EDWARD DUGGER + ASSOCIATES, P.A.
Consultants in Architectural Acoustics

Acoustic Study – ED+A 191101

June 17, 2019

Project:
Havana 1957
940 Ocean Drive
Miami Beach, Florida 33139

Applicant:
V&E Restaurant Group
940 Ocean Drive
Miami Beach, Florida 33139

Prepared for:
Thomas R. Mooney – Director
City of Miami Beach Planning Department
1700 Convention Center Drive, Second Floor
Miami Beach, Florida 33139

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ACOUSTICAL IMPACT STUDY

Date: 17 June 2019

To: Thomas R. Mooney, Director
City of Miami Beach Planning Department
1700 Convention Center Drive, 2nd Floor
Miami Beach, Florida 33139

From: Sam Shroyer, ASA INCE
Edward Dugger, FAIA ASA NCAC INCE

Re: **Havana 1957**
940 Ocean Drive
Miami Beach, FL 33139
ED+A 191101

Mr. Mooney,

Edward Dugger + Associates, P.A. (ED+A) has prepared this acoustic study in conjunction with V&E Restaurant Group's application for a Conditional Use Permit for a Neighborhood Impact Establishment and Outdoor Entertainment Establishment at 940 Ocean Drive. The subject establishment—Havana 1957—is a restaurant located on the first floor of Hotel Breakwater South Beach and is proposing to allow Outdoor Entertainment at background levels in their courtyard area whilst continuing to provide background sound levels on its terrace and Entertainment in the restaurant's interior.

Please contact ED+A with any questions or comments pertaining to this study.

SUMMARY

[TO BE ADDED]

PROJECT INFORMATION

V&K Restaurant Group (the "Applicant") is seeking a Conditional Use Permit for a Neighborhood Impact Establishment and an Outdoor Entertainment Establishment at 940 Ocean Drive (the "Application")—the location of Hotel Breakwater South Beach (the "Hotel"). The Hotel includes Havana 1957 Cuban Cuisine Ocean Drive ("Havana 1957")—a restaurant and bar located on the first-floor of the building. The Applicant is proposing to continue to feature entertainment indoors and background level music on the front terrace while introducing background level music to the outdoor courtyard behind the restaurant.

Location

940 Ocean Drive and all properties in the immediate area are within the Mixed Use Entertainment District and are not zoned Residential. The property and neighboring properties to its north and south operate as hotels and/or transient residential housing (Ocean Blue Hostel at 928 Ocean Drive and Edison Hotel at 960 Ocean Drive). The three properties are similar in use as they all include first-floor restaurants and bars which feature Entertainment, Outdoor Entertainment, and/or Open-Air Entertainment (Voodoo Lounge at 928 Ocean Drive and Ocean's Ten at 960 Ocean Drive). 928 Ocean Drive (Voodoo Lounge) has a rooftop area that provides background music and 960 Ocean Drive (Ocean's Ten) includes a larger courtyard area. Nightly entertainment is also featured to the south at 918 Ocean Drive (Fat Tuesday) and 900 Ocean Drive (Mango's Tropical Café). Refer to Figure 1 for an aerial image demonstrating Havana 1957's location relevant to other properties in the area.

Site Layout

Havana 1957's main entrance leading to the interior restaurant is located on its terrace facing Ocean Drive but is also accessible from within the Hotel. The terrace spans the width of the restaurant and includes outdoor dining. There is an existing exterior courtyard area surrounded by the restaurant and Hotel guest rooms on its north, east, and west sides. The courtyard is accessed by a west-facing door in the restaurant and from a restaurant service area along the south side of the property. The courtyard is adjacent to the building at 928 Ocean Drive on its south side and is separated from this property by only the property setbacks. The courtyard is highlighted in Figure 1 and the terrace, restaurant, and courtyard areas are identified in Figure 2.

Operations

The interior restaurant includes bar counters and seating for dining. The terrace also includes dining and background music is currently allowed in this area. The courtyard is used as a means of access for staff (servers, dishwashers, etc.) to move food and dishes between the restaurant and the kitchen to the west of the courtyard.

The Applicant will continue to operate the restaurant between 8:00 a.m. and 5:00 a.m. with entertainment indoors and music at background levels on the terrace as currently allowed (noon to 5:00 a.m. Monday through Friday and 11:00 a.m. to 500 a.m. on weekends and holidays), but is proposing three different operational configurations to provide both entertainment and/or background sound levels throughout its various areas:

- Option 1 includes one performance area providing entertainment inside. The same music will be routed to the exterior speaker systems on the courtyard and terrace at background sound levels.
- Option 2 includes one performance area providing entertainment inside. This music will also be routed to the exterior speaker system on the terrace at background sound levels. Music will be provided by a second performer at background sound levels in the courtyard.
- Option 3 includes one performance area on the terrace providing music at background sound levels in this area. The same music will be routed to the interior restaurant at entertainment or background sound levels. Music will be provided by a second performer at background levels in the courtyard.

Audio System

Currently, exterior music is provided at background levels via a distributed loudspeaker system on the terrace, but not in the courtyard. No loudspeakers will be added to the terrace, but four JBL Control 28-1 speakers will be installed on the hotel façade surfaces (see Figure 2). The output levels of the three loudspeaker systems (or “zones”) in the courtyard, interior restaurant, and terrace will be controlled separately from one another. Management will be able to turn the systems on and off and adjust volumes as necessary via an iPad application.

METHODOLOGY

Sound levels were logged in the courtyard over a long-term measurement period beginning on Monday, 1 April 2019 and ending on Sunday, 7 April 2019. The measurement microphone was oriented vertically roughly 8 ft above the concrete patio. Sound levels were measured continuously until the measurement system lost power on

Sunday, 7 April 2019. The equipment used for measurements and calibration is listed in Table 3.

Acoustical Quantities

The measurement system calculated A-weighted equivalent-continuous sound levels (L_{Aeq}) in five-minute and one-hour intervals. A-weighted percentile-exceeded sound levels (L_{A10} and L_{A90}) were also measured and evaluated for the same observation periods. A-weighted levels were assessed as the A-weighting network corresponds best with human sensitivity to sound for the majority of community noise assessments and for sound at background levels.

L_{Aeq} are the time-average of the sound levels measured over the course of a given observation period and the L_{A10} and L_{A90} are the sound levels exceeded for ten-, and ninety-percent of an observation period. L_{A90} is typically indicative of "baseline" or residual sound levels and constant sound levels at a location while L_{A10} demonstrates the influence of more intermittent sounds (e.g. sound generated by passing pedestrians and/or vehicles). Evaluation of L_{A90} and L_{A10} in conjunction with L_{Aeq} provides valuable information as the L_{Aeq} alone do not always result in an accurate portrayal of a sound environment. Significant differences in level between these values for the same observation period are common in South Beach – especially around Ocean Drive – due to the amount of pedestrian activity and traffic accompanying the night life in the area.

RESULTS AND DISCUSSION

Measured one-hour L_{Aeq}, L_{A10}, and L_{A90} are plotted in Figure 3. The same quantities measured in five-minute intervals have been plotted in Figures 4 to 10. Table 4 lists one-hour L_{Aeq} in numerical form with daily L_{Aeq}, daytime average sound levels (L_{Ad}), and nighttime average sound levels (L_{An}).

Currently, no music or entertainment is provided in the courtyard and it is only used as a means of access between the kitchen and the restaurant. Sound levels measured by ED+A were consistently between 60 and 65 dBA during daytime hours before increasing during nighttime hours – most notably on the Friday and Saturday included in the measurement period (6 and 7 April). On these nights, sound levels were between 65 and 75 dBA. The sound levels measured during nighttime periods could be a result of sound bleeding out of Havana 1957's indoor areas and/or rooftop activity at 928 Ocean Drive, though the exact source is not readily identifiable in audio files recorded during the measurements. The clarity of the music and presence of subwoofer-generated bass noise has led ED+A to believe that much of the sound measured was emanating from

other activities at ground level. However, it is ED+A's understanding that Havana 1957 does not leave its doors open and sound emanating from other venues on Ocean Drive would not have such an impact at the measurement location as their entrances face eastward.

Review of past Miami Beach events online revealed that the measurement period coincided with Miami Beach's Pride Week. This could explain the increased levels during the weekend – particularly on Sunday. While ED+A cannot attest to the specific locations which noise was coming from on Saturday, the audio files recorded on Sunday suggest the increased levels were the result of an event with a large crowd somewhere in the immediate area (likely on Ocean Drive).

IMPACT ANALYSIS

The proposed hours of operation for music at background levels in the courtyard appear to be consistent with the times sound is generated by Havana 1957's interior and/or other properties as the sound levels measured on the property typically decreased between 3:00 a.m. and 5:00 a.m.

The audio system (described previously) will provide the means to ensure that appropriate levels are generated throughout the restaurant and particularly in the courtyard and terrace areas. Music on the terrace and in the restaurant will not increase. The loudspeakers selected for use in the courtyard should provide the necessary coverage and the exclusion of subwoofers will prevent excessive bass noise. The iPad control functions will also prove to be useful as levels can be adjusted if deemed to be too loud for the Hotel guests which surround the courtyard.

The Hotel guest rooms surrounding the courtyard on its three sides would be most exposed to sound generated therein. There are windows on the north façade of 928 Ocean Drive which appear to be on the building's third or fourth level, but ED+A are not certain as to whether these are hotel rooms or other areas. In any case, the multitude of windows on the Hotel façades increases the likelihood of these spaces being impacted. Levels will need to be controlled to ensure that these rooms are not negatively affected, including any rooms in 928 Ocean Drive with windows overlooking the courtyard.

As the courtyard is immediately adjacent to the Hotel on three sides and 928 Ocean Drive on the other side, there is no direct path over which the majority of sound can propagate from the courtyard to locations beyond these buildings. Furthermore, the location of the courtyard relative to the center of the property (from east to west) further restricts sound travelling off of the property. The system's output at low-frequencies may need to be

adjusted to ensure that the levels are appropriate for surrounding rooms as low-frequency sound is more capable of transmitting through glazing assemblies and travelling over greater distances and/or around obstructing surfaces. That there are no subwoofers in the courtyard reduces the likelihood that this will be necessary.

RECOMMENDED MITIGATION ACTIONS

It is recommended that the volume controls be accessible only to management and/or designated engineering staff. It may be necessary to limit output levels at low-frequencies to prevent increased sound levels in the rooms surrounding the courtyard on all sides. Ensuring that these levels are set in a manner appropriate for these spaces will prevent disturbances off of the property. It is also important that all performers utilize Havana 1957's sound system and associated loudspeakers and that no additional loudspeakers are added to any of the areas for any performances. This may require the installation of an input panel that cables, instruments, or other equipment can be routed to as necessary.

When there is entertainment indoors, it is preferable that doors leading into the courtyard be closed so as not to increase exterior sound levels. Alternatively, music levels indoors could be reduced if the courtyard doors are open.

TABLES AND FIGURES

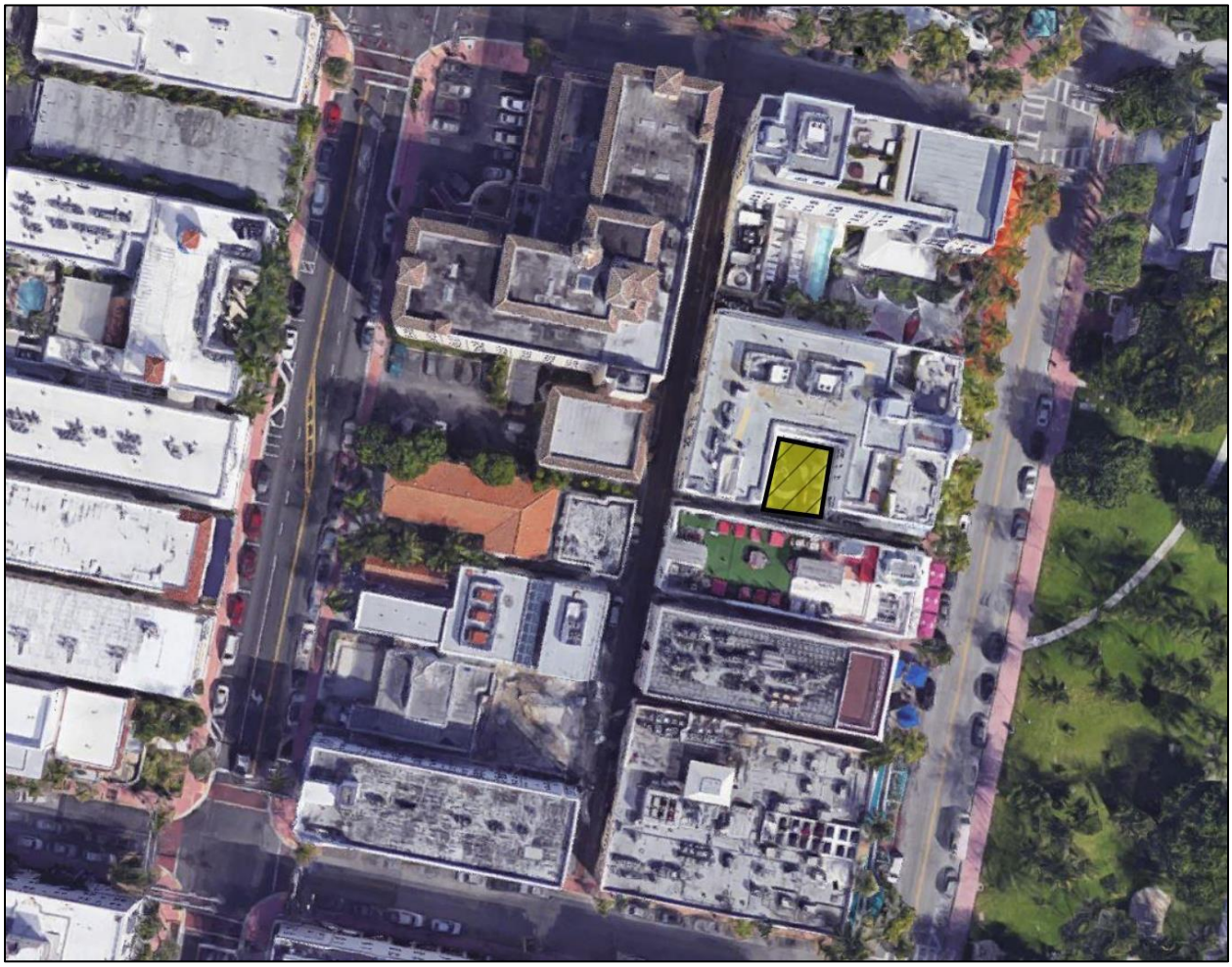

Figure 1. Aerial view of area (courtyard in yellow)

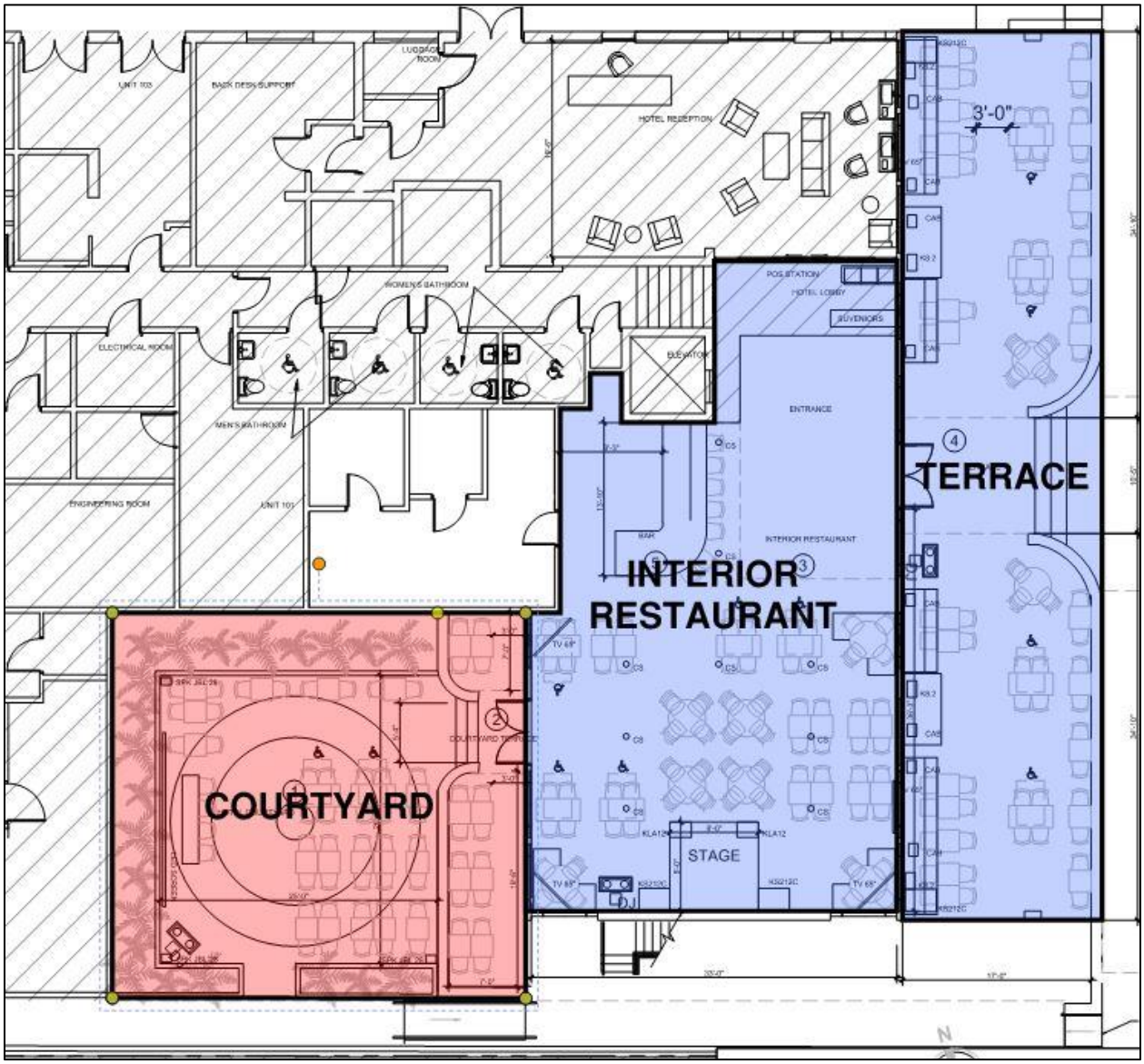

Figure 2. courtyard floor plan with speaker locations.

Table 3. ED+A Measurement Equipment			
Manufacturer	**Model**	**Serial No.**	**Laboratory Calibration Date**
Brüel and Kjær	Type 2250 Analyzer	3023769	4/20/2018
Brüel and Kjær	Type 4952 Outdoor Microphone	3017882	5/10/2018
Brüel and Kjær	Type 4231 Sound Calibrator	2394124	8/2/2018

Table 4. One-Hour L_{Aeq}							
Date	Mon, 1-Apr-19	Tues, 2-Apr-19	Wed, 3-Apr-19	Thurs, 4-Apr-19	Fri, 5-Apr-19	Sat, 6-Apr-19	Sun, 7-Apr-19
L_{0000}		68	67	65	66	74	72
L_{0100}		68	67	64	66	73	72
L_{0200}		68	67	62	66	72	74
L_{0300}		68	67	60	62	69	72
L_{0400}		67	66	61	60	65	63
L_{0500}		62	57	57	60	58	59
L_{0600}		59	59	58	58	58	58
L_{0700}		63	62	64	62	62	61
L_{0800}		60	61	64	60	60	60
L_{0900}		60	62	63	61	61	60
L_{1000}		62	61	64	60	62	61
L_{1100}		63	63	63	61	63	63
L_{1200}		62	64	61	65	65	71
L_{1300}		63	63	64	66	64	
L_{1400}		63	62	63	66	65	
L_{1500}		65	63	65	65	66	
L_{1600}	66	66	66	65	68	68	
L_{1700}	65	65	66	64	67	69	
L_{1800}	63	65	63	64	65	67	
L_{1900}	63	63	62	64	65	67	
L_{2000}	65	65	64	65	66	68	
L_{2100}	67	67	64	65	68	68	
L_{2200}	68	67	64	66	73	70	
L_{2300}	68	67	65	66	73	69	
L_{Aeq}	66	65	64	64	66	68	69
L_{Ad}	65	64	63	64	65	66	65
L_{An}	68	67	66	63	68	70	70

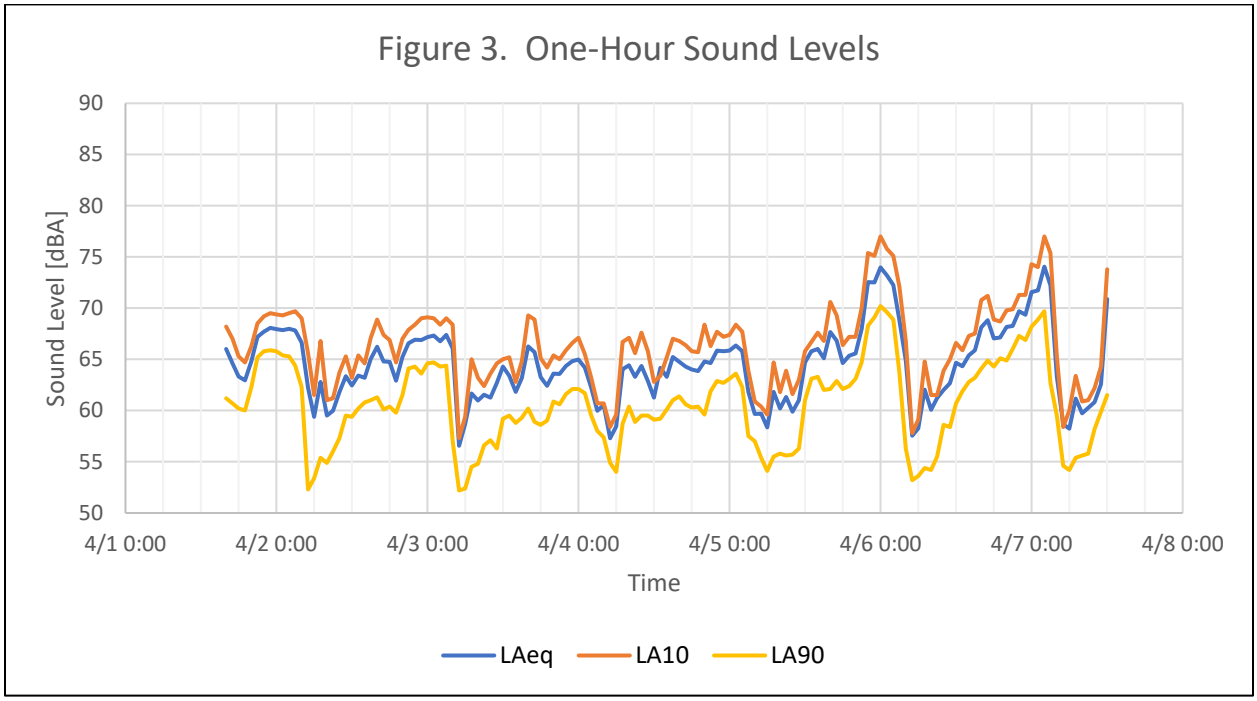
Figure 3. One-Hour Sound Levels
Sound Level [dBA]
90
85
80
75
70
65
60
55
50
4/1 0:00
4/2 0:00
4/3 0:00
4/4 0:00
4/5 0:00
4/6 0:00
4/7 0:00
4/8 0:00
Time
LAeq
LA10
LA90

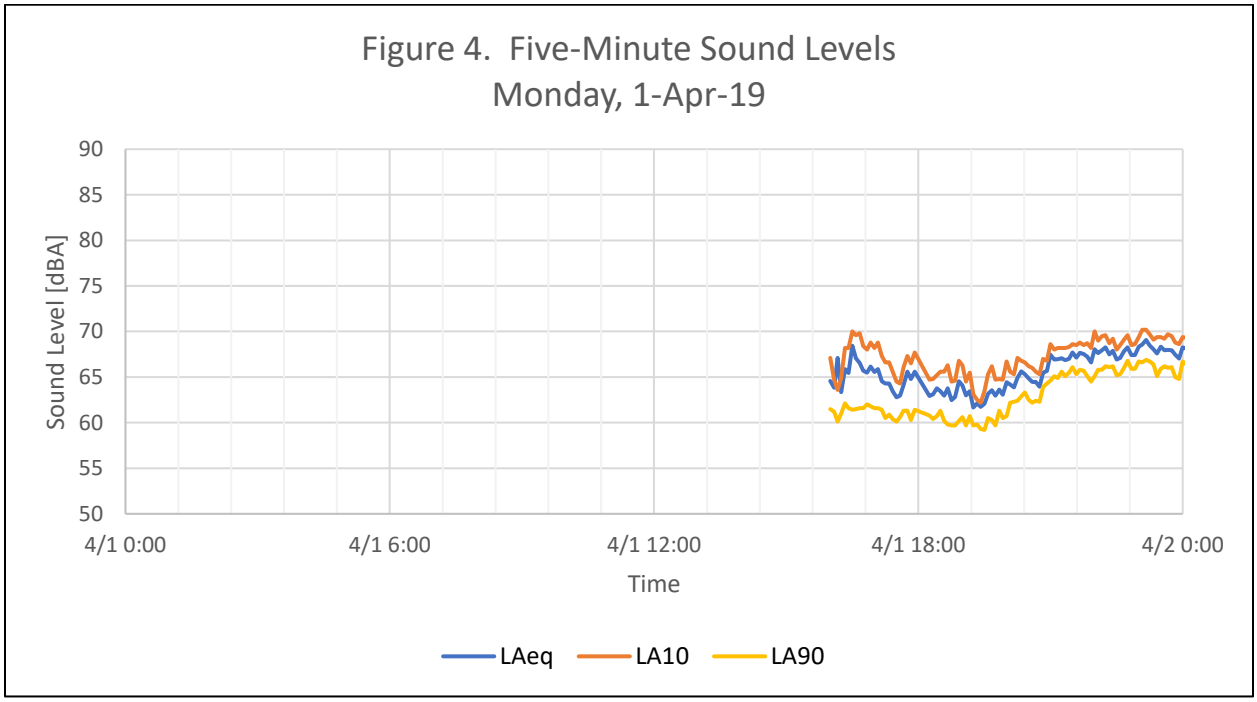
Figure 4. Five-Minute Sound Levels
Monday, 1-Apr-19
Sound Level [dBA]
90
85
80
75
70
65
60
55
50
4/1 0:00
4/1 6:00
4/1 12:00
4/1 18:00
4/2 0:00
Time
LAeq
LA10
LA90

Figure 5. Five-Minute Sound Levels
Tuesday, 2-Apr-19

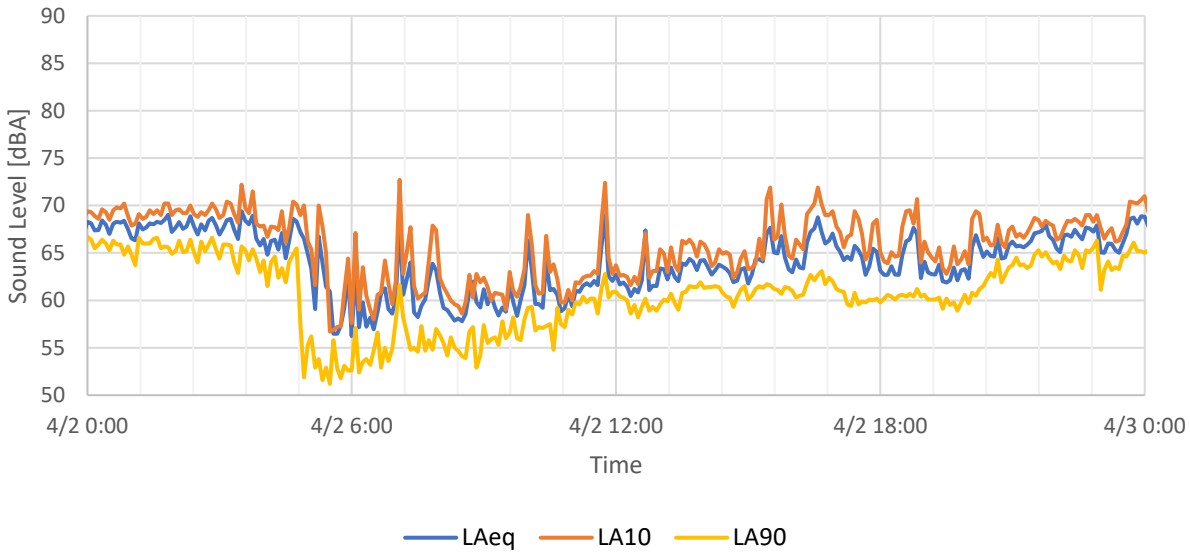

Figure 6. Five-Minute Sound Levels
Wednesday, 3-Apr-19

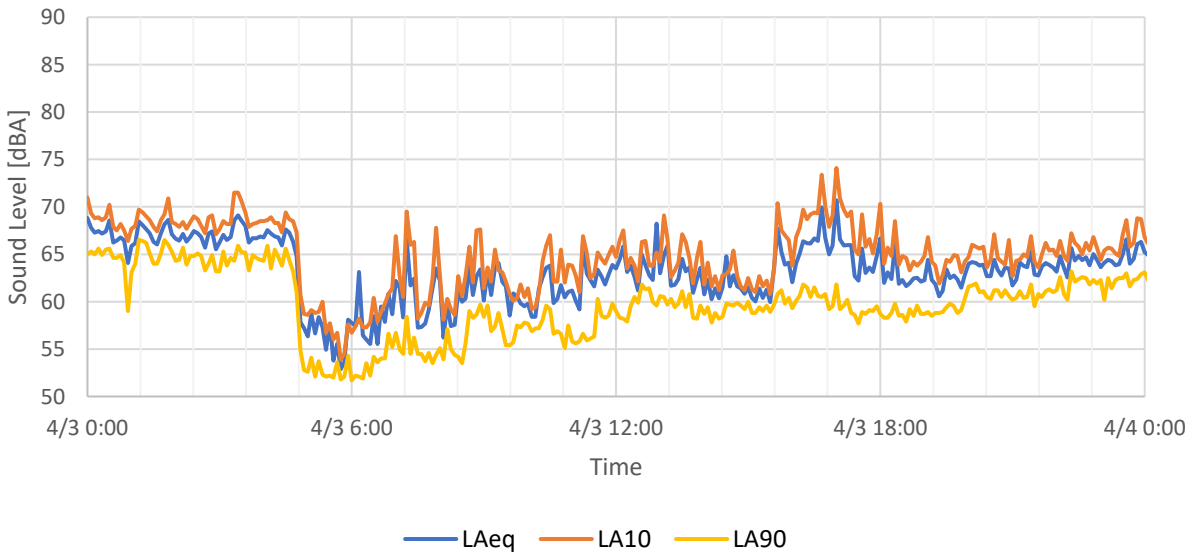

Figure 7. Five-Minute Sound Levels
Thursday, 4-Apr-19

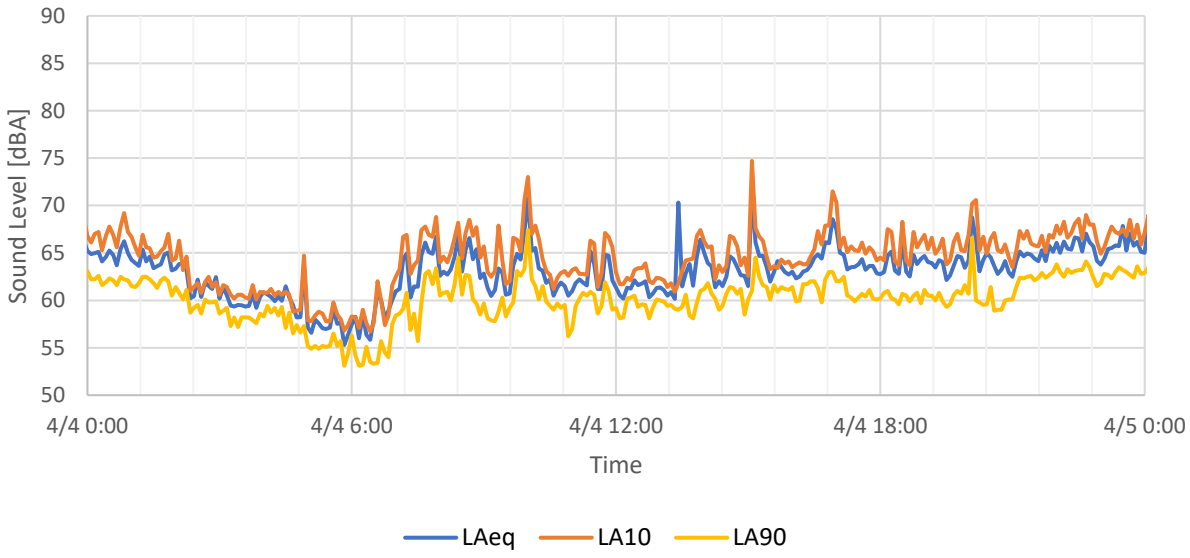

Figure 8. Five-Minute Sound Levels
Friday, 5-Apr-19

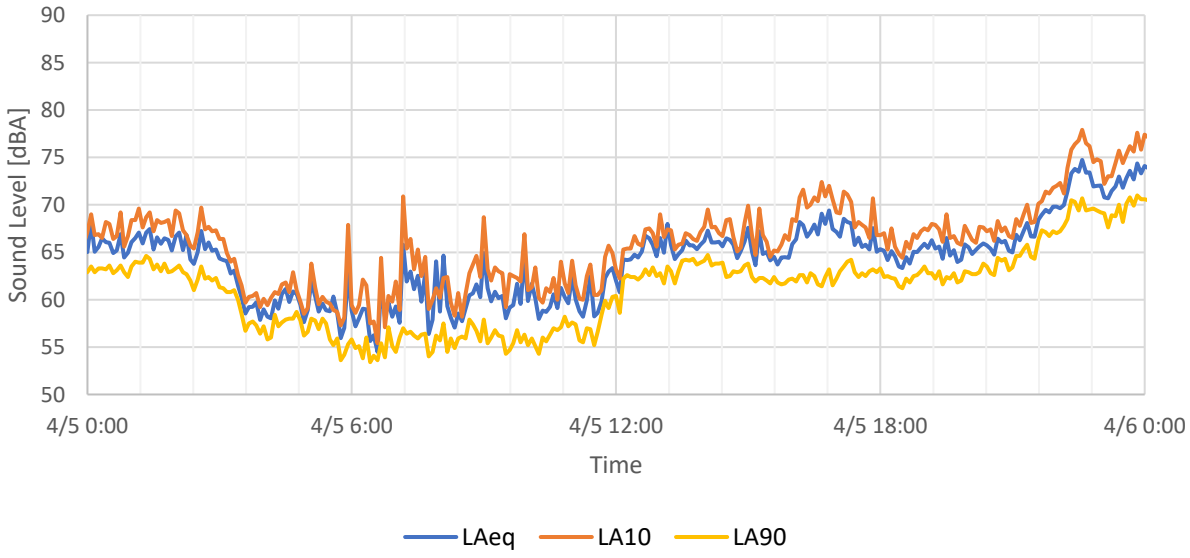

Figure 9. Five-Minute Sound Levels
Saturday, 6-Apr-19

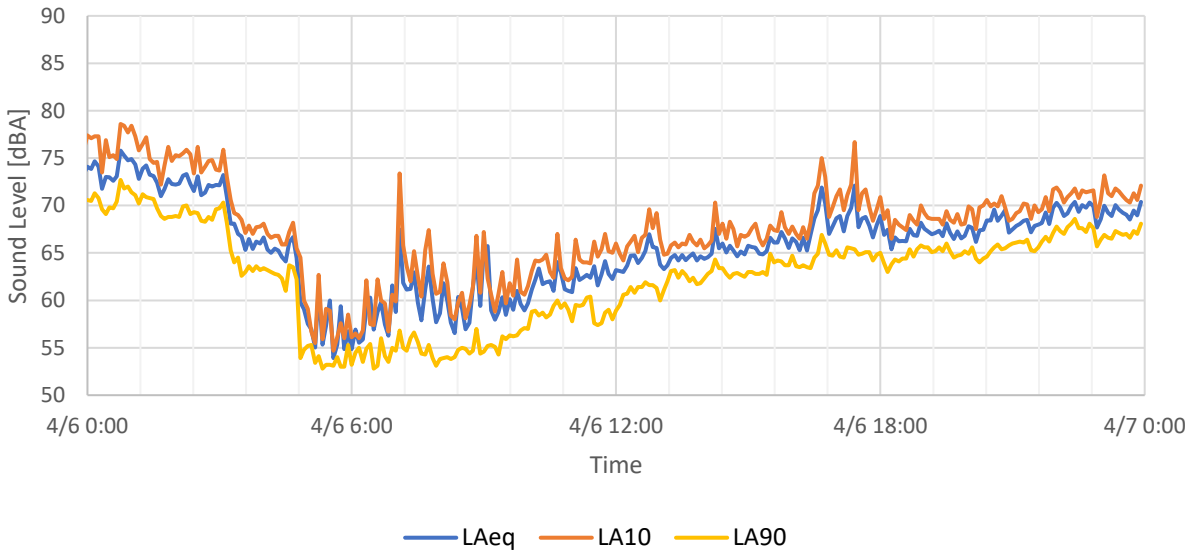

Figure 10. Five-Minute Sound Levels
Sunday, 7-Apr-19