A. INTRODUCTION

This chapter assesses the potential for the Proposed Action to result in significant adverse noise impacts. As described in Chapter 1, "Project Description," the development facilitated by the Proposed Action (the "proposed project") involves the construction of a new mixed-use development with residential, local retail and supermarket, and community facility uses as well as publicly accessible open space and parking on an 8.7-acre site in the Astoria neighborhood of Queens.

The proposed project is expected to change traffic volumes in the general vicinity of the project site due to additional trips traveling to and from the proposed project as well as the improvement of an existing street (26th Avenue), the extension of 4th Street, and the development of a public access easement along the waterfront. Combined, these changes to the area traffic network could lead to changes in ambient noise levels.

The noise analysis presented in this chapter focuses on the operational noise effects of the Proposed Action and consists of three parts:

- A detailed analysis at locations where traffic generated by the proposed project would have the potential to result in significant adverse noise impacts to determine the magnitude of the increases in noise levels;
- An analysis to determine the level of building attenuation necessary to ensure that interior noise levels satisfy City Environmental Quality Review (CEQR) requirements; and
- An analysis to examine whether the newly created publicly accessible open space and waterfront esplanade would meet CEQR noise level guidelines for open space;

Noise effects during construction of the proposed project are analyzed and discussed separately in Chapter 19, "Construction."

B. PRINCIPAL CONCLUSIONS

The analysis concludes that the Proposed Action would not result in significant adverse noise impacts at any sensitive receptors within the study area. Future With-Action noise levels for the majority of the analyzed receptor locations would increase by less than three dBA, with most noise levels remaining in the same acceptability category as under No-Action conditions. While noise levels are expected to increase by more than three dBA in one or more peak hour at two locations (the intersection of 4th Street and 26th Avenue and the intersection of 9th Street and 26th Avenue), due to the low No-Action noise levels at these locations (under 62 dBA), no significant adverse noise impacts would result due to these predicted incremental noise increases.

Between issuance of the Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS), a detailed playground noise analysis was conducted. The playground noise analysis conservatively assumed that the potential school playground would occupy the entirety of the proposed

Building 5 school site's rear yard with no setbacks or landscaping and fencing features to reduce noise levels at nearby sensitive receptors. The playground noise analysis identified the potential for noticeable noise level increases (5.2 dBA) at adjacent 26-14 9th Avenue during limited time periods (when school is in session). As the existing 26-14 9th Avenue has double-glazed windows and alternate means of ventilation, the predicted interior noise levels at this worst-case existing sensitive receptor would be less than the CEQR 45 dBA $L_{10(1)}$ interior noise level guideline. As a result, the noise level increases at this location would not constitute a significant adverse noise impact. The future Building 5 school would undergo further CEQR environmental review at the time of funding approval. As part of this process, the School Construction Authority (SCA) would conduct further noise testing and may provide additional noise reduction measures (i.e., restrictions on the location of the playground, noise barriers, etc.) to further reduce noise levels.

The building attenuation analysis concludes that no building attenuation would be required on any project site building façade to meet *CEQR Technical Manual* interior noise level requirements. While the projected noise levels at the proposed project's open space areas could be greater than the 55 dBA L_{10} CEQR guideline, it would be comparable to other parks around New York City and would not constitute a significant adverse noise impact.

C. ACOUSTICAL FUNDAMENTALS

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called "decibels" ("dB"). The particular character of the sound that we hear (a whistle compared with a French horn, for example) is determined by the speed, or "frequency," at which the air pressure fluctuates, or "oscillates." Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz ("Hz"). People can hear only a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily discernible and therefore more intrusive than many of the lower frequencies (e.g., the lower notes on the French horn).

"A"-Weighted Sound Level (dBA)

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in Table 16-1, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office, at 50 dBA, is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least three dBA. At five dBA, the change will be readily noticeable. Generally, changes in noise levels less than three dBA are barely perceptible to most listeners.

Sound Level Descriptors

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way

of describing fluctuating sound is to describe the fluctuating noise heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., one hour, denoted by $L_{eq(1),}$ or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded one, ten, fifty, ninety and x percent of the time, respectively.

Table 16-1: Common Noise Levels

Sound Source	dBA
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80-90
Busy city street, loud shout	80
Busy traffic intersection	70-80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50-60
Background noise in an office	50
Suburban areas with medium-density transportation	40-50
Public library	40
Soft whisper at five meters	30
Threshold of hearing	0

Note: A ten dBA increase in level appears to double the loudness, and a ten dBA decrease halves the apparent loudness.

Sources: Cowan, James P. Handbook of Environmental Acoustics, Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by ten or more decibels. Thus, the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

The day-night sound level (L_{dn}) refers to a 24-hour average noise level with a ten dB penalty applied to the noise levels during the hours between 10 PM and 7 AM, due to increased sensitivity to noise levels during these hours.

For purposes of the Proposed Action, the one-hour L_{10} descriptor ($L_{10(1)}$) has been selected as the noise descriptor to be used in this noise impact evaluation. The one-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for City environmental impact review classification.

D. NOISE STANDARDS AND CRITERIA

New York CEQR Noise Standards

The *CEQR Technical Manual* sets external noise exposure standards, which are shown in Table 16-2. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

Table 16-2: Noise Exposure Guidelines for Use in City Environmental Impact Review

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 Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------						
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA	---------- 60 < Ldn ≤ 65 dBA ----------	$65 < L_{10} \leq 80$ dBA	(1) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn	$L_{10} > 80$ dBA	---------- Ldn ≤ 75 dBA ----------
3. Residence, residential hotel or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
4. School, museum, library, court, house 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-10PM)	
6. Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Source: New York City Department of Environmental Protection (DEP) adopted policy 1983.

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more.

[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 an 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 old-age homes.

[3] One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

[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 octave band standards).

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise levels (see Table 16-3). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial uses, and are determined based on exterior $L_{10(1)}$ noise levels.

Table 16-3: Required Attenuation Values to Achieve Acceptable Interior Noise Level

	Marginally Unacceptable				Clearly Unacceptable
Noise level with proposed development	$70<L_{10}\leq73$	$73<L_{10}\leq76$	$76<L_{10}\leq78$	$78<L_{10}\leq80$	$80<L_{10}$
Attenuation[A]	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)$[B] dB(A)

Source: New York City Department of Environmental Protection; 2012 *CEQR Technical Manual*, Table 19-3
Notes:
[A] The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms would be five dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
[B] Required attenuation values increase by one dB(A) increments for L_{10} values greater than 80 dBA.

Impact Definition

The determination of significant adverse noise impacts in this analysis is informed by the use of both absolute noise level limits and relative impact criteria. During daytime hours (between 7 AM and 10 PM) nuisance levels for noise are generally considered to be more than 45 dBA indoors and 70 to 75 dBA outdoors. As typical construction techniques used in the past (including typical single-glazed windows) provide a minimum of approximately 20 dBA of noise attenuation from outdoor to indoor areas, The *CEQR Technical Manual* states that "it is reasonable to consider 65 dBA $L_{eq(1)}$ as an absolute noise level that should not be significantly exceeded." Therefore, the determination of impacts first considers whether a projected noise increase would result in noise levels exceeding 65 dBA $L_{eq(1)}$. Where appropriate, this study also consults the following relative impact criteria to define a significant adverse noise impact, as recommended in the *CEQR Technical Manual*:

- An increase of five dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those calculated for the No-Action condition if the No-Action levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of four dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the No-Action levels are 61 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of three dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the No-Action levels are greater than 62 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of three dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the analysis period is a nighttime period.

E. EXISTING CONDITIONS

Project Site

The project site comprises a total of approximately 377,726 square feet (sf) of lot area in the Astoria neighborhood of Queens, including approximately 292,155 sf along the waterfront (Block 907, Lots 1 and 8, and Block 906, Lots 1 and 5) and approximately 85,571 sf of upland area (Block 908, Lot 12 and Block 909, Lot 35) and is located along 26th Avenue between 4th and 9th Streets (see Figure 1-1 in Chapter 1, "Project Description"). The lots comprising the northern portion of the project site along the waterfront contain a total of seven warehousing and industrial buildings with a combined total floor area of approximately 194,700 sf, as well as bus/vehicle storage and an estimated 100 accessory parking spaces.

The project site currently encompasses two mapped but unbuilt segments of 8th Street (to the north and south of 26th Avenue), as well as an unimproved portion of 26th Avenue west of 9th Street. Portions of these street segments would be built and improved under future No-Action and With-Action conditions (see below for additional details). The two upland portions of the site are currently vacant lots utilized for vehicle storage. There are fourteen businesses currently located on the project site with a total of approximately 80 employees. These businesses include industrial/warehouse uses, school bus storage, contracting, and carpentry uses.

Surrounding Area

The predominant land use to the east of the project site is residential. The residential building types include a mix of one- and two-family residential detached and semi-detached homes, multi-family walkups, and multi-family elevator buildings. Shore Towers, a 23-story condominium building, is located immediately to the east of the project site along the East River and 9th Street. Land uses to the southeast of the project site include a mix of walk-up residential buildings, ground floor local retail uses, institutional uses, and a few industrial uses. The southwestern portion of the study area is predominantly residential and includes the Astoria Houses, a New York City Housing Authority (NYCHA) development. The Astoria Houses consist of 22 six- to seven-story residential buildings on a 32-acre campus and contain a total of 1,103 dwelling units. To the west of the project site are primarily industrial uses with some residential uses interspersed throughout the area.

Sensitive Receptors

Sensitive receptors that could potentially be affected by the Proposed Action are located on blocks to the west, east, and south of the project site. The residential and community facility buildings on these blocks are shown in Table 16-4 and on Figure 16-1. Most are one- and two-family buildings and were constructed between the 1890s and the early 1970s. Based on field surveys conducted between issuance of the DEIS and FEIS, it was confirmed that the existing sensitive receptors most proximate to the project site (26-14 through 26-26 9th Avenue) have double-glazed windows and alternate means of ventilation. Typical construction techniques used in the past (including typical single-glazed windows) provide a minimum of approximately 20 dBA of noise attenuation from outdoor to indoor areas.

F. EXISTING NOISE LEVELS

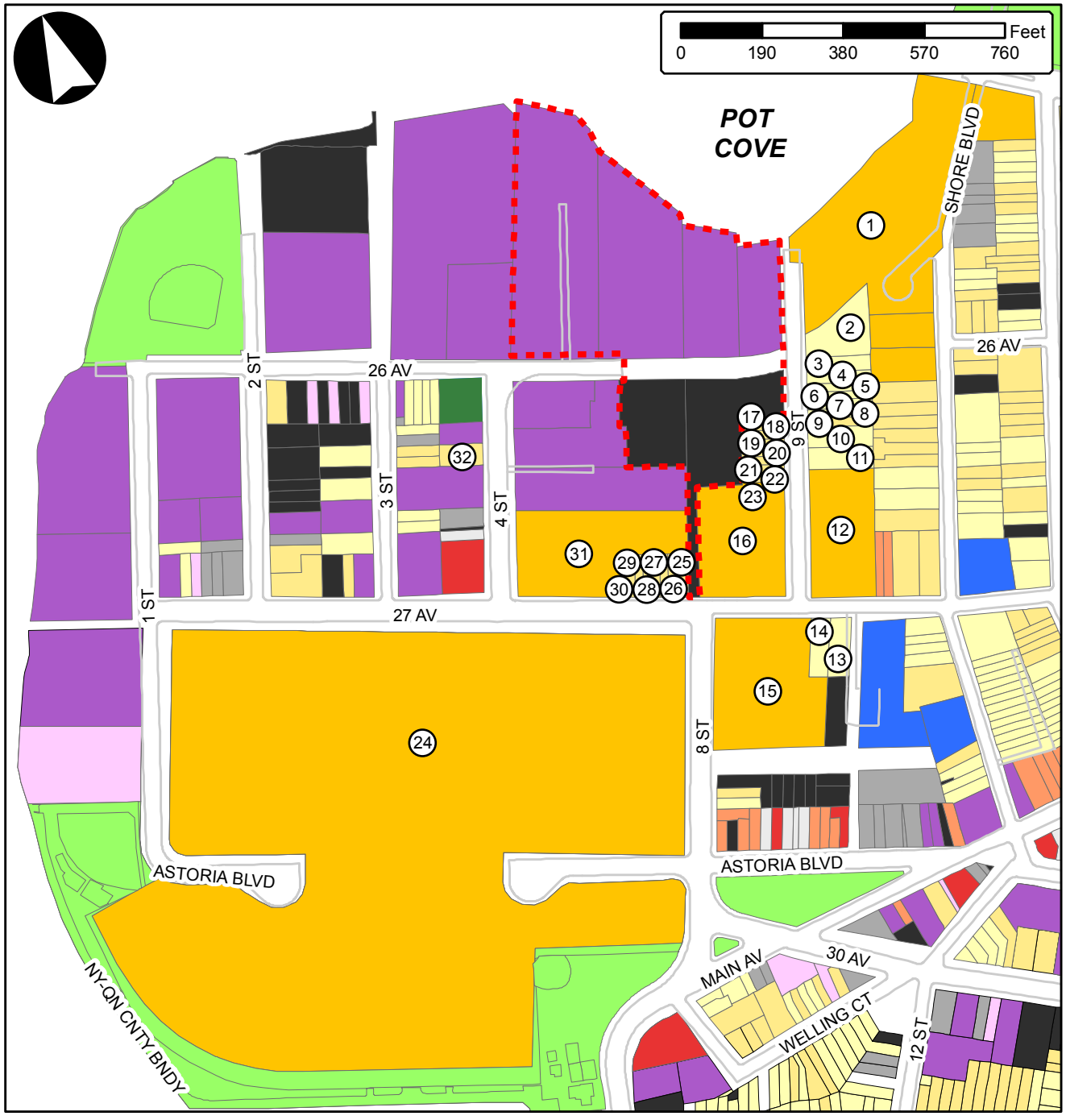
Selection of Noise Receptor Locations

A total of six receptor locations within the project area were selected for impact assessment and were also used for evaluation of noise attenuation requirements. These locations are detailed below and shown in Figure 16-2**.**

Noise receptor locations were selected based on the following criteria: (1) locations where the highest noise levels are likely to occur based upon considerations of existing land patterns (e.g., locations near rail lines, near major commercial roadways); (2) proximity to the project site; and (3) to provide comprehensive geographic coverage throughout the study area to get an accurate picture of the ambient noise environment.

- Receptor Location 1 is located at 9th Street and 26th Avenue;
- Receptor Location 2 is located at 4th Street and 26th Avenue;
- Receptor Location 3 is located at 4th Street and 27th Avenue;

Sensitive Receptors Near Project Site



Legend

- Primary Study Area (Project Site)
- (1) Map ID Number (refer to Table 16-4)
- One & Two Family Buildings
- Multi-Family Walkup Buildings
- Multi-Family Elevator Buildings
- Mixed Commercial/Residential Buildings
- Commercial/Office Buildings
- Industrial/Manufacturing
- Transportation/Utility
- Public Facilities & Institutions
- Open Space
- Parking Facilities
- Vacant Land
- Vacant Buildings
- All Others or No Data

This figure has been revised for the FEIS.

Astoria Cove

This figure has been revised for the FEIS.

Figure 16-2

Noise Monitoring Locations

- Receptor Location 4 is located at 9th Street and 27th Avenue;
- Receptor Location 5 is located adjacent to Shore Towers building (close to the end of 9th Street);
- Receptor Location 6 is located at 8th Street and 26th Avenue;
- Receptor Location 7 is located along the proposed public access easement between the 4th Street extension and 9th Streets; and
- Receptor Location 8 is located along the proposed 4th Street extension between 26th Avenue and the waterfront.

Table 16-4: Nearby Sensitive Receptors

ID #[1]	Address	Block	Lot	Floors	# of DUs	Year Built
1	Shore Towers	905	7501	23	404	1989
2	26-03 9th Street	904	5	3	1	1890
3	26-05 9th Street	904	4	2.5	2	1890
4	26-07 9th Street	904	2	2.5	2	1890
5	26-09 9th Street	904	1	2.5	2	1890
6	26-11 9th Street	903	27	2.5	2	1890
7	26-13 9th Street	903	26	2.5	2	1890
8	26-15 19th Street	903	25	2.5	2	1890
9	26-17 9th Street	903	24	2.5	2	1890
10	26-19 9th Street	903	22	2.5	2	1890
11	26-19 9th Street	903	20	2.5	2	1890
12	26-45 9th Street	903	7	8	108	1972
13	9-06 27th Avenue	510	46	3	2	1901
14	9-02 27th Avenue	510	4	3	1	1910
15	810 12th Avenue	510	20	8	171	1972
16	8-15 27th Avenue	908	1	6	128	1969
17	26-14 9th Street	908	33	3	3	1965
18	26-16 9th Street	908	34	3	3	1965
19	26-18 9th Street	908	35	3	4	1965
20	26-20 9th Street	908	36	3	3	1965
21	26-22 9th Street	908	38	3	4	1965
22	26-24 9th Street	908	138	3	5	1965
23	26-26 9th Street	908	139	3	3	1965
24	NYCHA Astoria Houses (4 1st Street)	490	101	7	1,104	1950
25	4-37 27th Avenue	909	55	3	6	1931
26	4-35 27th Avenue	909	56	3	6	1931
27	4-33 27th Avenue	909	57	3	6	1931
28	4-31 27th Avenue	909	58	3	6	1931
29	4-29 27th Avenue	909	59	3	6	1931
30	4-27 27th Avenue	909	60	3	6	1931
31	Goodwill Apt (4021 27th Avenue)	909	1	15	208	1969
32	26-18 4th Street	910	29	3	4	1931

Notes:
[1] Refer to Figure 16-1.
Source: New York City Open Accessible Space Information System (OASIS).
This table has been updated for the FEIS.

In the following analysis, all six Receptor Locations are used to project future With-Action noise levels at various frontages of the proposed buildings. As the intersection of 8th Street and 26th Avenue (Receptor Location 6) is not developed and is inaccessible under existing conditions, a discussion of noise levels as this location is only included for future No-Action and future With-Action conditions; as the proposed public access easement (Receptor Location 7) and 4th Street extension (Receptor Location 8) would

developed as part of the proposed project, a discussion of noise levels at these locations is only included for future conditions.

Noise Monitoring

At Receptor Locations 1 through 5, existing noise levels were determined by field measurements. Noise monitoring was initially performed on April 17th, 2013, April 18th, 2013, and May 2nd, 2013. Subsequent to issuance of the DEIS, additional noise monitoring was conducted at Receptor Location 2 for the PM peak hour (on May 20th, 2014). The initial noise monitoring was conducted to confirm the unusually high background noise levels that were originally recorded at this location during the PM peak hour. The new May 20th 2014 measurements form the basis of the Receptor Location 2 PM peak hour analysis. At Receptor Locations 1 through 5, 20-minute spot measurements were taken. All measurements were performed during the weekday peak periods—AM (8 to 9 AM), midday (12 to 1 PM), and PM (5 to 6 PM).

Equipment Used During Noise Monitoring

Measurements were performed using Brüel & Kjær Sound Level Meters (SLM) Type 2250 and 2260, Brüel & Kjær ½-inch microphones Type 4189, and Brüel & Kjær Sound Level Calibrators Type 4231. The Brüel & Kjær SLMs are Type 1 instruments according to ANSI Standard S1.4- 1983 (R2006). The SLMs had a laboratory calibration date within one year of the time of use. The microphones were mounted at a height of approximately five feet above the ground surface on a tripod and approximately six feet or more away from any large sound-reflecting surface to avoid major interference with sound propagation. The SLMs were calibrated before and after readings with a Brüel & Kjær Type 4231 Sound Level Calibrator using the appropriate adaptor. The data were digitally recorded by the SLMs and displayed at the end of the measurement period in units of dBA. Measured quantities included the L_{eq}, L_1, L_{10}, L_{50}, and L_{90} values. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

Existing Noise Levels at Noise Receptor Locations

Measured Noise Levels

The results of the measurements of existing noise levels are summarized in Table 16-5. At Receptor Locations 2 and 4 (along 27th Avenue), traffic noise from the immediately adjacent streets was generally the dominant noise source. No automobile traffic passed by the esplanade at receptor location 5 and thus, area traffic was the dominant noise source. Existing industrial noise sources along 26th Avenue contributed to observed noise levels at Receptor Locations 1 and 2. Measured noise levels are low to moderate and reflect the level of activity on the adjacent streets, with the highest monitored noise levels generally occurring in the AM and PM peak hours when area vehicle volumes are at their peak. However, at Receptor Location 1, the highest monitored noise level (64.3 dBA) occurred during the weekday midday peak hour, and was generally attributed to noise generated by industrial activities occurring on the adjacent Block 906; background non-traffic noise levels at Receptor Location 1 during the weekday midday peak hour were approximately 63.0 dBA.[1] The highest monitored noise levels occur at Receptor Location 3, with a peak L_{10} of 70.3 dBA (marginally unacceptable I) in the weekday AM peak hour.

In terms of *CEQR Technical Manual* criteria, existing noise levels at Receptor Locations 1, 2, and 5 would be in the "acceptable" category; Receptor Location 4 would be in the "marginally acceptable"

[1] Determined by logarithmically subtracting the TNM predicted existing noise levels from the monitored existing noise levels.

category; and existing noise levels at Receptor Location 3 would be in the "marginally unacceptable" category.

Table 16-5: Existing Noise Levels (in dBA)

Receptor #	Measurement Location	Time	L_{eq}	L_1	L_{10}[1]	L_{50}	L_{90}	CEQR Noise Exposure Category[2]
1	9th Street and 26th Avenue	AM	59.0	67.5	60.9	57.1	55.3	Acceptable
		MD	63.1	73.6	**64.3**	56.8	54.4	
		PM	54.7	62.4	56.8	53.0	51.6	
2	4th Street and 26th Avenue	AM	59.5	70.3	60.5	54.8	52.1	Acceptable
		MD	59.5	72.2	60.0	51.1	47.9	
		PM	62.0	72.9	**64.8**	58.6	49.5	
3	4th Street and 27th Avenue	AM	66.9	78.1	**70.3**	62.7	58.4	Marginally Unacceptable (I)
		MD	65.1	75.2	68.1	61.3	56.9	
		PM	66.4	78.3	67.8	61.4	58.1	
4	9th Street and 27th Avenue	AM	67.5	78.8	**69.9**	61.8	56.7	Marginally Acceptable
		MD	65.5	76.9	67.8	58.7	54.2	
		PM	62.9	73.1	66.1	58.5	53.8	
5	Adjacent to Shore Towers (close to the end of 9th Street)	AM	60.7	68.8	**60.4**	59.0	57.7	Acceptable
		MD	58.0	60.8	59.2	57.9	56.6	
		PM	58.2	60.2	59.3	58.1	56.9	

Notes:
[1] The highest measured noise level at each receptor is indicated in **bold.**
[2] For consistency purposes, the CEQR noise exposure categories for existing, No-Action, and With-Action conditions are based on the residential noise exposure guidelines; reflects the worst-case peak hour noise levels.

G. NOISE PREDICTION METHODOLOGY

Future No-Action and With-Action noise levels were calculated using either a proportional modeling technique or the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5 for the five aforementioned receptor sites. Receptor Location 6 (at the intersection of 26th Avenue and 8th Street), which is currently inaccessible to vehicular traffic, was included in future No-Action and With-Action analyses due to anticipated No-Action and With-Action roadway improvements, as well as the proposed school that would be constructed at this location. Receptor Location 7 (along the proposed public access easement) and Receptor Location 8(along the proposed 4th Street extension) were included only in the future With-Action analysis, as these roadway segments would be developed as part of the proposed project.

As stated in the *CEQR Technical Manual*, the proportional modeling technique may be employed for most projects. However, TNM modeling should be used when: (a) conditions result in new or significant changes in roadway or street geometry; (b) roadways currently carry no or very low traffic volumes; (c) ambient noise is the result of multiple sources including traffic; or (d) a detailed analysis of changes due to the traffic component of the total ambient noise levels is necessary. As such, the proportional modeling technique was used at Receptor Locations 3 and 4, where existing and future noise levels are primarily a result of the level of traffic on the immediately adjacent roadway segments. TNM modeling was used at Receptor Locations 1, 2, 5, 6, 7, and 8 to account for noise associated with the additional traffic on the proposed new street segments. The noise impact analysis examined the weekday AM, midday, and PM peak hours at the receptor sites, the time periods when the proposed project would be expected to produce the maximum traffic generation (based on the traffic studies in Chapter 13, "Transportation") and therefore result in the maximum potential for significant noise impacts.

The proportional modeling and TNM procedures used for the noise analysis are described below.

Proportional Modeling

Proportional modeling was used to determine locations with the potential for having significant noise impacts. Proportional modeling is one of the techniques recommended in the *CEQR Technical Manual* for mobile source analysis. Using this technique, the prediction of future noise levels where traffic is the dominant noise source is based on a calculation using measured existing noise levels and predicted changes in traffic volumes to determine noise levels in the future without the Proposed Action (the No-Action condition) and with the Proposed Action (the With-Action condition). Vehicular traffic volumes are converted into noise Passenger Car Equivalent (PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars. Future noise levels are calculated using the following equation:

$$F\ NL - E\ NL = 10 * \log_{10}(F\ PCE / E\ PCE)$$

where:

F NL = Future Noise Level

E NL = Existing Noise Level

F PCE = Future PCEs

E PCE = Existing PCEs

Sound levels are measured in decibels and therefore increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCEs and if the future traffic volume were increased by 50 PCEs to a total of 150 PCEs, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCEs, or doubled to a total of 200 PCEs, the noise level would increase by 3.0 dBA.

Traffic Noise Model (TNM)

At the receptor sites located adjacent to proposed new street connections (Receptor Locations 1, 2, 5, 6, 7, and 8), because of the low existing traffic volumes at these locations, preliminary assessment using the proportional modeling technique indicated that the future traffic may have the potential to cause noticeable increases in noise levels. Therefore, to more accurately forecast noise at these locations, a refined analysis was performed using TNM.

TNM is a computerized model developed for the FHWA that calculates the noise contribution of each roadway segment to a given noise receptor. The noise from each vehicle type is determined as a function of the reference energy-mean emission level, corrected for vehicle volume, speed, roadway grade, roadway segment length, and source-receptor distance. Further considerations in modeling the propagation path include identifying the shielding provided by rows of buildings, analyzing the effects of different ground types, identifying source and receptor elevations, and analyzing the effects of any intervening noise barriers. TNM provided more accurate results than proportional modeling for Receptor Locations 1, 2, 5, 6, 7, and 8 as they would establish new street connections. The less refined proportional modeling technique could not account for the noise contributions from adjacent roadways, and thus, over-

predicts the project-generated traffic noise levels by attributing all of the noise due to traffic and traffic changes to the immediately adjacent street.

The existing TNM noise levels were logarithmically subtracted from the measured existing noise levels and logarithmically added to the predicted TNM No-Action and With-Action noise levels to account for background noise not attributable to vehicular traffic. As existing noise levels were not monitored at Receptor Locations 6, 7, and 8 existing background volumes from comparable nearby monitoring locations were logarithmically added to the predicted TNM future noise levels at these locations. Existing background volumes from Receptor Location 2 (at 26th Avenue and 4th Street) were used for Receptor Locations 6 (26th Avenue and 8th Street) and Receptor Location 8 (4th Street north of 26th Avenue), and existing background volumes from Receptor Location 5 (at the northern termini of 9th Street) were used for Receptor Location 7 (along the proposed public access easement).

H. FUTURE WITHOUT THE PROPOSED ACTION (NO-ACTION CONDITION)

As described in Chapter 1, "Project Description," in the 2023 No-Action condition, the project site would not be rezoned. For analysis purposes, it is expected that the existing 194,700 sf of industrial/storage uses on the waterfront parcel would remain. It is assumed that the upland parcels would be redeveloped as-of-right with 166 residential units and 83 accessory parking spaces. In order to satisfy New York City Department of Buildings (DOB) requirements regarding street frontage, it is further assumed that portions of the adjacent unbuilt 8th Street and/or 26th Avenue street segments would be built-out in conjunction with the as-of-right development on the upland parcels.

Using the methodology previously described, noise levels in the No-Action condition were calculated at six receptor locations for the 2023 analysis year. These No-Action values are shown in Table 16-6 below.

As indicated in Table 16-6, the maximum increase in L_{eq} noise levels from existing to No-Action conditions would be imperceptible due to relatively low incremental vehicle volumes generated by No-Action development on the project site, with the highest increase (2.9 dBA) occurring at Receptor Location 4 during the weekday PM peak hour. This increase in No-Action noise levels is due to the additional traffic generated by the incremental vehicle volumes from No-Action development anticipated in the surrounding area (i.e., Halletts Point) and the No-Action upland parcel as-of-right residential development.

In terms of CEQR noise exposure guidelines, noise levels at Receptor Location 3 would remain "marginally unacceptable," as under existing conditions, and noise levels at Receptor Location 2 and 5 would remain "acceptable," as under existing conditions. Noise levels at Receptor Location 1 would change from "acceptable" to "marginally acceptable." Noise levels at Receptor Location 4 would change from "marginally acceptable" to "marginally unacceptable." Noise levels at Receptor Location 6 would be in the "acceptable" category.

I. FUTURE WITH THE PROPOSED ACTION (WITH-ACTION CONDITION)

Using the methodology previously described, With-Action condition noise levels were calculated at the six receptor locations for the 2023 analysis year. These With-Action condition values are shown in Table 16-7 below.

Table 16-6: 2023 No-Action Condition Noise Levels (in dBA)

Receptor #	Measurement Location	Time	Existing L_{eq}	No-Action L_{eq}	L_{eq} Change	No-Action L_{10}[2]	CEQR Noise Exposure Category[3]
1	9th Street and 26th Avenue	AM	59.0	59.6	0.6	62.6	Marginally Acceptable
		MD	63.1	63.2	0.1	**66.2**	
		PM	54.7	55.9	1.2	58.9	
2	4th Street and 26th Avenue	AM	59.5	59.4	-0.1	62.4	Acceptable
		MD	59.5	60.1	0.6	63.1	
		PM	62.0	61.5	-0.5	**64.5**	
3	4th Street and 27th Avenue	AM	66.9	68.6	1.7	**71.6**	Marginally Unacceptable (I)
		MD	65.1	66.1	1.0	69.1	
		PM	66.4	68.5	2.1	71.5	
4	9th Street and 27th Avenue	AM	67.5	70.0	2.5	**73.0**	Marginally Unacceptable (I/II)
		MD	65.5	67.9	2.4	70.9	
		PM	62.9	65.8	2.9	68.8	
5	Adjacent to Shore Towers (close to the end of 9th Street)	AM	60.7	61.0	0.3	**64.0**	Acceptable
		MD	58.0	58.1	0.1	61.1	
		PM	58.2	59.9	0.5	62.9	
6	8th Street and 26th Avenue[1]	AM	N/A	56.4	N/A	59.4	Acceptable
		MD	N/A	58.2	N/A	61.2	
		PM	N/A	60.4	N/A	**63.4**	

Notes:
Future noise levels at Receptor Locations 3 and 4 were calculated using proportional modeling; future noise levels at Receptor Locations 1, 2, 5, and 6 were calculated using TNM.

[1] Receptor Location 6 was not included in the existing conditions assessment as the intersection of 8th Street and 26th Avenue is currently inaccessible to vehicular traffic.

[2] $L_{10(1)}$ noise levels were calculated at all sites by conservatively adding three dBA to the No-Action $L_{eq(1)}$ noise levels (the maximum observed difference in the existing $L_{10(1)}$ and $L_{eq(1)}$ noise levels).

[3] For consistency purposes, the CEQR noise exposure categories for existing, No-Action, and With-Action conditions are based on the residential noise exposure guidelines; reflects the worst-case peak hour noise levels.

The Proposed Action, besides generating increases in traffic, would have a revised street network, which would change traffic flow patterns on a number of streets. In particular, the proposed extension of 4th Street and construction of the waterfront public access easement would result in traffic diversions in the study area. Furthermore, due to the replacement of the waterfront industrial buildings and bus storage uses with residential and retail uses, a smaller percentage of the traffic generated on the project site under With-Action conditions would be comprised of heavy vehicles, as compared to existing and No-Action conditions. Due to these changes, increases in noise levels at the analyzed receptor sites would generally be imperceptible.

As indicated in Table 16-7, increases in noise levels at Receptor Locations 1, 3, 4, 5, and 6 would generally be less than 3 dBA, and therefore would be imperceptible and would not represent a significant adverse noise impact pursuant to CEQR impact criteria. While noise levels at Receptor Location 1 would increase by a maximum of 3.7 dBA in the weekday PM peak hour, as the No-Action noise levels are less than 60 dBA, this incremental increase would not represent a significant adverse impact pursuant to CEQR impact criteria (5 dBA). During the AM and midday peak hours, noise level increases at Receptor Location 1 would be less than three dBA, and therefore would be imperceptible.

Due to the increased With-Action traffic volumes at Receptor Location 2 (located at the intersection of 26th Avenue at 4th Street), the Proposed Action would result in noise level increases of 3.3 dBA in the weekday AM peak hour and 3.7 dBA in the weekday PM peak hour. However, these increases would not represent significant adverse impacts pursuant to CEQR impact criteria. In the AM peak hour, with a No-Action noise level of 59.4 dBA, the increase of 3.3 dBA would be less than the five dBA CEQR impact threshold. In the PM peak hour, with a No-Action noise level of 61.5 dBA, the increase of 3.7 dBA would

be less than the four dBA CEQR impact threshold. During the midday peak hour, noise level increases at Receptor Location 2 would be less than three dBA.. As anticipated noise level increases at Receptor Location 2 would not exceed the CEQR impact threshold in any peak hour, no significant adverse impacts would result.

Table 16-7: 2023 With-Action Condition Noise Levels (dBA)

Receptor #	Measurement Location	Time	No-Action L_{eq}	No-Action L_{10}	With-Action L_{eq}	L_{eq} Change[1]	With-Action L_{10}[1]	CEQR Noise Exposure Category[2]
1	9th Street and 26th Avenue	AM	59.6	62.6	60.6	1.0	63.6	Marginally Acceptable
		MD	63.2	66.2	63.4	0.2	**66.4**	
		PM	55.9	58.9	59.6	3.7	62.6	
2	4th Street and 26th Avenue	AM	59.4	62.4	62.8	3.3	65.8	Marginally Acceptable
		MD	60.1	63.1	63.1	2.9	66.1	
		PM	61.5	64.5	65.2	3.7	**68.2**	
3	4th Street and 27th Avenue	AM	68.6	71.6	69.0	0.4	72.0	Marginally Unacceptable (I)
		MD	66.1	69.1	66.6	0.5	69.6	
		PM	68.5	71.5	69.6	1.1	**72.6**	
4	9th Street and 27th Avenue	AM	70.0	73.0	71.5	1.5	**74.5**	Marginally Unacceptable (II)
		MD	67.9	70.9	69.2	1.3	72.2	
		PM	65.8	68.8	67.6	1.8	70.6	
5	Adjacent to Shore Towers (close to the end of 9th Street)	AM	61.0	64.0	61.4	0.4	**64.4**	Acceptable
		MD	58.1	61.1	58.4	0.3	61.4	
		PM	58.7	62.9	59.9	1.2	62.9	
6	8th Street and 26th Avenue	AM	56.4	59.4	57.7	1.3	60.7	Acceptable
		MD	58.2	61.2	58.8	0.5	61.8	
		PM	60.4	63.4	61.1	0.7	**64.1**	
7	Public Access Easement (between 4th and 9th Street)	AM	N/A	N/A	61.3	N/A	**64.3**	Acceptable
		MD	N/A	N/A	58.6	N/A	61.6	
		PM	N/A	N/A	59.3	N/A	62.3	
8	4th Street extension (between 26th Avenue and the waterfront)	AM	N/A	N/A	58.0	N/A	61.0	Acceptable
		MD	N/A	N/A	59.5	N/A	62.5	
		PM	N/A	N/A	61.8	N/A	**64.8**	

Notes:
Future noise levels at Receptor Locations 3 and 4 were calculated using proportional modeling; future noise levels at Receptor Locations 1, 2, 5, and 6 were calculated using TNM.

[1] $L_{10(1)}$ noise levels were calculated at all sites by conservatively adding three dBA to the No-Action $L_{eq(1)}$ noise levels (the maximum observed difference in the existing $L_{10(1)}$ and $L_{eq(1)}$ noise levels).

[2] For consistency purposes, the CEQR noise exposure categories for existing, No-Action, and With-Action conditions are based on the residential noise exposure guidelines; reflects the worst-case peak hour noise levels.

In terms of noise exposure categories, noise levels at Receptor Location 1, 3, 4, 5, and 6 would remain the same as under No-Action conditions (refer to Table 16-6). Noise levels at Receptor Location 2 would change from "acceptable" to "marginally acceptable."

Other Noise Concerns

Play Area Noise

While people are not usually thought of as stationary noise, children in playgrounds or spectators at outdoor sporting events or concerts can introduce additional sources of noise within communities. According to the *CEQR Technical Manual*, noise generated by children in playgrounds or people using parks is considered a stationary source of noise.

There is the potential for the inclusion of a new outdoor play area in conjunction with the proposed project, which includes an elementary school (closest to Receptor Location 1 and adjacent to proposed Building 5). At this time, the specific location, configuration, and layout for the playground have yet to be determined. Based upon measurements made at a series of New York City school playgrounds for the New York City School Construction Authority (SCA), the maximum L_{eq} noise level at the boundary of the playground would be 71.4 dBA.[2] Geometric spreading and the consequent dissipation of sound energy with increased distance from the playground decreases noise levels at varying distances from the playground boundary, Based upon measurements and acoustical principles, hourly noise levels would decrease by 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, and 9.1 dBA at 40 feet.[2] Noise level would continue to decrease by 4.5 dBA per doubling of distance beyond 40 feet. In certain situations these values may overstate playground noise levels.[2]

The existing residences closest to the potential future school playground would have the greatest potential for noise level increases due to playground noise. Specifically, the western façades of the existing residential buildings at 26-14 9th Avenue (Sensitive Receptors #17, to the south of the proposed school in Building 5) and the eastern façade of the proposed residential portion of Building 5 would most likely experience noticeable noise level increases during certain limited periods due to the potential future school playground.[3] Both of the aforementioned sensitive receptors would have a line of sight to the playground, should it be located in the rear yard of the proposed Building 5 school site. For the purpose of the playground noise analysis, it was assumed that the potential school playground would occupy the entirety of the Building 5 school's rear yard open space. However, as stated above, at this time the specific location, configuration, and layout of the playground have yet to be determined.

Table 16-8 shows the results of the playground noise analysis at these worst-case receptors. As indicated in the table, with the potential school playground occupying the entirety of the rear yard of the proposed Building 5 school site, the change in noise levels at the existing residences at 26-14 9th Avenue (the nearest existing sensitive receptor) on the western facing façade would be 5.2 dBA during the midday hour when the playground is expected to be used. This noise level increase would exceed the 3 dBA CEQR impact threshold and would constitute a readily noticeable change in noise levels and a significant noise increase. In terms of noise exposure categories, noise levels at this worst-case existing sensitive receptor would change from "acceptable" to "marginally acceptable."

Any potential noise levels that would result from the potential play area would occur only when the playground is in use, which would be limited to intermittent times of the day and year and only during the school day. Heavy usage of the school playground, and the associated noise increases, would occur less frequently or not at all during weekends, outside of school hours, and during the summer. Therefore, these noise increases would not occur at all times. In addition, as noted above, these noise increases represent the worst-case conditions and assume that the potential school playground would occupy the entirety of the Building 5 school site's rear yard with no setback, landscaping features, or fencing to further reduce noise levels.

The existing 26-14 9th Avenue has double-glazed windows and alternate means of ventilation. As such, the predicted interior noise levels at this worst-case existing sensitive receptor would be less than the CEQR 45 dBA $L_{10(1)}$ interior noise level guideline. As a result, the noise level increases at this location would not constitute a significant adverse noise impact. As the School Construction Authority (SCA) provides funding for the construction of New York City Department of Education (DOE) schools, the future Building 5 school would undergo further CEQR environmental review at the time of funding

[2] *SCA Playground Noise Study*, AKRF, Inc., October 23, 1992.
[3] The existing residential building at 26-14 9th Avenue does not have windows on its northern façade (directly abutting the potential school playground site).

approval. As part of this process, the SCA would conduct further noise testing and may provide additional noise reduction measures (i.e., restrictions on the location of the playground, noise barriers, etc.) to further reduce noise levels.

Table 16-8: Midday Noise Levels due to the Potential School Playground (dBA)

Analysis Location	Midday Background Noise Levels[1]	Approximate Distance (feet) to the Potential School Playground	Playground L_{eq} at Receptor	Combined L_{eq}	Predicted L_{10}	Noise Level Increase
Building 5 (Residential)—eastern façade	63	20	62.3	65.7	68.7	2.7
26-14 9th Avenue—western façade		40	66.6	68.2	71.2	5.2

Notes:
[1] Reflects background noise levels monitored at the nearest receptor: Receptor Location 1. Background noise level calculated by logarithmically subtracting the TNM calculated vehicle noise from the monitored noise level.
This table is new to the FEIS.

As also noted in Table 16-8, future noise levels along the eastern façade of the proposed Building 5 residential building are expected to be approximately 68.7 dBA $L_{10(1)}$, and therefore would fall within the "acceptable" noise exposure category.

Mechanical Equipment

No detailed designs of the proposed buildings' mechanical systems (i.e., heating, ventilation, and air conditioning [HVAC] systems) are available at this time. However, those systems would be designed to meet all applicable noise regulations and requirements (i.e., Subchapter 5 §24-227 of the New York City Noise Control Code) and would be designed to produce noise levels which would not result in any significant increases in ambient noise levels.

Aircraft Noise

An initial aircraft noise impact screening analysis would be warranted if the new receptor would be located within one mile of an existing flight path or cause aircraft to fly through existing or new flight paths over or within one mile of a receptor. Since the project site is not within one mile of an existing flight path, no initial aircraft noise impact screening analysis is warranted.

Train Noise

According to the *CEQR Technical Manual*, if a proposed development would be within 1,500 feet of existing rail activity and have a direct line of sight to that activity, a more detailed analysis would be appropriate. The project site is not within 1,500 feet of an existing rail line nor does the site have a direct line of sight to a rail facility. Therefore, a detailed train noise analysis related to rail operations is not warranted.

Noise Attenuation Measures for the Proposed Project

The *CEQR Technical Manual* has set noise attenuation requirements for buildings based on exterior noise levels. Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial uses, and are determined based on exterior $L_{10(1)}$ noise levels. Based on measured exterior noise levels and CEQR criteria, the necessary attenuation level for each façade of the proposed buildings have been calculated and are shown in Table 16-9. As shown in the table, based on the conservative noise assessment presented above, noise attenuation would not be required on any project site buildings to achieve interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial uses. Therefore, the Proposed Action would not result in any significant adverse impacts related to building attenuation requirements.

Table 16-9: Required Attenuation at the Building Sites under CEQR Criteria

Building	Façade	Representative Receptor Location	Maximum Predicted L_{10} (in dBA)	CEQR Minimum Required Attenuation (in dBA)
1	West	2	68.2	N/A
	East (4th Street) and Waterfront	2/8	68.2	N/A
2	North (Public Access Easement)	7	64.3	N/A
	South (26th Avenue)	2/6	68.2	N/A
	East (8th Street Mews)	6/7	64.3	N/A
	West (4th Street)	2/8	68.2	N/A
3	North (Public Access Easement)	7	64.3	N/A
	South (26th Avenue)	1/6	66.4	N/A
	East (9th Street)	1/5	66.4	N/A
	West (8th Street Mews)	6/7	64/3	N/A
4	All Façades	6	64.1	N/A
5 (Residential)	North (26th Avenue)	1/6	66.4	N/A
	East (School Playground)	1	68.7[1]	N/A
	West (8th Street Mews)	6	64.1	N/A
5 (School)	North (26th Avenue)	1/6	66.4	N/A
	East (9th Street)	1	66.4	N/A

Notes:
[1] Reflects school playground noise analysis presented in Table 16-8

Noise Levels at the Proposed Project's Open Space Areas

Based on the predicted noise levels at Receptor Location 5, the proposed project's waterfront open space is expected to experience noise levels above 55 dBA $L_{10(1)}$, and therefore would exceed the recommended noise levels for outdoor areas requiring serenity and quiet pursuant to CEQR noise exposure guidelines (see Table 16-2). As the dominant noise at the project site would result from traffic noise, there are no practical and feasible measures that could be implemented to reduce noise levels within the proposed open space to below CEQR guidelines. However, while noise levels along the waterfront open space would be above the guideline noise level, they would be comparable to noise levels in a number of existing open space areas that are located adjacent to roadways, including Bryant Park, Hudson River Park, and Bryant Park, in Manhattan, and Fort Greene Park in Brooklyn, due to the level of activity present at most New York City open space areas and parks. Furthermore, these noise guidelines are goals for outdoor areas requiring serenity and quiet, such as passive open spaces, and the proposed project's

open space is anticipated to provide both active and passive recreation opportunities. Therefore, the future projected noise levels would not constitute a significant adverse noise impact to the proposed project's open space areas.

Noise Levels at Existing Sensitive Receptors

As described above, existing sensitive receptors are located adjacent to the project site along 27th Avenue and 4th and 9th Streets. As noise level increases from No-Action to With-Action conditions due to mobile sources would not exceed the CEQR impact criteria at any of the analyzed Receptor Locations, no significant adverse impacts would occur at existing sensitive receptors. While noise generated by the potential school playground in the rear yard of the proposed Building 5 school site would result in a maximum 5.2 dBA increase at the adjacent existing residential building at 26-14 9th Avenue, it is anticipated that this noise increase would not occur at limited times (during school hours). In addition, due to the existing double-glazed windows and alternate means of ventilation at this nearby sensitive receptor, the predicted interior noise levels would be less than the CEQR 45 dBA $L_{10(1)}$ interior noise level guideline. As a result, the noise level increases at this location would not constitute a significant adverse noise impact. The future Building 5 school would undergo further CEQR environmental review at the time of funding approval. As part of this process, the SCA would conduct further noise testing and may provide additional noise reduction measures (i.e., restrictions on the location of the playground, noise barriers, etc.) to further reduce noise levels.