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**HOAG MEMORIAL HOSPITAL PRESBYTERIAN
NEWPORT BEACH, CALIFORNIA**

ACOUSTICAL MEASUREMENT PROGRAM TEST REPORT

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This report presents the results of an acoustical noise measurement program conducted at the Hoag Memorial Hospital Presbyterian campus in Newport Beach, California. This report is part of an annual review to determine the current noise environment and whether implementation of noise mitigation measures have successfully achieved the design criterion for noise sources located within the Hoag Memorial Hospital Presbyterian complex.

TABLE OF CONTENTS

Title	Section	Page
Executive Summary	1.0	3
Project Description	1.1	4
Community Noise Assessment Metrics	1.2	4
City of Newport Beach Noise Standards	1.3	5
Hoag Memorial Hospital Planned Community Development Criteria & District Regulations	1.4	7
Test Equipment	1.5	8
Ancillary Building and West Tower Mechanical Equipment	2.1	8
Ancillary Building Rooftop Mechanical Equipment	2.1.1	8
West Tower Mechanical Equipment Room	2.1.2	9
Main Loading Dock (Daytime)	2.2	10
West (Residential) Side of Acoustical Wall	2.2.1	11
East (Hospital) Side of Acoustical Wall	2.2.2	12
Main Loading Dock (Nighttime)	2.3	13
West (Residential) Side of Acoustical Wall	2.3.1	14
East (Hospital) Side of Acoustical Wall	2.3.2	14
Dietary Loading Dock Noise Levels & Activity	2.4	15
Daytime Noise Measurements & Activity	2.4.1	15
Nighttime Noise Levels & Activity	2.4.2	16
Cogeneration Facility Noise Levels & Activity	2.5	16
Daytime Noise Measurements & Activity	2.5.1	16
Nighttime Noise Levels & Activity	2.5.2	17
General Ambient Conditions	2.6	18
Catalina Drive & Old Newport Blvd.	2.6.1	18
Superior Avenue & Sunset Park Lane	2.6.2	19
Sunset Park Lane & West Hoag Road	2.6.3	20
200 Paris Lane-Villa Balboa Condominium Complex	2.7	21
Daytime Noise Measurements	2.7.1	21
Nighttime Noise Measurements	2.7.2	21
Measurements at 260 Cagney Lane Condominium – Unit 304	2.8	22
Daytime Noise Measurements	2.8.1	23
Nighttime Noise Measurements	2.8.2	23
Conclusion and Summary of Acoustical Testing Results	3.1	24



1.0 EXECUTIVE SUMMARY

Acoustical tests were conducted on 9, 10 and 17 February 2012 within the Hoag Hospital Memorial Presbyterian campus and also in the nearby community to determine the noise levels generated by the hospital operations relative to local and specific governing ordinances.

Table I below summarizes the test locations, relative time of the tests, and the test results. The final column presents the governing ordinance which must be satisfied.

TABLE I
Summary of Acoustical Test Results

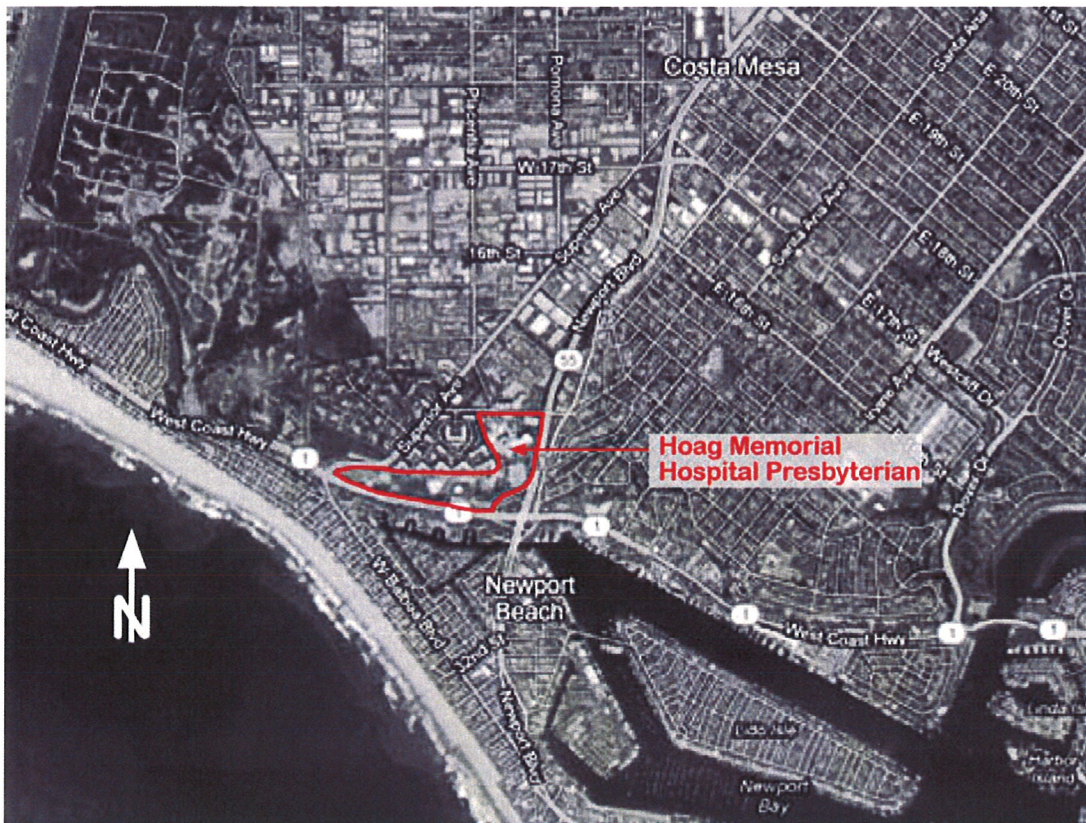
Location of Acoustical Test	Time	Results	Governing Ordinance
Ancillary Building Rooftop Equipment	Nighttime	Pass	Planned Community Development Criteria & District Regulations
West Tower Mechanical Room Equipment	Nighttime	Pass	Planned Community Development Criteria & District Regulations
Main Loading Dock	Daytime	Pass	Planned Community Development Criteria & District Regulations
	Nighttime	Pass	Planned Community Development Criteria & District Regulations
Dietary Loading Dock	Daytime	Pass	Planned Community Development Criteria & District Regulations
	Nighttime	Pass	Planned Community Development Criteria & District Regulations
Cogeneration Facility	Daytime	Pass	City of Newport Beach Noise Ordinance
	Nighttime	Pass	City of Newport Beach Noise Ordinance
Environmental Ambient Conditions	Daytime	---	Noise ordinance not applicable.
	Nighttime	---	Noise ordinance not applicable.
200 Paris Lane	Daytime	Pass	City of Newport Beach Noise Ordinance
	Nighttime	Pass	City of Newport Beach Noise Ordinance
Condominium Unit 304 260 Cagney Lane	Daytime	Pass	Planned Community Development Criteria & District Regulations
	Nighttime	Pass	Planned Community Development Criteria & District Regulations
Condominium Unit 304 260 Cagney Lane	Daytime	Pass	City of Newport Beach Noise Ordinance – Interior Noise Standards
	Nighttime	Pass	City of Newport Beach Noise Ordinance – Interior Noise Standards



1.1 PROJECT DESCRIPTION

Hoag Memorial Hospital Presbyterian is located at One Hoag Drive in Newport Beach, California as shown on the vicinity map on Figure 1. The hospital campus is separated into two distinct planning sections described as the “Upper Campus” to the north, and the “Lower Campus” to the south.

The Upper Campus section is bordered by Hospital Road to the north, West Hoag Drive to the west, Newport Boulevard (55) to the east, and a hospital multi-level parking structure extends south to the Newport Blvd. off-ramp connecting Newport Blvd. to Pacific Coast Highway. The Lower Campus section is bordered to the north by Sunset View Park and Villa Balboa townhomes, Superior Avenue to the west, Newport Blvd. to the east, and the southern boundary is bounded by Pacific Coast Highway (Highway 1).



Vicinity Map

Figure 1

1.2 COMMUNITY NOISE ASSESSMENT METRICS

In general, community noise measurements or assessments refer to descriptions of the exterior noise environment in the vicinity of inhabited areas. Descriptions of noise usually include the time and spatial variations in the outdoor noise environment throughout a specific area so that descriptions are relevant to the effect on people within the specified area.

Outdoor noise environments vary greatly in magnitude and character among locations throughout a community – from the quiet suburban areas bordering on farmland, to the din of traffic in downtown

city streets. They generally vary with time of day, being relatively quiet at night when activities are minimal and noisier in morning and afternoons during peak traffic periods.

Noise or unwanted sound is complex and may be comprised of a broad range of sounds often including low and high frequency components, which may also occur at differing decibel levels. To help simplify and quantify the human judgment of relative loudness and provide a simple single-number rating system, the A-weighting network was developed.

A-weighted sound level “db(A)” is one of the most widely used methods of stating community noise design goals and regulations in terms of a single number rating system. A-weighted sound levels are obtained with a sound level meter incorporating an electronic weighting network that de-emphasizes the low frequency portions of the noise spectrum, to automatically compensate for the lower sensitivity of the human ear to low frequency sounds. High frequency components of sound, 1000Hz and above are relatively unchanged in A-weighting as the human ear is fairly equally sensitive to all sounds occurring in this range. The single A-weighted number is the sum of all A-weighted sound energy within a given range incorporating the 32Hz to 8000Hz octave bands.

The City of Newport Beach, as is typical of other cities, utilizes A-weighted sound levels in their noise ordinance to quantify allowable noise levels which are averaged over a specific time period. This time component is specified to allow for varying noise conditions such as the fluctuating noise levels associated with vehicular traffic stopping or accelerating from an intersection. The resultant level is the average of all sound levels measured within the stated time period.

The noise ordinance of The City of Newport Beach requires that noise measurements be conducted and averaged over a 15 minute period, with a sound level meter set for a slow response averaging time. The result is termed a “15 minute L_{eq} ”, (Equivalent Noise Level) and is measured and presented in A-weighted decibels levels. By definition, a 15 minute L_{eq} is the A-weighted sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over the 15 minute period.

For brief or short duration or impact sounds, the City of Newport Beach utilizes the L_{max} metric or Maximum Sound Level. This metric is also expressed in A-weighted decibels, and per the requirements of the ordinance is measured at the slow response averaging time. L_{max} noise levels quantify the highest sound level measured or recorded during a designated time interval or event.

1.3 CITY OF NEWPORT BEACH NOISE STANDARDS

10.26.025 Exterior Noise Standards

A. The following noise standards, unless otherwise specifically indicated, shall apply to all property within a designated noise zone:

Noise Zone	Type of Land Use	Measuring Metric (A-wtd)	Daytime	Nighttime
			Allowable Exterior Noise Level (Leq) 7:00 am – 10:00 pm	Allowable Exterior Noise Level (Leq) 10:00 pm – 7:00 am
I	Single-, two-, or multiple-family residential.	15 minute L_{eq}	55 dB(A)	50 dB(A)
		* L_{max}	75 dB(A)	70 dB(A)
II	Commercial	15 minute L_{eq}	65 dB(A)	60 dB(A)
		* L_{max}	85 dB(A)	80 dB(A)
III	Mixed Use Residential **	15 minute L_{eq}	60 dB(A)	50 dB(A)
		* L_{max}	80 dB(A)	70 dB(A)
IV	Industrial or Manufacturing	15 minute L_{eq}	70 dB(A)	70 dB(A)
		* L_{max}	90 dB(A)	90 dB(A)



10.26.030 Interior Noise Standards

Noise Zone	Type of Land Use	Measuring Metric (A-wtd)	Daytime	Nighttime
			Allowable Interior Noise Level (Leq) 7:00 am – 10:00 pm	Allowable Interior Noise Level (Leq) 10:00 pm – 7:00 am
I	Residential.	15 minute L_{eq}	45 dB(A)	40 dB(A)
		* L_{max}	65 dB(A)	60 dB(A)
III	Residential portions of mixed use properties**	15 minute L_{eq}	45 dB(A)	40 dB(A)
		* L_{max}	65 dB(A)	60 dB(A)

* L_{max} levels defined in B.2 below

** Residential properties within 100' of commercial property line defined in D. below.

If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

- B. It is unlawful for any person at any location within the incorporated area of the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, to exceed either of the following:
 - 1. The noise standard for the applicable zone for any fifteen-minute period;
 - 2. A maximum instantaneous noise level equal to the value of the noise standard plus twenty (20) DBA for any period of time (measured using A-weighted slow response).
- C. In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.
- D. The Noise Zone III standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property, if the intruding noise originates from that commercial property.
- E. If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply. (Ord. 95-53 § 1, 1995; Ord. 95-38 § 11 (part), 1995)

Discussed in the following section, the ordinance defines the locations where acoustical measurements are to be made to determine compliance with the noise standard criteria.

10.26.055 Noise Level Measurement

- A. The location selected for measuring exterior noise levels in a residential area shall be at any part of a private yard, patio, deck or balcony normally used for human activity and identified by the owner of the affected property as suspected of exceeding the noise level standard. This location may be the closest point in the private yard or patio, or on the deck or balcony, to the noise source, but should not be located in nonhuman activity areas such as trash container storage areas, planter beds, above or contacting a property line fence, or other areas not normally used as part of the yard, patio, deck or balcony. The location selected for measuring exterior noise levels in a nonresidential area shall be at the closest point to the noise source. The measurement microphone height shall be five feet above finish elevation or, in the case of a deck or balcony, the measurement microphone height shall be five feet above the finished floor level.
- B. The location selected for measuring interior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor, or within the frame of a window opening, nearest the noise source. The



measurements shall be made with windows in an open position. (Ord. 95-38 § 11 (part), 1995)

Special provisions for Heating, Venting and Air Conditioning equipment are provided for in the ordinance as follows:

10.26.045 Heating, Venting and Air Conditioning – Special Provisions

- A. New HVAC Equipment. New permits for heating, venting and air conditioning (HVAC) equipment in or adjacent to residential areas shall be issued only where installations can be shown by computation, based on the sound rating of the proposed equipment, not to exceed an A-weighted sound pressure level of fifty (50) dB(A) or not to exceed an A-weighted sound pressure level of fifty-five (55) dB(A) and be installed with a timing device that will deactivate the equipment during the hours of ten p.m. to seven a.m. The method of computation used shall be that specified in "Standard Application of Sound Rated Outdoor Unitary Equipment," Standard 275, Air conditioning and Refrigeration Institute, 1984 or latest revision thereof.
- B. Existing HVAC Equipment.
1. HVAC equipment legally installed prior to April 22, 1981, shall be permitted to operate with an exterior noise limit of sixty-five (65) dB(A) until January 1, 1998.
 2. HVAC equipment legally installed prior to April 22, 1981, shall be exempted from the interior noise level standard as specified in Section 10.26.030 of this chapter until January 1, 1998
 3. HVAC equipment legally installed after April 22, 1981, and prior to the date of adoption of this chapter shall not exceed a maximum exterior noise limit of fifty-five (55) dBA during the ninety-day compliance period set forth in Section 10.26.005.
- C. In the event that HVAC equipment cannot meet the requirements set forth in this chapter, then the exterior noise limit for such equipment may be raised to sixty-five (65) dBA and exempted from the interior noise level standard as specified in Section 10.26.030 of this chapter, provided that the applicant obtains the written consent of all the owners of the affected properties. (Ord. 95-38 § 11 (part), 1995)

**1.4 HOAG MEMORIAL HOSPITAL PLANNED COMMUNITY
DEVELOPMENT CRITERIA & DISTRICT REGULATIONS**

Amendment to Restated Development Agreement

Paragraph 1.17 - Noise Limitation

The existing Planned Community (PC Text) provides that noise generated from Hoag Hospital from new mechanical appurtenances shall not exceed 55 dB(A) at the property lines. This noise limitation was established prior to the adoption of the City's Noise Element in the General Plan and Noise Ordinance. It is proposed that noise generated and originating from the Property be governed by the city Noise Ordinance with certain exceptions.

Planned Community Development Criteria and District Regulations

M. Noise Standards

Noise generated at the Hoag Hospital property shall be governed by the City of Newport Beach Noise Ordinance, except as noted below for the Loading Dock Area.



- The applicable noise standard at the Hoag Hospital property line adjacent to the loading dock area shall be as follows:

	7:00 am – 10:00 pm	10:00 pm – 7:00 am
	Daytime	Nighttime
L_{eq} (15 min)	65 dB(A)	55 dB(A)

- Within the Loading Dock Area during daytime hours, vehicles shall be exempt from applicable noise standards as listed above.

Vehicle idling shall be prohibited on West Hoag Drive and within the loading dock areas, except that refrigerated vehicles may idle while at the loading docks when refrigeration is necessary.

In addition, the grease pit cleaning which is exempt from the City Noise Ordinance as a maintenance activity shall occur on a Saturday between the hours of 11:00 am and 3:00 pm.

1.5 TEST EQUIPMENT

Noise levels measurements were conducted with the following equipment which was calibrated immediately prior to and following the test procedures:

- Larson Davis Type 824 Type 1 integrating one-third octave band sound level meter
- Larson Davis Model PRM902 microphone preamplifier
- Larson Davis Type CAL200 precision Class 1 sound level calibrator calibrated to a reference traceable to the National Institute of Standards and Technology.
- Larson Davis Type 2560 ½" microphone accepted to meet the specifications of IEC 60651 and ANSI S1.4-1983 Type 1.

The measurement equipment satisfies the American National Standards Institute (ANSI) Standard 1.4 for Type 1 precision sound level measurements.

2.1 ANCILLARY BUILDING AND WEST TOWER MECHANICAL EQUIPMENT

Noise level measurements of the Ancillary building rooftop mechanical equipment and West Tower mechanical equipment room were conducted at 3:30 a.m. on 10 February 2012 when the influence of offsite traffic noise sources are reduced. In order to measure the worst case noise levels, we utilized a 35' telescoping microphone stand to elevate the measuring microphone to an elevation intersecting the rooftop equipment and the upper level condominium residences which have a fairly direct line of sight to the rooftop. Measurements were conducted at the west curb of West Hoag Road nearest the property line.

2.1.1 Ancillary Building Rooftop Mechanical Equipment

The acoustic environment was a combination of noise generated by offsite sources from vehicular traffic on Pacific Coast Highway (PCH), surrounding streets, and mechanical equipment on the Ancillary building rooftop was perceptible. The test sequence was manually paused during an emergency vehicle with siren passing on PCH and a helicopter overflight. The



test results presented herein however are based on a fully integrated 15 minute sampling. See Figure 2 for test location.

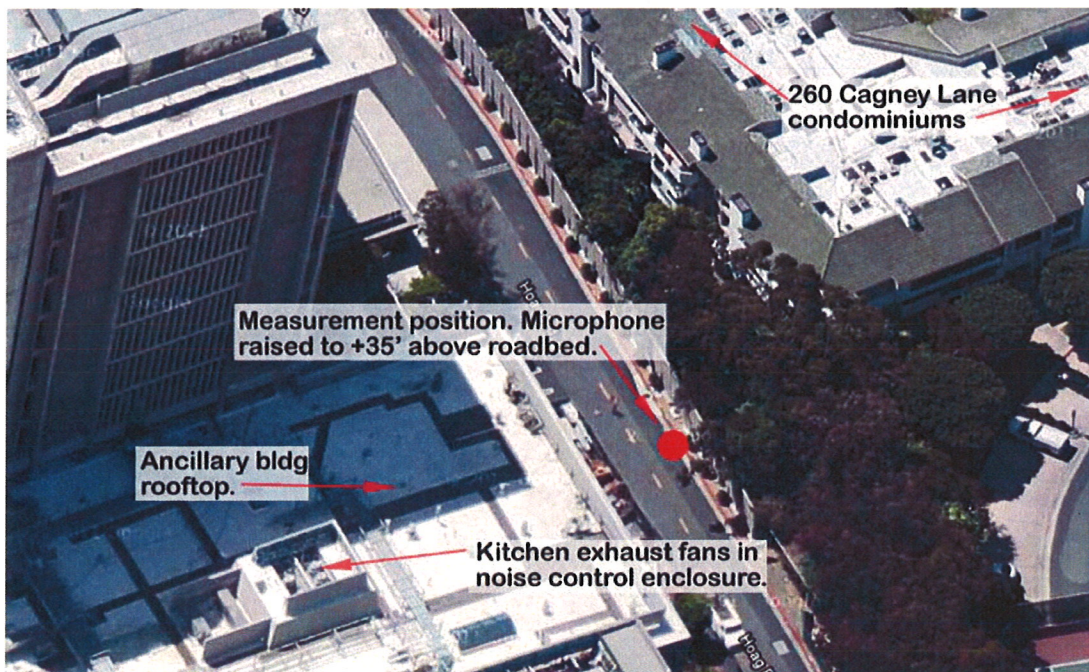
It is our understanding that all four (4) kitchen grease exhaust fans in the rooftop penthouse were operating during our test however was not verified.

The noise levels from the mechanical equipment were constant over the duration of the test and were the primary contributor to the ambient environment. The noise levels were measured to be L_{eq} 50.8 dB(A) and the maximum noise level recorded was L_{max} 54.3 dB(A).

CONCLUSION

The ancillary building rooftop mechanical noise levels are regulated by the Hoag Memorial Hospital Planned Community Development Criteria & District Regulations (PC Text) which require that noise levels in this area do not exceed L_{eq} 55 dB(A) during the nighttime hours of 10:00 pm to 7:00 am. Our measurements resulted in noise levels of L_{eq} 50.8 dB(A) which satisfies the L_{eq} 55 dB(A) maximum allowable noise level requirement.

The Hospital PC Text noise standards do not include requirements for maximum allowable L_{max} noise levels however are included in this report for information only.



Ancillary Building Rooftop Mechanical Equipment

Figure 2

2.1.2 West Tower Mechanical Equipment Room

As with measurements of the ancillary building rooftop equipment, the acoustic environment at the property line near the west tower was a combination of offsite traffic and hospital rooftop mechanical equipment. Acoustical testing location is shown in Figure 3.

There is an uninterrupted and direct line of sight between the measurement position on the roadbed and the west facing second floor louvers serving the mechanical room. To reduce any

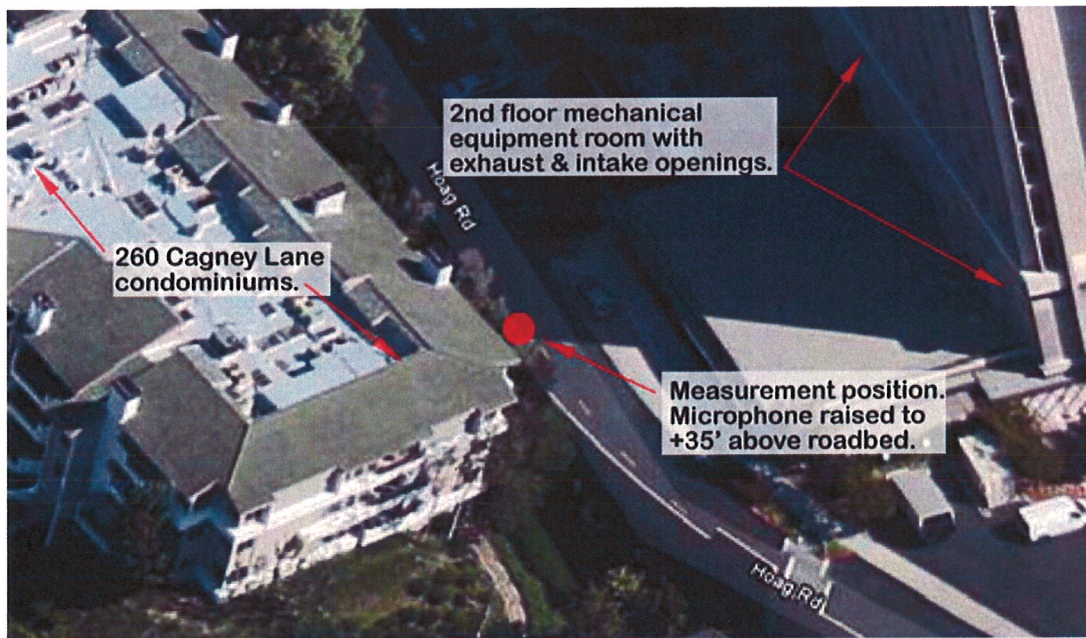


potential effects of reflections and directivity, we utilized a 35' telescoping microphone stand to elevate the measuring microphone to an elevation close to that of the louvers and to the upper level condominium residences which also have a fairly direct line of sight to the louvers. Acoustic measurements began at approximately 4:15 a.m.

The noise levels generated by the mechanical room resulted in a 15 minute L_{eq} 50.7 dB(A) with the maximum noise level being L_{max} 58.4 dB(A). We did not verify the exact pieces of equipment within the mechanical room that was operating during our test.

CONCLUSION

The noise levels from the second floor mechanical equipment room in the West Tower are regulated by the Hoag Hospital PC Text which require that noise levels in this area do not exceed L_{eq} 55 dB(A) during the nighttime hours of 10:00 pm to 7:00 am. Our measurements resulted in noise levels of L_{eq} 50.7 dB(A) which satisfies the L_{eq} 55 dB(A) maximum allowable noise level requirement.



West Tower Mechanical Equipment Room

Figure 3

2.2 MAIN LOADING DOCK (DAYTIME)

The main loading dock is located at the west elevation of the hospital and is served directly by Hoag Road. The road and loading dock are closed to all traffic by gates at the north and south ends to all traffic in the evening and nighttime hours, opening up to traffic at 7:00 a.m.

Measurements were conducted of loading dock noise and activity on 10 February 2012 beginning at 4:45 a.m. Measurements were conducted at both the west (residential side) and east (hospital side) of the acoustical barrier.



2.2.1 West (Residential) Side of Acoustical Wall

Acoustical measurements were conducted at two (2) separate measurement locations on the residential side of the wall at both 5' and 15' elevations to show the effective range of acoustical shielding of hospital noise being provided by the acoustical barrier.

Immediately prior to the gates opening at Hoag road, we measured the ambient noise levels in the landscaped area shown as Position 1 in the following Figure 4 between the condominiums and the acoustical wall. The measurement continued from 6:45 a.m. to 7:00 a.m. which is technically still considered nighttime, and a 15 minute average noise level of 54.6 dB(A) L_{eq} and maximum 67.7 dB(A) L_{max} was recorded.

Following the opening of the gates at 7:00 a.m., typical dock activity such as operation of the cardboard compactor, talking, wheeled racks and carts rolling across the dock parking lot were slightly audible at the residential side of the acoustical wall. Trucks arriving and departing were also audible. During our measurements, offsite noise from commercial and general aviation over-flights, and occasional traffic noise from PCH was audible during quiet periods of loading dock activity.

Measurement position 1 is located midway between the acoustical wall and the face of the condominium building. At approximately 7:03 a.m., a truck arrived from the south and removed the "SaniPak" compactor bin from the loading dock. This event requires backing the truck to the dock, hydraulically raise the truck-bed rails up towards the back of the truck, attach a cable to the compactor bin, winch the bin up on to the bed rails while consecutively lowering the bed-rails and finally driving off. The entire process from the truck arriving to departing was complete in approximately 3 minutes.

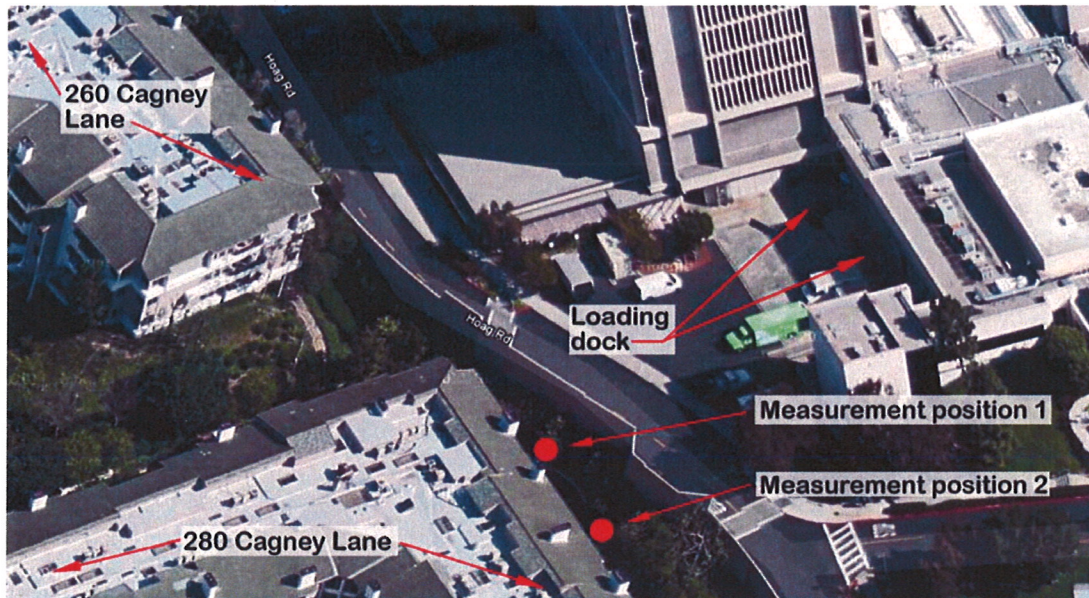
In the measurement period which included the SaniPak truck arriving, at Position 1 and at a 15' elevation above the ground, we measured a 15 minute average noise level of 58.5 dB(A) L_{eq} and a maximum level of 71.1 dB(A) L_{max} was recorded.

Following the Sanipak compactor bin removal, the noise levels at Position 1 were recorded at the 15' elevation and were found to be 66.6 dB(A) L_{max} and the 15 minute average noise level of 55.4 dB(A) L_{eq} was recorded. The source of noise levels were primarily from trucks arriving at the dock, loading or unloading trucks, and operation and loading the cardboard compactor was audible. Most of the compactor noise was from a worker throwing flattened cardboard boxes to the ground from the back of a stake-bed truck.

Position 2 is located approximately 10' from the face of the condominium building. At a 5' elevation the 15 minute average noise level was 54.8 dB(A) L_{eq} and the maximum level of 63.4 dB(A) L_{max} was recorded. Raising the microphone to a 15' elevation, the 15 minute average noise level was 56.8 dB(A) L_{eq} and a maximum level of 67.0 dB(A) L_{max} was recorded.

This measurement included typical dock noise, truck arrivals and departures, but also included the return of the Sanipak compactor bin. This operation was similar to the compactor bin departure described above whereas the driver backed the truck into the dock, raised the compactor bin and truck bed, slid the compactor bin off the truck and into position against the compacting apparatus and drove away. The entire process concluded in less than three minutes.





Main Loading Dock - West Side of Acoustical Wall

Figure 4

CONCLUSION

Loading dock activity noise levels are regulated by the Hoag Hospital PC Text which require that noise levels from the loading dock area do not exceed L_{eq} 65 dB(A) during the daytime hours of 7:00 am to 10:00 pm. Our measurements resulted in noise levels measured at the residential side of the acoustical barrier ranging from L_{eq} 54.8 dB(A) to L_{eq} 58.5 dB(A) which satisfies the L_{eq} 65 dB(A) maximum allowable noise level requirement.

2.2.2 East (Hospital) Side of Acoustical Wall

Two (2) measurements were conducted at the west curb of Hoag Road directly across from the loading dock shown in Figure 5. For the first measurement, the measuring microphone was located at an elevation of 5' above the road bed. The second measurement was conducted with the microphone raised to +15' above the road to determine if excessive noise levels were present from recently installed rooftop mechanical equipment serving the Heart & Vascular Institute (HVI) remodel. Figure 6 shows the HVI mechanical equipment located on the roof over the loading dock shipping/receiving area.

During these measurements, dock-related noise and activity included deliveries, cardboard compactor operation, carts rolling on the dock, and a HVAC condenser operating at the north side of the dock parking lot was audible.

At the lower 5' elevation, equipment noise from the rooftop HVI equipment was inaudible. The maximum noise level was observed to be 81.5 dB(A) L_{max} which occurred when a truck approached within 10' of the microphone while maneuvering to back into the dock. The 15 minute average noise level of 63.2 dB(A) L_{eq} was recorded.

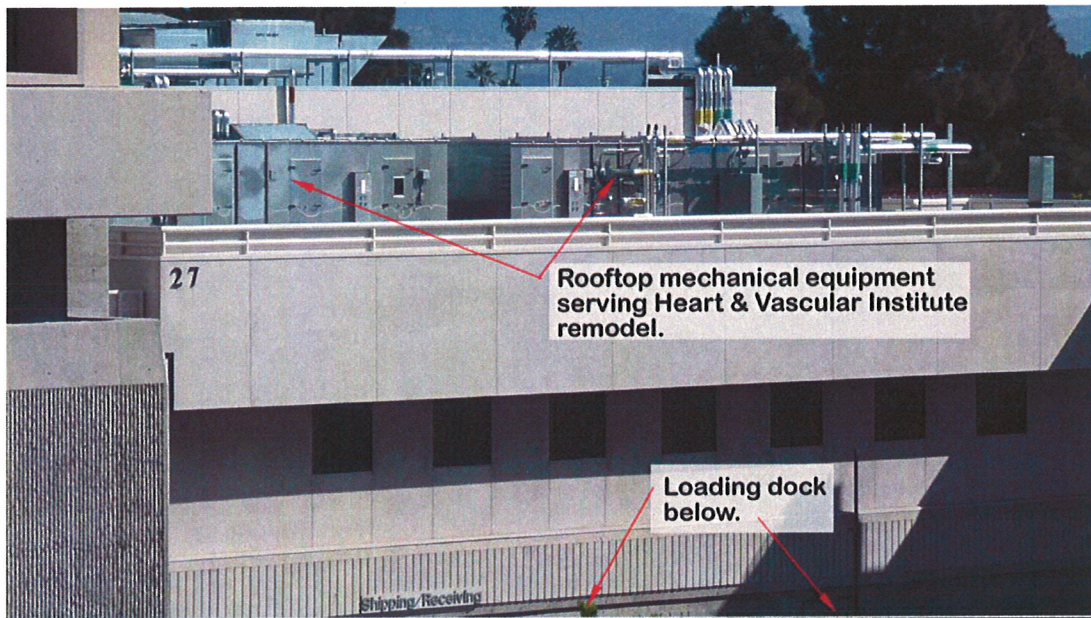
At the raised +15' elevation, the maximum noise level recorded was 79.1 dB(A) L_{max} and the 15 minute average noise level was found to be 61.1 dB(A) L_{eq} .





Main Loading Dock - East Side of Acoustical Wall

Figure 5



Rooftop mechanical equipment serving HVI

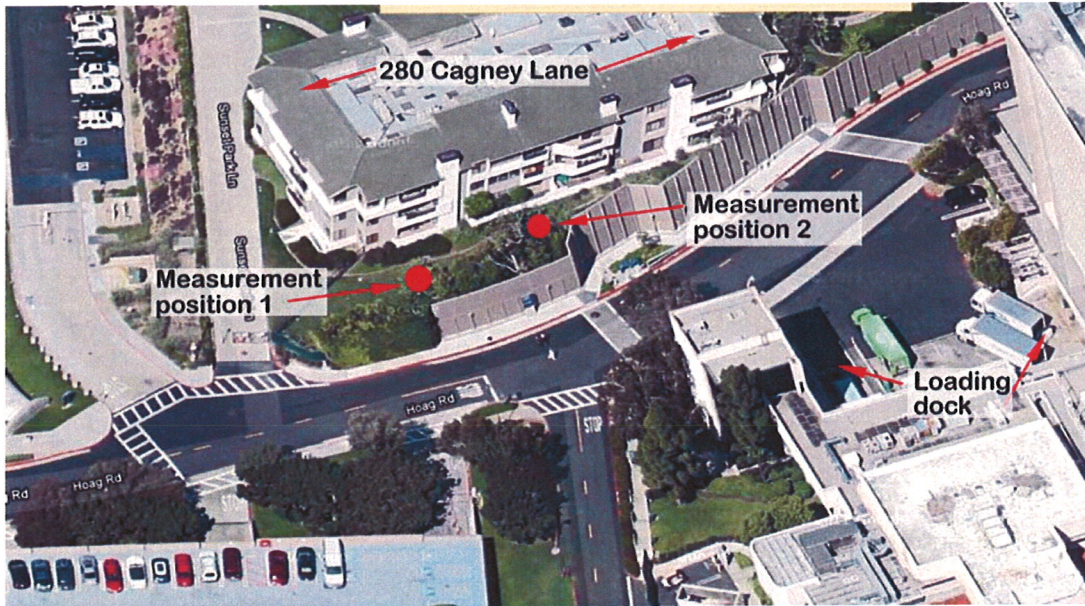
Figure 6

2.3 MAIN LOADING DOCK (NIGHTTIME)

Acoustical measurements near the loading dock at both sides of the acoustical barrier were conducted on 10 February 2012 starting at approximately 4:45 a.m. The loading dock is closed and Hoag Road is closed to all traffic via closed gated during the hours of these tests. See Figure 7 for measurement positions.

2.3.1 West (Residential) Side of Acoustical Wall

Acoustical measurements were conducted at two (2) separate locations in the landscaped area on the residential side of the acoustical wall, directly across from the loading dock. During our measurements, minor offsite noise from commercial aviation, and occasional traffic noise from PCH was audible.



Main Loading Dock – Nighttime measurements

Figure 7

Position 1 was located near the southeast corner of the 280 Cagney Lane condominium building midway between the acoustical wall and the face of the building. This position is fairly exposed to traffic on PCH. Noise levels at this position were measured at 57.7 dB(A) L_{max} and the 15 minute average noise level of 54.1 dB(A) L_{eq} was recorded. The primary source of noise was offsite vehicular traffic on PCH.

Measurement position 2 was located approximately 10' from the face of the condominium building which receives acoustical shielding from traffic noise from the acoustic wall and the three story condominium building. At this location we measured 56.7 dB(A) L_{max} and the 15 minute average noise level of 50.7 dB(A) L_{eq} was recorded.

CONCLUSION

Noise levels in this area are regulated by the Hoag Hospital PC Text which require that noise levels from the loading dock area do not exceed L_{eq} 55 dB(A) during the nighttime hours of 10:00 pm to 7:00 am. Measurements at the residential side of the acoustical barrier (albeit not generated by the hospital) ranged from L_{eq} 50.7 dB(A) to L_{eq} 54.1 dB(A) which satisfies the L_{eq} 55 dB(A) maximum allowable noise level requirement.

2.3.2 East (Hospital) Side of Acoustical Wall

The loading dock and Hoag Road is closed during the nighttime hours. During our measurement, minor offsite traffic noise from PCH was audible, along with an exhaust or intake fan located in the south side of the West Tower.

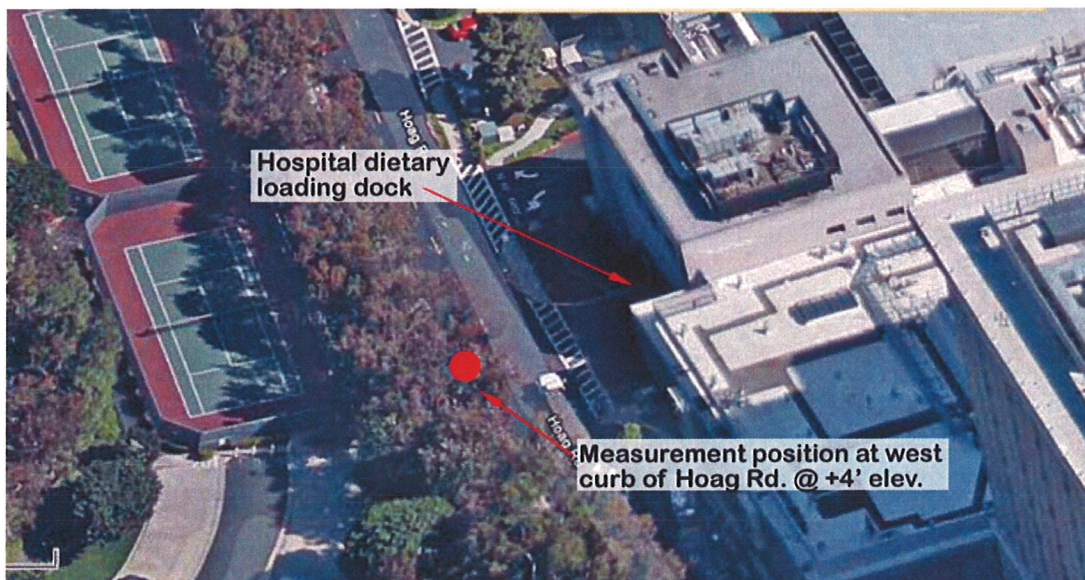


Measurements were conducted 10 February at 5:00 a.m. at the position shown in Figure 5. The measuring microphone was located at an elevation of 5' above the road bed for the entirety of the measurement.

At the east side of the barrier along the curb of Hoag Road, we measured noise levels of 64.2 dB(A) L_{max} , and a 15 minute average of 54.1 dB(A) L_{eq} were recorded.

2.4 DIETARY LOADING DOCK NOISE LEVELS & ACTIVITY

Measurements were conducted on 10 February 2012 starting at approximately 9:30 a.m. Our measurement location was at the western curb of West Hoag Drive directly across from the dietary loading dock. The measuring microphone was located at an elevation of 5' above the road bed for the entirety of the measurement program. See Figure 8 for acoustical testing location.



Dietary Loading Dock Measurements

Figure 8

2.4.1 Daytime Noise Measurements & Activity

Noise levels were predominantly offsite traffic from Hospital Road to the north and mechanical equipment noise from the ancillary building rooftop. Activity at the dietary dock during our measurement included a hospital staff member rolling a cart on the dock to the compactor, loading and operation of the compactor, and minor conversation between workers within the enclosed dock were audible. Traffic on Hoag Road was minimal.

At the east side of the barrier along the curb of Hoag Road, the 15 minute average level was 54.1 dB(A) L_{eq} and the maximum noise level of 62.3 dB(A) L_{max} , was recorded.

CONCLUSION

Noise levels in this area are regulated by the Hoag Hospital PC Text which require that noise levels from the Dietary loading dock do not exceed L_{eq} 65 dB(A) during the daytime hours of 7:00 am to 10:00 pm. Our measurements resulted in noise levels measured at the curb nearest the property line across from the Dietary dock of L_{eq} 54.3 dB(A) which satisfies the L_{eq} 65 dB(A) maximum allowable noise level requirement.



2.4.2 Nighttime Noise Measurements & Activity

Nighttime noise level measurements were conducted on 10 February 2012 beginning at approximately 4:30 a.m. Our measurement location was at the western curb of West Hoag Drive directly across from the dietary loading dock. The measuring microphone was located at an elevation of 5' above the road bed.

Predominant background noise levels observed near the dietary dock area were primarily from off-site traffic on Hospital Road and Newport Blvd. There was no activity within the dietary dock during our nighttime measurements. Mechanical equipment noise from the Ancillary building rooftop could also be heard in the background. Our measurements resulted in a 15 minute L_{eq} 48.5 dB(A), with a maximum recorded level of L_{max} 57.3 dB(A).

CONCLUSION

Noise levels in this area are regulated by the Hoag Hospital PC Text which require that noise levels from the Dietary loading dock do not exceed L_{eq} 55 dB(A) during the nighttime hours of 10:00 pm to 7:00 am. Our measurements resulted in noise levels measured at the curb nearest the property line across from the Dietary dock was L_{eq} 48.5 dB(A) which satisfies the L_{eq} 55 dB(A) maximum allowable noise level requirement.

2.5 COGENERATION FACILITY NOISE LEVELS AND ACTIVITY

As shown in Figure 9, measurements were conducted on Sunset View Park at approximately 10' from the south face of the condominium building located at 200 Paris Lane. The measuring microphone was located at an elevation of +5' above the road bed and also at +20' above the road bed during the measurements.

Measurements conducted at the +5' elevation determine the noise level exposure at the lower first floor condominium units which benefit from the acoustical shielding provided by the hospital cogeneration building and existing topography. The noise levels measured at +20' determine the noise levels experienced at the third floor of the condominiums which may have a direct line-of-sight to the hospital cooling towers and minimal acoustical shielding effects. These upper floor units would experience the greatest noise impact from the cooling towers.

We observed that three (3) of the cooling towers in the cogeneration facility were operational during our tests.

2.5.1 Daytime Noise Measurements & Activity

Measurements at the 5' elevation were conducted on 10 February 2012 starting at approximately 10:00 am. During the measurement period, the preponderance of ambient noise was generated by ocean waves, traffic on the nearby Superior Avenue and to a lesser degree from traffic on Pacific Coast Highway. During the quieter moments when traffic flow on Superior was limited by the signal at Pacific Coast Highway, noise from the cooling towers and cogeneration facility was slightly audible.

With the microphone located at a +5' elevation above the roadbed, we measured L_{eq} 53.0 dB(A) for a 15 minute duration and the maximum level recorded was L_{max} 59.7 dB(A) due to offsite traffic.



Landscape gardeners arrived at the measuring location and noise generated by the gardening crew made it impossible for us to measure the cogeneration facility noise. We left the site and returned at approximately 1:45 p.m. to measure the cogeneration facility at the +20' elevation.

With the microphone raised to the higher 20' elevation, we measured L_{eq} 58.1 dB(A) with a maximum recorded level of L_{max} 64.5 dB(A). Ambient noise levels were primarily from ocean waves, offsite traffic noise, and the cooling towers were slightly audible. Cooling tower noise was inaudible when traffic on Superior Avenue passed nearby.

CONCLUSION

Noise levels in this area are regulated by the City of Newport Beach Noise Ordinance which require that noise levels do not exceed L_{eq} 60 dB(A) during the day due to hospital operations. Maximum levels must not exceed L_{max} 80 dB(A) during the daytime from hospital operations. This section of the residential area is located within 100' from the Hoag Hospital property line and therefore would be considered as Zone III – "Mixed-Use Residential"

With three (3) cooling towers operating, the measured noise levels of L_{eq} 53.0 dB(A) at the 5' elevation and L_{eq} 58.1 dB(A) at the 20' elevation satisfy the City of Newport Beach Noise Ordinance.

The worst case L_{max} 59.9 dB(A) measured at 5' above the roadbed and L_{max} 64.5 dB(A) measured at 20' above the roadbed were generated by offsite sources and therefore would not be considered in the City Noise Ordinance regarding control on mechanical equipment noise from the hospital operations. The maximum levels measured however do meet the criteria of the City of Newport Beach Noise Ordinance.

2.5.2 Nighttime Noise Measurements & Activity

Due to unusually high noise levels generated by waves during the nighttime at the nearby beach, we were unable to accurately measure noise levels generated by the cogeneration facility and cooling towers during the 9-10 February site visit.

Acoustical tests were therefore conducted on 17 February 2012 starting at 12:30 am at the location shown on Figure 9. During the nighttime measurements of the cogeneration facility, the ambient noise levels experienced was traffic noise on PCH, waves at the beach, and the cooling towers within the cogeneration facility.

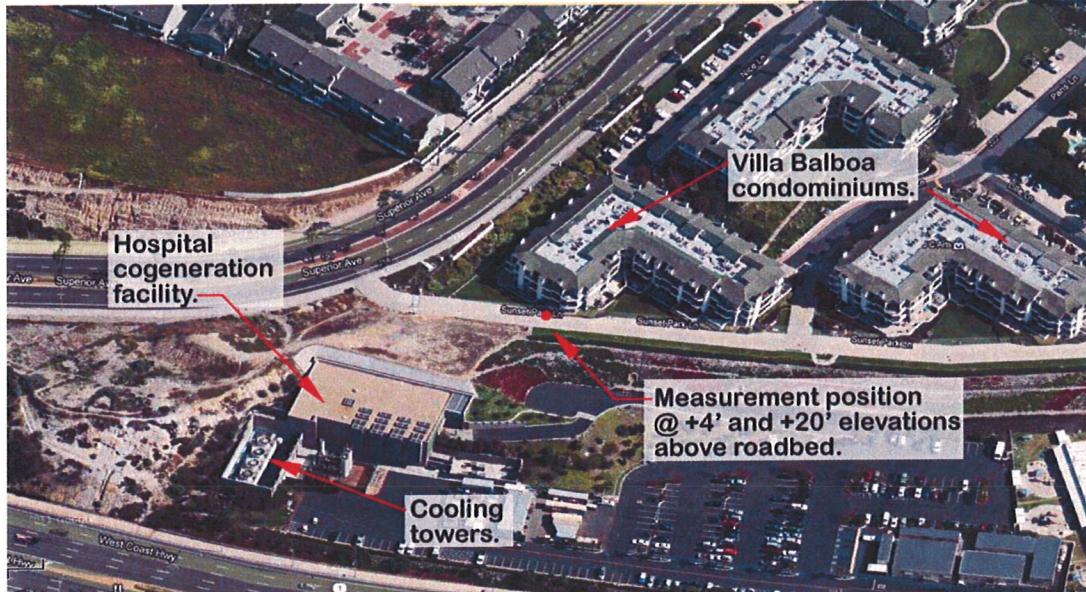
With the microphone located at a +5' elevation above the Sunset Park roadbed, we measured L_{eq} 46.5 dB(A) for a 15 minute period and the maximum level recorded was L_{max} 53.4 dB(A). With the microphone raised to the higher +20' elevation, we measured L_{eq} 47.9 dB(A) with a maximum recorded level of L_{max} 51.0 dB(A).

CONCLUSION

Noise levels in this area are regulated by the City of Newport Beach Noise Ordinance which require that noise levels do not exceed L_{eq} 50 dB(A) during the night due to hospital operations. Maximum levels must not exceed L_{max} 70 dB(A) during the nighttime from hospital operations. With three (3) cooling towers operating, the measured noise levels of L_{eq} 46.5 dB(A) at the 5' elevation and L_{eq} 47.9 dB(A) at the 20' elevation satisfy the L_{eq} 50 dB(A) allowable noise level requirement of the City of Newport Beach Noise Ordinance during nighttime hours.



The worst case L_{max} 53.4 dB(A) measured at 5' above the roadbed and L_{max} 51.0 dB(A) measured at 20' above the roadbed also satisfy the City of Newport Beach maximum allowable L_{max} 70 dB(A) noise standard.



Cogeneration Facility and Cooling Towers

Figure 9

2.6 GENERAL AMBIENT CONDITIONS

To illustrate the general noise environment in and around the hospital, daytime and nighttime ambient noise measurements were conducted on 10 February at the locations described below. The noise levels measured in these locations are primarily from traffic sources and aircraft operations. Specific hospital equipment and on-site operations were not contributory to these measurements.

2.6.1 Catalina Drive & Old Newport Blvd.

Noise levels were measured at the intersection of Catalina Drive and Old Newport Blvd. shown in Figure 10. This environment consisted of small residences and businesses. The general noise source was traffic along Newport Blvd., and to a lesser extent Pacific Coast Highway. Traffic on Catalina Drive was not a major contributor to the ambient noise environment.

Nighttime tests began at 3:00 a.m., and daytime tests at approximately 10:30 p.m.

Table 2.6.1.a
General Ambient Conditions

Measurement Location	Daytime		Nighttime	
	L_{eq}	L_{max}	L_{eq}	L_{max}
Catalina Drive/Old Newport Blvd.	68.0	82.3	53.7	73.3





Measurement position – Catalina Dr. & Old Newport Blvd.

Figure 10

2.6.2 Superior Avenue & Sunset Park Lane

Measurements were conducted at Superior Avenue & Sunset Park Lane as shown in Figure 11. Ambient noise levels were from ocean waves, traffic on Superior Avenue and to a lesser degree from traffic accelerating from the stop light at Superior Avenue and Pacific Coast Highway.

An exhaust fan serving underground transformer which runs intermittently is located at the east curb of Superior Avenue approximately 25’ from our measurement position and ran continuously during our first nighttime test. We retested the ambient levels with the exhaust fan off and results of both tests are included in the table below.

The first nighttime test which includes transformer noise began at 1:15 a.m. The subsequent test without the transformer noise began at approximately 2:30 a.m. Daytime tests were conducted at approximately 10:30 a.m. while the transformer fan was off.

Table 2.6.2.a
General Ambient Conditions

Measurement Location	Daytime		Nighttime	
	L _{eq}	L _{max}	L _{eq}	L _{max}
Superior Ave. and Sunset Park Lane	68.0	82.3	53.9	67.5
Superior/Sunset Park w/ transformer exhaust fan noise	---	---	57.7	69.9





Measurement position – Superior Ave. & Sunset Park Lane

Figure 11

2.6.3 Sunset Park Lane & Hoag Road

Measurements were conducted at Sunset Park Lane & Hoag Road as shown in Figure 12 below. Ambient noise levels were from traffic on Pacific Coast Highway, minor traffic along West Hoag Road, and vehicles within the nearby parking garage. Nighttime tests began at 5:15 a.m., and daytime tests started at 9:45 a.m.

Table 2.6.3.a
General Ambient Conditions

Measurement Location	Daytime		Nighttime	
	L_{eq}	L_{max}	L_{eq}	L_{max}
Sunset Park Lane and Hoag Rd	57.4	67.7	51.1	62.1



Measurement position – Sunset Park Lane & Hoag Rd.

Figure 12

2.7 200 PARIS LANE - VILLA BALBOA CONDOMINIUM COMPLEX

Per Term 3 of the Settlement Agreement between Hoag Memorial Hospital Presbyterian and Villa Balboa Community Association, noise shall be measured at 200 Paris Lane annually to verify compliance with the City of Newport Beach Noise Ordinance of the Municipal Code Chapter 10.26. A specific location for the acoustical measurements is not indicated within the Settlement Agreement.

Noise level measurements within the Villa Balboa complex were conducted during the daytime and nighttime hours on 10 February 2012 at the location shown in Figure 13 below.

2.7.1 Daytime Noise Measurements

Daytime measurements were conducted at 2:00 p.m. at the emergency exit gate immediately east of the 200 Paris Lane condominium. With the microphone located at a 5' elevation above the roadbed, we measured L_{eq} 53.6 dB(A) for a 15 minute duration and the maximum level recorded was L_{max} 62.1 dB(A).

The general ambient noise consisted of ocean waves, traffic noise from Pacific Coast Highway and to a lesser degree, Superior Avenue. Mechanical equipment noise from Hoag Hospital was not audible or identifiable.

2.7.2 Nighttime Noise Measurements

Nighttime noise measurements were conducted at 2:00 a.m., also at the exit gate east of the 200 Paris Lane condominium. With the microphone located at a 5' elevation above the roadbed, we measured L_{eq} 47.2 dB(A) for a 15 minute duration with the maximum recorded level of L_{max} 53.4 dB(A).

General ambient noise during the nighttime was from ocean waves and offsite traffic on surrounding streets.

CONCLUSION

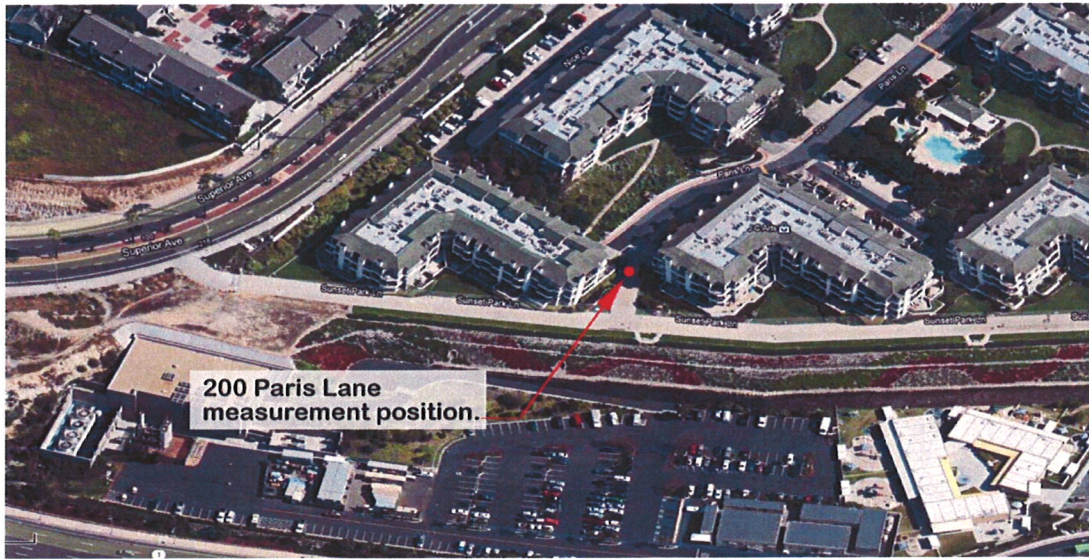
The noise levels measured at this location were generated by offsite sources and therefore would not be considered in the City Noise Ordinance regarding control on mechanical equipment noise from the hospital operations. Measurement data collected however is presented relative to the levels specified in the noise ordinance.

Noise levels in this area are regulated by the City of Newport Beach Noise Ordinance which require that noise levels do not exceed L_{eq} 50 dB(A) during the nighttime hours, and L_{eq} 60 dB(A) during the daytime due to hospital operations. Maximum levels must not exceed L_{max} 80 dB(A) during the daytime and L_{max} 70 dB(A) during the nighttime from hospital operations.

With three (3) cooling towers operating, the noise levels of L_{eq} 53.6 dB(A) measured during the day and L_{eq} 47.2 dB(A) measured during the nighttime hours both satisfy the L_{eq} 60 dB(A) daytime and L_{eq} 50 dB(A) nighttime allowable noise level requirement of the City of Newport Beach Noise Ordinance.

The worst case L_{max} 62.1 dB(A) measured during the daytime and L_{max} 53.4 dB(A) measured during the nighttime hours also satisfy the City of Newport Beach maximum allowable L_{max} 80 dB(A) daytime and L_{max} 70 dB(A) nighttime allowable noise level requirement of the City of Newport Beach Noise Ordinance.





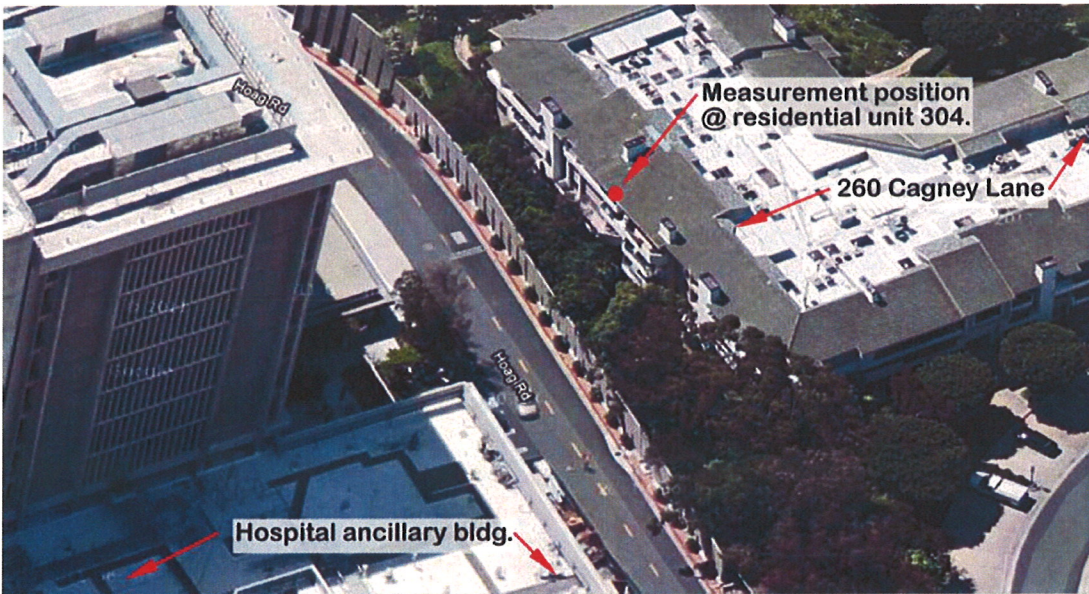
Measurement position – 200 Paris Lane

Figure 13

2.8 260 CAGNEY LANE CONDOMINIUM - UNIT 304

Daytime and nighttime noise measurements at residential Unit 304 at 260 Cagney Lane were conducted on 9 February and 10 February 2012 to determine the noise levels at the exterior balcony and within the unit's interior spaces which have an east exposure towards the hospital.

This unit is located on the third floor of the condominium building, was fully furnished, and the living room has a direct line of sight to the rooftop mechanical equipment as well as to the louvers located in the west wall of the second story mechanical equipment room of the West Tower. The balcony is exposed to the hospital rooftop mechanical equipment as well as the hospital loading docks.



Condominium Unit 304 – 260 Cagney Lane

Figure 14

The east facing windows were double-glazed double hung type, and the sliding glass door leading to the balcony of the condominium was a dual-pane type assembly. The new assemblies were not marked or identified with the installed glass thickness or composition however gasketing at the windows and sliding door was checked and all appears to be in good condition. See Figure 14 for acoustical testing locations for both daytime and nighttime tests.

2.8.1 Daytime Noise Measurements

Daytime measurements of the condominium started at 11:30 a.m. on 10 February. For the balcony measurements, the microphone was located at an elevation of 4' above the balcony floor, and centered within the plan area of the balcony.

During the daytime, background noise levels on the balcony were primarily from off-site traffic, general and commercial aviation, general activity at the hospital including staff in the outdoor eating area, and hospital mechanical equipment from the ancillary building rooftop.

On the balcony, the 15 minute average noise levels were found to be L_{eq} 55.4 dB(A) and the maximum recorded level of L_{max} 63.6 dB(A).

Interior measurements were conducted in the living room approximately 5' from the east exterior wall. General exterior noise sources were difficult to accurately identify within the unit when the windows are closed. Interior noise levels were measured with the windows facing east toward the hospital closed and also with all windows fully open.

With the windows closed, the daytime interior noise levels were found to be L_{eq} 37.1 dB(A) for a 15 minute period, and a maximum level of L_{max} 47.8 dB(A) was recorded.

With the windows open, the daytime interior noise levels were found to be L_{eq} 42.6 dB(A) for a 15 minute period, and a maximum level of L_{max} 55.6 dB(A) was recorded.

CONCLUSION

Noise levels in this area are regulated by the Hoag Hospital PC Text which require that noise levels from the hospital do not exceed L_{eq} 65 dB(A) during the daytime hours of 7:00 am to 10:00 pm. The daytime noise levels measured on the balcony facing the hospital were L_{eq} 55.4 dB(A), which satisfies the L_{eq} 65 dB(A) maximum allowable noise level requirements of the PC Text.

Interior noise levels within the condominium due to exterior sources were determined to be L_{eq} 42.6 dB(A) with the windows open which satisfies the maximum allowable daytime level of L_{eq} 45.0 dB(A) of section 10.26.030 Interior Noise Standards of the City of Newport Beach Noise Ordinance. Maximum levels measured with the windows open were found to be of L_{max} 55.6 dB(A) which also satisfy the maximum allowable levels of L_{max} 65.0 dB(A) for daytime hours.

2.8.2 Nighttime Noise Measurements

Nighttime measurements of the condominium started at 11:30 p.m. on 9 February 2012 at the exterior balcony and in the interior living room. Measurement positions were at the same locations as the daytime positions discussed above and are shown on Figure 14.

Noise levels measured on the balcony were primarily from off-site traffic and mechanical equipment operating on the hospital rooftop. On the balcony, we measured a 15 minute L_{eq} 52.4 dB(A), with a maximum recorded level of L_{max} 58.0 dB(A).



Interior measurements were conducted in the living room approximately 5' from the east exterior wall. Interior noise levels were measured with the east-facing windows closed and also with all windows fully open.

With the windows closed, the interior noise levels were found to be L_{eq} 35.4 dB(A) for a 15 minute period, and a maximum level of L_{max} 44.2 dB(A) was recorded.

With the windows open, the interior noise levels were found to be L_{eq} 38.9 dB(A) for a 15 minute period, and a maximum level of L_{max} 45.1 dB(A) was recorded.

CONCLUSION

Noise levels in this area are regulated by the Hoag Hospital PC Text which require that noise levels from the hospital do not exceed L_{eq} 55 dB(A) during the nighttime hours of 10:00 pm to 7:00 am. The noise levels measured on the balcony facing the hospital were L_{eq} 52.4 dB(A), which satisfies the L_{eq} 55 dB(A) maximum allowable noise level requirements of the PC Text.

Noise levels within the condominium interior due to exterior sources were determined to be L_{eq} 38.9 dB(A) which satisfies the maximum allowable nighttime level of L_{eq} 40.0 dB(A) of section 10.26.030 Interior Noise Standards of the City of Newport Beach Noise Ordinance. Maximum levels measured with the windows open were found to be of L_{max} 45.1 dB(A) which also satisfy the maximum allowable levels of L_{max} 60.0 dB(A) for nighttime hours.

3.1 CONCLUSION AND SUMMARY OF ACOUSTICAL TESTING RESULTS

The results of all acoustical measurements included the noise reduction mitigation measures installed to date at the hospital complex. While not an exhaustive list, visible noise control devices installed at the hospital are as follows:

- Noise control penthouse constructed on the ancillary building roof to control noise of kitchen exhaust fans.
- Acoustical barrier wall constructed at perimeter of ancillary building to acoustically shield the nearby residential condominiums.
- Acoustical louvers and other noise control devices installed within the West Tower second floor mechanical room.
- Sound absorbing panels installed at the wall surfaces of the loading dock.
- Acoustical barrier wall approximately 20' ± tall constructed along West Hoag Road to shield residential condominiums from noise generated by hospital operations.
- A noise control enclosure has been installed around the cardboard compactor located in the loading dock parking lot.
- An acoustical shielding wall has been installed directly north of the cooling towers to shield the adjacent residences from cooling tower noise.

The mitigation measures currently installed have sufficiently reduced hospital-generated noise to satisfy the applicable City of Newport Beach Noise Ordinance, and the Hoag Memorial Hospital Planned Community Development Criteria & District Regulations.

