

3 October 2024

Matthew Tovornik
Executive Director
Suburban Hospital Health Care System
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Bethesda, Maryland 20814



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Reference: Quarterly Mechanical Equipment Noise Test
Results

Dear Mr. Tovornik:

At your request and in accordance with directions from the Board of Appeals, Phoenix Noise & Vibration recently carried out this quarter's noise measurement survey of daytime and nighttime noise levels from the mechanical equipment serving Suburban Hospital in Bethesda, Maryland. The results of the measurements indicate that mechanical equipment noise levels in adjacent residential properties are lower than Maximum Allowable Noise Levels set forth by the Montgomery County Noise Ordinance and thereby comply with the Ordinance.

STANDARDS

According to Chapter 31B – Noise Control of the Montgomery County Code,

...a person must not cause or permit noise levels that exceed the following levels:

<i>Maximum Allowable Noise Levels (dBA) for Receiving Noise Areas</i>		
	<i>Daytime</i>	<i>Nighttime</i>
<i>Non-residential noise area</i>	67	62
<i>Residential</i>	65	55

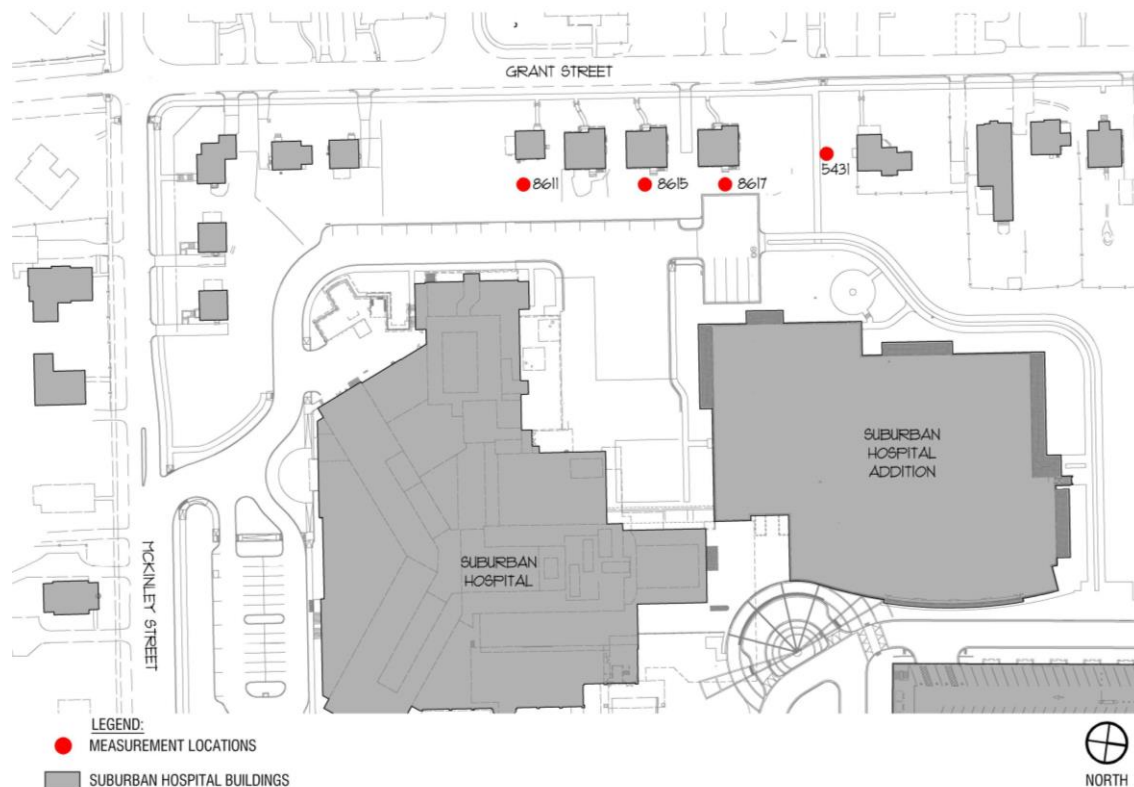
(3) *Sound that crossed between residential and non- residential noise areas must not exceed the levels set in paragraph (1) for residential noise areas.*

Upon installation of AHU 23 and its air shaft on the exterior of the Suburban Hospital building, the Board of Appeals required quarterly noise testing to determine compliance with the Montgomery County Noise Code. This testing must include the operation of all mechanical equipment outside of Suburban Hospital and "be carried out on at least three abutting residential parcels on Grant or Lincoln Streets, and on the three homes closest to the C-Wing on the north side of Lincoln Street."

MEASUREMENTS

Measurement locations at 8611, 8615, and 8617 Grant Street and 5431 Lincoln Street were chosen based upon previous locations chosen by Montgomery County DEP and upon the directions from the Board of Appeals. The exact locations are shown on Figure 1.

Figure 1 - Suburban Hospital measurement locations.



On 03 October 2024 between 4:00 AM and 8:00 AM, on site noise measurements were carried out in the four different residential locations while all mechanical equipment serving the hospital was in operation.

Two sets of measurements were made at each location. The first set was made during nighttime hours (before 7:00 A.M) and the second set during daytime hours (after 7:00 A.M). Measurements were made under normal nighttime and daytime operating conditions of the mechanical equipment.

The primary reason for conducting the daytime measurements so early in the morning is that the ambient noise from non-hospital sources (insects, birds, traffic, aircraft, construction, residential mechanical equipment, etc.) is lower, enabling measurement of only the noise from hospital mechanical equipment. It is expected that the mechanical equipment will not significantly increase throughout the day, so the early morning measurements are a fair representation of the hospital's mechanical noise. Quarterly noise measurement surveys have been conducted in this fashion since the regular quarterly testing began in October of 2008.

The results of these most recent measurements are presented in Table 1. Note that these levels are the maximum noise levels recorded during the measurement period; these noise levels are not averaged.

Even so, during the nighttime measurement period crickets and other insects affected the overall noise level of the measurements however even with the insect noise levels remained within the acceptable region of the Noise Ordinance.

Table 1 - Maximum noise levels.

Address	Location	Daytime dBA ¹	Time of Measurement	Daytime 65 dBA Limit?	Nighttime dBA ²	Time of Measurement	Nighttime 55 dBA Limit?
8611 Grant	Rear Yard	51	7:22 AM	Pass	50	4:14 AM	Pass
8615 Grant	Rear Yard	51	7:25 AM	Pass	51 ³	4:21 AM	Pass
8617 Grant	Rear Yard	52	7:27 AM	Pass	54 ³	4:23 AM	Pass
5431 Lincoln	Front Yard	51	7:30 AM	Pass	53 ³	4:25 AM	Pass

1-Measurements made after 7:00 AM.

2-Measurements made before 7:00 AM.

3-Inset noise increased noise level.

As can be seen by the results, the levels do not exceed either the maximum allowable daytime or nighttime noise levels for Montgomery County and are thereby found to be in compliance.

Measurements were taken using a Norsonics Type 140 Precision Sound Level Analyzer (SN-1406698) which meets ANSI S1.4 Type I Standards. The instrument was calibrated the day after the survey, traceable to National Institute of Standards and Technology (NIST).

Current noise levels from mechanical equipment serving Suburban Hospital meet both the daytime and nighttime noise standards according to the Montgomery County Noise Ordinance.

If there are any questions, please contact me directly.

Sincerely,



Scott Harvey, PE, INCE Bd. Cert.
Chief Engineer