950 feet	63 dBA	85 dBA	No

[1] *From Table 6, based on anticipated construction hours between 7:00 a.m. and 7:00 p.m.*

As shown in Table 9, the maximum on-site construction noise levels would not exceed the maximum exterior noise limits. Therefore, impacts associated with onsite construction activity would be less than significant.

Project construction would result in additional vehicle trips per day from workers commuting to the project site during the construction period, and soil hauling truck trips over the grading period. These added construction worker trips would be temporary, and would cease at the close of the construction period. Relative to existing traffic levels, the addition of worker trips to the project site would not substantially increase existing traffic levels in the immediate project vicinity. The project would require approximately 388 daily workers during building construction, resulting in approximately 151 daily vehicle trips to and from the site during the 18-month construction period. In addition, six large truck trips would be required to bring construction equipment to and from the site. Using a reasonable worst-case estimate of 21,000 cubic yards of soil export (based on the City-stipulated threshold of 1,000 cubic yards per acre), this analysis assume that up to ten soil hauling trips may be required per day during the construction phase for any required soil export. The worker trips would be split between the a.m. and p.m. peak hours and the heavy truck trips could occur anytime during the work day. A specific route for heavy trucks heading to and from the project site during construction has not yet been identified, but would be most likely utilize Malibu Canyon Road and Pacific Coast Highway. Both of these roadways carry a substantial volume of existing traffic (1,111 peak hour trips on Malibu Canyon Road and 3,310 peak hour trips on Pacific Coast Highway, based on the most recent traffic data available [Overland Traffic Consultants, 2012]), and would not experience a significant noise impact to nearby sensitive receptors due to the addition of the proposed temporary truck and worker trips.

Long-Term Operational Noise Exposure

The proposed project would introduce a new memorial religious use on the project site. Existing sensitive uses near the project site and proposed new uses on-site may periodically be subject to noise associated with operation of the proposed project, including stationary equipment, such as ventilation and heating systems, delivery trucks, excavation equipment, parking lot noise, and other general activities associated with the proposed uses.

HVAC Equipment. Noise levels from commercial HVAC equipment can reach 100 dBA at a distance of three feet (USEPA, 1971). These units usually have noise shielding cabinets, placed on the roof or mechanical equipment rooms and are not usually significant sources of noise impacts. Typically, the shielding and location of these units reduces noise levels to no greater than 55 dBA at 50 feet.

Based on the project plans, the proposed chapel would be the only structure expected to include HVAC equipment. The chapel would be located toward the center of the site, a minimum of 800 feet from Our Lady of Malibu Church, approximately 1,000 feet from the single-family residences and condominiums to the northeast of the project site, and approximately 2,200 feet from the nearest residential receptor on the Pepperdine University campus. Based on an attenuation rate of 6 dBA per doubling of distance, this would result in an external noise level at the nearest existing sensitive receptor (800 feet) of 31 dBA, which would not exceed any of the City's maximum exterior noise limits shown in Table 6; therefore, impacts due to noise from HVAC systems would be less than significant.

The proposed new uses would be located a minimum of 450 feet from proposed single-family residential units on the Crummer Site Subdivision south of the project site, across Pacific Coast

Highway. Based on an attenuation rate of 6 dBA per doubling of distance, this would result in an external noise level at the nearest proposed sensitive receptor of 36 dBA, which would not exceed any of the City's maximum exterior noise limits.

Delivery and Trash Trucks. On-site activities would involve occasional delivery truck trips (containing supplies for the chapel and site management) and trash hauling. Delivery trucks and trash hauling trucks would access the site from Malibu Canyon Road. The California Motor Vehicle Code establishes maximum sound levels for trucks operating at speeds less than 35 miles per hour (Section 23130). The maximum sound level established by the code is 86 dBA at 50 feet. However, The California Motor Vehicle Code Section 23130 established that average noise levels for single idling trucks generally range from 60 to 65 dBA Leq at a distance of 100 feet, and maximum noise levels associated with heavy truck passages range from 70 to 75 dB Lmax at a distance of 100 feet. Maximum noise levels generated by passages of medium duty delivery trucks generally range from 55 to 65 dB at a distance of 100 feet, depending on whether or not the driver is accelerating.

The proposed parking area is located a minimum of 800 feet from Our Lady of Malibu Church, approximately 1,000 feet from the single-family residences and condominiums to the northeast of the project site, and approximately 2,000 feet from the nearest residential receptor on the Pepperdine University campus. Based on an attenuation rate of 6 dBA per doubling of distance, the sound level at the nearest sensitive receptor (800 feet away) from idling delivery trucks would be approximately 47 dB Leq, and the maximum sound level at the nearest residential unit (1,000 feet away) would be 45 dB Leq. The maximum sound level at the nearest sensitive receptor (800 feet away) from delivery trucks (assuming heavy-duty trucks) would be approximately 57 dB Lmax, and the maximum sound level at the nearest residential unit (1,000 feet) would be 55 dB Lmax. Because delivery truck trips to the proposed project would be a sporadic source of noise, the maximum exterior noise limits (Lmax) shown in Table 6 are the appropriate threshold for these noise sources; noise from delivery truck trips would not exceed the maximum exterior noise limits (Lmax) for residential or institutional land uses shown in Table 6 at the nearest sensitive receptors. Operational noise impacts would be less than significant.

The proposed parking area would be located a minimum of 450 feet from proposed single-family residential units on the Crummer Site Subdivision south of the project site, across Pacific Coast Highway. Based on an attenuation rate of 6 dBA per doubling of distance, this would result in an external noise level from idling delivery trucks at the nearest proposed sensitive receptor of 52 dBA Leq, and a maximum external noise level from delivery trucks (assuming heavy-duty trucks) at the nearest proposed sensitive receptor of 62 dBA Lmax. Because delivery truck trips to the proposed religious memorial center would be a sporadic source of noise, the maximum exterior noise limits (Lmax) shown in Table 6 are the appropriate threshold for these noise sources; noise from delivery truck trips would not exceed the maximum exterior noise limits (Lmax) for residential land uses shown in Table 6 at the proposed sensitive receptors on the Crummer Site between the hours of 7:00 a.m. and 10:00 p.m. If nighttime deliveries may occur, delivery truck trips between 10:00 p.m. and 7:00 a.m. could generate noise exceeding the City's maximum exterior noise limits. However, with incorporation of Mitigation Measure N-1 below, operational noise impacts from delivery truck trips to and from the project site would be less than significant.

N-1 **Heavy-Duty Delivery Truck Trip Timing.** Deliveries from heavy-duty trucks, including refrigerator trucks, trash and recycling pick-ups, and parking lot sweeping, shall be restricted to daytime operating hours (7:00 a.m. to 10:00 p.m.).

Ground Maintenance and Excavation Activities. The proposed religious memorial facility would require ground maintenance and regular excavation activities. The ground maintenance would include lawn mowers and tree and shrub trimming equipment. These would be used regularly, but not continuously. Additionally, the facility would require the use of backhoes to prepare burial sites. Table 8 shows that during construction, the noise level associated with backhoe operation is 86 dBA at a distance of 25 feet. This may be reduced for the proposed project if smaller backhoes are used for project operation than would typically be used for construction activities. For purposes of this analysis, it is assumed that backhoes similar to those described in the temporary construction noise analysis would be used along the eastern edge of the property nearest the residences (approximately 350 feet from the residences to the east). This reasonable worst-case assumption represents the worst reasonable case scenario for noise generation. Based on a sound attenuation rate of 6 dBA per doubling of distance, noise from the backhoe would be 62 dBA at the residences. These residences are in the MFR (Multi-Family Residential) Zone. As shown in Table 6, short term noise levels would have to exceed 75 dBA from 7:00 a.m. to 7:00 p.m., 65 dBA from 7:00 p.m. to 10:00 p.m., and 60 dBA from 10:00 p.m. to 7:00 a.m. to be considered a significant impact. The noise from the backhoe would exceed 60 dBA, which would result in a potentially significant impact between 10:00 p.m. and 7:00 a.m. With incorporation of Mitigation Measure N-2 below, operational noise impacts from operation of backhoes on the site would be less than significant.

N-2 **Backhoe Operation Timing.** Operation of backhoes and other heavy construction equipment on site during the construction period shall be restricted to daytime and evening hours (7:00 a.m. to 10:00 p.m.) Such activity shall be prohibited during nighttime hours (10:00 p.m. to 7:00 a.m.).

Long-Term Regional Impacts

The proposed project would generate increased noise on area roadways due to increased traffic to and from the project site. The traffic noise analysis is based on the traffic generation rates from the ITE Trip Generation, 9th Edition. The ITE Trip Generation rates are the most appropriate traffic generation rates for this analysis, as the traffic study that was previously prepared for the project site by Overland Traffic Consultants did not include the proposed cemetery use, but instead analyzed traffic based on a proposed hotel for the site. The primary roadways affected by project-added vehicle traffic would be Pacific Coast Highway, Malibu Canyon Road, and Civic Center Way.

Table 10 shows the existing traffic levels on three main roadways near the project site. These traffic volumes are from the Traffic Study prepared for a previous proposal on the project site (2012), but accurately represent existing traffic on area roadways and are therefore appropriate for use in discussion of the currently proposed project.

Table 10
Existing Traffic

Roadway Segment	Existing Traffic Volumes PM Peak hour
Malibu Canyon Road between Pacific Coast Highway and Civic Center Way	1,111
Pacific Coast Highway between Malibu Canyon Road and Webb Way	3,310
Civic Center Way between Malibu Canyon Road and Pacific Coast Highway	1,246

Source: Overland Traffic Consultants, Inc. Traffic Impact Analysis Resort Hotel Development, April 2012

Based on the ITE Trip Generation manual, the highest trip rate for a cemetery occurs during the Sunday peak hour, with 9.14 trips per 1,000 square feet. Based on this rate, the proposed project would generate up to 160 trips on Sundays. In general, traffic volumes on a roadway must double for the associated noise level to increase by 3 dBA. Even if all trips associated with the project were allocated on any one of the street segments adjacent to the site, the traffic would not increase by more than 15% over the existing traffic volume. Therefore, the project's impact would not result in a substantial increase in regional noise and the impact would be less than significant.

REFERENCES

Hanson, Carl E., Towers, David A., and Meister, Lance D. (2006, May). *Transit Noise and Vibration Impact Assessment.* Federal Transit Administration, Office of Planning and Environment. http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

Malibu, City of. General Plan Noise Element.

Malibu, City of. Municipal Code.

Overland Traffic Consultants. *Traffic Impact Analysis, Resort Hotel Development*. 2012.