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Noise

The goal of this chapter is to determine whether the Proposed Project would have a significant adverse impact on the environment at existing noise-sensitive receptors and whether noise levels at any new receptors at the Development Site would exceed applicable New York City noise limits.

Introduction

The New York City Economic Development Corporation (NYCEDC), the Office of the Chief Medical Examiner (OCME), and the New York City Department of Citywide Administrative Services (DCAS) (collectively, the Applicants), in affiliation with the New York City Health and Hospitals Corporation (H+H), New York City Public Schools (NYCPS), the New York City School Construction Authority (SCA), and the City University of New York (CUNY), are seeking several Uniform Land Use Review Procedure (ULURP) and discretionary actions (collectively, the Proposed Actions) to facilitate the development of approximately 2.19 million gross square feet (gsf) of new construction of academic, healthcare, Life Sciences, and retail space and public realm improvements (the Proposed Project). The public realm improvements would take the form of a new publicly accessible open space, a replacement bridge over Franklin D. Roosevelt (FDR) Drive at East 25th Street to make it ADA accessible, a tie-in to the Kips Bay Coastal Resiliency (KBCR) project's planned flood protection to the northeast along FDR Drive and protection along East 25th Street, including a connection to the existing floodwall at the U.S. Department of Veterans Affairs New York Harbor Healthcare System's Manhattan campus (U.S. Corbin VA Facility), and a widening of the demapped portion of the former East 26th Street (former East 26th Street) located between FDR Drive and First Avenue to accommodate two-way traffic flow. The Proposed Project would construct multiple new buildings (illustratively shown as Buildings A, B1, and B2) consisting of up to approximately 1,782,000 zsf (2.19

million gsf).[1] The Eastern Parcel would create an integrated educational campus within Building A, as described below, bringing together the Hunter College School of Nursing and departments of Physical Therapy, Speech-Language Pathology & Audiology (including the community clinic), and Medical Laboratory Sciences, Borough of Manhattan Community College (BMCC) Health Sciences, Health Studies, and Nursing Programs, and the CUNY Graduate School of Public Health & Health Policy[2], along with a NYCPS high school focused on health care and sciences education. The Western Parcel would include two Life Sciences buildings, Building B1 and Building B2, and the one-story SPARC Square Pavilion within the open space. Building B1 would front on First Avenue, and include space dedicated to H+H. Building B2 would be located to the east of Building B1 and would include space for OCME.Building A located on the Eastern Parcel would be comprised of approximately 698,570 gsf (561,500 zsf), containing approximately 606,450 gsf (559,185 zsf) of community facilities (UG III(B)) space and 2,600 gsf (2,300 zsf) of commercial retail (UG VI) space.

Building B1 would contain a total of approximately 810,980 gsf (667,700 zsf), including approximately 184,000 gsf (174,550 zsf) of community facility (UG III(B)), approximately 5,600 gsf (5,060 zsf) of local retail (UG VI), and approximately 530,900 gsf (488,060 zsf) of office and laboratories (UG VII).

Building B2 would contain a total of approximately 682,470 gsf (551,800 zsf), including approximately 217,300 gsf (200,340 zsf) of community facility (UG III(B)), approximately 3,000 gsf (2,760 zsf) of local retail (UG VI), and approximately 379,400 gsf (348,680 zsf) of office and laboratories (UG VII).

The square footages described above for community facility, office and laboratories, and local retail include each programmatic element anticipated to be included on the site.

The Proposed Project would introduce new noise-sensitive receptors, including a New York City Public School (NYCPS) and new college/university and office spaces for Life Sciences, uses, NYC Health and Hospitals (H+H), the NYC Office of the Chief Medical Examiner (OCME) and other users. Other commercial uses, including retail space, are not considered to be sensitive to noise according to the *2021 CEQR Technical Manual*. The Proposed Project would generate noise from mobile sources and stationary equipment such as rooftop mechanical equipment, which has the potential to increase noise at noise-sensitive receptors.

Per the *CEQR Technical Manual*, a noise analysis is appropriate if an action would generate mobile or stationary sources of noise or would be located in an area with high ambient noise levels. The purpose of the noise assessment under CEQR is to determine if:

- The Proposed Project would have a significant adverse environmental impact by significantly increasing sound levels from mobile and stationary sources at existing sensitive noise receptors adjacent to the Development Site, including residential, commercial, and institutional land uses; and,
- New noise receptors introduced at the Development Site would be in an acceptable ambient sound level environment.

The noise assessment includes the following:

[1] As design progresses for the Proposed Project, it is likely that the building on the eastern portion of the Development Site (i.e., Building A) would be designed as two buildings with independent utility systems to accommodate separation between the public school and CUNY facilities.

[2] While the CUNY Hunter space on site currently contains dormitory space (711 beds), the Proposed Project would not include dormitory space on site. CUNY Hunter intends to replace the dorm space that would be lost as a result of the Proposed Project elsewhere so there would be no potential for displacement.

- Background on metrics used to describe noise;
- The methodology and criteria used to assess potential impacts;
- An assessment of the potential for the Proposed Project to significantly affect existing receptors due to the introduction of new mobile or stationary sources;
- Results from ambient sound level monitoring in the Rezoning Area; and,
- An evaluation of the ambient sound levels at new receptor locations.

This noise analysis considers two receptor types when evaluating noise: existing and new receptor(s). Since the Proposed Project would introduce new buildings with community facility spaces, which are considered "new receptors." The analysis also considers "existing receptors," which are the current noise-sensitive uses such as residential, commercial, and institutional properties surrounding the Development Site. The following describes the results of the noise assessment for these two types of receptors.

Principal Conclusions

A noise assessment was conducted to determine whether the Proposed Project would significantly increase sound levels from mobile and stationary sources at existing noise receptors, and if new noise receptors that would be introduced would be in an acceptable ambient sound level environment.

Existing Noise Receptors

The study area includes existing residential, commercial, and institutional receptors. The Proposed Project would introduce new stationary and mobile sources of noise.

The increase in noise due to mobile sources from the No-Action and With-Action conditions have been determined from proportional noise modeling at three monitoring locations within the study area. Mobile source noise levels would increase by up to 0.8 dBA for the With-Action condition as compared to the No-Action condition due to traffic generated by the Proposed Project. Mobile source noise levels would increase up to 1.3 dBA for the With-Action condition compared to existing conditions due to forecasted traffic growth in the No-Action condition and traffic generated by the Proposed Project.

The closest existing noise-sensitive receptor is the Office of the Chief Medical Examiner, located 40 feet north of the Development Site. No-Action condition noise levels at this receptor would range from 63.2 to 75.2 dBA (L_{eq}). The Proposed Project would result in an increase of up to 0.8 dBA (L_{eq}) in noise, such that With-Action noise levels at this receptor due to stationary and mobile sources would range from 64.0 to 75.5 dBA (L_{eq}). Since noise levels would not increase by 3 dBA or more at this receptor, the Proposed Project would not result in a significant adverse noise impact due to mobile and stationary sources.

The U.S. Corbin Veterans Affairs (VA) Facility located at 423 East 23rd Street is approximately 60 feet south of the Development Site. No-Action condition noise levels at this receptor would range from 61.8 to 67.5 dBA (L_{eq}). The Proposed Project would result in an increase of up to 0.5 dBA (L_{eq}) in noise, such that With-Action noise levels at this receptor due to stationary and mobile sources would range from 62.3 to 67.8 dBA (L_{eq}). Since noise levels would not increase by 3 dBA or more at this receptor,

the Proposed Project would not result in a significant adverse noise impact due to mobile and stationary sources.

New Noise Receptors

The noise analysis for new receptors evaluates whether receptors would be introduced into an environment with acceptable ambient noise conditions. With-Action condition noise levels have been evaluated at new receptors based on ambient noise measurements, mobile source proportional noise modeling, and modeling of noise from existing recreation areas (e.g., Asser Levy Playground).

The With-Action condition noise level at the eastern facades of Building A including mobile and stationary sources would be up to 81.8 dBA (L_{10}). Therefore, the eastern façade along FDR Drive, the northern façade along former East 26th Street within 50 feet of FDR Drive, the southern façade along East 25th Street within 50 feet of FDR Drive, would require a minimum composite window/wall of 37 outdoor-indoor transmission class (OITC).

The With-Action condition noise level along the northern façade of Building A for the area further than 50 feet from FDR Drive including contributions from mobile and stationary sources would be up to 75.5 dBA (L_{eq}). Therefore, the northern façade along former East 26th Street and the east façade within 50 feet of former East 26th Street would require a minimum composite window/wall of 31 OITC for the area further than 50 feet from FDR Drive.

The With-Action condition noise level at the southern façade of Building A for the area further than 50 feet from FDR Drive including contributions from mobile and stationary sources would be up to 70.1 dBA (L_{10}). Therefore, the southern façade along East 25th Street and the east façade within 50 feet of East 25th Street would require a minimum composite window/wall of 28 OITC for the area further than 50 feet from FDR Drive.

The With-Action condition noise level at the western façade of Building A including contributions from mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the western façade would not require enhanced window/wall attenuation.

The With-Action condition noise level at the western facades of Building B1including contributions from mobile and stationary sources would be up to 75.7 dBA (L_{10}). Therefore, the western façade along First Avenue, the northern façade along former East 26th Street within 50 feet of First Avenue, the southern façade along East 25th Street within 50 feet of First Avenue, would require a minimum composite window/wall of 31 OITC.

The northern façade of Building B1 including contributions from mobile and stationary sources would be up to 75.5 dBA (L_{eq}). Therefore, the northern façade along former East 26th Street and the west façade within 50 feet of former East 26th Street would require a minimum composite window/wall of 31 OITC. The southern and eastern façade of Building B1 including mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the southern and eastern façades would not require enhanced window/wall attenuation for portions of the façade(s) that are more than 50 feet from First Avenue.

The northern façade of Building B2 including contributions from mobile and stationary sources would be up to 75.5 dBA (L_{eq}). Therefore, the northern façade along former East 26th Street, the west façade within 50 feet of former East 26th Street, and the east façade within 50 feet of former East 26th Street would require a minimum composite window/wall of 31 OITC. The southern façade of Building B2 including mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the

southern façades would not require enhanced window/wall attenuation. The eastern and western façade of Building B2 approximately 230 feet and 370 feet away from First Avenue and FDR Drive and would be shielded by Building A and Building B1, the eastern and western façade of Building B2 would not require enhanced window/wall attenuation.

Noise Background

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, or recreation. How people perceive sound depends on several measurable physical characteristics. These factors include:

- **Level:** Sound level is based on the amplitude of sound pressure fluctuations and is often equated to perceived loudness.
- **Frequency:** Sounds are comprised of acoustic energy distributed over a variety of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz (Hz). Pure tones have energy concentrated in a narrow frequency range and can be more audible to humans than broadband sounds. Sound levels are most often measured on a logarithmic scale of decibels (dB). The decibel scale compresses the audible acoustic pressure levels which can vary from the threshold of hearing (0 dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. Adding two equal sound levels results in a 3-dB increase in the overall level. Research indicates the following general relationships between changes in sound level and human perception:
  - A 3-dB increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
  - A 10-dB increase is a tenfold increase in acoustic energy and is perceived as a doubling in loudness to the average person.

Audible sound is comprised of acoustic energy over a range of frequencies typically from 20 to 20,000 Hz. The human ear does not perceive sound levels at each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A-weighting (dBA) is used to evaluate environmental noise levels. **Table 13-1** presents a list of common outdoor and indoor sound levels.

Table 13-1 Common Indoor and Outdoor Sound Levels

Outdoor Sound Levels	Sound Pressure μPa		Sound Level dBA	Indoor Sound Levels
	6,324,555	-	110	Rock Band at 5 m
Jet Over-Flight at 300 m		-	105	
	2,000,000	-	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		-	95	
	632,456	-	90	Food Blender at 1 m
Diesel Truck at 15 m		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		-	65	Normal Speech at 1 m
	20,000	-	60	
Quiet Urban Area—Daytime		-	55	Quiet Conversation at 1 m
	6,325	-	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		-	45	
	2,000	-	40	Empty Theater or Library
Quiet Suburb—Nighttime		-	35	
	632	-	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		-	25	Empty Concert Hall
Rustling Leaves	200	-	20	
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

μPA MicroPascals describe pressure. The pressure level is what sound level monitors measure
dBA A-weighted decibels describe pressure logarithmically with respect to 20 μPa (the reference pressure level)
Source: Highway Noise Fundamentals, Federal Highway Administration, September 1980

Because sound levels change over time, a variety of sound level metrics can be used to describe environmental noise. The following is a list of sound level descriptors that are used in the noise analysis:

- L_{10} is the sound level which is exceeded for 10 percent of the time during a given time period. Therefore, it represents the higher end of the range of sound levels. The unit is commonly used in the *CEQR Technical Manual* to evaluate acceptable thresholds for noise exposure for new receptors that would be introduced by a proposed development.
- L_{eq} is the continuous equivalent A-weighted sound level. The L_{eq} is a single value that is equivalent in sound energy to the fluctuating levels over a period of time. Therefore, the L_{eq} considers how loud noise events are during the period, how long they last, and how many times they occur. L_{eq} is commonly used to describe environmental noise and relates well to human annoyance. In accordance with the *CEQR Technical Manual*, the L_{eq} sound level is used to assess

the potential for significant increases in noise due to a proposed development at existing receptors in the study area.

Noise Standards and Impact Criteria

Noise Exposure Guidelines

The *CEQR Technical Manual* provides noise exposure guidelines for assessing ambient noise conditions at hotel, community facility and office receptors, as shown in **Table 13-2**.

Impact Criteria

The determination of significant adverse noise impacts in this analysis is based on both absolute noise level limits and relative impact criteria. According to the *CEQR Technical Manual*, for the purposes of determining a significant impact during daytime hours, it is reasonable to consider a L_{eq} noise level of 65 dBA as an absolute noise level that should not be significantly exceeded.

If mobile or stationary sources associated with the Proposed Project would increase L_{eq} sound levels by 3 dB or more and absolute levels would exceed 65 dBA L_{eq}, the Proposed Project would cause a significant adverse impact. Additionally, if No-Action condition noise levels are 60 dBA L_{eq} or less, a 5-dB increase would be considered a significant adverse noise impact.

Table 13-2 Noise Exposure Guidelines for Use in City Environmental Impact Review[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		L10 ≤ 55 dBA	DNL ≤ 60 dBA		60 dBA < DNL ≤ 65 dBA		65 dBA <DNL ≤ 75 dBA		75 dBA ≤ DNL
2. Hospital, Nursing Home		L10 ≤ 55 dBA		55 <L10≤ 65 dBA		65<L10≤80 dBA		L10>80dBA	
3. Residence, residential hotel or motel	7 AM to 10 PM	L10 ≤ 65dBA		65 <L10≤ 70 dBA		70<L10≤80 dBA		L10>80dBA	
	10 PM to 7 AM	L10 ≤ 55dBA		55 <L10≤ 70 dBA		70<L10≤80 dBA		L10>80dBA	
4. School, museum, library, courthouse of worship, transient hotel or motel, public meeting room, auditorium, out- patient public health facility		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM- 10 PM)		Same as Residential Day (7 AM –10 PM)	
5. Commercial or office		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM –10 PM)		Same as Residential Day (7 AM-10 PM)	
6. Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Source: Table 19-2, *2021 CEQR Technical Manual*.

In addition, any new activity shall comply with Impact Thresholds detailed in Section 410.

[1] Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

[2] Tracts of land where serenity and quiet are extraordinarily important and serve as important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.

[3] One may use the FAA-approved DNL contours supplied by the Port Authority of New York and New Jersey (PANYNJ), or the noise contours may be computed from the federally approved Aviation Environmental Design Tool (AEDT) Computer Model using flight data supplied by the PANYNJ.

[4] External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are listed by octave bands). Sources: New York City Department of Environmental Protection (adopted policy 1983).

Assessment Methodology

General Methodology

This noise analysis considers two receptor types when evaluating noise for a proposed development: existing and new receptor(s). Since the Proposed Project would introduce new Life Sciences and retail uses on the Development Site and expand existing institutional uses, these are considered "new receptors."

If the Proposed Project would introduce a new receptor, With-Action condition noise levels of the new receptor in dB(A) would be compared to the values contained in the Noise Exposure Guidelines. The descriptor used to assess the mobile noise sources is dependent upon the source of noise. For example, if a new receptor is exposed to aircraft noise, DNL is used, while L_{eq} or L_{10} is used to evaluate noise from other sources. Since the Proposed Project would not introduce new receptors within an existing 65 dB(A) DNL contour of an airport (i.e., LaGuardia Airport), noise impact analysis from aircraft noise is not warranted.

New sensitive receptors that would be introduced by the Proposed Project are evaluated under With-Action noise conditions to determine if receptors would be in an acceptable ambient sound level environment. The noise exposure guidelines for acceptable ambient conditions depend on the type of land use; for Life Sciences and retail uses, which is considered Receptor Type 5, Commercial or Office use (see **Table 13-2**), the goal is to maintain interior noise levels of 45 dBA(L_{10}) or lower, and for institutional spaces, the goal is to maintain interior noise levels of 45 dBA (L_{10}) and 40 dBA (L_{dn}) or lower. It is generally assumed that without specific information on a building's window and wall construction, the outdoor-to-indoor noise reduction of the building is 25 decibels. As shown in **Table 13-2**, exterior ambient sound levels exceeding 70 dBA (L_{10}) or 65 dBA (L_{dn}) are considered Marginally Unacceptable. Exterior sound levels exceeding 80 dBA (L_{10}) or 75 dBA (L_{dn}) are considered Clearly Unacceptable. If there would be Marginally Unacceptable or Clearly Unacceptable ambient noise conditions, there is a need to provide window/wall sound attenuation that is sufficient to reduce interior sound levels to acceptable levels.

Since the Proposed Project would introduce Life Sciences, retail, and institutional spaces, the highest L_{10} or L_{dn} sound level among all of the peak transportation periods (i.e., weekday morning, midday, and afternoon) is used to evaluate whether the Proposed Project would introduce new receptors into an acceptable noise environment.

The analysis also considers "existing receptors" which are the current noise-sensitive land uses, such as residential, commercial, and institutional properties surrounding the Development Site. Noise impact at the existing sensitive receptors is assessed according to the relative increase between No-Action condition and With-Action condition sound levels. Noise impact is assessed according to the increase in the L_{eq} sound level in accordance with the *CEQR Technical Manual*. If mobile or stationary sources associated with the Proposed Project would increase L_{eq} sound levels by 3 dB or more and absolute levels would exceed 65 dBA L_{eq}, the Proposed Project would cause a significant adverse impact. Additionally, if No-Action condition noise levels are 60 dBA L_{eq} or less, a 5-dB increase would be considered a significant adverse noise impact.

Mobile Sources

As described in **Chapter 10, Transportation**, a detailed traffic analysis has been conducted at multiple nearby intersections to evaluate Existing, No-Action, and With-Action conditions traffic volumes near the Development Site. Proportional modeling has been conducted for the peak periods at the following roadway sections which are located immediately adjacent to the existing and new receptors:

- First Avenue between East 25th Street and former East 26th Street
- Former East 26th Street between First Avenue and FDR Drive
- East 25th Street between First Avenue and FDR Drive

If the Proposed Project would result in a doubling, or more, in the number of passenger car equivalents (PCEs), it would result in a 3 dBA or greater increase in noise levels. If PCEs would not double due to the Proposed Project, there would not be a significant adverse vehicular noise impact, and no further mobile source noise analysis is warranted. The *CEQR Technical Manual* describes the process to determine PCEs. Vehicle classes are defined to have the following PCEs based on typical vehicle speeds:

- Each automobile or light truck: 1 noise PCE
- Each medium truck: 13 noise PCEs
- Each bus: 18 noise PCEs
- Each heavy truck: 47 noise PCEs

Future With-Action noise increases are calculated using the following equation:

$$With\ Action\ L_{eq}\ Increase = 10 * \log\left(\frac{With\ Action\ PCE}{No\ Action\ PCE}\right)$$

Stationary Sources

The Proposed Project is not anticipated to include any substantial stationary source noise generators, such as unenclosed cooling or ventilation equipment, loudspeaker systems, stationary diesel engines, or other similar types of uses. The design and specifications for mechanical equipment – such as heating, ventilation, and air conditioning – would incorporate sufficient noise reduction to comply with applicable noise regulations and standards, including the standards contained in the revised New York City Noise Control Code, Subchapter 5, §24-227, the New York City Department of Building Code. This would ensure that mechanical equipment does not result in any significant increase in noise levels, either by itself or cumulatively with other project-related noise sources.

However, an existing outdoor playground is located immediately south of the Development Site along East 25th Street, which is considered a stationary source that has the potential to generate noise. During the noise measurement, no active use of the playground was observed. Noise from the existing playground has been evaluated based on the 1992 SCA Playground Noise Study that is referenced in the *CEQR Technical Manual*. The evaluation assumes sound from the recreational area equivalent to the sound from an elementary school playground, which is 71.4 dBA (L_{eq}) at the playground boundary. Sound levels at receptors farther than the playground boundary are reduced by 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, 9.1 dBA at 40 feet, and a 4.5-dB per doubling of distance between 40 and 300 feet.

Existing Condition

The study area for this analysis is bounded by former East 26th Street to the north, FDR Drive to the east, East 25th Street to the south, and First Avenue to the west. This area includes the Development Site and nearby receptors that would experience increases in traffic on adjacent roadways as a result of the Proposed Project.

To characterize existing conditions, noise measurements were conducted at four locations around the Development Site, as shown in **Figure 13-1**. Measurements were conducted on November 14, 2023, and November 15, 2023, which are dates approved by NYC DOT for traffic counts and similar data collection efforts and were not subject to any blackout period or prohibition due to COVID-related traffic effects. Existing noise measurements were adjusted based on the difference between the vehicle counts conducted during noise measurement and the existing vehicle counts collected and summarized in **Chapter 10, Transportation**.

Vehicular traffic was the dominant source of noise at all measurement locations. Consequently, 20-minute spot measurements were taken at three locations along local roadways during the three weekday periods that reflect peak hours of trip generation: AM weekday (7:00–9:00 AM), midday (MD) weekday (12:00 PM–2:00 PM), PM weekday (4:00–6:00 PM). An extra noise measurement was conducted facing FDR Drive to document the hourly noise level for 24 hours to understand the noise levels for peak and non-peak periods. The 24-hour noise monitoring provided an understanding of the noise conditions for periods with higher traffic volumes and low travel speeds, as well as for periods with lower traffic volumes and vehicles traveling at the posted speed limit.

Measurements were conducted using Type I sound level meters at a height of 5 feet above ground level and followed the procedures outlined in the *CEQR Technical Manual*, which include documenting significant sources of sound and conducting spot counts of traffic by vehicle classification. The noise monitors were placed with a minimum of five feet between the microphone and nearby reflecting surfaces. Data collected included A-weighted overall and one-third octave band sound levels including minimum (L_{min}), maximum (L_{max}), statistics (L_{xx}), and equivalent noise levels (L_{eq}). Atmospheric conditions including air temperature, wind speed, wind direction, relative humidity, and precipitation were obtained from a nearby weather station. The atmospheric conditions were within acceptable ranges and did not influence the measurement results.

Table 13-3 presents the measured L_{eq}, L_{10}, L_{50}, and L_{90} sound level during each peak period at each measurement location, where vehicular traffic is the predominant noise source. Existing sound levels ranged from 63.0 to 80.1 dBA (L_{eq}) and from 64.8 to 81.5 dBA (L_{10}). As shown in **Table 13-3**, the measured L_{eq} was higher than the measured L_{10} for one period at Site 1 and two periods at Site 2. Observed noise events of very high levels and short durations (i.e. ambulances with sirens) produced these results. Since such events are common characteristics of the noise environment due to the proximity of several hospitals and an emergency room, the contributions from such noise events were retained in the measurement data adding a level of conservatism to the assessment.

Table 13-3 Sound Level Measurement Results

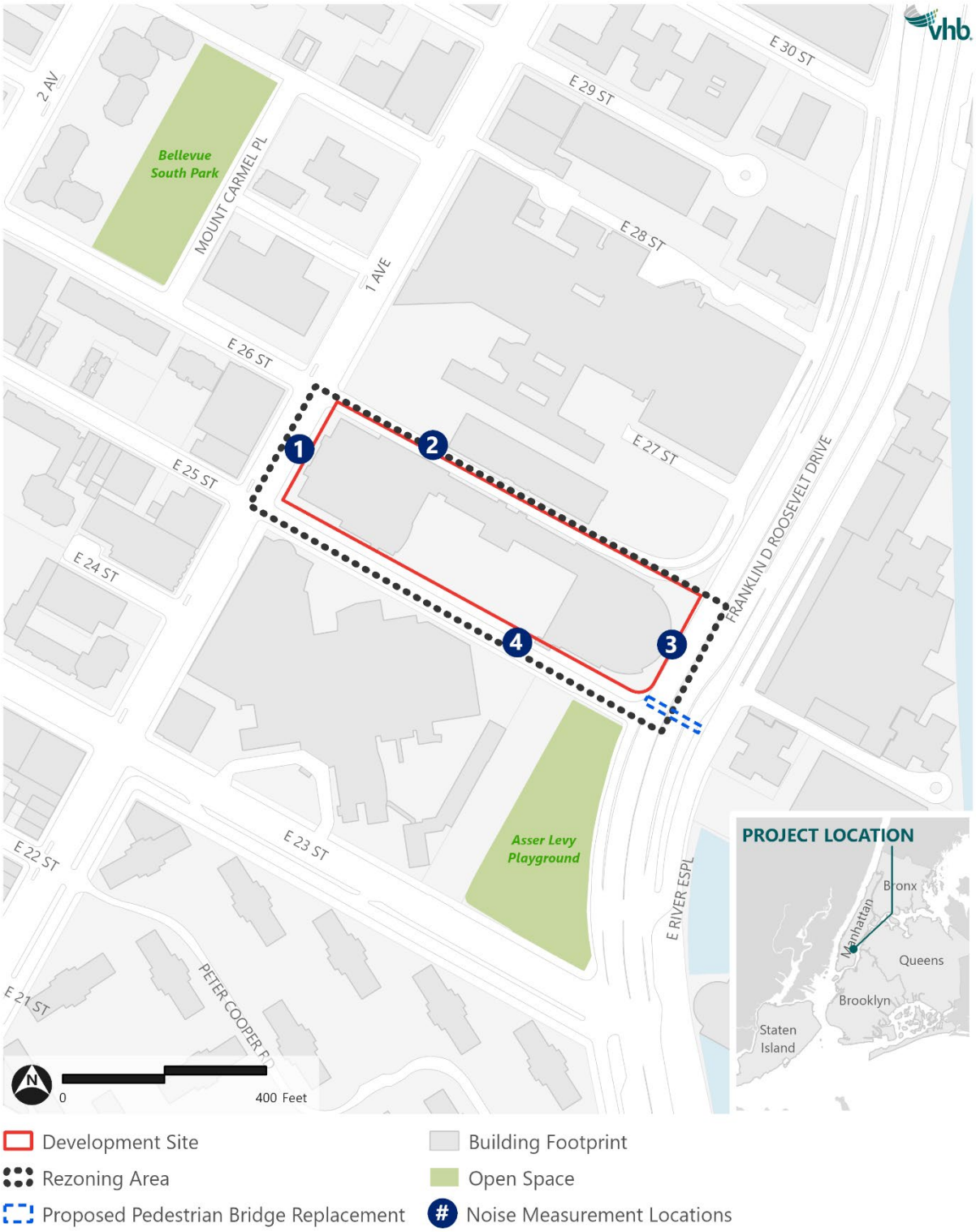
Site	Monitoring Location	Time Period	L_{eq}	L_{10}	L_{50}	L_{90}	Acceptability
1	First Avenue between East 25th Street and former East 26th Street**	Morning	72.5	73.9	65.4	61.8	Marginally Unacceptable
		Midday	70.0*	70.1	65.3	62.7	
		Evening	74.4*	72.5	65.3	62.3	
2	Former East 26th Street between First Avenue and FDR Drive**	Morning	73.8*	67.9	63.0	61.9	Marginally Unacceptable
		Midday	73.1*	69.7	63.6	62.1	
		Evening	65.1	67.4	62.9	61.4	
3	FDR Drive between East 25th Street and Former East 26th Street	Morning	80.1	81.5	80.0	78.5	Clearly Unacceptable
		Midday	78.2	79.3	77.7	75.8	
		Evening	75.5	78.5	73.7	68.2	
4	East 25th Street between First Avenue and FDR Drive	Morning	65.0	66.8	64.0	62.1	Marginally Acceptable
		Midday	63.0	64.8	62.3	60.7	
		Evening	63.9	65.3	61.0	59.1	

*Field observations conducted during the noise measurements documented that some FDNY ambulances regularly layover and respond to emergency calls from FDNY EMS Station 8, which is located on former East 26th Street between First Avenue and FDR Drive. Due to the regularity of the ambulance trips with sirens on this portion of former East 26th Street, the events of ambulance sirens were not excluded from the noise measurements and were considered as part of the ambient condition.

** L_{eq} variation across the monitoring locations is due to sirens from emergency vehicles along certain road segments (i.e., concentrated along former East 26th Street east of First Avenue), and therefore, L_{10} levels better represent the noise levels to be compared between these locations. Further, the eastern portion of First Avenue contains a bus lane and there is a bus stop located near the First Avenue between East 25th Street and former East 26th Street location. Measurement Location 1 was adjacent to bus activity and reflects buses stopping at the bus stop to discharge and pick up passengers. The pattern of AM and PM peak period readings is consistent for the higher travel periods during the AM and PM peaks and reflects the variability in noise levels along First Avenue between the AM, midday, and PM peak periods (i.e., that the AM and PM peak periods have higher noise levels than the midday period).

VHB, 2024

Figure 13-1 Noise Monitoring Locations



Source: VHB, 2024

No-Action Condition

A mobile source analysis has been conducted for existing receptors at corresponding roadway segments and new receptors based on proportional noise modeling to determine the traffic adjusted Existing condition and No-Action condition noise levels, and noise increases at monitored locations. Traffic volumes and vehicle classifications along the roadway segments contributing to the noise measurements have been used.

Table 13-4 presents the results of the mobile source noise analysis for new receptors. This table includes the PCEs based on the traffic counts conducted during the noise measurements, the Existing, No-Action, and With-Action traffic conditions as well as the change in noise levels compared to the measured conditions. Adjusted Existing condition noise levels have been calculated based on the sound increment between the vehicle counts conducted during the noise measurement and the existing vehicle counts collected and summarized in **Chapter 10, Transportation**. No-Action condition noise levels have been calculated based on the sound increment between the No-Action condition PCEs and the Existing PCEs. It is assumed that the traffic volume along FDR Drive would not substantially change due to the Proposed Project. As shown in **Table 13-4**, the noise level increment from the Existing condition to predicted No-Action condition would range from 0.1 to 0.6 dBA.

Table 13-4 Mobile Source Noise Analysis at Roadway Segments for No-Action Condition

Site	Roadway Segment	Time Period	Existing PCEs	No-Action PCEs	No-Action Minus Existing Sound Levels (dBA)
1	First Avenue between East 25th Street and former East 26th Street	Morning	4,182	4,432	0.3
		Midday	3,104	3,342	0.3
		Evening	2,315	2,421	0.2
2	Former East 26th Street between First Avenue and FDR Drive	Morning	523	553	0.2
		Midday	300	341	0.6
		Evening	373	423	0.5
4	East 25th Street between First Avenue and FDR Drive	Morning	2,258	2,294	0.1
		Midday	1,703	1,725	0.1
		Evening	701	718	0.1

Source: VHB, 2024

With-Action Condition

Similarly, the With-Action condition noise levels were computed based on the With-Action condition PCEs and the No-Action condition PCEs. **Table 13-5** shows that With-Action condition noise levels would generally be 0 to 1 dBA and up to 0.8 dBA higher than the No-Action condition noise levels during the weekday morning, midday, and afternoon peak periods. According to the *CEQR Technical Manual* guidelines, increases of less than 3 dBA would be barely perceptible. As the Proposed Project would not increase noise levels by 3 dBA or more compared to No-Action condition, there would not be significant noise impact at existing receptors due to mobile sources.

Table 13-5 Mobile Source Noise Analysis at Roadway Segments

Measurement Site	Roadway Intersection / Segment	Time Period	Noise Measurement Traffic PCEs	Existing PCEs	Noise Increment from Existing Traffic Adjustment (dBA)	No-Action PCEs	With-Action PCEs	No-Action minus Existing Sound Levels (dBA)	With-Action minus No-Action Sound Levels (dBA)
1	First Avenue	Morning	3,132	4,182	1.3	4,432	4,790	0.3	0.3
		Midday	2,655	3,104	0.7	3,342	3,660	0.3	0.4
		Evening	2,565	2,315	-0.4	2,421	2,526	0.2	0.2
2	Former East 26th Street	Morning	396	523	1.2	553	621	0.2	0.5
		Midday	441	300	-1.7	341	417	0.6	0.9
		Evening	648	373	-2.4	423	515	0.5	0.9
4	East 25th Street	Morning	1,287	2,258	2.4	2,294	2,435	0.1	0.3
		Midday	1,035	1,703	2.2	1,725	1,823	0.1	0.2
		Evening	1,170	701	-2.2	718	754	0.1	0.2

As shown in **Table 13-6,** the adjusted Existing condition noise levels were adjusted based on the difference between the vehicle counts conducted during noise measurements and the existing vehicle counts collected and summarized in **Chapter 10, Transportation**. These sound levels would range from 61.7 to 75.0 dBA L_{eq} levels and L_{10} levels would range from 63.1 to 75.2 dBA.

Table 13-6 Adjusted Existing Condition Sound Levels

Site	Monitoring Location	Time Period	Intersection/ Segment	L_{eq}	L_{10}	L_{50}	L_{90}
1	First Avenue between East 25th Street and former East 26th Street	Morning	First Avenue	73.8	75.2	66.7	63.1
		Midday		70.7	70.8	66.0	63.4
		Evening		74.0	72.1	64.9	61.9
2	Former East 26th Street between First Avenue and FDR Drive	Morning	Former East 26th Street	75.0	69.1	64.2	63.1
		Midday		71.4	68.0	61.9	60.4
		Evening		62.7	65.0	60.5	59.0
4	East 25th Street between First Avenue and FDR Drive	Morning	East 25th Street	67.4	69.2	66.4	64.5
		Midday		65.2	67.0	64.5	62.9
		Evening		61.7	63.1	58.8	56.9

Source: VHB, 2024

As shown in **Table 13-7,** the No-Action condition noise levels including the increase in mobile sources would range from 61.8 to 75.2 dBA L_{eq} levels and L_{10} levels would range from 63.2 to 75.4 dBA.

Table 13-7 No-Action Condition Sound Levels

Site	Monitoring Location	Time Period	Intersection/ Segment	L_{eq}	L_{10}	L_{50}	L_{90}
1	First Avenue between East 25th Street and former East 26th Street	Morning	First Avenue	74.0	75.4	66.9	63.3
		Midday		71.0	71.1	66.3	63.7
		Evening		74.1	72.2	65.0	62.0
2	Former East 26th Street between First Avenue and FDR Drive	Morning	Former East 26th Street	75.2	69.3	64.4	63.3
		Midday		72.0	68.6	62.5	61.0
		Evening		63.2	65.5	61.0	59.5
4	East 25th Street between First Avenue and FDR Drive	Morning	East 25th Street	67.5	69.3	66.5	64.6
		Midday		65.2	67.0	64.5	62.9
		Evening		61.8	63.2	58.9	57.0

Source: VHB, 2024

As shown in **Table 13-8,** the With-Action condition L_{eq} levels would range from 62.0 to 75.8 dBA and the L_{10} levels would range from 63. to 75.7 dBA. With-Action condition sound levels would be below 70 dBA (L_{eq} or L_{10}) at measurement Site 4. With-Action condition sound levels would exceed 70 dBA (L_{eq} or L_{10}) at measurement locations Site 1 and Site 2, which are all representative of the mobile source sound level at façades of the proposed buildings nearest to First Avenue and former East 26th Street.

Table 13-8 With-Action Condition Sound Levels

Site	Monitoring Location	Time Period	Intersection/ Segment	L_{eq}	L_{10}	L_{50}	L_{90}
1	First Avenue between East 25th Street and former East 26th Street	Morning	First Avenue	74.3	75.7	67.2	63.6
		Midday		71.4	71.5	66.7	64.1
		Evening		74.3	72.4	65.2	62.2
2	Former East 26th Street between First Avenue and FDR Drive	Morning	Former East 26th Street	75.8	69.9	65.0	63.9
		Midday		72.9	69.5	63.4	61.9
		Evening		64.1	66.4	61.9	60.4
4	East 25th Street between First Avenue and FDR Drive	Morning	East 25th Street	67.8	69.6	66.8	64.9
		Midday		65.5	67.3	64.8	63.2
		Evening		62.0	63.4	59.1	57.2

Source: VHB, 2024

Stationary Source Noise Analysis

With-Action condition noise levels at new receptors that would be introduced by the Proposed Project would also be impacted by the stationary source noise from the existing playground across East 25th Street. The closest receptors would be the institutional use at the proposed building on the Eastern Parcel.

The following **Table 13-9** summarizes the noise assessment at new receptors including mobile and stationary sources:

Table 13-9 With-Action Condition Sound Level at Closest Noise-Sensitive Building (South Façade of Building A – Site 4)

Time Period	No-Action Condition Sound Level (L_{eq} in dBA)	With-Action Condition Sound Level (L_{eq} in dBA)	With-Action Condition + Playground Noise (L_{eq} in dBA)	With-Action Condition + Playground Noise (L_{10} in dBA)
Morning	67.5	69.6	68.3	70.1
Midday	65.2	67.3	66.3	68.1
Evening	61.8	63.4	63.7	65.1

Acceptability Assessment

The *CEQR Technical Manual* provides noise exposure guidelines for assessing ambient sound levels, as shown in **Table 13-3**. Based on these noise exposure guidelines, noise has been assessed to determine the level of acceptability for new sensitive receptors introduced by the Proposed Project. **Table 13-10** summarizes the maximum With-Action condition L_{10} or L_{eq} level at each proposed building for each façade based on results of the noise monitoring and cumulative noise analysis including mobile and stationary sources and whether the With-Action condition sound levels are considered to be acceptable according to the *CEQR Technical Manual*.

Table 13-10 Sound Level Acceptability, dBA

Building	Façade	Noise Site	Time Period	With-Action Sound Level (dBA)	Acceptability
Building A	North	2	Morning	75.8 (L_{eq})*	Marginally Unacceptable
	East	3	Morning	81.5 (L_{10})	Clearly Unacceptable
	West	4	Morning	69.6 (L_{10})	Marginally Acceptable
	South	4**	Morning	70.1 (L_{10})	Marginally Unacceptable
Proposed Building B2	North	2	Morning	75.8 (L_{eq})*	Marginally Unacceptable
	East	4	Morning	69.6 (L_{10})	Marginally Acceptable
	West	4	Morning	69.6 (L_{10})	Marginally Acceptable
	South	4	Morning	69.6 (L_{10})	Marginally Acceptable
Building B1	North	2	Morning	75.8 (L_{eq})*	Marginally Unacceptable
	East	4	Morning	69.6 (L_{10})	Marginally Acceptable
	West	1	Morning	75.7 (L_{10})	Marginally Unacceptable
	South	4	Morning	69.6 (L_{10})	Marginally Acceptable

Note: Although not included in this table, additional facades within 50 feet of dominant noise sources were considered with attenuation requirement based on the monitoring location directly in front of FDR Drive as depicted in **Figure 13-1**.

* Measured noise levels L_{eq} are higher than L_{10} at Location 2, L_{eq} is used to determine required window/wall attenuation to be conservative.

** Includes sound level from recreational area.

Source: VHB, 2024

According to the noise exposure guidelines in the *CEQR Technical Manual*, With-Action condition sound levels would be Marginally Acceptable on the western façade of the Proposed East Building, Marginally Unacceptable on the northern and southern façades of Building A, Clearly Unacceptable on the eastern façade of Building A; Marginally Acceptable on the eastern and southern façades of Building B1, Marginally Unacceptable on the northern and western facades of Building B1: and Marginally Acceptable on the eastern, western, and southern façades of Building B2, Marginally Unacceptable on the northern facade of Building B2.

Based on the finding of Marginally Unacceptable sound levels, sufficient outdoor-to-indoor sound attenuation of the window/wall must be specified to provide acceptable interior sound levels not to exceed 45 dBA.

Noise Attenuation Measures

The most common measure for reducing interior noise from ambient sources is to specify sufficient outdoor-to-indoor sound attenuation for the proposed buildings. As shown in **Table 13-11**, the required level of attenuation varies based on the exterior sound levels and type of receptor.

Table 13-11 Required Attenuation Values

	Marginally Unacceptable				Clearly Unacceptable
With-Action Condition Sound Level Based on Vehicular Traffic	$70<L_{10}\leq73$	$73<L_{10}\leq76$	$76<L_{10}\leq78$	$78<L_{10}\leq80$	$80<L_{10}$
Attenuation A	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	Attenuation required to achieve an interior level of 45 dBA

Note: [A] The above composite window-wall attenuation values are for institutional uses, residential dwellings and community facility developments. Commercial office spaces and meeting rooms would be 5 dBA less in each category. All of the above categories require a closed window situation and hence an alternate means of ventilation.
Source: New York City Department of Environmental Protection (*2021 CEQR Technical Manual*, Table 19-3)

The results show new residential and institutional spaces would require a minimum composite window/wall sound attenuation to maintain an interior noise level not greater than 45 dBA. In order to maintain acceptable interior noise conditions an alternative means of ventilation must be included such as, but not limited to, central air conditioning, to provide ventilation during the closed window condition.

The composite OITC value of the window-wall structure is used to determine the necessary sound attenuation. The OITC classification is defined by ASTM International (ASTM E1331-10a) and provides a single number rating that is used for designing a building façade, including walls, doors, glazing, and combinations thereof. Sound attenuation measures would be achieved through construction materials and techniques with sufficient OITC-rated windows and walls.

The With-Action condition sound levels presented in **Table 13-10** were compared to the required attenuation values in **Table 13-11** to determine the sound attenuation needed. As shown in **Figure 13-2**, a minimum composite window/wall sound attenuation would be required on the facades of Buildings A, B1, and B2 which are closest to FDR Drive, First Avenue, former East 26th Street, or the existing playground.

The With-Action condition noise level at the eastern facades of Building A including mobile and stationary sources would be up to 81.8 dBA (L_{10}). Therefore, the eastern façade along FDR Drive, the northern façade along former East 26th Street, the southern façade along East 25th Street within 50 feet of FDR Drive, would require a minimum composite window/wall of 37 OITC. The northern façade of Building A including mobile and stationary sources would be up to 75.8 dBA (L_{eq}). Therefore, the northern façade along former East 26th Street would require a minimum composite window/wall of 31 OITC. The southern façade of Building A including mobile and stationary sources would be up to 70.1 dBA (L_{10}). Therefore, the southern façade along East 25th Street would require a minimum composite window/wall of 28 OITC. The western façade of Building A including mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the western façade would not require enhanced window/wall attenuation.

The With-Action condition noise level at the western facades of the Proposed West Building including mobile and stationary sources would be up to 75.7 dBA (L_{10}). Therefore, the western façade along First Avenue, the northern façade along former East 26th Street within 50 feet of First Avenue, the southern façade along East 25th Street within 50 feet of First Avenue, would require a minimum composite window/wall of 31 OITC. The northern façade of Building B1 including mobile and stationary sources would be up to 75.8 dBA (L_{eq}). Therefore, the northern façade along former East

26th Street, and east facade within 50 feet of former East 26th Street would require a minimum composite window/wall of 31 OITC. The southern and eastern façade of Building B1 including mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the southern and eastern façade would not require enhanced window/wall attenuation.

The With-Action condition noise level at the northern façade of Building B2 including contributions from mobile and stationary sources would be up to 75.8 dBA (L_{eq}). Therefore, the northern façade along former East 26th Street, the west façade within 50 feet of former East 26th Street, and the east façade within 50 feet of former East 26th Street would require a minimum composite window/wall of 31 OITC. The southern façade of Building B2 including mobile and stationary sources would be up to 69.6 dBA (L_{10}). Therefore, the southern façades would not require enhanced window/wall attenuation. The eastern and western façade of Building B2 approximately 230 feet and 370 feet away from First Avenue and FDR Drive and would be shielded by Buildings A and B1, the eastern and western façade of Building B2 would not require enhanced window/wall attenuation.

Figure 13-2 Composite Window/Wall Sound Attenuation Requirements



Source: VHB, 2024

To implement these attenuation requirements, it is anticipated that an (E)-Designation for noise would be applied to the Development Site specifying the appropriate amount of window/wall attenuation and an alternate means of ventilation. The text for the (E)-Designation (**E-1006**) would be as follows:

Building A

In order to ensure an acceptable interior noise environment, future institutional uses must provide a closed-window condition with a minimum of 37 dBA window/wall attenuation on the façade along FDR Drive, and the northern façade along former East 26th Street within 50 feet of FDR Drive, the

southern façade along East 25th Street within 50 feet of FDR Drive; 31 dBA on the façade facing former East 26th Street; and 28 dBA on the façade facing East 25th Street in order to ensure interior level not greater than 45 dBA for institutional uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation include, but are not limited to, central air conditioning.

Building B1

In order to ensure an acceptable interior noise environment, future institutional uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on the western façade along First Avenue, the northern façade along former East 26th Street, and east façade within 50 feet of former East 26th Street in order to ensure interior noise levels not greater than 45 dBA for community facility uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation include, but are not limited to, central air conditioning.

Building B2

In order to ensure an acceptable interior noise environment, future institutional uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on the northern façade along former East 26th Street, east façade within 50 feet of former East 26th Street, and west façade within 50 feet of former East 26th Street in order to ensure interior noise levels not greater than 45 dBA for community facility uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation include, but are not limited to, central air conditioning.