



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

ACOUSTICAL REVIEW AND NOISE ATTENUATION PLAN

Date: 16 September 2024

To: 1100 West Investments LLC d/b/a Mondrian South Beach

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

Re: **City of Miami Beach CUP Sound Study**
Mondrian South Beach
1100 West Avenue
Miami Beach, FL 33139
ED+A 241552.1

Edward Dugger + Associates (ED+A) was engaged by Mondrian South Beach to confirm that the hotel's audio system settings and output levels are consistent and in compliance with the City of Miami Beach, Florida Planning Board Conditional Use Permit (CUP) issued to 1100 West Avenue on August 23, 2016 (PB0616-0034, f.k.a., File No. 1898). Sam Shroyer of ED+A visited Mondrian South Beach Hotel at 1100 West Avenue on June 11, 2024, to inspect the existing sound system, its design, and the manner in which it is operated by the hotel for that purpose. This visit follows a February 5, 2019, inspection conducted by Irineo Jaimes of ED+A, detailed in a document issued on March 6, 2019. At the time, ED+A provided the opinion that the system installation was consistent with CUP criteria.

The distributed audio systems are comprised of multiple loudspeakers to playback audio within a limited area. The system includes multiple speaker zones and limiting functions provided by the audio system, these are not accessible to either staff or management. Management only has access to adjustable output settings to operate the system at levels below the audio system limits. Per Mondrian representatives, music is only provided throughout the exterior areas of the property for limited durations during the times permitted under the CUP.

SUMMARY

It is ED+A's opinion that the Mondrian South Beach Hotel at 1100 West Avenue continues to operate in a manner consistent and in compliance with the CUP criteria at the time of our inspection. ED+A believes, as informed by our years of experience working with several Miami Beach establishments, that the limiting and controlling measures that are currently in place are equivalent or are at least like those approved under other CUP's granted by the Planning Board.

To verify compliance, ED+A conducted long-term acoustical measurements (captured at the north property boundary) between August 9, 2024, and August 14, 2024, to document Mondrian's current operating conditions. ED+A believes the resulting data shows levels, during periods where the in-house speaker system was in use, did not exceed background levels—defined as *"levels that do not interfere with normal conversation"* in the CUP. The data also shows that Mondrian's in-house speaker system does not operate past the times permitted under the CUP. Additionally, the speakers selected have been downsized to small diameter speakers so to minimize noise transfer too, as well as new control software to constantly adjust the sound output levels (see Appendix 1). The schedule = Pool starts on at 10 am @ 30 dbA. 11 am to 7pm @ 45 dbA. 7pm – off.

Please contact ED+A with any further questions or comments regarding this report.

MEASUREMENT METHODOLOGY

ED+A conducted long-term acoustical measurements near the north property boundary, behind the pool cabanas, to document ambient sound level conditions which may be produced by Mondrian's current operating conditions, which are expected to remain the same in the future. The measurement system was installed by Sam Shroyer and Pat Gordon of ED+A on August 9, 2024, and was removed by Sam Shroyer on August 14, 2024.

The system logged sound level data from the time of installation until the afternoon of August 13, 2024. The measurement microphone was roughly 5 ft above a soft ground surface and recorded sound levels that were unlikely to have been affected by reflected sound from solid objects. The system was calibrated before its installation and prior to its removal from the site. Specific details for the measurement and calibration devices used for these measurements are included in Table 1.

A-weighted equivalent-continuous sound levels (L_{Aeq}) were measured in one-hour and fifteen-minute intervals. A-weighted percentile-exceeded sound levels (L_{A10} and L_{A90}) were also measured and documented for the same observation periods. A-weighted sounds correspond best with human perception of sound and are the most appropriate weighting network for the purposes of these measurements. However, C-weighted sound levels were also measured and are included as this weighting network accounts for

increased human sensitivity to low-frequency sound present at relatively high sound levels.

One-hour sound levels were used for the calculation of additional quantities to further characterize the existing sound environs at the measurement location, including the day-average sound level (L_{Ad}), night-average sound level (L_{An}) and day-night average sound level (DNL) for each day of the measurement period per ANSI S12.9 Part 4. L_{Ad} are the time-average sound levels measured between 7:00 a.m. and 10:00 p.m. in each twenty-four hour period while L_{An} are the time-average sound levels measured between midnight and 7:00 a.m. and between 10:00 p.m. and midnight of each twenty-four-hour period. L_{Aeq} included in the table represents the time-average sound level calculated from all levels of sound measured throughout each twenty-four-hour period. DNL is also calculated from all twenty-four-hour periods for each day, but a 10 dB correction factor is applied to sound levels measured during the night periods to account for increased sensitivity to sound during these hours. ANSI S12.9-2007/Part 5 provides guidelines for Land Use Compatibility based on measured DNL which has been reproduced in this document as Table 11.

Table 1. Measurement Equipment			
Manufacturer	Model	Serial Number	Laboratory Calibration
Brüel and Kjær	Type 2250-L Analyzer	3030839	March 14, 2024
Brüel and Kjær	Type 4952 Outdoor Microphone	3077206	February 1, 2024
Brüel and Kjær	Type 4231 Sound Calibrator	3014132	April 8, 2024

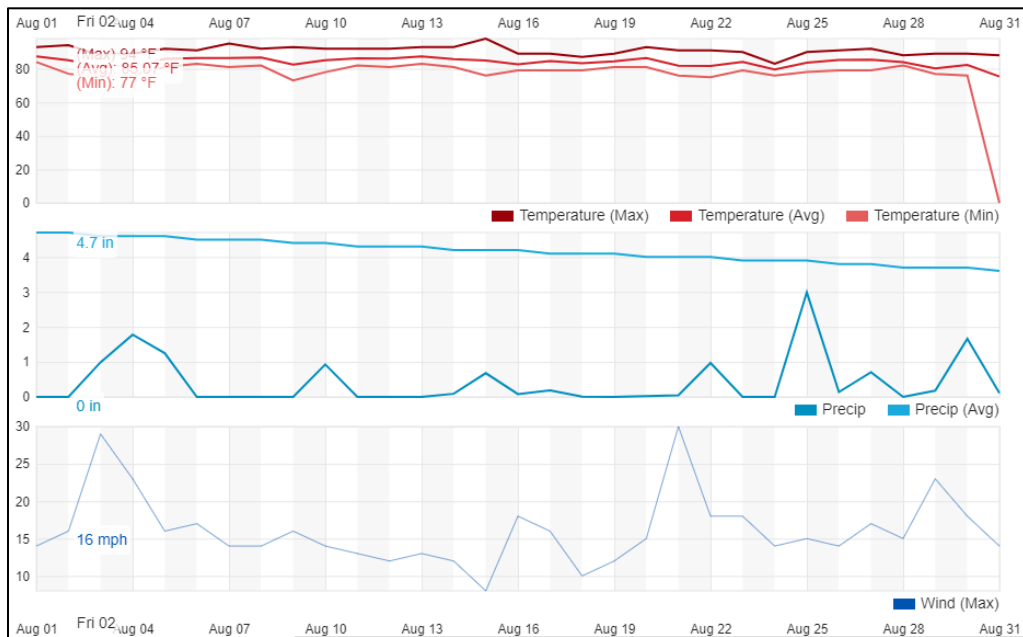


Table 2 – Climate Data for Measurement Period

MEASUREMENT RESULTS

One-hour L_{Aeq} have been compiled with daily L_{Aeq} , L_{Ad} , L_{An} , and DNL calculated for each day in Table 3. One-hour L_{Aeq} logged over the entire measurement period are also plotted in Table 4. Fifteen-minute L_{Aeq} logged over each day of the measurement period are plotted in Table 5 through 9.

Table 3. Time-Average Sound Levels						
Hour/ Period	Fri 9-Aug	Sat 10-Aug	Sun 11-	Mon 12-Aug	Tue 13-Aug	Wed 19-Jun
0000		53	54	53	51	66
0100		54	54	52	52	65
0200		53	54	52	50	65
0300		53	54	52	52	65
0400		52	54	52	51	65
0500		52	54	52	49	
0600		52	55	59	49	
0700		52	54	52	49	
0800		53	54	56	53	
0900		62	53	59	57	
1000		61	53	59	57	
1100		61	54	60	59	
1200		59	55	56	52	
1300		66	58	59	61	
1400		66	58	60	59	
1500	58	67	58	57	52	
1600	56	68	60	53		
1700	53	67	61	54		
1800	53	62	60	52		
1900	53	56	57	51		
2000	53	55	53	50		
2100	53	54	53	51		
2200	53	55	53	51		
2300	53	56	53	51		
L_{Aeq}	54	61	56	56	55	65
L_{Ad}	55	63	57	57	57	
L_{An}	53	53	54	54	51	65
DNL	58	63	61	60	59	75

Table 4. One-Hour Sound Levels
August 9, 2024 to August 13, 2024

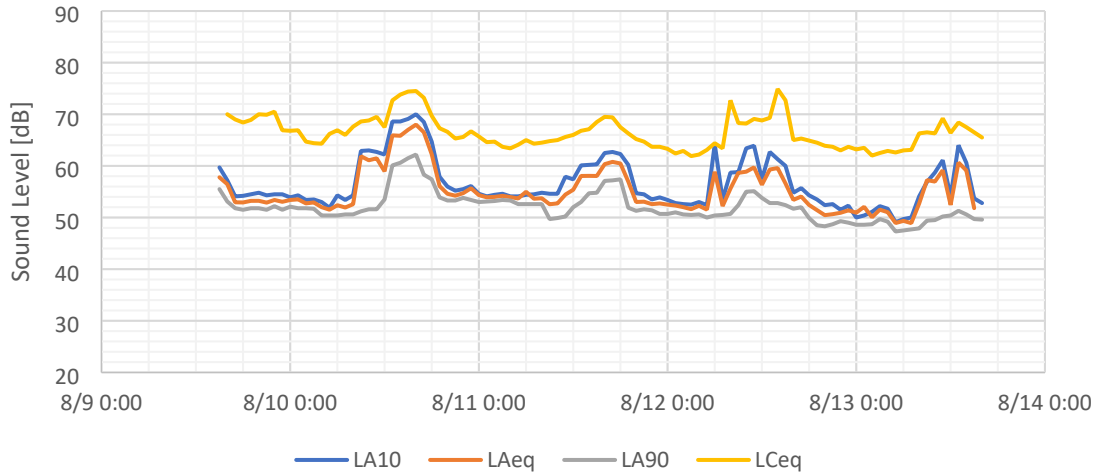


Table 5. Fifteen-Minute Sound Levels
August 9, 2024

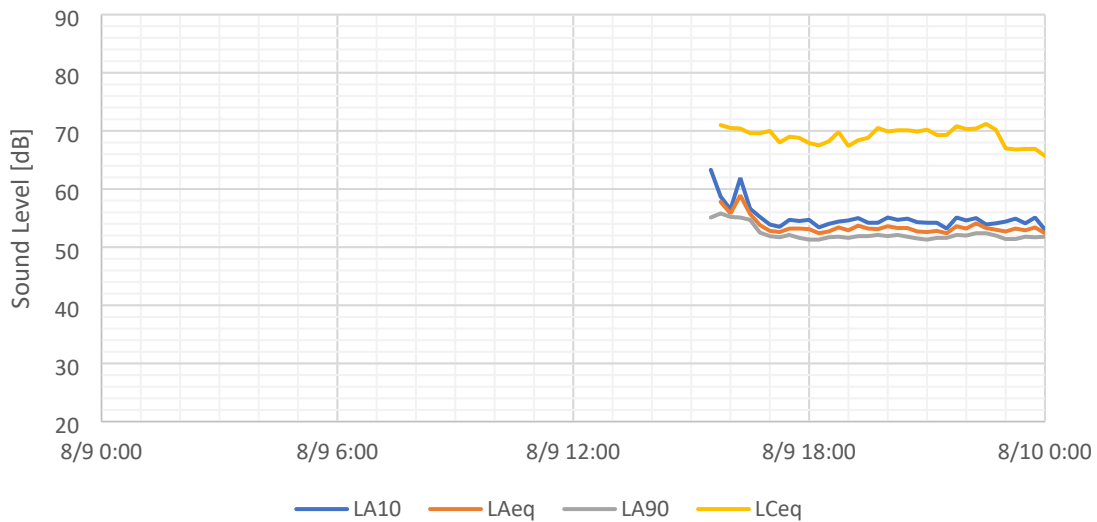


Table 6. Fifteen-Minute Sound Levels
August 10, 2024

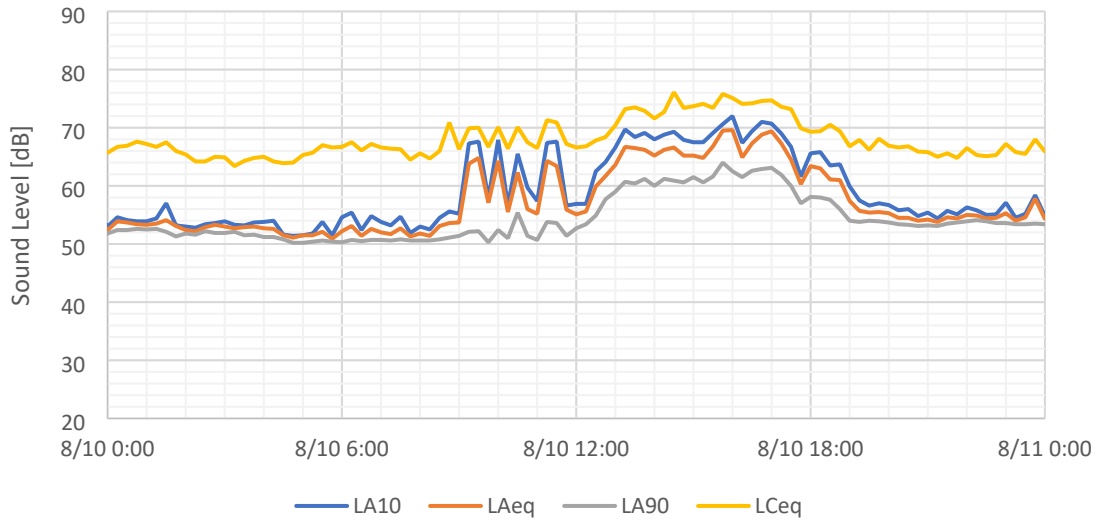


Table 7. Fifteen-Minute Sound Levels
August 11, 2024

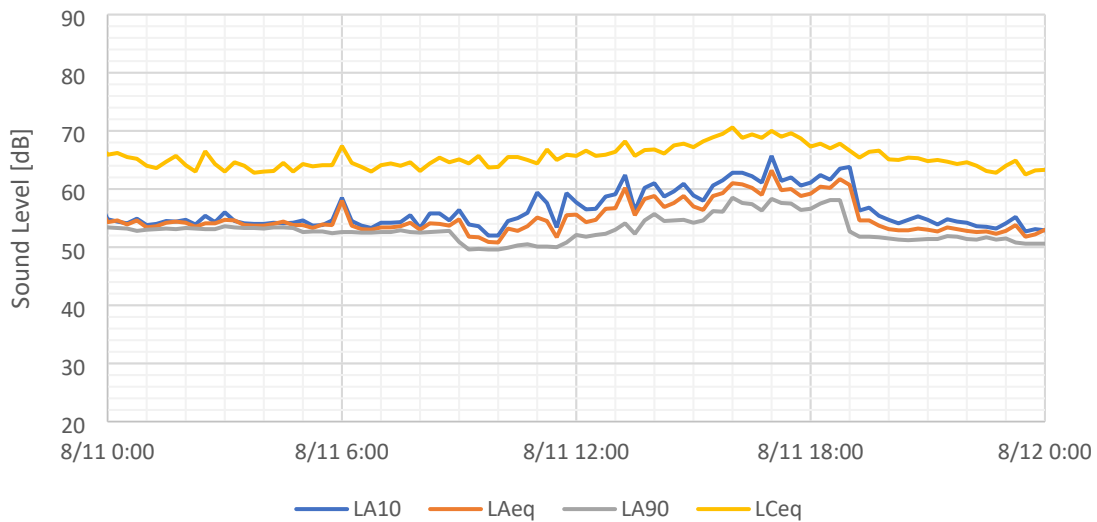


Table 8. Fifteen-Minute Sound Levels
August 12, 2024

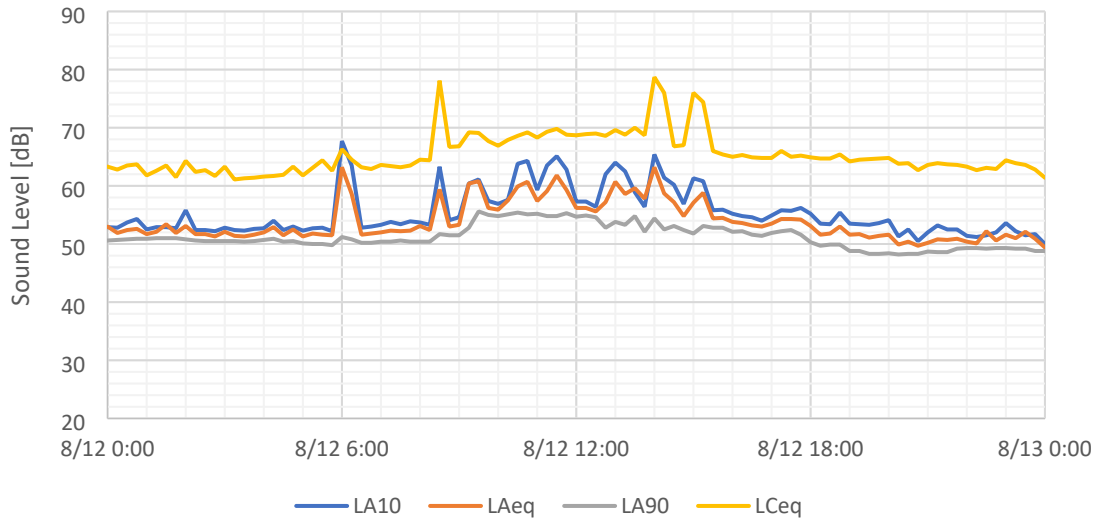
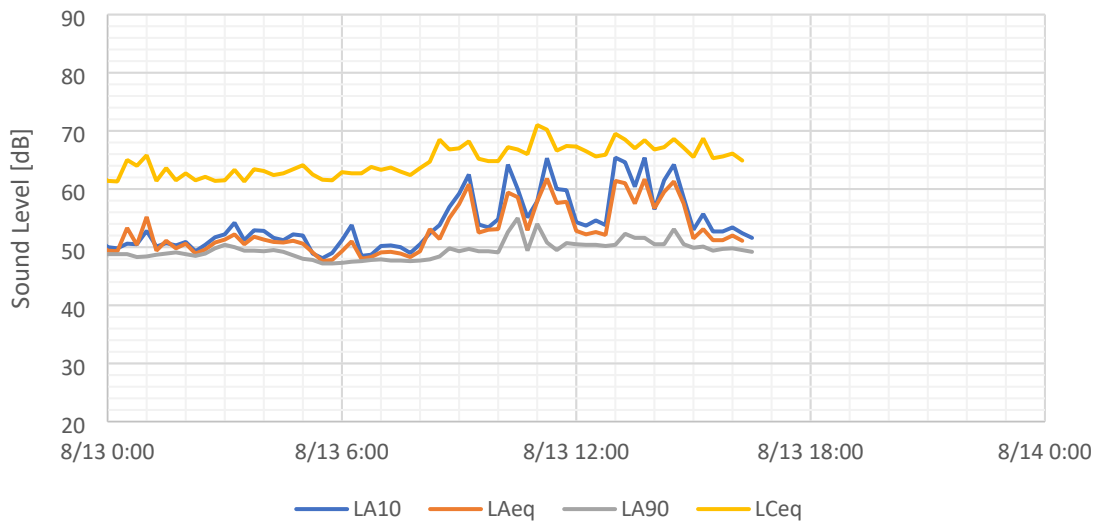


Table 9. Fifteen-Minute Sound Levels
August 13, 2024



	Sound Pressure, microPascals ($\times 10^6$)	Sound Pressure Level, Decibels	
50 hp siren @ 100 ft (30 m)	200	140	
THRESHOLD OF PAIN		130	
Pneumatic chipper @ 5 ft (1.5 m)			
	20	120	
Hammering on steel plate @ 2 ft (0.6 m)			Loud music (rock)
Boiler factory		110	Thunder
Can-manufacturing plant			Subway passing
Heavy truck @ 90 ft (27 m)	2	100	Riveting machine @ 35 ft (11 m)
			Very loud music (classical)
Heavy street traffic @ 5 ft (1.5 m)		90	10 hp outboard motor @ 50 ft (15 m)
Inside bus			
Stenographic room	0.2	80	Loud music (classical)
Average factory			Heavy traffic @ 25 ft-50 ft (8 m-15 m)
Average automobile		70	
Conversation @ 3 ft (1 m)			Department store
			Noisy office
Average office	0.02	60	Background music
Quiet residential street			
		50	
Average residence			Minimum street noise
	0.002	40	Very quiet radio at home
Very soft music			
		30	Country house
			Quiet auditorium
Quiet whisper @ 5 ft (1.5 m)	0.0002	20	
			Quiet sound studio
Anechoic room		10	Leaves rustling
	0.00002	0	THRESHOLD OF HEARING

Table 10. Decibel level comparison chart.

* Reprinted from *Acoustics and Noise Control Handbook for Architects and Builders*, by L. K. Irvine and R. L. Richards, 1998, Malabar, FL: Krieger Publishing Company. Copyright by L.K. Irvine and R.L. Richards.

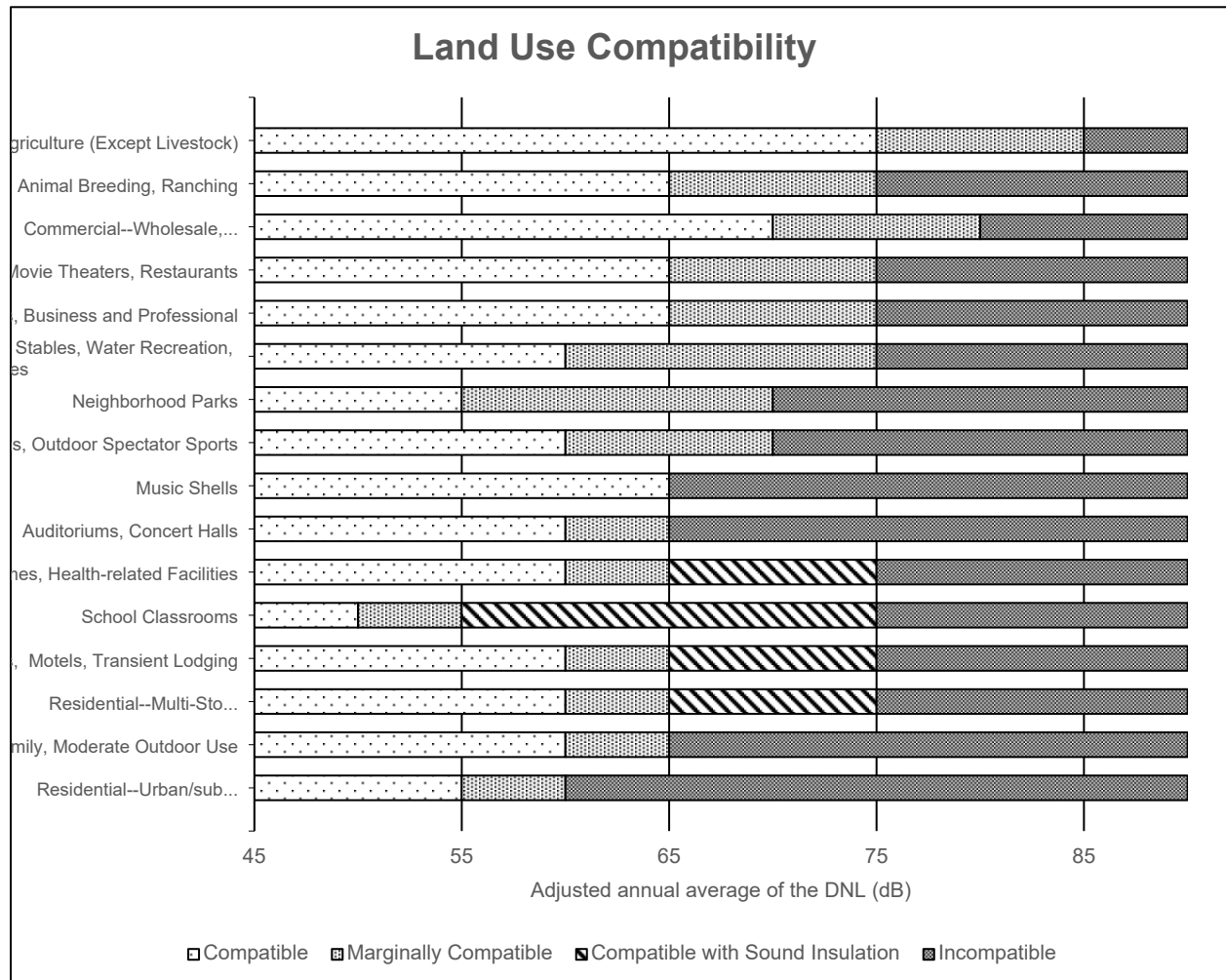


Table 11. ANSI S12.9 Part 5 Table A.1, including DNL guidelines for different land uses.

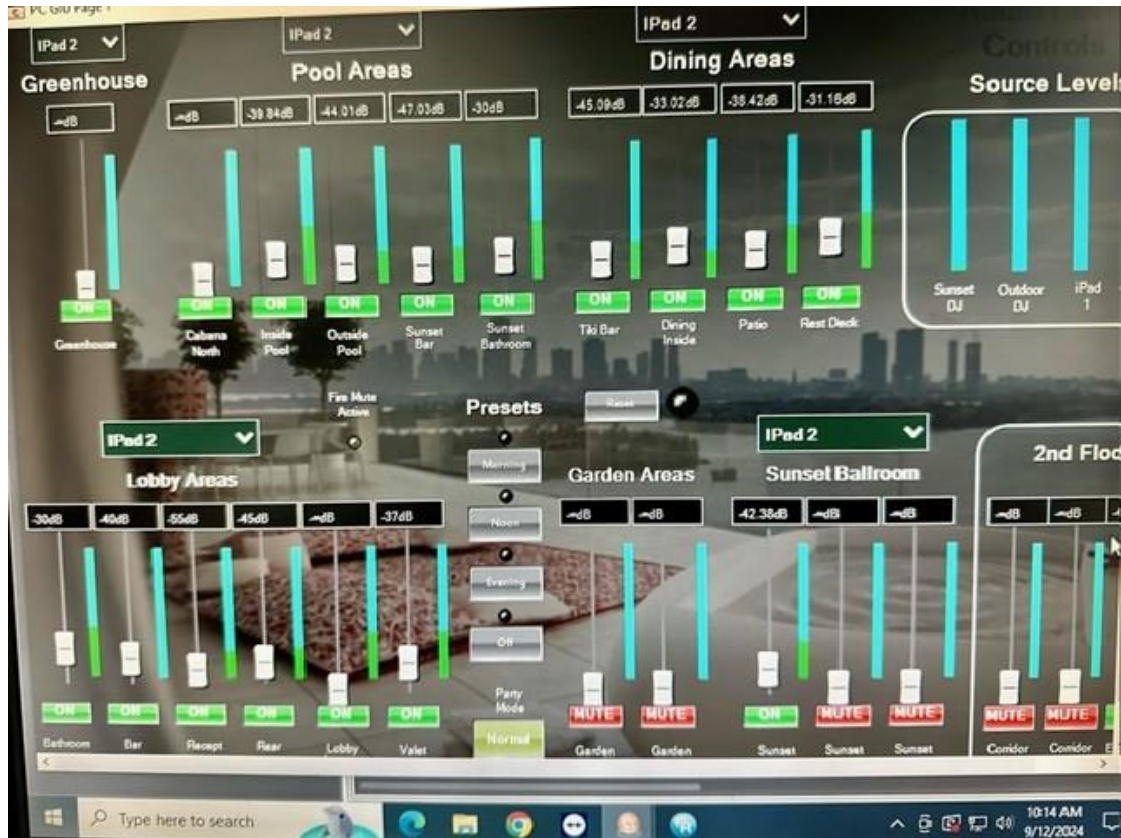
APPENDIX 1 -EXISTING CONDITION PICTURES



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