

January 27, 2014

Lock7 Development LLC
1345 S Street, NW
Washington, DC 20009
c/o Meredith Moldenhauer

Re: 1348-1356 Florida Ave
Acoustical Review

Ms. Moldenhauer:

Hush Acoustics LLC has evaluated traffic noise for Lock7 Development LLC for the 1348-1356 Florida Ave project in Washington, D.C.

In the United States, traffic noise levels are typically analyzed using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM). The current version is 2.5. The output from TNM is the hourly average sound level at the receivers. The program allows input of the following information:

- Coordinates of selected points along the road centerlines
- The default ground type
- Pavement width and type
- Hourly volumes and speeds of autos, medium trucks, heavy trucks, buses, and motorcycles for each road segment
- Coordinates and heights of evaluation points (receivers)
- Coordinates of existing and proposed objects that shield the site such as noise walls and buildings (barriers)

A simplified TNM analysis was performed for this project solely to evaluate how traffic noise levels vary among the floors of the building and the different facades. Traffic volume and speed data for Florida Avenue was obtained from a prior project we worked on along another avenue in Washington, D.C. No traffic was included for Orren Street. The default ground type was pavement. The proposed building was included in the analysis by modeling it as a noise barrier with a height of 55 feet. The existing buildings to the east and west were also included in the analysis by modeling them as noise barriers as well. The widths of the Florida Avenue pavement and the distances from Florida Avenue to the buildings were obtained from the computer program Google Earth. Receivers were placed along the front façade (facing Florida Avenue), rear façade (facing the alley), and at points along the side façade (facing Orren Street) each 20 feet back from the front façade.

The results of this analysis can be summarized as follows for normal traffic on Florida Avenue:

- For the façade of the building along Florida Avenue, noise levels will be highest at the first floor. Sound levels will drop 0.8 dB at the second floor, 1.1 dB at the third floor, and 1.4 dB at the fourth and fifth floors. This slight variation among floors would not be perceptible.

- For the side of the building facing Orren Street, noise levels will be more similar on each floor. The loudest floor will be the first floor, with sound levels dropping 0.4 to 0.8 dB at most locations along the second, third, fourth, and fifth floors. This slight variation among floors would also not be perceptible.
- Noise levels along the façade along Orren Street will be approximately 5 dB lower 20 feet from the front façade, approximately 7 to 8 dB lower 40 feet from the front façade, approximately 9 dB lower 60 feet from the front façade, and approximately 10 to 11 dB lower 90 feet from the front façade. These differences in sound level would all be clearly noticeable.
- Noise levels at the middle of the rear façade will be approximately 32 to 45 dB lower than at the front façade. These differences in sound level would be quite significant. For reference, a reduction of 10 dB would typically be perceived as a halving of loudness, and a 20 dB reduction would typically be perceived as a quartering of loudness.

The above analysis was for typical traffic. For reference, we have measured maximum A-weighted sound levels of sirens for another project on another Avenue in Washington, D.C. at as high as 101 dB at a location a bit farther from the road as this site will be. Although TNM cannot specifically model noise from sirens of emergency vehicles, the same general conclusions presented above would apply. Specifically, noise levels due to sirens would be imperceptibly different among the various floor elevations on the front and side facades, would drop quickly along the side façade as one goes away from Florida Avenue, and would be far quieter at the rear façade than at the front façade.

A second TNM model was used to determine the effect of setting the fifth floor façade back 5 feet from the façades on the lower four floors (perhaps using a 5-foot wide roof terrace on the fifth floor). Setting the façade back 5 feet would reduce sound levels approximately 4 dB on the fifth floor along Florida Avenue relative to the fourth floor.

If you have any questions, please contact me at 703/524.2790 or Gary@HushAcoustics.com.

Sincerely,



Gary Ehrlich, P.E.
Principal