IV. ENVIRONMENTAL IMPACT ANALYSIS

C. NOISE

1. INTRODUCTION

The following analysis of noise impacts is based primarily upon the *Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report*, prepared by Terry A. Hayes Associates, dated August 2008, and incorporated fully herein. The noise report, including the applicable noise calculation sheets are provided in *Appendix D: Air Quality and Noise* of this Draft SEIR. In addition, the analysis includes conclusions previously reached in the Original EIR regarding noise impacts.

2. ENVIRONMENTAL CONDITIONS

a. Physical Setting

The following discussion focuses on providing noise and ground-borne vibration background information. In addition, existing noise and ground-borne conditions are characterized.

(1) Characteristics of Sound

Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA.[1] *Figure 28: A-Weighted Noise Levels* provides examples of A-weighted noise levels from common sounds.

In general, there are two types of noise sources: (1) point sources, such as stationary equipment or individual motor vehicles; and (2) line sources, such as a roadway with a large number of point sources (motor vehicles).

(a) Noise

This noise analysis discusses sound levels in terms of Community Noise Equivalent Level (CNEL) and Equivalent Noise Level (L_{eq}).

Community Noise Equivalent Level. CNEL is an average sound level during a 24-hour period. CNEL is a noise measurement scale, which accounts for noise source, distance, single event duration, single event occurrence, frequency, and time of day. Humans perceive sound between 7:00 p.m. and 10:00 p.m. as if the sound were actually 5 decibels higher than if it occurred from 7:00 a.m. to 7:00 p.m. From 10:00 p.m. to 7:00 a.m., humans perceive sound as if it were 10 dBA higher due to the lower background level. Hence, the CNEL is obtained by adding an

[1]City of Los Angeles, *LA CEQA Thresholds Guide*, 2006.

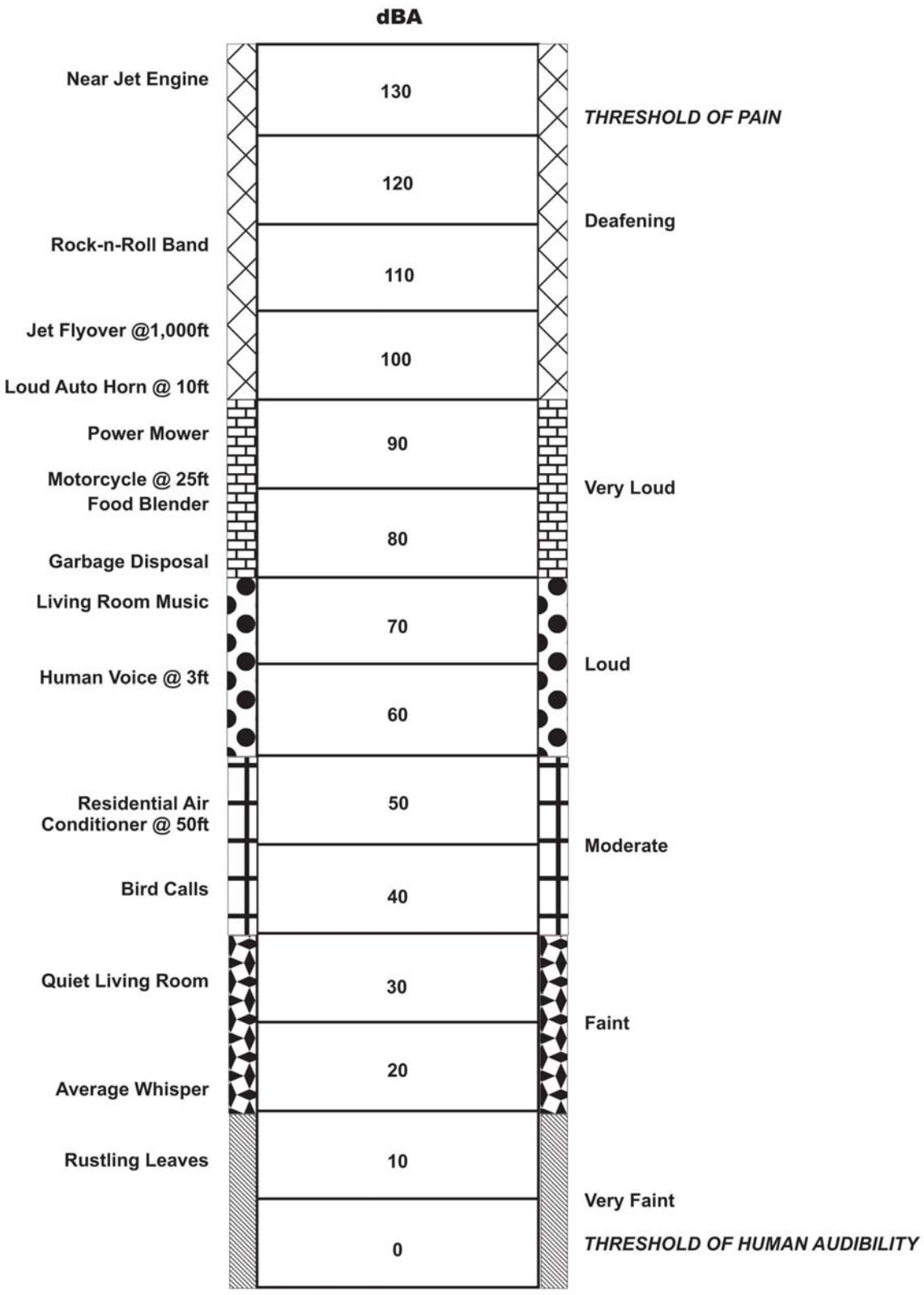


FIGURE 28
A-WEIGHTED NOISE LEVELS

SOURCE: COWAN, JAMES P.,
HANDBOOK OF ENVIRONMENTAL ACOUSTICS

additional 5 decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and 10 dBA to sound levels in the night before 7:00 a.m. and after 10:00 p.m. Because CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always a higher number than the actual 24-hour average.

Equivalent Noise Level. L_{eq} is the average A-weighted sound (i.e., adjusted to sensitivity range of typical human ear) level measured over a given time interval. L_{eq} can be measured over any time period, but is typically measured for 1-minute, 15-minute, or 1-hour periods. L_{eq} is expressed in dBA.

(i) Effects of Noise

Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual responses include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Audible Noise Changes

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and would likely evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness.[2]

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," (e.g., mechanical equipment or loading docks) will decrease by approximately 6 dBA over hard surfaces and 7.5 dBA over soft surfaces for each doubling of the distance.[3] For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on. Sound generated by a line source typically attenuates (i.e., becomes less) at a rate of 3.0 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively.[4]

Generally, noise is most audible when traveling by direct line-of-sight[5]. Barriers, such as walls, berms, or buildings, that break the line-of-sight between the source and the receiver, as well as elevational differences, greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier (diffraction). Sound barriers can reduce sound

[2]Caltrans, *Technical Noise Supplement*, 1998, pp. 16-18, 41-43.
[3]Caltrans, *Technical Noise Supplement*, 1998, pp. 24-29. Examples of acoustically "hard" or reflective sites include asphalt, concrete, and hard and sparsely vegetated soils. Examples of acoustically "soft" or absorptive sites include soft sand, plowed farmland, grass, crops, heavy ground cover, etc.
[4]Caltrans, *Technical Noise Supplement*, 1998, pp. 24-29.
[5] Line-of-sight is an unobstructed visual path between the noise source and the noise receptor.

levels by up to 20 dBA. However, if a barrier is not high or long enough to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced. In situations where the source or the receiver is located three meters (approximately 9.84 feet) above the ground, or whenever the line-of-sight averages more than three meters above the ground, sound levels would be reduced by approximately three decibels for each doubling of distance.[6]

(b) Ground-borne Vibration

(i) Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment.

(ii) Measurement of Vibration

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.[7]

(iii) Effects of Vibration

High levels of vibration may cause physical personal injury or damage to buildings. However, in general, ground-borne vibration levels rarely affect human health. Instead, most people consider ground-borne vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of ground-borne vibration may damage fragile buildings or interfere with equipment that is highly sensitive to ground-borne vibration (e.g., electron microscopes).

To counter the effects of ground-borne vibration, the Federal Railway Administration (FRA) has published guidance relative to vibration impacts. According to the FRA, fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage.[8]

In contrast to noise, ground-borne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 RMS or

[6]Caltrans, *Technical Noise Supplement*, 1998, pp. 33-40, 123-131.
[7] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April 1995.
[8] Federal Railway Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, December 1998.

lower, well below the threshold of perception for humans, which is around 65 RMS.[9] Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

(2) Existing Local Noise Conditions

The existing noise environment of the Project area is characterized by vehicular traffic and noises typical to a dense urban area (e.g., people conversing). Vehicular traffic is the primary source of noise in the Project vicinity.

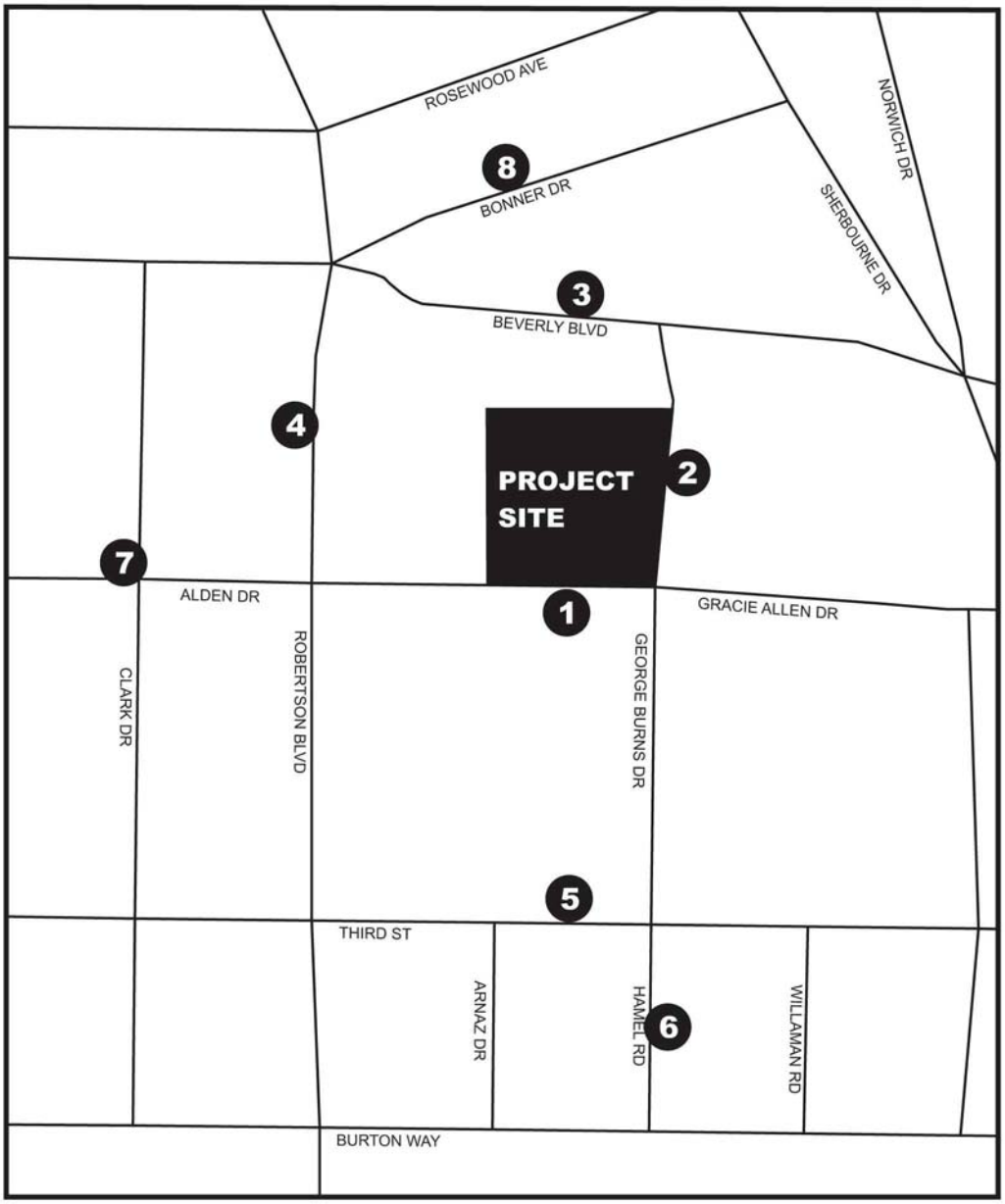
(a) Ambient Noise Levels

Sound measurements were taken using a Quest Q-400 Noise Dosimeter between 8:00 a.m. and 12:20 p.m. on August 7 and August 8, 2007, to ascertain existing ambient exterior daytime noise levels in the Project vicinity. These readings were used to establish existing ambient exterior noise conditions and to provide a baseline for evaluating noise impacts. Noise monitoring locations are shown in *Figure 29: Noise Monitoring Positions*. As shown in *Table 15: Existing Noise Levels*, existing ambient sound levels range between 60.2 and 72.4 dBA (L_{eq}). Based on the Noise Element of the City of Los Angeles General Plan (see Section IV.C.2.b below),[10] existing noise levels at nearby residential, commercial and medical uses are within the "conditionally acceptable" range. The conditionally acceptable noise levels for residential uses range from 55 to 70 dBA (low density, single-family, and duplexes) and from 60 to 70 dBA (multi-family), those for medical uses range from 60 to 70 dBA (hospitals) and from 67.5 to 77.5 dBA (professional offices), and those for commercial uses range from 67.5 to 77.5 dBA. No existing noise levels fall within the "normally unacceptable" range.

TABLE 15
EXISTING NOISE LEVELS [1]

KEY TO *FIGURE 29: NOISEMONITORING POSITIONS*	NOISE MONITORING LOCATION	SOUND LEVEL (DBA, LEQ)
1	Alden Drive-Gracie Allen Drive, South of Project Site (Commercial Uses)	65.8
2	George Burns Road, East of Project Site (Medical Uses)	65.2
3	Beverly Boulevard, North of Project Site (Commercial Uses)	70.5
4	Robertson Boulevard, West of Project Site (Commercial Uses)	72.4
5	Third Street, South of Project Site (Commercial Uses)	71.5
6	Hamel Road, Southeast of Project Site (Residential)	60.2
7	Clark Drive/Alden Drive-Gracie Allen, West of Project Site (Residential)	61.1

[9] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April 1995.
[10] City of Los Angeles, *Noise Element of the Los Angeles City General Plan*, 1999.



LEGEND: Project Site

Noise Monitoring Locations

1. South of Project Site
2. Cedar-Sinai Medical Towers
3. Medical Offices
4. Commercial Uses
5. Commercial Uses
6. Multi-Family Residences
7. Multi-Family Residences
8. Single-family Residences

FIGURE 29
NOISE MONITORING POSITIONS

SOURCE: TERRY A. HAYES AND ASSOCIATES

NORTH

TABLE 15 (CONTINUED)
EXISTING NOISE LEVELS [1]

KEY TO *FIGURE 29: NOISEMONITORING POSITIONS*	NOISE MONITORING LOCATION	SOUND LEVEL (DBA, LEQ)
8	Bonner Drive, North of Project Site (Residential)	55.4
[1] Source: Terry A. Hayes Associates LLC, *Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report*, March 2008.		

(b) Roadway Noise

As stated earlier, vehicular traffic is the predominant noise source in the Project vicinity. Using existing traffic volumes provided by the Project traffic consultant and the Federal Highway Administration (FHWA) RD-77-108 noise calculation formulas, CNEL was calculated for various roadway segments that would be most affected by the Project. *Table 16: Existing Estimated Community Noise Equivalent Level* presents the existing mobile noise levels at the affected roadway segments, as well as the land uses adjacent to the analyzed roadway segments. As shown in *Table 16: Existing Estimated Community Noise Equivalent Level,* existing mobile noise levels in the Project area range from 64.0 to 72.9 dBA (CNEL). Modeled vehicle noise levels are typically lower than the noise measurements along similar roadway segments as modeled noise levels do not take into account additional noise sources (e.g., pedestrians).

TABLE 16
EXISTING ESTIMATED COMMUNITY NOISE EQUIVALENT LEVEL [1][2]

ROADWAY SEGMENT (ADJACENT USES)	ESTIMATED CNEL DBA [3]
Beverly Boulevard from Robertson Boulevard to George Burns Road (Commercial and Single-family uses)	71.9
Beverly Boulevard from George Burns Road to San Vicente Boulevard (Commercial uses)	71.9
Beverly Boulevard from San Vicente Boulevard to La Cienega Boulevard (Commercial uses)	72.9
Robertson Boulevard from Beverly Boulevard to Alden Drive-Gracie Allen Drive (Commercial uses)	69.8
Robertson Boulevard from Alden Drive-Gracie Allen Drive to Third Street (Commercial uses)	66.7
George Burns Road from Beverly Boulevard to Alden Drive-Gracie Allen Drive (Medical uses)	67.0
George Burns Road from Alden Drive-Gracie Allen Drive to Third Street (Medical uses)	67.6
Alden Drive-Gracie Allen Drive from Robertson Boulevard to George Burns Road (Medical uses)	65.2
Third Street from Robertson Boulevard to George Burns Road (Medical and Commercial uses)	65.7
Third Street from George Burns Road to Sherbourne Drive (Medical and Commercial uses)	70.5
La Cienega Boulevard from Wilshire Boulevard to Third Street (Residential and Commercial uses)	69.0

[1] Source: Terry A. Hayes Associates LLC, *Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report*, August 2008.
[2] The predicted CNELs were calculated as peak hour Leq and converted into CNEL using the California Department of Transportation Technical Supplement (October 1998). The conversion involved making a correction for peak hour traffic volumes as a percentage of average daily traffic and a nighttime penalty correction. The peak hour traffic was assumed to be ten percent of the average daily traffic.
[3] CNEL is at 50 feet from the roadway right-of-way.

(c) Ambient Vibration Levels

Similar to the environmental setting for noise, the vibration environment is dominated by traffic from nearby roadways. Heavy trucks can generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions. Existing ground-borne vibration in the Project vicinity is largely related to heavy truck traffic on the surrounding roadway network. Based on field observations, vibration levels from adjacent roadways are not perceptible at the Project Site.

(d) Noise-Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise- and vibration-sensitive and may warrant unique measures for protection from intruding noise. As shown in *Figure 30: Sensitive Receptor Locations*, sensitive receptors near the Project Site include the following:

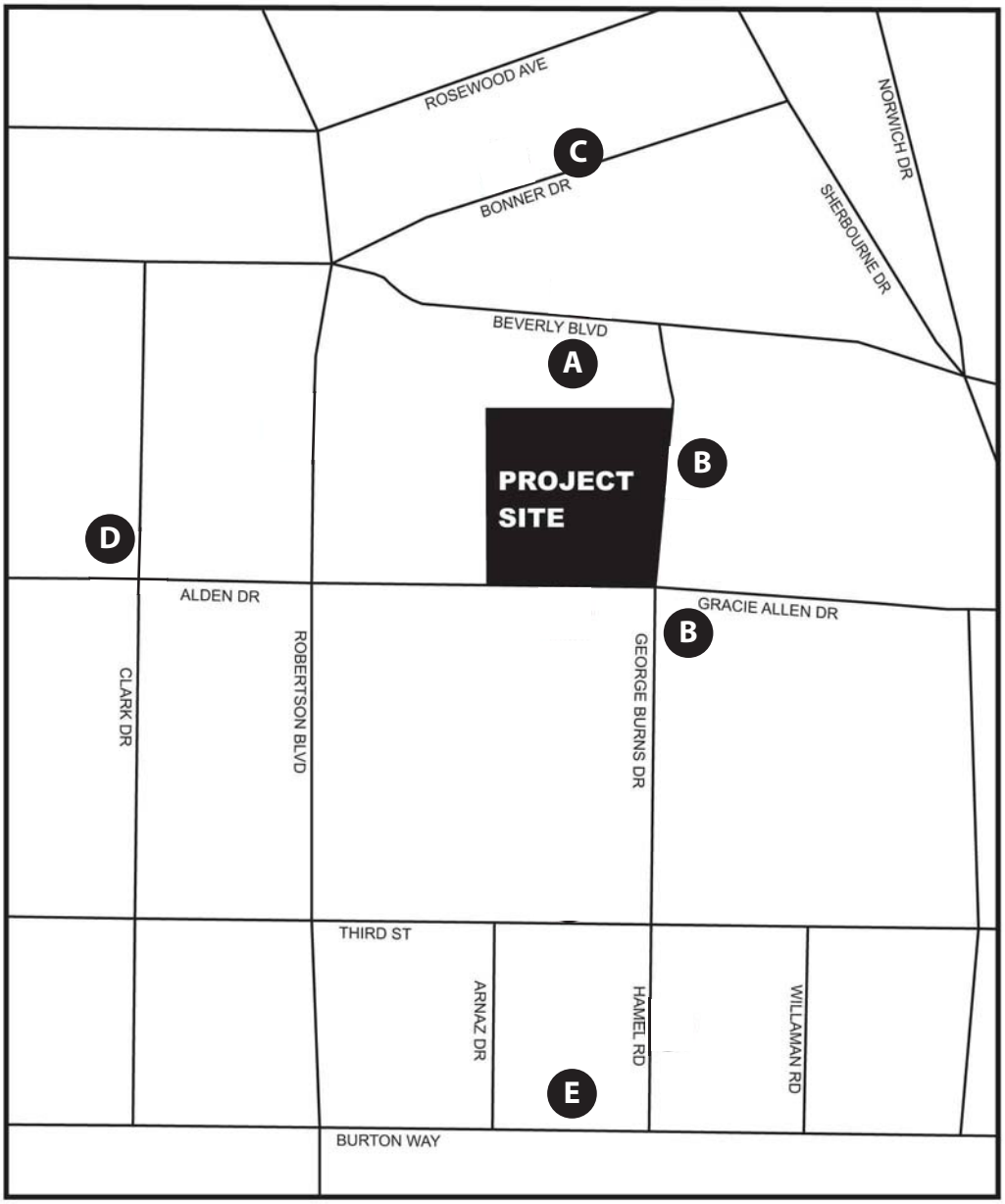
- Medical office building located adjacent and to the north of the Project Site;
- Cedars-Sinai buildings (including the North and South Patient Towers and medical offices) located approximately 50 feet east and southeast of the Project Site;
- Single-family residences located along Bonner Drive approximately 400 feet north of the Project Site;
- Multi-family residences located along Clark Drive approximately 475 feet west of the Project Site; and
- Multi-family residences located along Burton Way approximately 975 feet south of the Project Site.

The above sensitive receptors occupy the nearest residential and medical land uses with the potential to be impacted by the Project. Additional single-family and multi-family residences are located in the surrounding community within one-quarter mile of the Project Site. These land uses would be impacted to a lesser degree than the identified sensitive receptors, as they are farther away from the Project Site.

b. Regulatory and Policy Setting

(1) City of Los Angeles Standards and Guidelines

The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise sensitive land uses. Regarding construction, the Los Angeles Municipal Code (LAMC) indicates that no construction or repair



A Medical office building located adjacent and to the north of the Project Site
B Cedars-Sinai Medical Office Towers (including the hospital) located approximately 50 feet east and southeast of the Project Site
C Single-family residences located along Bonner Drive approximately 400 feet north of the Project Site
D Multi-family residences located along Clark Drive approximately 475 feet west of the Project Site
E Multi-family residences located along Burton Way approximately 975 feet south of the Project Site

FIGURE 30
SENSITIVE RECEPTOR LOCATIONS

SOURCE: TERRY A. HAYES AND ASSOCIATES

NORTH

work shall be performed between the hours of 9:00 p.m. and 7:00 a.m. on weekdays, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment or other place of residence[11]. No person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday or on a federal holiday, or at any time on any Sunday.

The LAMC also specifies the maximum noise level of powered equipment.[12] Any powered equipment that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of equipment.

(2) California Noise Standards and Guidelines

The California Office of Noise Control has developed guidelines showing a range of noise standards for various land use categories. Cities within the state, including the City of Los Angeles, have incorporated this compatibility matrix into their General Plan noise elements. This matrix is presented in *Table 17: Land Use Compatibility for Community Noise Environments* and is meant to maintain acceptable noise levels in a community setting based on the type of land use. Noise compatibility by different types of land uses is ranged from "Normally Acceptable" to "Clearly Unacceptable" levels. The guidelines are used by cities within the state to help determine the appropriate land uses that could be located within an existing or anticipated ambient noise level.

TABLE 17
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS [1]

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE (DBA, CNEL)					
	55	60	65	70	75	80
Residential - Low Density Single-Family, Duplex, Mobile Homes						
Residential - Multi-Family						
Transient Lodging - Motels Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						

[11] LAMC, Chapter IV, Article 1, Section 41.40, January 29, 1984 and Chapter XI, Article 2, Section 112.04, August 8, 1996.
[12] LAMC, Chapter XI, Article 2, Section 112.05, August 8, 1996.

TABLE 17 (CONTINUED)
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS [1]

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE (DBA, CNEL)						
	55	60	65	70	75	80	
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Key:

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 system or air conditionally 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 insulation features included in the design.

Clearly Unacceptable

New construction or development should generally not be undertaken.

[1] Source: California Office of Noise Control, Department of Health Services

c. CSMC Campus Background and 1993 Approvals

The Original EIR evaluated both mobile and stationary noise for both the construction and operational phases of the Master Plan project. The Original EIR concluded overall that temporary noise impacts during construction would be significant, while long-term operational noise impacts would be less than significant.

Specifically, the Original EIR concluded that demolition and construction activities would result in a temporary adverse impact at nearby residences. Even with implementation of the adopted mitigation measures, it was determined that short-term demolition and construction activities would still result in temporary significant increases in noise levels at the apartment building located on the southwest corner of San Vicente Boulevard and Third Street.

Long-term increases in vehicular-based noise due to Master Plan traffic would not be significant and specific mitigation measures were not recommended. The Original EIR concluded that

stationary noise sources, such as mechanical equipment, would result in long-term noise impacts. With implementation of the adopted mitigation measures, however, long-term noise impacts from stationary sources would be less than significant.

3. ENVIRONMENTAL IMPACTS

a. Methodology

The noise measurements that were used to characterize existing ambient exterior daytime noise levels in the Project vicinity were used to assess construction and operational noise impacts. The noise level during the construction period at each receptor location was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level.

To estimate operational noise impacts, the traffic report prepared by Linscott, Law & Greenspan, was used to identify the roadway segments that would be most affected by the Project.[13] The FHWA RD-77-108 noise calculation formulas were used to calculate the CNEL for the affected roadway segments.

The Federal Transit Authority, *Transit Noise and Vibration Impact Assessment* (April 1995) was used to identify the potential vibration sources that are associated with the proposed project and to estimate the potential vibration levels at various distances of the Project Site.

b. Thresholds of Significance

Based on the City of Los Angeles Noise Ordinance (LAMC Chapter XI), the City of Los Angeles *LA CEQA Thresholds Guide* (2006) and the State Land Use Compatibility Matrix (*Table 17: Land Use Compatibility for Community Noise Environments*),[14] a proposed project would result in significant noise impacts if it would generate noise levels in excess of the following thresholds.

Construction Phase Significance Criteria

A significant construction noise impact would result if:

- Construction activity would occur outside of the hours permitted by the City's noise ordinance (i.e., between the hours of 9:00 p.m. and 7:00 a.m. on weekdays, before 8:00 a.m. or after 6:00 p.m. on Saturday, or anytime on Sunday); and
- Construction activity would occur within 500 feet of a residential zone on Saturday unless an after-hours construction permit has been issued by the City. An after-hours permit could be issued by the City for low noise level construction activities (e.g., painting and interior improvements).

[13]Linscott, Law & Greenspan, Engineers, *Traffic Impact Study: Cedars-Sinai Medical Center Project*, June 23, 2008.
[14]California Office of Noise Control, Department of Health Services.

- Construction activity would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use.

Operational Phase Significance Criteria

A significant operational noise impact would result if:

- The proposed project causes the ambient noise level measured at the property line of the affected uses to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (Table 4-3) or any 5-dBA or more increase in noise level. As shown in *Table 17: Land Use Compatibility for Community Noise Environments*, "normally unacceptable" ranges from 70 to 75 dBA CNEL for single-family and multi-family residences, and 70 to 80 dBA CNEL for medical uses, which include hospitals and medical offices. "Clearly unacceptable" ranges from 70 to 85 dBA CNEL or greater for single-family and multi-family residences, and 80 dBA CNEL or greater for medical uses.

Ground-borne Vibration Significance Criteria

There are no adopted State or City of Los Angeles ground-borne vibration standards. Based on federal guidelines, the proposed project would result in a significant construction or operational vibration impact if:

- The proposed project would expose buildings to the FRA fragile building damage threshold level of 0.5 PPV.[15]

c. Project Impacts

(1) Construction (Short-Term) Noise

Construction of the Project would result in temporary increases in ambient noise levels in the Project area on an intermittent basis. The increase in noise would likely result in a temporary annoyance to nearby residents during the construction period. Noise levels would fluctuate depending on equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers.

Construction activities require the use of noise-generating equipment, such as jackhammers, pneumatic impact equipment, saws, pile drivers, and tractors. Typical noise levels from various types of equipment that may be used during construction are listed in *Table 18: Noise Levels of Typical Construction Equipment*. The table shows noise levels at distances of 50 and 100 feet from the construction noise source.

[15]Federal Railway Administration, *High-Speed Ground Transportation Noise and Vibration Impact Assessment*, December 1998.

TABLE 18
NOISE LEVELS OF TYPICAL CONSTRUCTION EQUIPMENT [1]

NOISE SOURCE	Noise Level (dBA) at 50 feet
Front Loader	73-86
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammers	81-98
Concrete Pumps	81-85
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Backhoe	73-95
Pile Driving (peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88
Caisson Drilling	84

Source: USEPA, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, PB 206717, 1971; Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006

Whereas *Table 18: Noise Levels of Typical Common Construction Equipment* shows the noise level of each equipment, the noise levels shown in *Table 19: Outdoor Construction Noise Levels* take into account the likelihood that more than one piece of construction equipment would be in operation at the same time and lists the typical overall noise levels that would be expected for each phase of construction. These noise levels are based on surveys conducted by the USEPA in the early 1970s. Since 1970, regulations have been enforced to improve noise generated by certain types of construction equipment to meet worker noise exposure standards. However, many older pieces of equipment are still in use. Thus, the construction phase noise levels indicated in *Table 19: Outdoor Construction Noise Levels* represent worst-case conditions. As the table shows, the highest noise levels are expected to occur during the grading/excavation and finishing phases of construction. The noise source is assumed to be active for 40 percent of the eight-hour workday (consistent with the EPA studies of construction noise), generating a noise level of 89 dBA at a reference distance of 50 feet.

TABLE 19
OUTDOOR CONSTRUCTION NOISE LEVELS [1]

CONSTRUCTION PHASE	NOISE LEVEL AT 50 FEET (DBA)
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85

TABLE 19 (CONTINUED)
OUTDOOR CONSTRUCTION NOISE LEVELS [1]

CONSTRUCTION PHASE	NOISE LEVEL AT 50 FEET (DBA)
Finishing	89
[1] Source: Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717 1971.	

The noise level during the construction period at each receptor location was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level. The estimated construction noise levels at sensitive receptors are shown in *Table 20: Construction Noise Impact-Unmitigated*. The construction noise levels presented in *Table 20: Construction Noise Impact-Unmitigated* are applicable to the additional 200,000 square feet, the demolition and construction of the 90,000 square feet of floor area from the Existing Building, and the 170,650 square-foot addition that is entitled under the Master Plan. The Project would be required to implement the mitigation measures that were adopted in connection with the approval of the Master Plan. These mitigation measures are listed in the Mitigation Program below.

As shown in *Table 20: Construction Noise Impact-Unmitigated*, construction activity would potentially increase ambient exterior noise levels at sensitive receptors by 4.8 to 23.8 dBA L_{eq}, respectively. Typical building construction provides a noise reduction of approximately 12 dBA with windows open and a minimum 26 dBA with windows closed.[16] The adjacent medical offices and hospitals do not have operating windows. As such, interior noise levels at the adjacent medical offices and hospital would be approximately 63 dBA. At the nearest residential use to the Project Site (single-family residences on Bonner Drive, north of the Project Site) the interior noise levels would be approximately 59 dBA with windows open and 45 dBA with windows closed. It is important to note that construction activity would occur intermittently during the day and would not occur within noise sensitive hours (9:00 p.m. to 7:00 a.m.).

The Project would include excavation for the Project parking structure. The excavated area would serve as a noise barrier to street-level sensitive receptors as the depth of excavation increases because noise levels are directly related to the "line-of-sight" or visibility factor of the noise source. For example, depending on the location of the sensitive receptors in relation to the excavated area, when 15 feet of excavation has occurred, construction activities within the excavated area may not be visible (and hence less audible) to street-level sensitive receptors. In addition, once the structural framing and the exterior building walls have been completed, the majority of construction activity would take place within the structure and would not substantially increase interior noise levels at sensitive receptors.

[16]American Society for Testing of Materials, *Standard Classification for Determination of Outdoor-Indoor Transmission Class*, 2003.

TABLE 20
CONSTRUCTION NOISE LEVELS – UNMITIGATED [1]

KEY TO *FIGURE 29: NOISE MONITORING POSITIONS*	DISTANCE (FEET) [2]	MAXIMUM CONSTRUCTION NOISE LEVEL (DBA) [3]	EXISTING AMBIENT (DBA, LEQ) [4]	NEW AMBIENT (DBA, LEQ) [5]	INCREASE
Medical Office Building, North of Project Site	50	89.0	70.5	89.1	18.7
Cedars-Sinai Medical Towers, East of Project Site	50	89.0	65.2	89.0	23.8
Single-Family Residences on Bonner Drive, North of Project Site	400	70.9	55.4	71.1	15.7
Multi-Family Residences on Clark Drive, West of Project Site	475	64.5 [6]	61.1	66.1	5.0
Multi-Family Residences on Burton Way, South of Project Site	975	58.2 [6]	60.2	65.0	4.8

[1] Source: Terry A. Hayes Associates LLC, *Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report*, August 2008.
[2] Distance of noise source from receptor.
[3] Construction noise source's sound level at receptor location, with distance and building adjustment.
[4] Pre-construction activity ambient sound level at receptor location.
[5] New sound level at receptor location during the construction period, including noise from construction activity.
[6] Includes a 5-dBA reduction for intervening buildings

An office building is located adjacent and to the west of the Project Site. Office buildings are not typically considered to be sensitive receptors. However, it should be noted that the office building would be exposed to similar construction noise levels as the adjacent medical office building.

The noise limitation of the LAMC does not apply where compliance is technically infeasible.[17] "Technically infeasible" means that the noise standard cannot be met despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of equipment. For example, it would not be feasible to utilize an 11-story sound blanket to reduce construction noise levels. Freestanding sound blankets and sound walls cannot extend 11 stories. Hanging a sound blanket off the side of the proposed building would interfere with construction activity. In addition, solid sound walls only block a portion of construction noise (typically 5 to 8 dBA, depending on height) from ground-level noise generators.

As shown in *Table 20: Construction Noise Impact-Unmitigated*, noise levels related to construction activity would exceed the 5-dBA significance threshold at nearby sensitive receptors, with the exception of the multi-family residences on Burton Way, south of the Project Site. As such, the Project would result in a significant impact without incorporation of mitigation measures. The significant impact would occur intermittently over approximately 36

[17]City of Los Angeles, *LAMC, Chapter IX, Article 2, Section 122.05.*

months (the length of construction) and would only occur when there is moderate or greater construction activity on the Project Site. This significant impact would occur during construction activities associated with the development of the Project and the remainder development under the Master Plan.

During construction, it is assumed that 100 delivery/haul trucks and 90 construction worker vehicles[18] would be traveling to and from the project site daily. For an eight-hour construction workday, it is assumed that approximately 12 to 13 delivery/haul trucks per hour would be traveling on the surrounding streets. It is assumed that construction worker vehicles would be traveling on the roadways during the AM and PM peak hours. The construction worker vehicles would be distributed throughout the roadways within the vicinity of the project site. Generally, noise levels increase by 3 dBA when the number of similar noise sources double.[19] When compared to the traffic volumes identified in the traffic report, the increase in delivery/haul trucks and construction worker vehicle trips are not anticipated to double the amount of traffic that currently exist in the surrounding area. As such, the increase in delivery/haul trucks and worker vehicles in the surrounding roadways is not anticipated to incrementally increase noise levels in the surrounding area by 3 dBA or more.

The Original EIR concluded that temporary construction noise impacts associated with development of the Master Plan would be significant and unavoidable. Construction noise associated with the remaining 170,650 square feet that is entitled under the Master Plan was analyzed in the Original EIR and included in the approvals for the Master Plan in 1993.

(2) Operational (Long-Term) Noise

Vehicular Noise

The predominant long-term noise source for the Project is vehicular traffic. According to the traffic report prepared by Linscott, Law & Greenspan, the Project would generate 1,181 daily vehicle trips.[20] The remaining entitlement allowed under the Master Plan (i.e., the 170,650-square feet) would generate 5,324 daily vehicle trips per day.[21] No net change in traffic associated with the 90,000 square-foot Existing Building was assumed.

To ascertain off-site noise impacts, traffic was modeled under future year (2023 or year of Project buildout) "No Project" and "With Project" conditions utilizing FHWA RD-77-108 noise calculation formulas. The "No Project" conditions include the remaining square footage allowed under the Master Plan (i.e., the 170,650-square feet) with associated parking, as well as Related Projects within the vicinity of the Project Site. "With Project" conditions include the Project (i.e., the addition of an equivalent of 200,000 square feet of floor area for medical uses, or 100 inpatient beds) and the Master Plan with associated parking, and Related Projects within the vicinity of the Project Site.

[18]Assumes 100 construction workers per day with an average vehicle ridership of 1.1.
[19]Caltrans, *Technical Noise Supplement*, 1998.
[20]Linscott, Law & Greenspan, Engineers, *Traffic Impact Study: Cedars-Sinai Medical Center Project*, June 23, 2008.
[21]Linscott, Law & Greenspan Engineers, *Traffic Impact Study: Cedars-Sinai Medical Center Project*, June 23, 2008.

Results of the analysis are summarized in *Table 21: 2007 and 2023 Estimated Community Noise Equivalent Level*. The greatest Project-related noise increase would be 0.4 dBA CNEL and would occur along Alden Drive-Gracie Allen Drive between Robertson Boulevard and George Burns Road. Roadway noise levels attributed to the Project would increase by less than 3 dBA CNEL at all other analyzed segments.

Mobile noise generated by the Project would not cause the ambient noise level measured at the property line of the noise-sensitive receptor sites to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (*Table 17: Land Use Compatibility for Community Noise Environments*) or any 5-dBA or more increase in noise level. Therefore, the Project would result in a less than significant mobile source noise impact.

The Original EIR concluded that operation of the Master Plan would result in a less than significant increase in ambient noise levels in the area. Therefore, the Project's impact is similar to the impact identified in the Original EIR, and does not involve a new significant noise impact or a substantial increase in the severity of noise the impact previously identified in the Original EIR.

TABLE 21
2007 AND 2023 ESTIMATED COMMUNITY NOISE EQUIVALENT LEVEL [1]

ROADWAY SEGMENT	ESTIMATED DBA, CNEL [2]				
	Existing (2007)	No Project (2023)	Project (2023)	Project Impact	Cumulative Impact
Beverly Boulevard from Robertson Boulevard to George Burns Road (Commercial and Single-family uses)	71.9	73.4	73.4	0.0	1.5
Beverly Boulevard from George Burns Road to San Vicente Boulevard (Commercial uses)	71.9	73.6	73.6	0.0	1.7
Beverly Boulevard from San Vicente Boulevard to La Cienega Boulevard (Commercial uses)	72.9	74.6	74.7	0.1	1.8
Robertson Boulevard from Beverly Boulevard to Alden Drive-Gracie Allen Drive (Commercial uses)	69.8	72.5	72.5	0.0	2.7
Robertson Boulevard from Alden Drive-Gracie Allen Drive to Third Street (Commercial uses)	66.7	69.4	69.4	0.0	2.7
George Burns from Beverly Boulevard to Alden Drive-Gracie Allen Drive (Medical uses)	67.0	68.3	68.5	0.2	1.5
George Burns from Alden Drive-Gracie Allen Drive to Third Street (Medical uses)	67.5	68.5	68.7	0.2	1.2
Alden Drive-Gracie Allen Drive from Robertson Boulevard to George Burns Road (Medical uses)	64.0	66.8	67.2	0.4	3.2
Third Street from Robertson Boulevard to George Burns Road (Medical and Commercial uses)	65.7	68.0	68.0	0.0	2.3
Third Street from George Burns Road to Sherbourne Drive (Medical and Commercial uses)	70.5	72.6	72.7	0.1	2.2
La Cienega Boulevard from Wilshire Boulevard to Third Street (Residential and Commercial uses)	69.0	71.0	71.1	0.1	2.1

[1] Source: Terry A. Hayes Associates LLC, Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report, August 2008. The predicted CNEL were calculated as peak hour Leq and converted into CNEL using the California Department of Transportation Technical Noise Supplement (October 1998). The conversion involved making a correction for peak hour traffic volumes as a percentage of average daily traffic and a nighttime penalty correction. The peak hour traffic was assumed to be ten percent of the average daily traffic.
[2] CNEL is at 50 feet from the roadway right-of-way.

Siren Noise

Siren noise from emergency vehicles leaving from and arriving at the West Tower would constitute a short-term and intermittent noise source. However, the Los Angeles Municipal Code, Chapter XI Noise Regulation, Article I and II, exempts any emergency vehicle noise generated within the City limits.[22] Siren noise would be short-term and intermittent and would result in a less-than-significant impact. Noise impacts associated with sirens were not discussed in the Original EIR.

Stationary Noise

Potential stationary noise sources related to the long-term operations of the Project include mechanical equipment and parking areas. Mechanical equipment (e.g., parking structure air vents and heating, ventilation and air conditioning (HVAC) equipment) may generate noise levels ranging from 48 dBA to 66 dBA. The applicable mitigation measures adopted in connection with the Master Plan include installing sound attenuating devices on exhaust fans, enclosing mechanical equipment, and providing sound absorbing and shielding provisions into the design of this equipment. Also, mechanical equipment would be designed so as to be located within an enclosure or confined to the rooftop of the proposed structure. In addition, mechanical equipment would be screened from view as necessary to comply with provisions of the LAMC for on-site stationary sources. Enclosing and screening the mechanical equipment from view would reduce mechanical equipment noise levels by at least three dBA. The medical office building north of the Project Site has an existing ambient noise level of approximately 70.5 dBA, and the medical towers east of the Project Site have an existing ambient noise level of approximately 65.2 dBA. Assuming that the mechanical equipment would generate noise levels of approximately 66 dBA, the LAMC requirement to enclose and screen the mechanical equipment from view would reduce the mechanical equipment noise levels to approximately 63 dBA. As a result, the ambient noise level would incrementally increase by less than one dBA at the medical office building and by approximately 2 dBA at the medical towers east of the Project Site. Operation of mechanical equipment would not be anticipated to incrementally increase ambient noise levels by 5 dBA or more. Therefore, stationary noise due to the Project would result in a less-than-significant impact.

The Original EIR found that stationary noise sources associated with the Master Plan would be required to comply with the City of Los Angeles noise ordinance. This requirement would also apply with implementation of the Project. Therefore, the Project's stationary source noise impact is similar to the impact identified in the Original EIR and does not involve a new significant noise impact or substantial increase in the severity of the noise impact previously identified for the Master Plan.

[22] Los Angeles Municipal Code, Chapter XI Noise Regulation, Article I and II, http://www.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:lamc_ca, accessed on November 20, 2007.

Parking Noise

The 650-space Approved Parking Structure was approved at the Project Site as part of the Master Plan; construction of the Approved Parking Structure is associated with the implementation of the Master Plan is not considered a new development and would not be part of the 200,000 square feet of new development. Even so, noise monitoring at an existing parking structure south of the Project Site indicated that activity at the existing parking structure results in a noise level of approximately 65.8 dBA L_{eq} at 20 feet. Based on this monitored noise level, the adjacent medical office building to the south of the Project Site would be exposed to 65.9 dBA, or 0.1 dBA over the existing noise level. The other medical buildings (including the hospital) surrounding the Project Site would be further away from the parking structure and, thus, incremental increases in noise levels at these buildings would be less than the adjacent medical office buildings. Additionally, the 11-story building that would be constructed for the Project would shield sensitive receptors to the east of the proposed parking structure from parking-related noise. As the parking structure activity would not incrementally increase ambient noise levels by 5 dBA or more, parking noise would result in a less-than-significant impact.

Loading Docks and Service Access Areas

The West Tower project will incorporate a loading dock and ambulatory service area. These facilities will be located in the parking structure and accessed primarily from Gracie Allen Drive. The loading dock would continue to operate between the same hours and under similar circumstances as already observed on the CSMC Campus. Because the loading dock and ambulatory service area would be internal to the parking structure, these areas would be shielded from sensitive receptors by Project structures. The structures would act as a noise barrier and would prevent increased ambient noise levels by more than 5 dBA from the proposed loading docks at off-site sensitive receptors. The Project would not result in additional noise sources due to the operation of the loading docks or ambulatory services. The Project would result in a less than significant operational noise impact due to loading dock or service access operations.

Land Use Compatibility

The Noise Element of the General Plan indicates that interior noise for hospitals should be 45 dBA or lower. Typical construction of building walls provides a noise reduction of approximately 26 dBA. The medical facility on the Project Site would be constructed with fresh air ventilation systems and windows that cannot be opened. As such, interior noise levels would be at least 26 dBA less than exterior noise levels. As shown in *Table 16: Existing Estimated Community Noise Equivalent Level*, the maximum exterior noise level at and adjacent to the Project Site is approximately 65.8 dBA. This would result in interior noise level of approximately 39.8 dBA. Interior noise levels would be less than the 45 dBA CNEL. Residential uses, which have lower ambient noise levels than the Project Site, would be less affected by Project-related noise since these residential uses are located farther away from the Project Site than the adjacent medical uses.

As with the Original EIR, existing ambient noise levels within the Project Site and in its surrounding area exceed 60 dBA. As such, the State Building Code will require an acoustical analysis showing that the interior noise levels for the West Tower would be 45 dBA or less. Impacts associated with the Project are similar to the impact identified in the Original EIR, and the Project does not involve a new significant noise impact or a substantial increase in the severity of the noise impact previously identified in the Original EIR.

(3) Vibration

(a) Construction

Ground-borne vibration could occur adjacent to the medical office building north of the Project Site. As shown in *Table 22: Vibration Velocities for Construction Equipment*, typical heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.352 PPV at a distance of ten feet. Loaded haul trucks generate vibration levels of 0.300 PPV at the same distance. These vibration levels would be less than the 0.5 inches per second significance threshold. As such, vibration due to construction of the Project would result in a less-than-significant impact, presuming that driven piles are not necessary for new construction. However, there is the potential that vibration levels would exceed the threshold of significance should driven piles be used for the Project. Therefore, mitigation is required to ensure that any potential impacts are reduced to a less-than-significant level.

Vibration impacts were not analyzed in the Original EIR. However, mitigation measures required to reduce the Project's vibration impacts are also applicable to the Master Plan project.

(b) *Operation*

The Project would not include significant stationary sources of ground-borne vibration, such as heavy equipment operations. Operational ground-borne vibration in the Project vicinity would be generated by vehicular travel and delivery trucks on the local roadways. Based on field observations, vibration levels from adjacent roadways are not perceptible at the Project Site. Similar to existing conditions, traffic-related vibration levels would not be perceptible by sensitive receptors. Thus, operational vibration would result in a less-than-significant impact. Vibration impacts were not analyzed in the Original EIR.

TABLE 22
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT [1]

EQUIPMENT	PPV AT 10 FEET (INCHES/SECOND) [2]	PPV AT 35 FEET (INCHES/SECOND) [2]	PPV AT 55 FEET (INCHES/SECOND) [2]
Pile Driver (impact)	6.000	0.916	0.465
Pile Driver (sonic)	2.901	0.443	0.225
Large Bulldozer	0.352	0.054	0.027
Caisson Drilling	0.352	0.054	0.027
Loaded Trucks	0.300	0.046	0.023

[1] Source: Federal Transit Authority, Transit Noise and Vibration Impact Assessment, April 1995.
[2] Fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage.

d. Cumulative Impacts

Regarding cumulative construction noise, the nearest Related Project is located approximately 300 feet north of the Project Site along Bonner Drive in the City of West Hollywood. The medical office building north of the Project Site and along Beverly Boulevard would be the nearest sensitive receptor exposed to construction noise from the proposed Project and nearest Related Project. It is anticipated that construction of the nearest Related Project would occur before construction of the proposed Project, however, should construction activities occur simultaneously, significant impacts may result.

It is assumed that the nearest Related Project would generate a similar maximum construction noise level as the proposed Project. As such, the construction noise level from the nearest Related Project would be 89 dBA at 50 feet (without mitigation implementation). The medical office building (nearest sensitive receptor) is approximately 200 feet from the nearest Related Project construction activity. At this distance, construction noise would be reduced to approximately 77 dBA.[23] Additionally, the nearest Related Project would be shielded from the medical office building by existing buildings along Beverly Boulevard, which would reduce construction noise by at least 10 dBA, resulting in a final construction noise level of 67 dBA at the medical office building.[24]

Adding the nearest Related Project construction noise level of 67 dBA to the Project construction noise level of 79 dBA (with mitigation) would result in a new construction noise level of 79.3 dBA at the medical office building. This would increase the ambient noise levels in the Project area by 9.3 dBA.[25] Therefore, cumulative construction noise would exceed the 5-dBA significance threshold and, as such, the Project would result in a cumulative construction noise impact.

Regarding cumulative operational noise, when calculating future traffic impacts, the traffic consultant took 141 additional projects into consideration. Thus, the future traffic results with and without the Project already account for the cumulative impacts from these other projects. Since the operational noise impacts are generated directly from the traffic analysis results, the future without Project and future with Project noise impacts described in this report already reflect cumulative impacts.

Table 21: 2007 and 2032 Estimated Community Noise Equivalent Level presents the cumulative increase in future traffic noise levels at various intersections (i.e., 2023 "No Project "conditions plus Project traffic). The maximum cumulative roadway noise increase would be 3.2 dBA CNEL and would occur along Alden Drive-Gracie Allen Drive between Robertson Boulevard and George Burns Road in a commercial area. The cumulative roadway noise levels would exceed the 3-dBA threshold increment. However, the new mobile noise level would not be within the "normally unacceptable" or "clearly unacceptable" category as shown in *Table 17: Land Use Compatibility for Community Noise Environments*. Therefore, the Project would not

[23] Terry A. Hayes and Associates email to Planning Associates, Inc., July 2, 2008.
[24] *Ibid*.
[25] *Ibid*.

result in a cumulatively considerable exterior or interior noise impact with respect to roadway noise.

The predominant vibration source near the Project Site is heavy trucks traveling on the local roadways. Neither the Project nor the Related Projects would substantially increase heavy-duty vehicle traffic near the Project Site or cause a substantial increase in heavy-duty trucks on local roadways since the Related Projects would develop residential and commercial uses that would not generate substantial amounts of heavy-duty truck trips. Related Projects would not include land uses that are associated with unusually high volumes of heavy-duty truck trips (e.g., shipping or warehouse facilities).[26] As such, the Project would not add to a cumulative vibration impact. Therefore, no significant cumulative impact from long-term noise sources would occur.

(1) Consistency with Applicable Plans and Policies

Consistency with applicable plans and policies is discussed above in subsection *(2) Operational Impacts, Land Use Compatibility*. As noted above, Project-related noise levels are consistent with the standards established for hospital uses (on-site) and residential uses (off-site) as provided in the Noise Element of the General Plan. Because the Project would be consistent with the Noise Element, impacts related to consistency with applicable noise-related plans and policies are less than significant.

4. MITIGATION PROGRAM

a. Regulatory Requirements, Standard Conditions, and Project Design Features

MM NOI-1: The Project will comply with the City's Noise Ordinance to ensure that construction activities are conducted in accordance with the LAMC.

b. 1993 Mitigation Measures (Carried Forward)

(1) Construction Noise

MM NOI-2: Specify the use of quieted equipment in compliance with the applicable provisions of the City of Los Angeles Noise Ordinance No. 156,363.

MM NOI-3: Route trucks hauling debris through non-residential areas by approval of the Department of Building and Safety.

MM NOI-4: The use of quieted equipment would reduce noise levels by an additional 3 to 6 dBA.

MM NOI-5: Limit demolition activities to the hours of 7:00 A.M. to 6:00 P.M., Monday through Friday, and 8:00 A.M. to 6:00 P.M., Saturday.

[26] Linscott, Law & Greenspan, Engineers, *Traffic Impact Study: Cedars-Sinai Medical Center Project*, June 23, 2008.

MM NOI-6: Construct a temporary noise barrier wall along the property line, where feasible, as determined by the Department of Building and Safety.

MM NOI-7: Specify that all sound-reducing devices and restrictions be properly maintained throughout the construction period.

MM NOI-8: Where temporary noise barriers are infeasible, portable noise panels to contain noise from powered tools shall be used.

MM NOI-9: Use rubber-tired equipment rather than track equipment.

MM NOI-10: Limit the hours of construction to between 7:00 A.M. and 6:00 P.M., Monday through Friday and between 8:00 A.M. and 6:00 P.M. on Saturday.

MM NOI-11: Keep loading and staging areas on site within the perimeter protected by the recommended temporary noise barrier and away from the noise-sensitive sides of the site.

MM NOI-12: If feasible, use alternate pile placement methods other than impact pile driving. (See MM NOI-22 for a detailed discussion of the feasibility of alternate pile placement methods).

(2) Operational Noise

MM NOI-13: Installation of sound attenuating devices on exhaust fans, enclosing mechanical equipment, and providing sound absorbing and shielding provisions into the design.

c. Recommended Additional Mitigation Measures

(1) Construction Noise

MM NOI-14: Construction contracts shall specify that all construction equipment be equipped with mufflers and other suitable noise attenuation devices.

MM NOI-15: Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment).

MM NOI-16: Barriers such as plywood structures or flexible sound control curtains extending eight feet in height shall be erected around the perimeter of the Project Site to the extent feasible, to minimize the construction noise.

MM NOI-17: Flexible sound control curtains shall be placed around drilling apparatus and drill rigs used within the Project Site, to the extent feasible.

MM NOI-18: The construction contractor shall establish designated haul truck routes. The haul truck routes shall avoid noises sensitive receptors, including, but are not limited to residential uses and schools.

MM NOI-19: All residential units located within 500 feet of the construction site shall be sent a notice regarding the construction schedule of the Project. A sign, legible at a distance of 50 feet shall also be posted at the construction site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can inquire about the construction process and register complaints.

MM NOI-20: The construction contractor shall establish a "noise disturbance coordinator" shall be established. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would be required to implement reasonable measures such that the complaint is resolved. All notices that are sent to residential units within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number for the disturbance coordinator.

(2) Operational Noise

MM NOI-21: The applicant shall conduct an acoustical analysis to confirm that if the materials to be used for the proposed Project would reduce interior noise levels to 45 dBA. If the analysis determines that additional noise insulation features are required, the acoustical analysis shall identify the type of noise insulation features that would be required to reduce the interior noise levels to 45 dBA, and the applicant shall incorporate these features into the proposed project.

(3) Vibration

MM NOI-22: Pile driving activity shall be limited based on the distance of vibration sensitive buildings to the Project Site. For buildings within 35 feet of pile driving activity, contractors shall use caisson drilling to drive piles. For buildings 35 to 55 feet from pile driving activity, contractors shall use sonic or vibratory pile drivers to drive piles. For buildings 55 feet and beyond pile driving activity, contractors may use impact pile drivers.

5. SIGNIFICANT PROJECT IMPACTS AFTER MITIGATION

Implementation of the Mitigation Program would reduce construction noise levels. Several of the mitigation measures would each reduce construction noise by approximately 5 to 10 dBA.[27] The noise disturbance coordinator would endeavor to resolve all noise complaints promptly. As shown in *Table 23: Construction Noise Impact – Mitigated*, construction activity would potentially increase ambient noise levels at sensitive receptors by 0.3 to 14.0 dBA L_{eq},

[27]USEPA, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

respectively. Construction-related noise would exceed the 5-dBA significance threshold at various sensitive receptors, and, as such, the Project would result in a temporary significant and unavoidable construction noise impact. Because the Original EIR also found that temporary construction noise impacts would result from construction of the Master Plan, construction of the Project would not result in new significant noise impacts or a substantial increase in the severity of significant noise impacts previously identified in the Original EIR. This is particularly true since much of the construction analyzed in this section represents implementation of the previously approved Master Plan, rather than of the Project.

TABLE 23
CONSTRUCTION NOISE IMPACT – MITIGATED [1]

KEY TO *FIGURE 29: NOISE MONITORING POSITIONS*	DISTANCE (FEET) [2]	MAXIMUM CONSTRUCTION NOISE LEVEL (DBA) [3]	EXISTING AMBIENT (DBA, LEQ) [4]	NEW AMBIENT (DBA, LEQ) [5]	INCREASE
Medical Office Building, North of Project Site	50	79.0	70.5	79.6	9.1
Cedars-Sinai Medical Towers, East of Project Site	50	79.0	65.2	79.2	14.0
Single-Family Residences on Bonner Drive, North of Project Site	400	60.9	55.4	62.0	6.6
Multi-Family Residences on Clark Drive, West of Project Site	475	54.5 [6]	61.1	62.0	0.9
Multi-Family Residences on Burton Way, South of Project Site	975	48.2 [6]	60.2	60.5	0.3

[1] Source: Terry A. Hayes Associates LLC, *Cedars-Sinai Medical Center Project Air Quality and Noise Impact Report*, April 2008.
[2] Distance of noise source from receptor.
[3] Construction noise source's sound level at receptor location, with distance and building adjustment.
[4] Pre-construction activity ambient sound level at receptor location.
[5] New sound level at receptor location during the construction period, including noise from construction activity.
[6] Includes a 5-dBA reduction for intervening buildings

The Project-related operational noise would result in a less than significant impact with mitigation. The Original EIR also concluded that operation of the Master Plan would result in less than significant impacts. Therefore, operation of the Project would not result in new significant noise impacts or a substantial increase in the severity of significant noise impacts as compared to the impacts previously found in the Original EIR.

Implementation of the Mitigation Program would ensure that construction-related vibration would result in a less than significant impact and that no adjacent building will be impacted by vibration sources during Project Site construction by restricting the distance at which pile-driving activities would occur and what type of equipment may be operated at specific distances. These restrictions would effectively reduce the potential for adjacent building damage to a less-than-significant impact. Operational ground-borne vibration impacts would be less than significant,

and no mitigation measures are required.

The Project will result in a net significant unavoidable impact (including cumulatively) related to construction (short-term) noise at sensitive receptors. Pursuant to CEQA Guidelines Sections 15092 and 15093, and in the event the Project is approved, the City of Los Angeles must adopt a Statement of Overriding Considerations acknowledging these outstanding significant adverse impacts and stating the reason(s) for accepting these impacts in light of the whole environmental record as weighed against the benefits of the Project.