



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

Acoustic Study – ED+A 191096

April 8, 2019

Project:

Fairwind Hotel
1000-1030 Collins Avenue
Miami Beach, Florida 33139

Applicant:

MLB Fairwinds, LLC
1000 Collins Avenue
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

Prepared by:

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A handwritten signature in black ink, appearing to read 'Sam Shroyer'.

Sam Shroyer, ASA INCE
Consultant; sam@edplusa.com

A handwritten signature in black ink, appearing to read 'Edward Dugger'.

Edward Dugger, FAIA ASA NCAC INCE
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EDWARD DUGGER + ASSOCIATES, P.A.
Consultants in Architectural Acoustics

ACOUSTICAL IMPACT STUDY

Date: 8 April 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: **Acoustic Study – City of Miami Beach**
Fairwind Hotel
1000 – 1030 Collins Avenue
Miami Beach, FL 33139
ED+A 191096

Mr. Mooney,

Edward Dugger + Associates, P.A. (ED+A) has prepared this acoustic study in conjunction with MLB Fairwinds, LLC's application for a Conditional Use Permit for a Neighborhood Impact Establishment and an Outdoor Entertainment Establishment at 1000-1030 Collins Avenue. The Fairwind Hotel is located on this property and is proposing to allow Outdoor Entertainment for the restaurant and bar venue in their courtyard area.

This report details ED+A's assessment of the existing acoustical environment of the property and its surroundings, Fairwind Hotel's current and proposed operations, and whether entertainment could be provided in its courtyard and lower-level bar without detrimentally affecting the existing sound environment.

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



SUMMARY

In summary, ED+A believe that the proposed Outdoor Entertainment in the Courtyard and Entertainment in the lower-level bar will not result in any unreasonable sound at nearby properties. This conclusion was informed by visits to the property and the surrounding area, analysis of sound levels obtained through long-term acoustical measurements, and review of the architectural drawings submitted with this application. ED+A's findings are presented in the following pages.

PROJECT INFORMATION

MLB Fairwinds, LLC (the "Applicant") is seeking a Conditional Use Permit for a Neighborhood Impact Establishment and an Outdoor Entertainment Establishment at 1000-1030 Collins Avenue (the "Application"). The property is the location of the Fairwind Hotel, a hotel consisting of four buildings spanning the 1000, 1010, 1020, and 1030 Collins Avenue lots. The individual buildings will hereinafter be referred to as "Buildings 1000, 1010, 1020, and 1030." The subject of the Outdoor Entertainment Application is the ground-level open outdoor area between Buildings 1000, 1010, and 1020 (the "Courtyard"). Although the lower-level bar in Building 1000 does not require Entertainment approval, it has also been included in this analysis.

Location

The properties are zoned for "Commercial Mixed Use Entertainment" and have "Hotel" land uses. 960 Collins Avenue to the south and 1001 Collins Avenue to the east have the same zoning and land uses. These properties currently operate as hotels. 1027 Collins Avenue to the east is the City's Pelican Garage. 1040 Collins Avenue to the north is a municipally-owned housing complex. 1001 Washington Avenue to the west is the Wolfsonian Museum and 1035 Washington Avenue to the west is commercial-retail.

Site Layout

Building 1010 serves as the rear of the property, spanning its western half and connects to Building 1000 which extends eastward along the southern property boundary to Collins Avenue. The other buildings are smaller in size and occupy the eastern half of the property. Buildings 1000, 1010, and 1020 wrap around the Courtyard which serves as a means of access between the buildings. Building 1000 includes a first-floor restaurant which also has outdoor seating in covered and open portions of the Courtyard. Building 1010 has a bar counter which is accessed from inside the building and the west side of the Courtyard. Building 1020 has a first-floor café which also has an outdoor seating area in the Courtyard. Building 1020 is separated from Building

1030 on its north side by a minimal distance. Guest rooms are located in all four buildings.

A pool deck and lounge areas are located on the rooftops of Building 1000 and Building 1010, respectively. Building 1020's rooftop consists of several private roof decks accessible to guests staying in the rooms below. ED+A estimate that slightly less than half of the guest rooms on the property overlook the Courtyard. Portions of the rooftops are dedicated to mechanical equipment and the storage of maintenance equipment. The relationship between the Buildings and the Courtyard is illustrated in Figure 1.

Operations

Background music is currently provided throughout most of the outdoor areas and Building 1000 and 1010's rooftops. The Courtyard is the subject of the application for an Outdoor Entertainment Establishment and music in all other outdoor areas will remain at background levels. The Applicant intends to provide Outdoor Entertainment, including live performances in this area between the hours of 12:00 p.m. and 5:00 a.m. No Outdoor or Open Air Entertainment will be provided anywhere else throughout the property's exterior areas. Prerecorded music generated in these areas will remain at background sound levels.

As mentioned previously, Entertainment will also be provided in Building 1000's lower-level bar area. This space can be accessed via a ground level entrance on 10th Street and from the first floor of Building 1000.

Audio Systems

Currently, music is provided through distributed loudspeakers installed throughout the property. These areas are separated into different "zones" so that they may be controlled and configured independently of one another. Exterior speakers have only been installed on the rooftop pool deck and lounge areas and throughout the Courtyard. This will remain the case in the future as the existing digital signal processing (DSP) equipment allows for different output levels and output level limits to be set for the different zones and only the Courtyard speakers will be used for Outdoor Entertainment. These systems are only accessible to and can only be adjusted by hotel management. Additionally, management cannot increase the output levels of the systems beyond an absolute output level which was initially set by the system installer. The lower-level audio system is independent of the system described above.

METHODOLOGY

Sound levels were monitored and logged in the Courtyard (“Location 1”) and toward the southern edge of Building 1020 (“Location 2”) over a long-term measurement period between Tuesday, 26 March 2019 and Monday, 1 April 2019.

The microphones were oriented vertically roughly 9 ft above hard surfaces at heights of 8.25 ft above grade for Location 1 and 31.75 ft above grade for Location 2. Care was taken to ensure that the building parapet did not block the line-of-sight between the measurement locations so that a relationship between sound levels observed at these locations might be established. Levels were measured continuously at Location 1 but Location 2 lost power on Saturday, 30 March 2019 and no data were obtained at this location for the remainder of the measurement period. Both systems were calibrated before the equipment’s installation and prior to its removal from the site. The equipment used for measurements and calibration is listed in Table 1.

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} , L_{A50} , 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.

L_{Aeq} are the time-average of the sound levels measured over the course of a given observation period and the L_{A10} , L_{A50} , and L_{A90} are the sound levels exceeded for ten-, fifty-, and ninety-percent of an observation period. Thus, 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 does not always result in an accurate portrayal of a sound environment.

RESULTS AND DISCUSSION

One-hour L_{Aeq} measured at both locations are included in Tables 2 and 3 and are plotted in Figures 2, 3, and 4. The difference in five-minute L_{Aeq} measured at both locations is plotted in Figure 5. The measured five-minute L_{Aeq} at both locations have been plotted in eight-hour increments in Figures 6 to 23.

Sound levels at both locations remained mostly constant during the night and afternoon periods. The highest levels were measured during the afternoon and evening before levels diminished to a baseline ambient sound levels between 57 and 62 dBA. During operating hours, sound levels measured at Location 1 were typically between 65 and 68 dBA and were mostly the result of background music and guest/staff activity in the Courtyard. There were intermittent periods where sound levels at both locations increased to above 70 dBA and up to 75 dBA during the five-minute observation periods. These events are not believed to be caused by activity on the property and are likely the result of city noise such as traffic. Sound levels at Location 2 predominantly resulted from background music in the Courtyard below, but was also exposed to more noise sources in the surrounding area as it was on an elevated surface. Location 1's microphone was not located directly in front of any wall mounted speakers and the measured levels—which were consistently between 65 and 68 dBA—are likely similar to those experienced throughout much of the Courtyard. As demonstrated by Figure 5, the sound levels measured at Location 2 were mostly between 2 to 3 dB below those measured at Location 1.

IMPACT ANALYSIS

Outdoor Entertainment

The existing audio system is to be used for entertainment in the future. Loudspeakers are currently installed within the landscaping along the south and north building façades which constitute the Courtyard's perimeter. The loudspeakers are installed roughly 1.5 ft above ground. The north façade of 1000 Collins Avenue is 56 ft from the south façade of 1020 Collins Avenue (the north boundary of the Courtyard). The 1040 Collins Avenue property boundary is roughly 102 ft from this point. 85% of this distance is occupied by building structures (Buildings 1020 and 1030), portions of which vary in height from 23 to 34 ft above the Courtyard ground surface. Building 1010 ranges from 50 to 64 ft in height on the west side of the Courtyard.

These conditions create a limited line-of-sight between the Courtyard and the residential building at 1040 Collins Avenue which would markedly reduce the level of sound which would otherwise be able to travel between the two locations. Using the distance between the loudspeakers to the center of the Courtyard (28 ft) as a reference, sound travelling in a straight line from the loudspeakers to the north property line alone with no obstructions would result in a 15 dB reduction for sound emanating from a point source, which spreads outward in all directions. However, these loudspeakers are designed to

provide limited coverage and the sound levels they produce quickly dissipate outside of the coverage area and at distances beyond their direct sound field.

The most direct paths between sound sources in the Courtyard and 1040 Collins Avenue will be to the higher levels of the building where the line-of-sight is less obstructed. However, these dwellings will also be exposed to several other sources throughout the area due to their elevation. Aside from usual urban noise such as traffic and pedestrians, the ambient sound level at these elevations would also be increased by rooftop mechanical equipment at the Fairwind and other adjacent properties.

For these reasons, ED+A do not believe that 1040 Collins Avenue will be negatively impacted by Outdoor Entertainment at the Fairwind Hotel.

Indoor Entertainment

The lower-level bar will operate between 8:00 p.m. and 5:00 a.m. and will include Entertainment provided by DJ's.

Vestibules are always recommended where "loud" music may be generated indoors as the frequent opening and closing of entry doors can allow sound (particularly at low-frequencies) to escape the confines of the building and propagate to nearby areas. The bar entrance may not be what would conventionally be described as a vestibule, but it is configured in a manner that is even more effective in preventing sound from leaving its interior. The entrance consists of a room with elevator and hotel access which then leads downstairs to the actual entrance to the bar, which is perpendicular to the main entrance to 10th Street. The design is inherently effective in keeping sound within the building as it consists of two doorways at varying elevations with no clear line-of-sight between them. Thus, ED+A are confident that the lower-level bar area will not cause any sound disturbances on other properties.

RECOMMENDED MITIGATION ACTIONS

As a large portion of the Fairwind's hotel rooms overlook the Courtyard, guests stand to be most impacted by its Outdoor Entertainment. For this reason, the low-frequency output of the audio system may need to be limited when output levels increase as these sounds travel more freely over distances and around/through structures. ED+A can provide additional acoustical measurements to assess the low-frequency output of the system at distances and varying elevations once the Application has been approved, if deemed necessary. Adjusting the output levels so that the guests on the property are not disturbed will ensure that any sound which emanates beyond the property will not be of an unreasonable character.

FIGURES AND TABLES

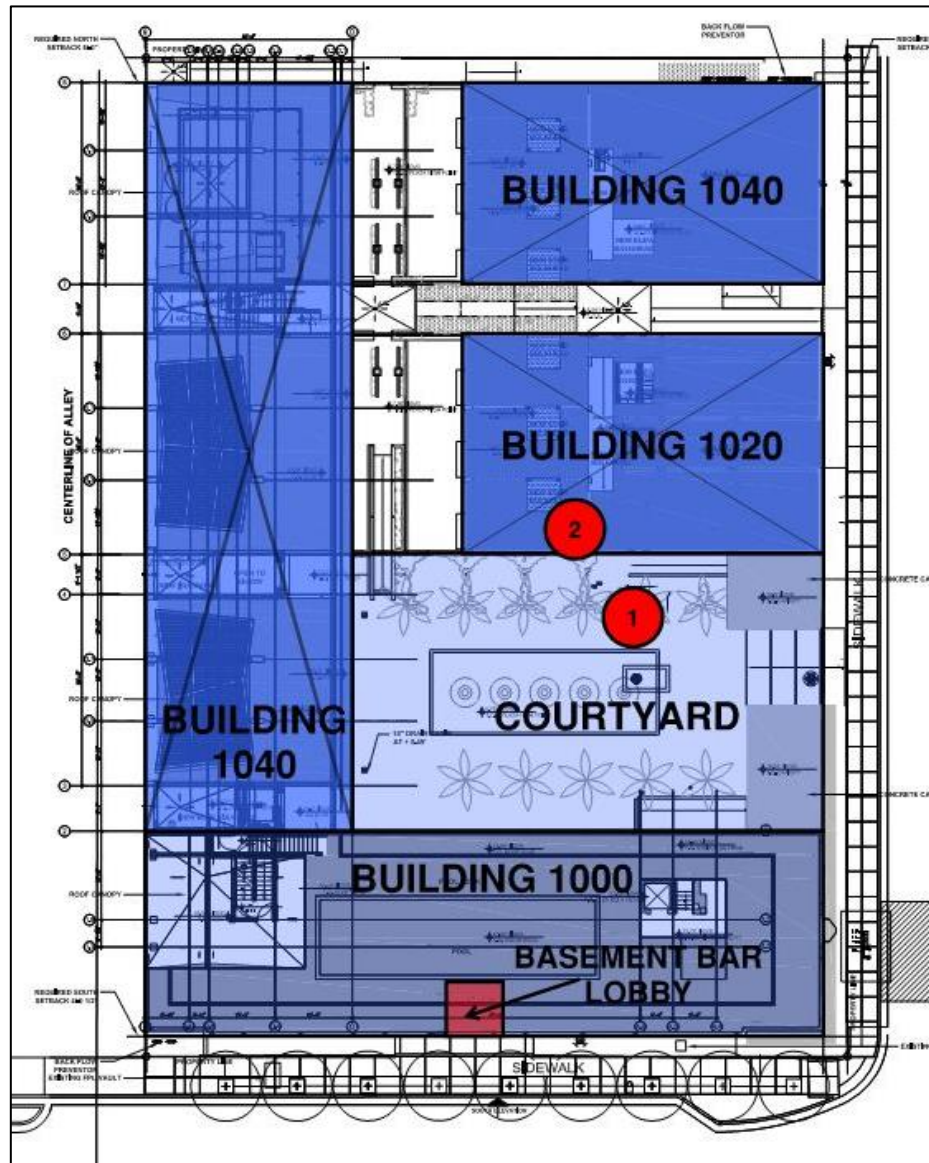


Figure 1. Site plan with building and measurement system locations.

Table 1. ED+A Measurement Equipment			
Manufacturer	Model	Serial No.	Laboratory Calibration Date
Brüel and Kjær	Type 2250-L Analyzer	3008039	5/18/2018
Brüel and Kjær	Type 4952 Outdoor Microphone	3017882	5/10/2018
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 2. Location 1 One-Hour L_{Aeq}							
Date	Tues, 26-Mar-19	Wed, 27-Mar-19	Thurs, 28-Mar-19	Fri, 29-Mar-19	Sat, 30-Mar-19	Sun, 31-Mar-19	Mon, 1-Apr-19
L 0000		61	63	64	65	65	63
L 0100		61	61	64	65	68	63
L 0200		61	61	63	65	64	63
L 0300		61	62	63	64	64	61
L 0400		60	61	65	63	63	62
L 0500		61	61	62	62	62	62
L 0600		63	62	63	62	65	62
L 0700		63	65	64	65	65	63
L 0800		66	66	66	66	64	66
L 0900		67	67	68	66	67	69
L 1000		67	67	66	68	65	73
L 1100		67	68	66	66	65	68
L 1200		66	69	67	66	68	66
L 1300		67	67	68	68	66	66
L 1400		66	68	67	67	66	
L 1500		67	68	69	68	68	
L 1600	65	67	68	69	69	67	
L 1700	65	68	67	70	68	67	
L 1800	67	67	68	68	68	66	
L 1900	64	68	68	68	68	67	
L 2000	65	69	67	68	67	66	
L 2100	64	66	68	70	68	65	
L 2200	65	65	65	68	71	70	
L 2300	69	63	63	68	71	64	
L_{Aeq}	66	66	66	67	67	66	66
L_{Ad}	65	67	68	68	67	66	68
L_{An}	68	62	62	65	67	66	62

Table 3. Location 2 One-Hour L_{Aeq}					
Date	Tues, 26-Mar-19	Wed, 27-Mar-19	Thurs, 28-Mar-19	Fri, 29-Mar-19	Sat, 30-Mar-19
L 0000		59	61	62	64
L 0100		59	60	62	64
L 0200		58	59	61	63
L 0300		58	60	61	62
L 0400		58	59	62	61
L 0500		59	59	60	59
L 0600		61	60	62	60
L 0700		61	63	62	63
L 0800		64	63	63	63
L 0900		66	65	66	63
L 1000		65	64	63	
L 1100		65	65	64	
L 1200		64	66	64	
L 1300		65	65	65	
L 1400		64	67	66	
L 1500		65	67	69	
L 1600	64	65	67	68	
L 1700	64	66	66	67	
L 1800	67	65	67	66	
L 1900	63	67	66	67	
L 2000	63	68	65	67	
L 2100	63	64	65	68	
L 2200	62	64	62	67	
L 2300	66	62	61	66	
L_{Aeq}	64	64	64	65	63
L_{Ad}	64	65	66	66	63
L_{An}	65	60	60	63	62

Figure 2. One-Hour Data (Location 1)

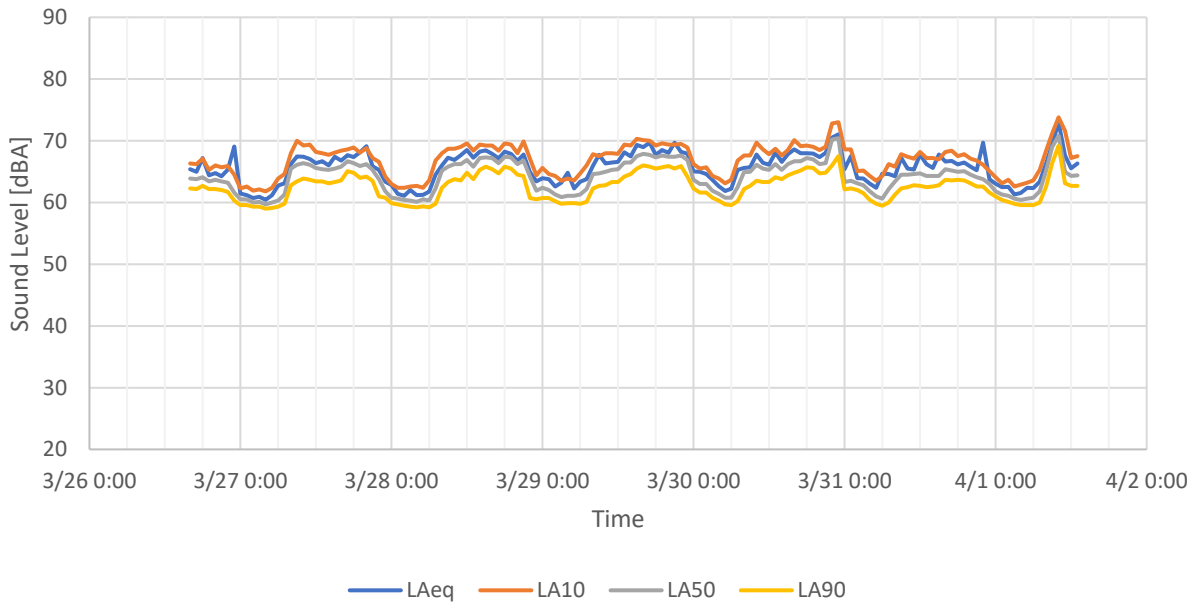


Figure 3. One-Hour Data (Location 2)

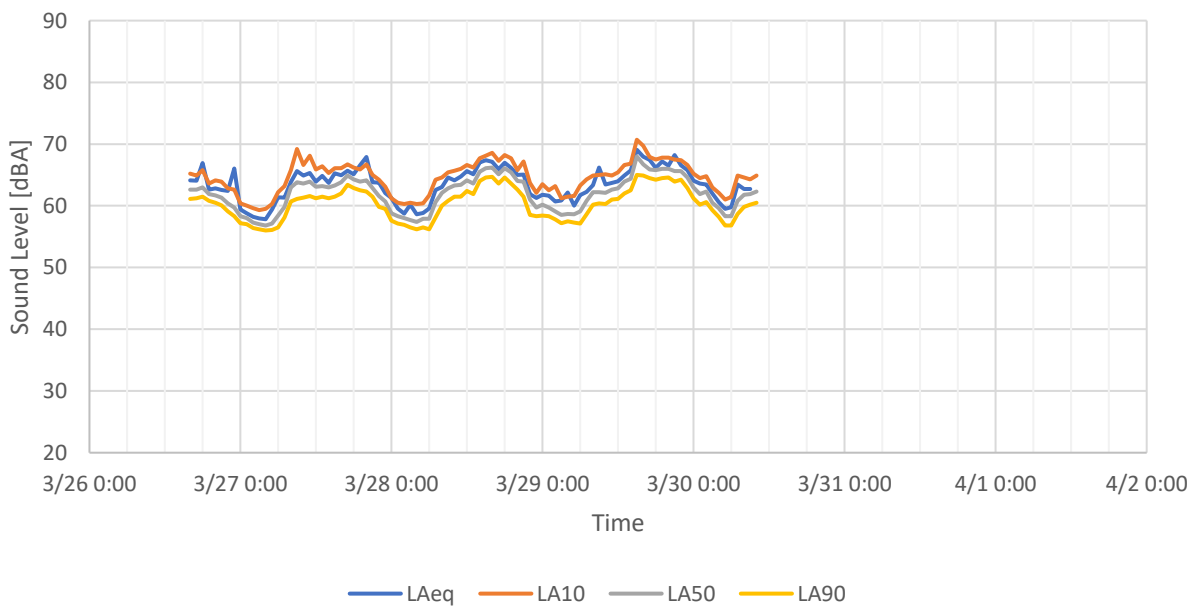


Figure 4. One-Hour LAeq

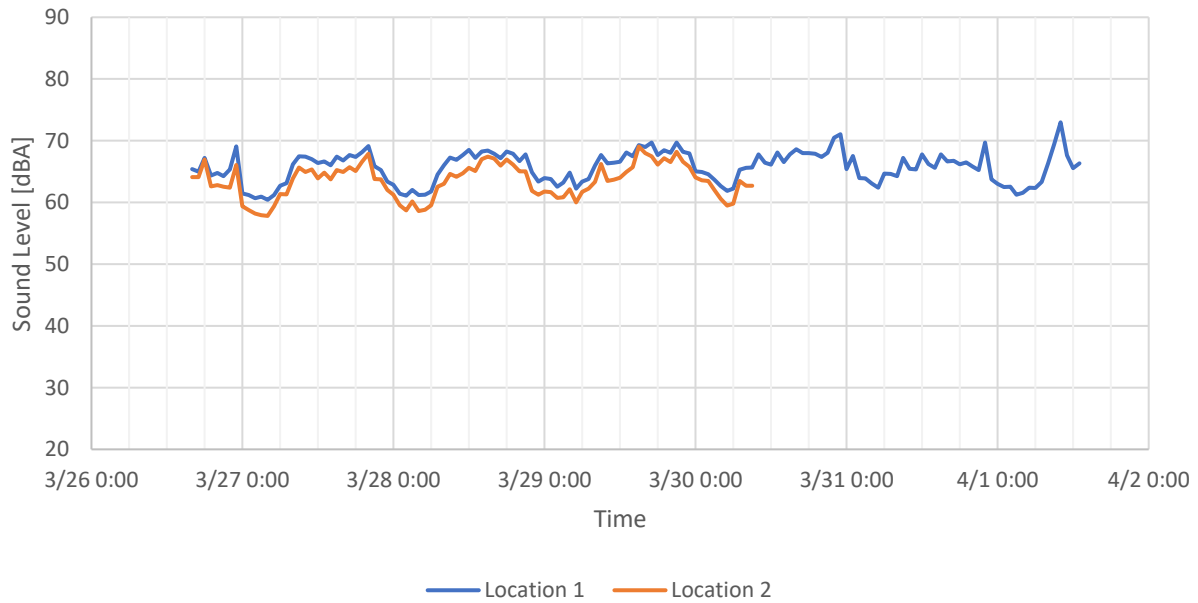


Figure 5. Difference in 5-min L_{Aeq} between Locations

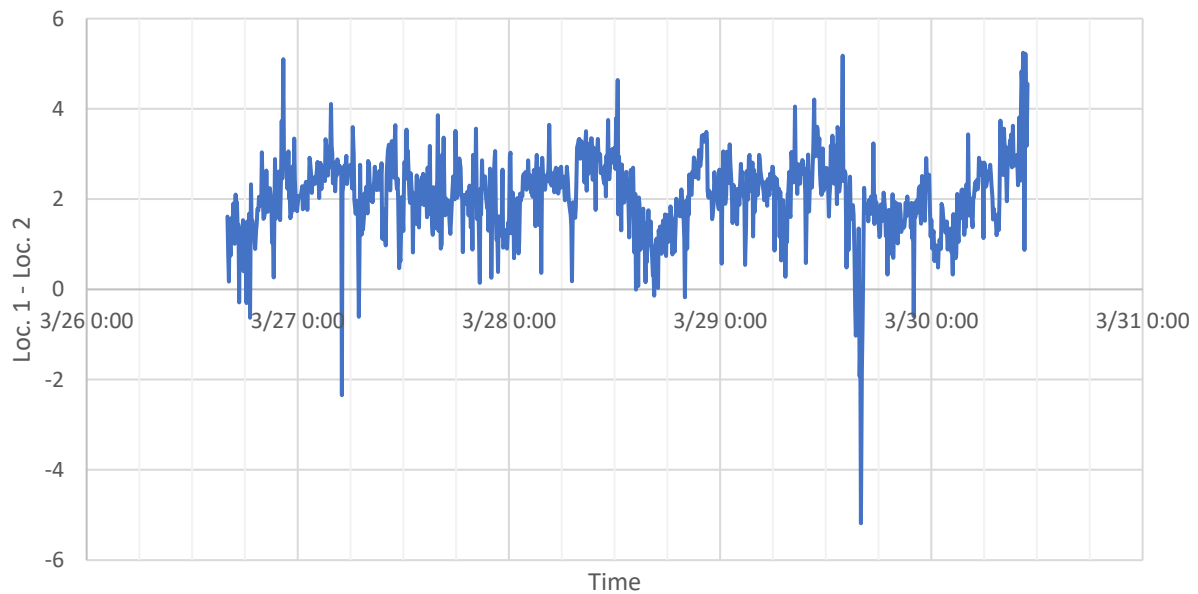


Figure 6. Five-Minute L_{Aeq} , 26-Mar-19 1600 to 2400

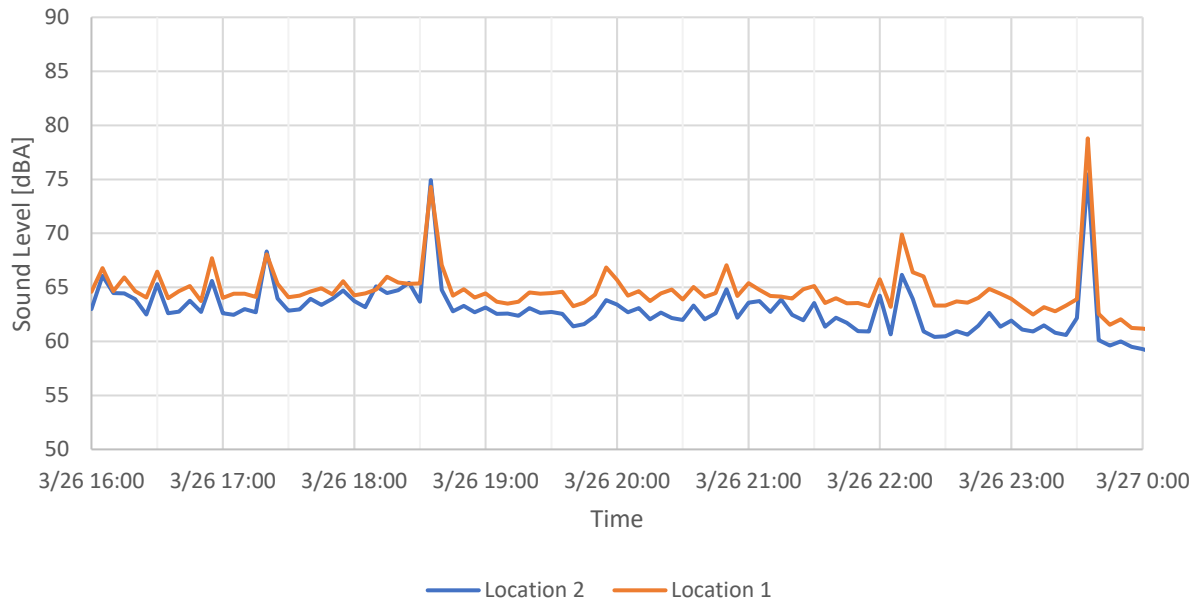


Figure 7. Five-Minute L_{Aeq} , 27-Mar-19 0000 to 0800

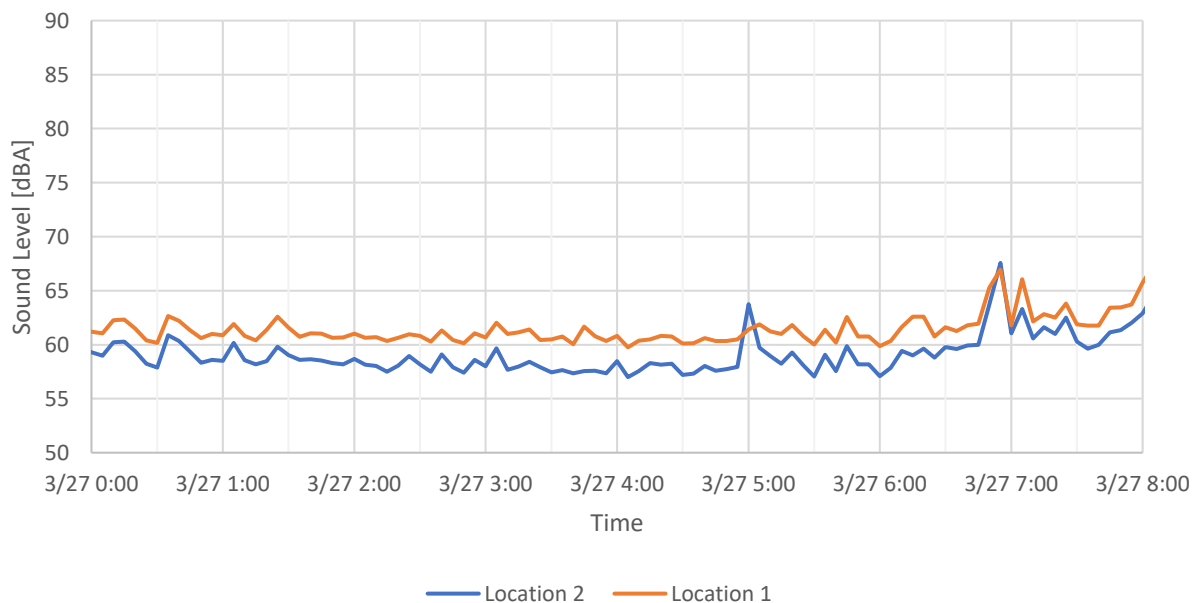


Figure 8. Five-Minute L_{Aeq} , 27-Mar-19 0800 to 1600

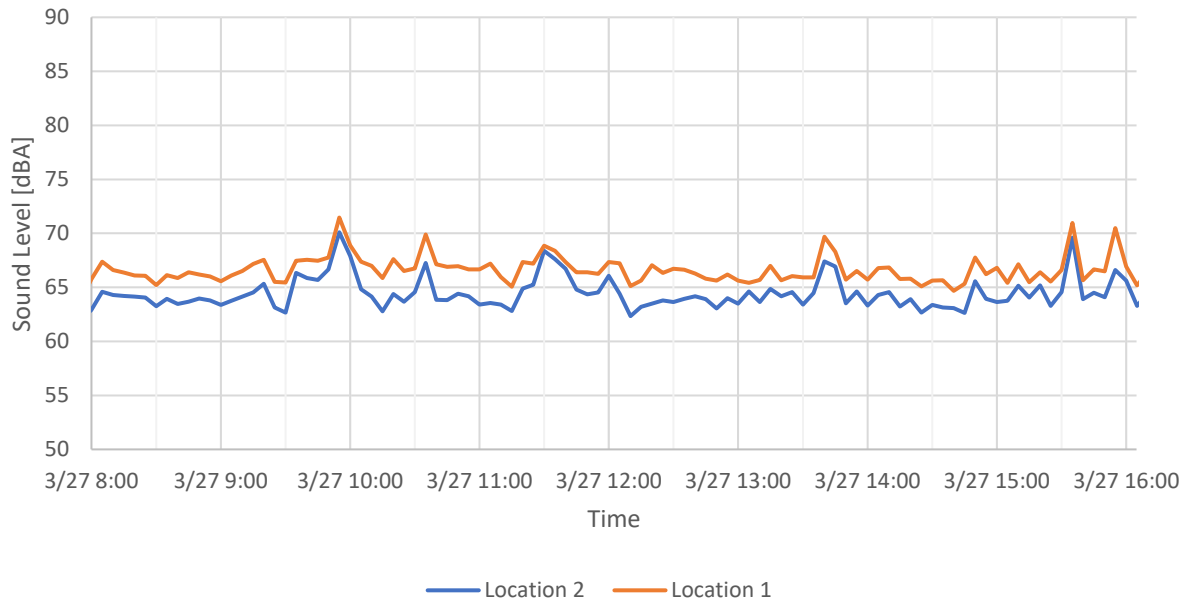


Figure 9. Five-Minute L_{Aeq} , 27-Mar-19 1600 to 2400

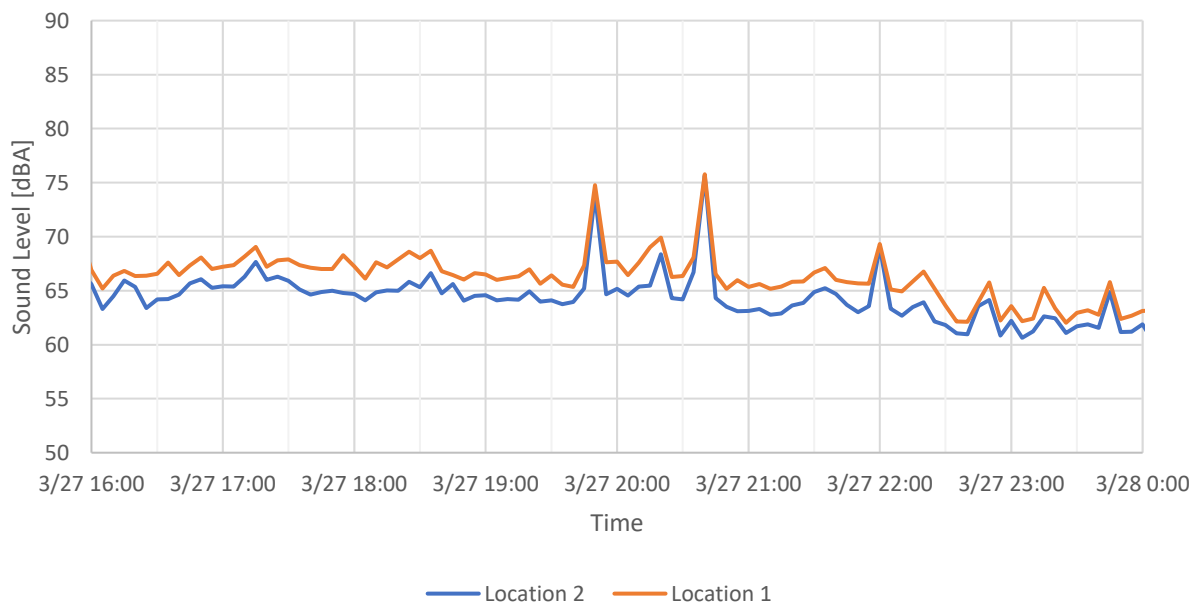


Figure 10. Five-Minute L_{Aeq} , 28-Mar-19 0000 to 0800

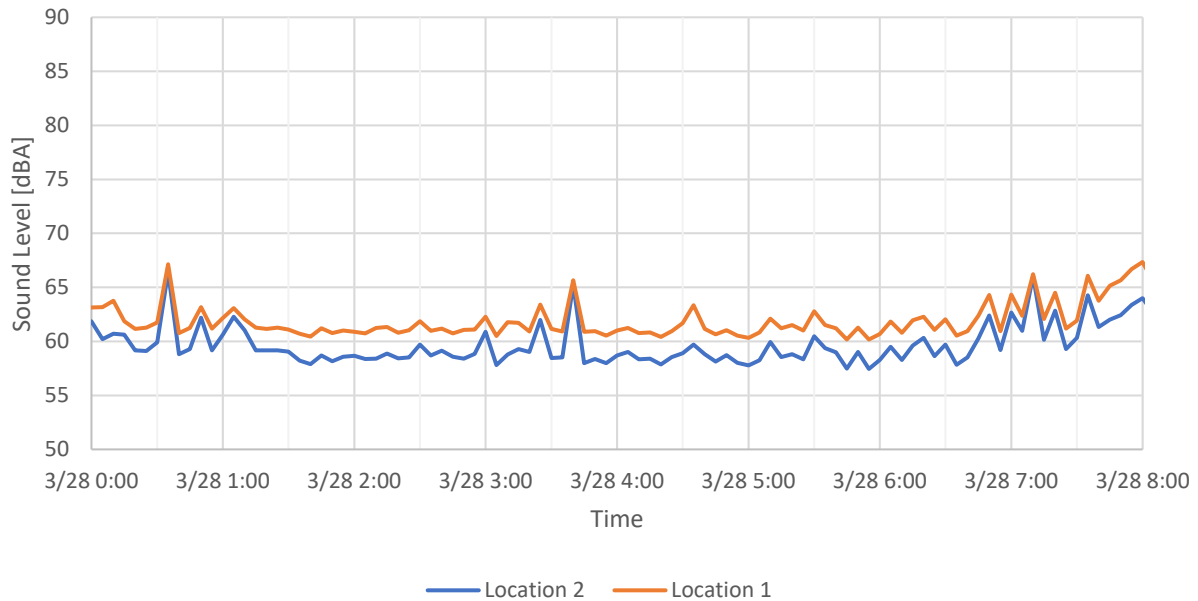


Figure 11. Five-Minute L_{Aeq} , 28-Mar-19 0800 to 1600

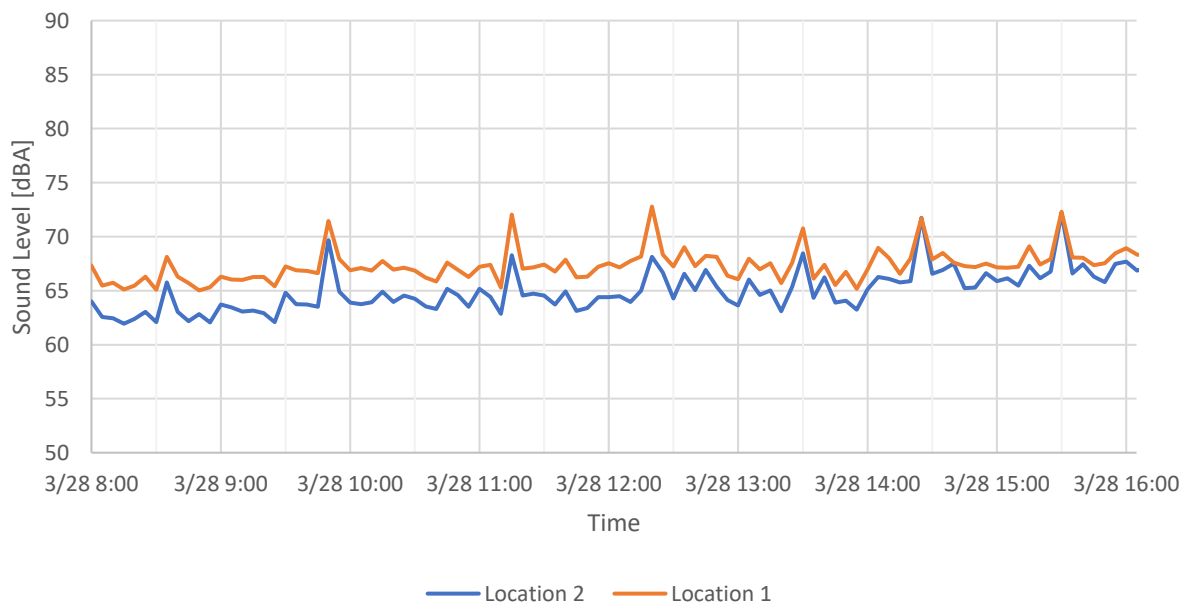


Figure 12. Five-Minute L_{Aeq} , 28-Mar-19 1600 to 2400

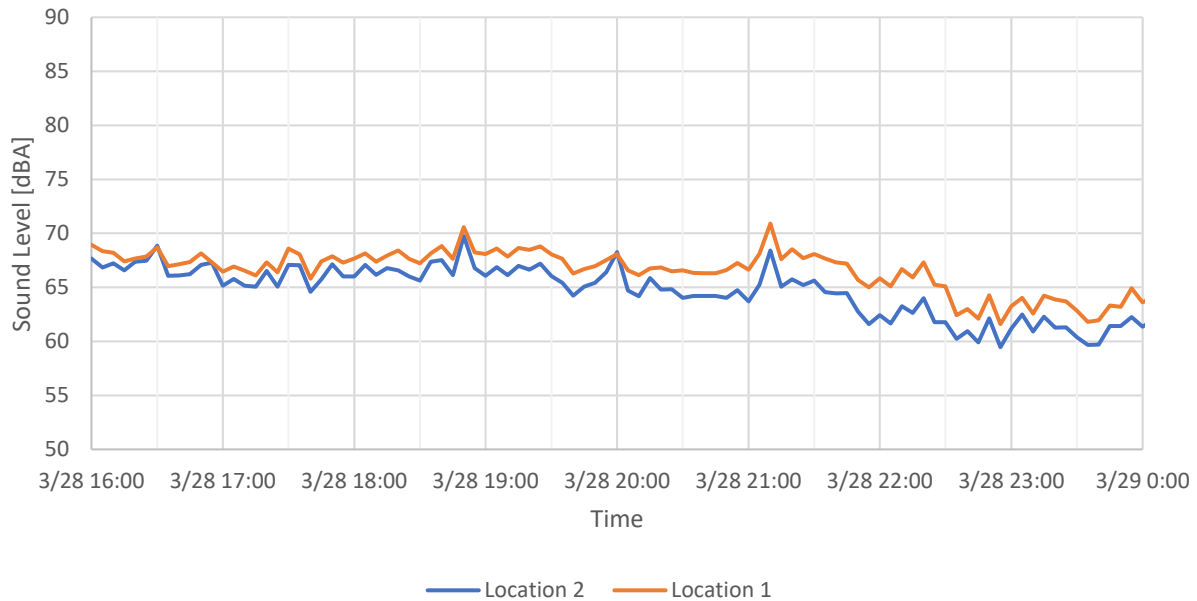


Figure 13. Five-Minute L_{Aeq} , 29-Mar-19 0000 to 0800

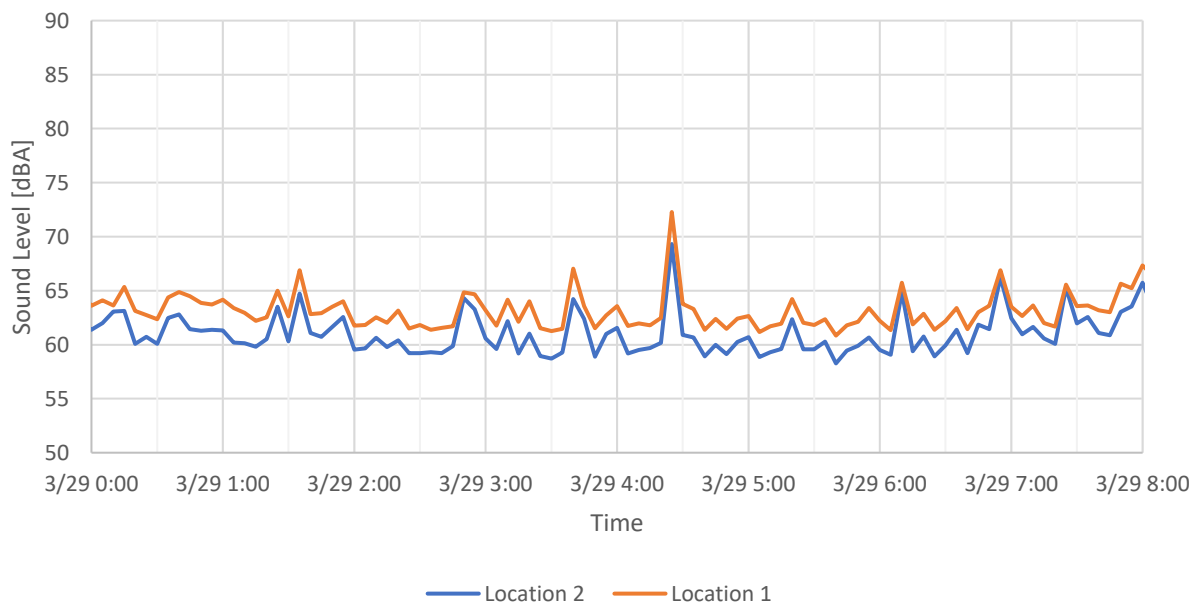


Figure 14. Five-Minute L_{Aeq} , 29-Mar-19 0800 to 1600

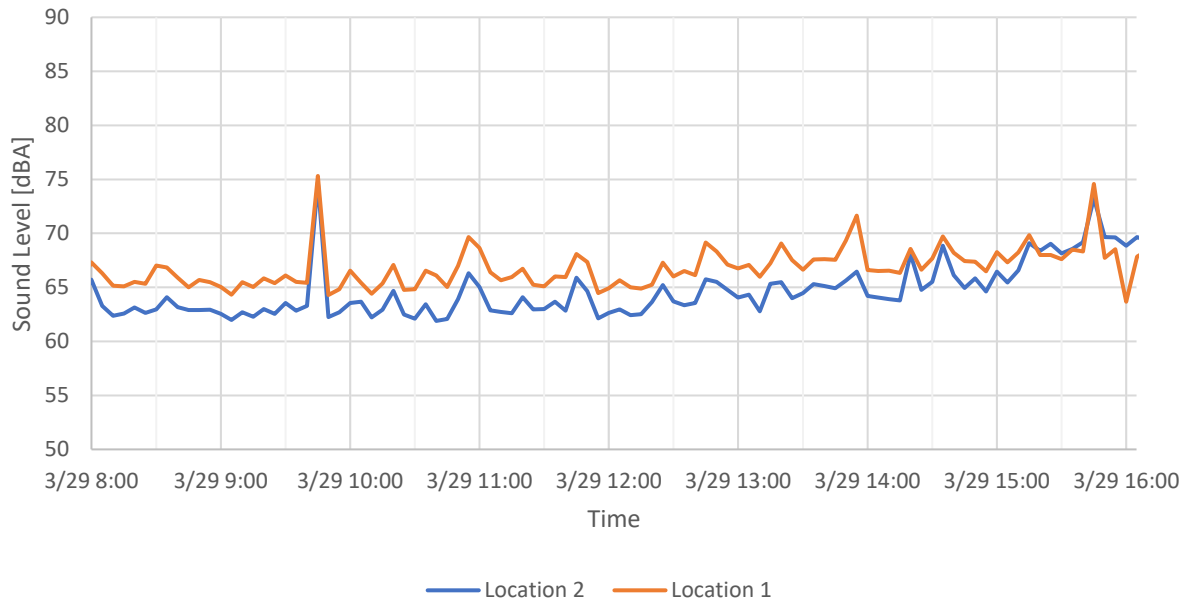


Figure 15. Five-Minute L_{Aeq} , 29-Mar-19 1600 to 2400

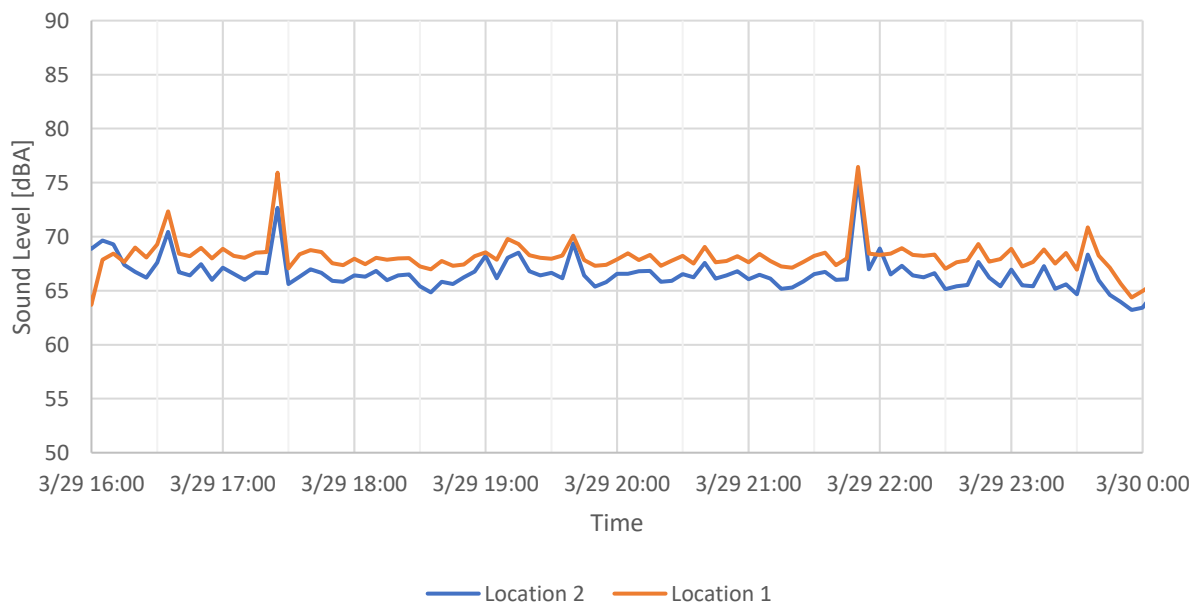


Figure 16. Five-Minute L_{Aeq} , 30-Mar-19 0000 to 0800

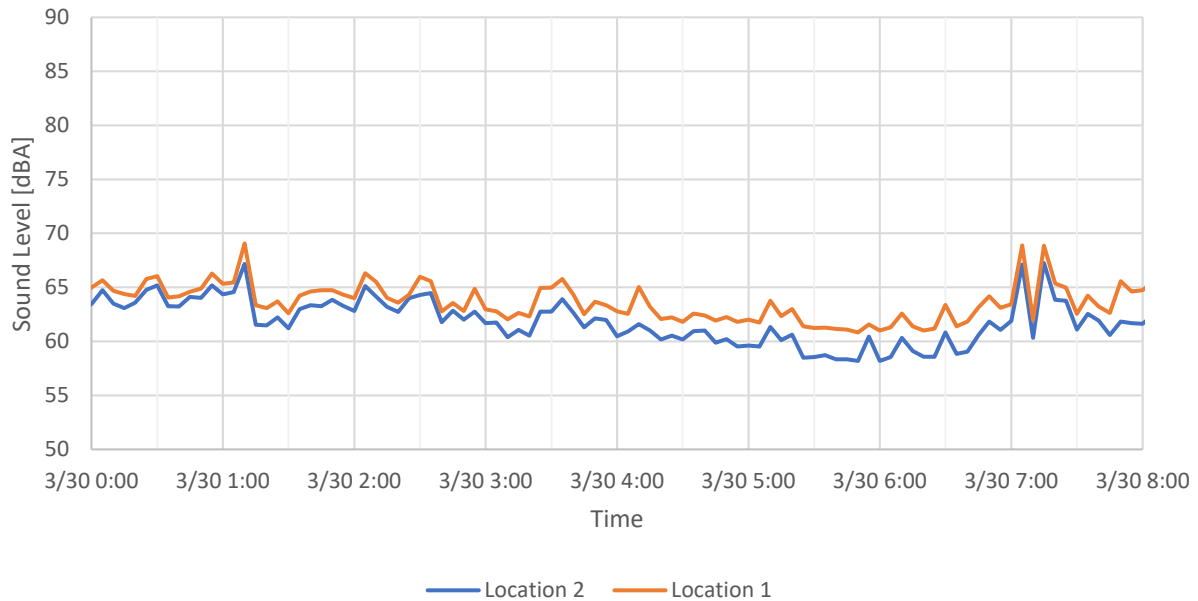


Figure 17. Five-Minute L_{Aeq} , 30-Mar-19 0800 to 1600

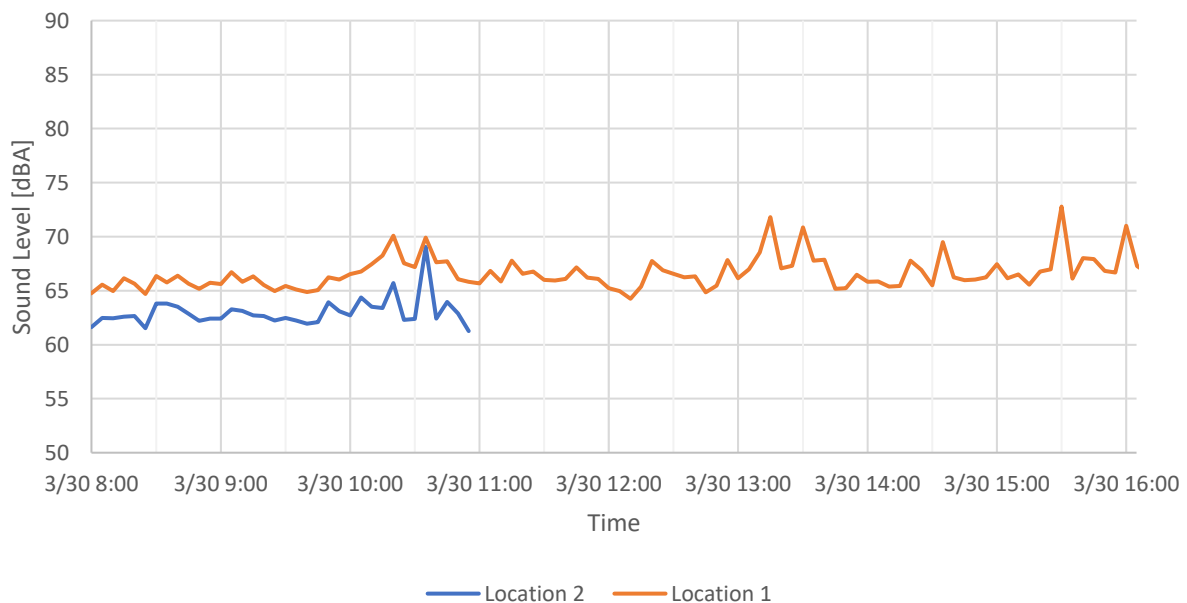


Figure 18. Five-Minute L_{Aeq} , 30-Mar-19 1600 to 2400

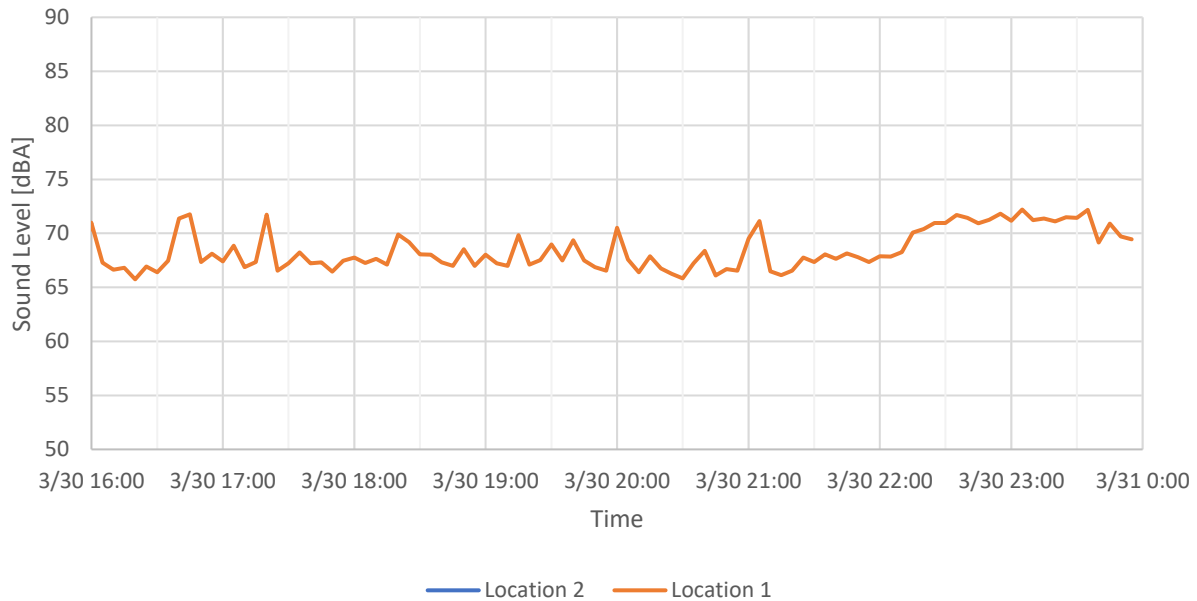


Figure 19. Five-Minute L_{Aeq} , 31-Mar-19 0000 to 0800

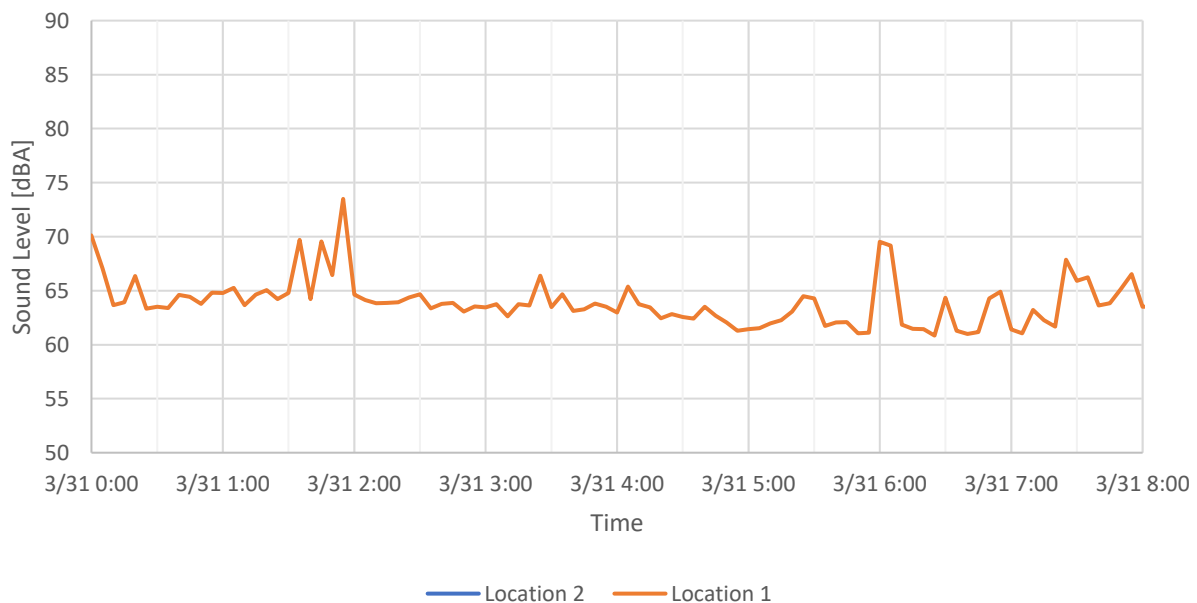


Figure 20. Five-Minute L_{Aeq} , 31-Mar-19 0800 to 1600

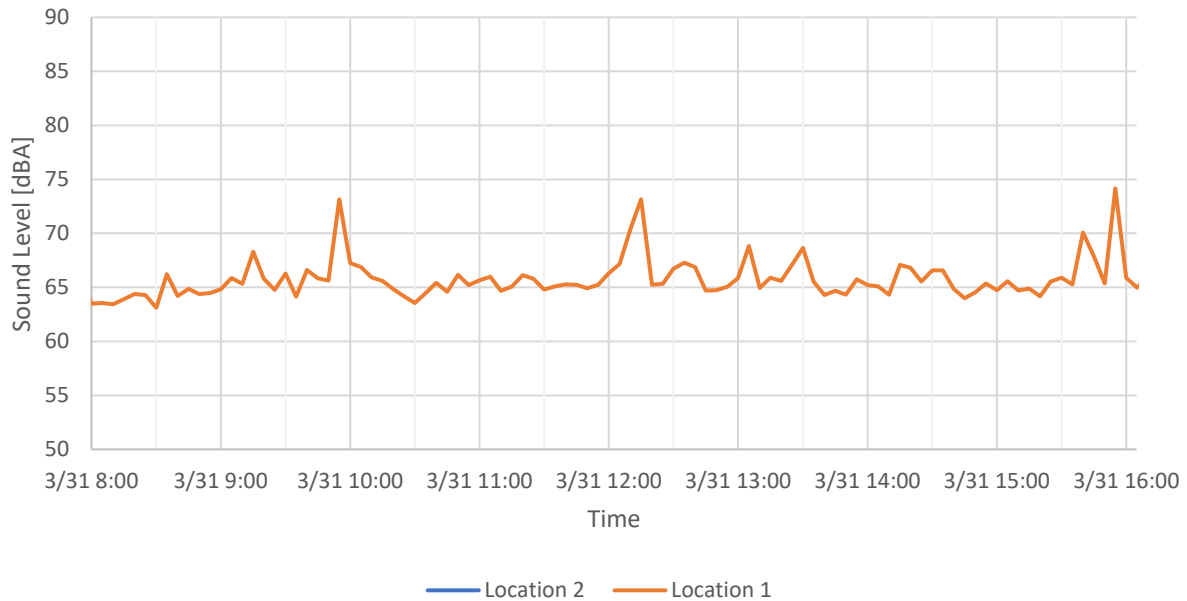


Figure 21. Five-Minute L_{Aeq} , 1-Apr-19 1600 to 2400

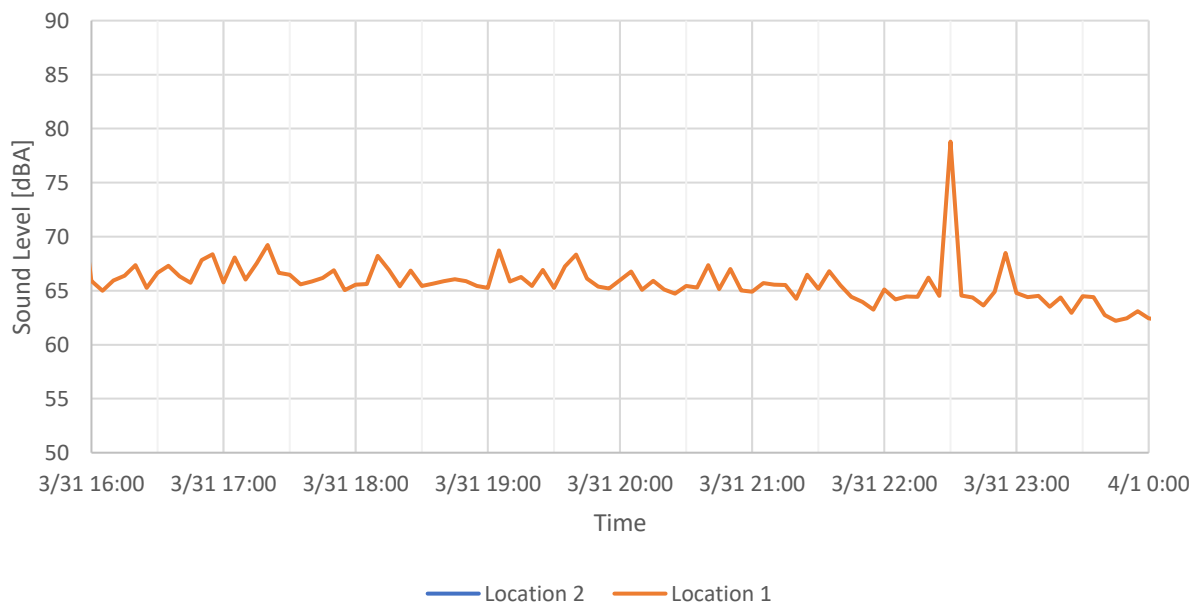


Figure 22. Five-Minute L_{Aeq} , 1-Apr-19 0000 to 0800

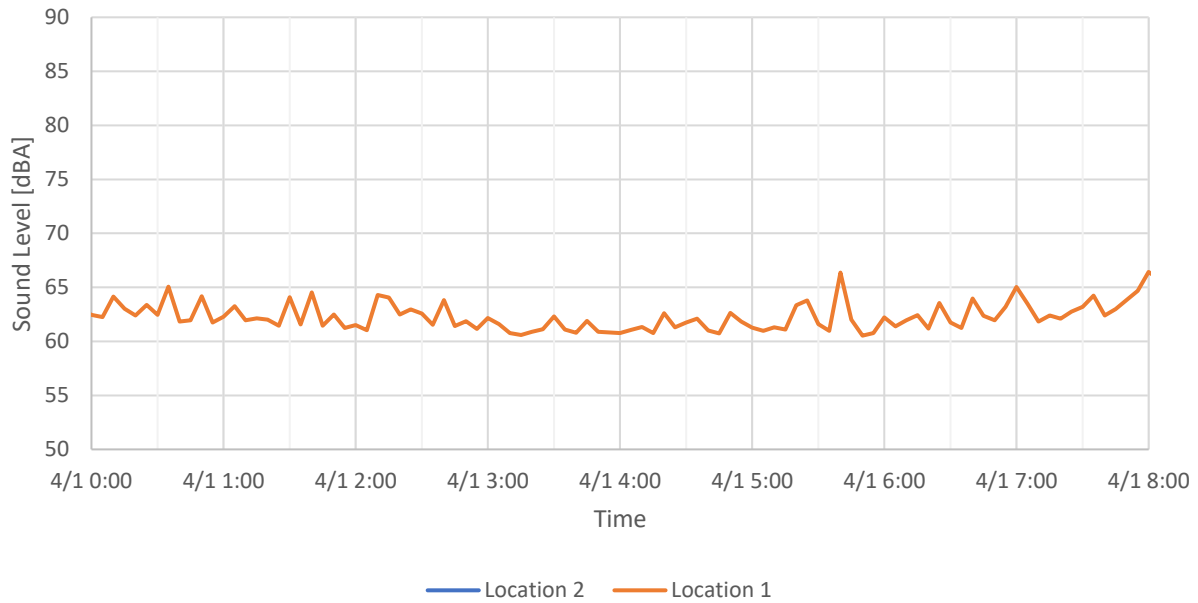


Figure 23. Five-Minute L_{Aeq} , 1-Apr-19 0800 to 1600

