Chapter 13: Noise

A. INTRODUCTION

This chapter assesses the potential for the proposed actions and associated Reasonable Worst-Case Development Scenario (RWCDS) to result in significant adverse noise impacts. As discussed in Chapter 1, "Project Description," the RWCDS involves the construction of a new 16-story building containing state-of-the-art research and development facilities on the midblock area of the block bounded by East 66th Street, East 67th Street, First Avenue, and Second Avenue (Block 1441, Lot 40) in the Upper East Side of Manhattan (Community District 8). The analysis determines whether the Proposed Actions would result in increases in noise levels that could have a significant adverse impact on nearby sensitive receptors and also considers the effect of existing noise levels on the Proposed Project that could result from the Proposed Actions.

According to the guidelines established in the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, an initial noise impact screening considers whether a proposed action would generate any mobile or stationary source noise, or be located in an area with high ambient noise levels. A noise analysis examines an action for its potential effects on sensitive noise receptors, and the effects on the interior noise levels of residential, commercial, and institutional uses.

The analysis presented in Chapter 10, "Transportation," found that the Proposed Actions would not generate traffic volumes that have the potential to cause a significant noise impact (i.e., it would not result in a doubling of noise passenger car equivalents [Noise PCEs], which is necessary to cause a perceptible increase in noise levels). However, ambient noise levels adjacent to the development sites also must be examined to address any noise attenuation requirements, as found in the *CEQR Technical Manual*, for interior noise levels.

Consequently, the noise analysis is focused on the level of building attenuations necessary to ensure that interior noise levels within the proposed building would satisfy applicable interior noise criteria.

PRINCIPAL CONCLUSIONS

A noise assessment was undertaken to determine the levels of noise attenuation that may be needed to achieve interior noise levels that are acceptable and in accordance with the *CEQR Technical Manual* guidance. The *CEQR Technical Manual* has noise attenuation values for buildings based on exterior $L_{10(1)}$ noise levels for the purposes of achieving interior noise levels of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial office uses. The With Action condition $L_{10(1)}$ noise levels were determined by adjusting the existing noise measurements to account for future increases in traffic with the Proposed Actions based on the Noise PCE proportional analysis results including the noise contribution from vehicular traffic on adjacent roadways and by calculating the cumulative noise level in the future condition based on the playground noise and future vehicular traffic noise on adjacent roadways.

Based on the projected noise levels, 31 dBA window/wall attenuation would be required to achieve acceptable interior noise levels per the *CEQR Technical Manual* noise exposure guideline at community facility uses.

To implement the attenuation requirements at non-residential spaces, an (E) Designation (E-612) for noise would be applied specifying the appropriate window/wall attenuation. By meeting the design guidelines specified in the Noise (E) Designation, buildings developed as a result of the Proposed Actions would provide sufficient attenuation to achieve the *CEQR Technical Manual* interior noise level guidelines of 45 dBA L_{10} for community facility uses and 50 dBA L_{10} for commercial office and laboratory uses.

B. 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 over 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 13-1**, 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 3 dBA. At 5 dBA, the change will be readily noticeable.

Table 13-1
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 5 meters	30
Threshold of hearing	0

Note: A 10 dBA increase in level appears to double the loudness, and a 10 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.

NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

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., 1 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 1, 10, 50, 90 and x percent of the time, respectively.

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 10 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}.

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

C. NOISE STANDARDS AND CRITERIA

NEW YORK *CEQR TECHNICAL MANUAL* NOISE STANDARDS

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 13-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

Table 13-2
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
Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- $Ldn \leq 60$ dBA ----------	NA	NA	NA	NA	NA	NA
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA	---------- $60 < Ldn \leq 65$ dBA ----------	$65 < L_{10} \leq 80$ dBA	(i) $65 < Ldn \leq 70$ dBA, (II) $70 \leq Ldn$	$L_{10} > 80$ dBA	---------- $Ldn \leq 75$ dBA ----------
Residence, residential hotel, or motel	7 AM–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–7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient 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)	
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)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Note:
(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more; (ii) *CEQR Technical Manual* noise criteria for train noise are similar to the above aircraft noise standards: the noise category for train noise is found by taking the L_{dn} value for such train noise to be an L_{dn} (L_{dn} contour) value.

Table Notes:
[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 nursing homes.
[3] One may use 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).

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

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table 13-3**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential or community facility uses and 50 dBA or lower for commercial office uses, and are determined based on exterior $L_{10(1)}$ noise levels.

Table 13-3
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level With Proposed Actions	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation[A]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	$36 + (L_{10} - 80)^{B}$ dBA

Notes:
[A] The above composite window-wall attenuation values are for community facility uses. Commercial office spaces and meeting rooms would be 5 dBA 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 1 dBA increments for L_{10} values greater than 80 dBA.
Source: New York City Department of Environmental Protection.

D. EXISTING NOISE LEVELS

SELECTION OF NOISE RECEPTOR LOCATIONS

In general, the levels of existing noise within the Project Area are primarily influenced by the amount of vehicular traffic on the immediately adjacent roadway or nearby roadways. Measurements of existing noise were determined not to be representative of typical noise exposure due to atypical conditions for vehicular and pedestrian/cyclist traffic, goods movement, and transit use as a result of the COVID-19 pandemic. As an alternative, measurements of noise levels previously conducted in the Project Area were used to represent existing noise levels, with adjustments made as necessary to account for changes in traffic that have occurred since the years in which measurements were conducted.

AKRF identified two measurement locations near the Project Area at which noise levels were previously measured as part of the 2001 Memorial Sloan-Kettering Cancer Center (MSKCC) Rezoning Environmental Impact Statement (EIS). These measurement locations are shown in **Figure 13-1** and summarized below in **Table 13-4**. These receptors, due to their proximity to the project site, provide an effective representation of existing ambient noise levels at the project site at the time the measurements were conducted. It is expected that measurements from the monitoring locations could apply to sites adjacent to the project site, which are on the same road corridors. The MSKCC Rezoning FEIS noise analysis projected Build (With Action) noise levels with the MSKCC project for the analysis year 2011, as shown in the FEIS Appendix A included in this document as **Appendix D**. These projections were based on traffic volumes and vehicle classification information, which are shown in the EIS Appendix A. As described below, the traffic data in Appendix A was used to scale the measured levels to represent current 2020 existing noise levels as well as levels in 2026, which is the analysis year for the Proposed Actions.

The noise receptor locations were selected based on the location of the project site and the locations of noise level data available from the MSKCC Rezoning EIS. The two receptor sites selected for the noise analysis in the project area are described in **Table 13-4**. These receptors, due to their proximity to the Proposed Project, provide an effective and conservative representation of existing ambient noise levels.

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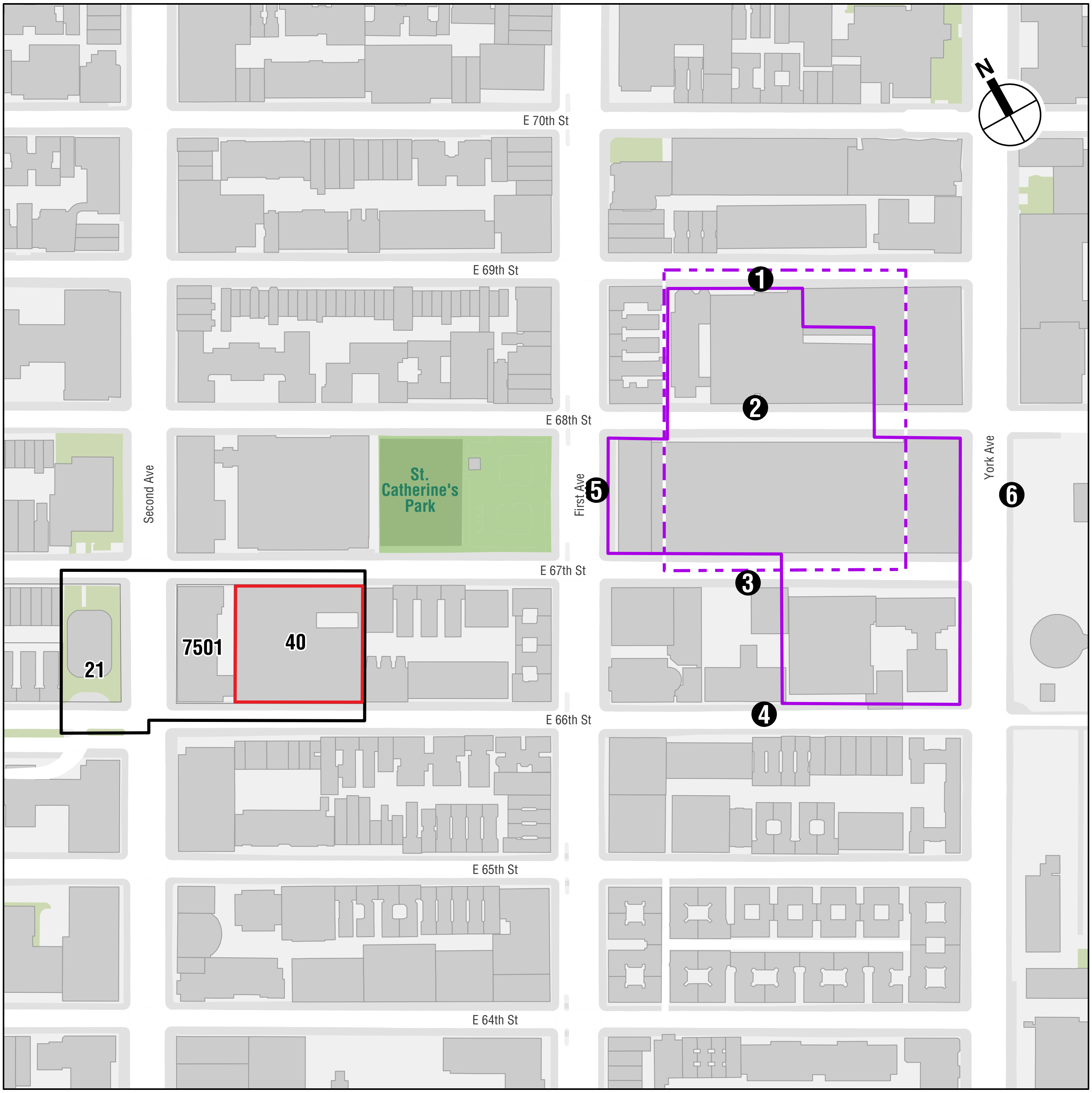


0 200 FEET

Proposed Actions

Development Site

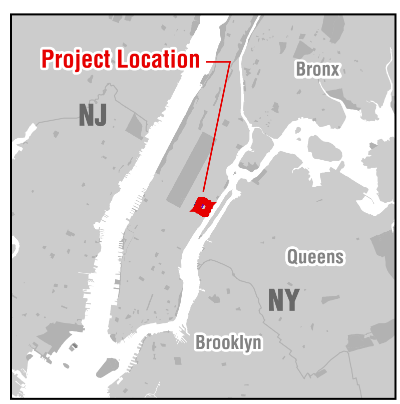
Project Area

MSKCC Rezoning EIS

Rezoning Area

Large Scale Community Facility Development

1 *Noise Receptor*



Noise Receptor Locations

Figure 13-1

Table 13-4
Locations of Previously Conducted Noise Measurements

Noise Receptor Site	Location
1	East 68th Street between First and York Avenues[1]
2	East 66th Street between First and York Avenues[2]

Notes:
[1] MSKCC Rezoning EIS Noise Receptor Site 2
[2] MSKCC Rezoning EIS Noise Receptor Site 4

ESTABLISHMENT OF EXISTING CONDITION NOISE LEVELS

MSKCC REZONING EIS NOISE DATA

As part of the noise analysis for the MSKCC Rezoning EIS, noise measurements were conducted at six sites. At the receptor sites, 20-minute duration noise measurements were conducted during typical weekday AM (7:15 AM–9:15 AM), midday (12:00 PM–2:00 PM), and PM (4:00 PM–6:00 PM) peak periods. Measurements were conducted between Tuesday and Thursday on weeks when New York City Public Schools were in session as recommended by the *CEQR Technical Manual*. Measurements were performed using Class 1 Sound Level Meter (SLM) instruments according to ANSI Standard S1.4-1983 (R2006). The SLMs had laboratory calibration dates within one year of the date of the measurements. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005. All noise measurement locations were located approximately 5 feet above grade. Traffic on adjacent roadways were counted concurrently with the noise measurements.

Of the six MSKCC Rezoning EIS measurement locations, two locations are located on nearby corridors to the Proposed Project site (i.e., East 68th and East 66th Streets), one block to the east. The measured $L_{eq(1)}$ and $L_{10(1)}$ noise levels at these two locations are summarized in **Table 13-5**.

Table 13-5
2001 MSKCC Rezoning EIS Measured Noise Levels near Proposed Project (in dBA)

Site	Location	Time	L_{eq}	L_{10}
1	East 68th Street between First and York Avenues (MSKCC FEIS Site 2)	AM	68.9	71.0
		MD	68.1	69.0
		PM	71.8	74.5
2	East 66th Street between First and York Avenues (MSKCC FEIS Site 4)	AM	69.1	69.5
		MD	65.6	67.5
		PM	66.1	69.0

PROJECTION OF NOISE LEVELS TO ANALYSIS YEAR

It is expected that noise levels would have increased between 2001, when the measurements were conducted, and 2020, the existing conditions analysis year due to additional traffic growth in the area. The measured MSKCC Rezoning EIS noise levels were scaled to the 2020 "existing condition" traffic volumes that would represent typical conditions using the proportionality equation described in section 332.1 of the *CEQR Technical Manual*. The proportional scaling used traffic volumes and vehicle classification breakdowns representing these two sites as developed using traffic volumes from the 2001 MSK Rezoning EIS as well as the 2012 *Memorial Sloan Kettering/CUNY Rezoning FEIS (13DME003M)*. Development of traffic data is discussed further in the "Proportional Modeling" section below. In cases where the predicted traffic in the 2020 existing condition would be less than the traffic for 2001 shown in Appendix A of the MSKCC Rezoning EIS, noise levels were assumed to remain stable in order to ensure a conservative analysis. The results of this traffic growth analysis are summarized in **Table 13-6**.

Table 13-6
Existing Noise Levels near Proposed Project (in dBA)

Site	Location	Time	2001		2020	
			L_{eq}	L_{10}	L_{eq}	L_{10}
1	East 68th Street between First and York Avenues[1]	AM	68.9	71.0	70.5	73.5
		MD	68.1	69.0	68.1	71.1
		PM	71.8	74.5	71.8	74.8
2	East 66th Street between First and York Avenues[2]	AM	69.1	69.5	72.4	72.8
		MD	65.6	67.5	72.2	74.1
		PM	66.1	69.0	71.8	74.7

Notes:
[1] Represents noise levels on East 67th Street between First and Second Avenues
[2] Represents noise levels on East 66th Street between First and Second Avenues

E. NOISE PREDICTION METHODOLOGY

GENERAL METHODOLOGY

Future noise levels (including in the future without the Proposed Actions and the future with the Proposed Actions) were calculated using a proportional modeling technique, which was used as a screening tool to estimate changes in noise levels. The proportional modeling technique is an analysis methodology recommended for analysis purposes in the *CEQR Technical Manual*. The noise analysis examined the weekday AM, midday, and PM peak hours at all receptor locations. The selected time periods are when the Proposed Project would be expected to produce the maximum traffic generation (based on the traffic studies presented in Chapter 10, "Transportation") and therefore result in the maximum potential for significant adverse noise impacts. The proportional modeling used for the noise analysis is 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 No Action condition and With Action condition noise levels. Vehicular traffic volumes are converted into Noise Passenger Car Equivalent (Noise 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 Noise PCEs

E PCE = Existing Noise 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 Noise 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 PCE and if the future traffic volume were increased by 50 PCE to a total of 150 PCE, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCE, or doubled to a total of 200 PCE, the noise level would increase by 3.0 dBA.

As described in Chapter 10, "Transportation," the proposed project would not generate sufficient traffic to warrant a detailed traffic analysis. As a result, existing traffic count data were not collected for a traffic analysis. Instead, consistent with NYCDOT guidance, historical traffic data were utilized and adjusted to reflect 2020 Existing conditions for use in the Noise analysis. Available Turning Movement Counts, 24 hour continuous Automatic Traffic Recorder counts, and Vehicle Classification Counts were taken from the 2012 *Memorial Sloan Kettering/CUNY Rezoning FEIS (13DME003M)* to develop the volumes to be used in the analysis. The existing-condition volumes from that document were grown to 2020 per *CEQR Technical Manual* guidance, and traffic generated by several discrete projects that were built between the preparation of the 2012 *Memorial Sloan Kettering/CUNY Rezoning FEIS* and 2020 were researched and evaluated. Next, the 2020 Existing volumes were adjusted to calculate the 2026 No Action volumes by applying the appropriate growth rate, evaluating traffic that would be generated by other planned or proposed projects between 2020 and 2026, and adding traffic that would be generated by the No Action project. Finally, 2026 With Action volumes were calculated by adjusting the 2026 No Action volumes to remove the No Action project-generated volumes and add the With Action project-generated volumes so that the comparison and analysis of 2026 No Action versus With Action could be conducted.

PLAYGROUND NOISE

St. Catherine's Park is approximately 60 feet from the northern façade of the project development site. Noise associated with the nearby playground was estimated using the Early Childhood playground boundary noise level (to conservatively represent children of any age using the playground) and any applicable noise level reduction due to distance.

Table 13-7 shows measured maximum hourly playground boundary noise levels. These values are based upon measurements made at a series of New York City school playgrounds for the New York City School Construction Authority (SCA).[1] The noise associated with nearby playgrounds was estimated using the Early Childhood playground boundary noise level to conservatively represent children of any age using the playground. At receptors with line-of-sight to the

[1] SCA Playground Noise Study, AKRF, Inc., October 23, 1992.

playground, cumulative noise levels including contribution from traffic on adjacent roadways and playground noise is calculated. Cumulative L_{10} noise levels are assumed to be 3 dBA greater than projected L_{eq} values.

Table 13-7
Playground Boundary Noise $L_{eq(1)}$ Noise Levels (in dBA)

Early Childhood	Elementary Schools	Intermediate Schools	High Schools
71.5	71.4	71.0	68.2
Source: SCA Playground Noise Study, AKRF, Inc., October 23, 1992.			

F. THE FUTURE WITHOUT THE PROPOSED ACTIONS

Using the methodology previously described, No Action condition noise levels were calculated at the two noise analysis receptors for the 2026 analysis year. These No Action values are shown in **Table 13-8**.

By 2026, the maximum increase in $L_{eq(1)}$ noise levels for the No Action condition would be 1.0 dBA or less at the mobile source noise analysis receptors. Changes of this magnitude would not be noticeable. In terms of CEQR noise exposure guidelines, noise levels at receptor locations 1 and 2 are categorized as “marginally unacceptable.”

Table 13-8
2026 No Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	Existing $L_{eq(1)}$	No Action $L_{eq(1)}$	$L_{eq(1)}$ Change	No Action $L_{10(1)}$[3]
1	East 68th Street between First and York Avenues[1]	AM	70.5	71.2	0.7	74.2
		MD	68.1	69.1	1.0	72.1
		PM	71.8	72.2	0.4	75.2
2	East 66th Street between First and York Avenues[2]	AM	72.4	72.6	0.2	75.6
		MD	72.2	72.4	0.2	75.4
		PM	71.8	72.0	0.2	75.0

Note: Noise levels at all receptor locations were calculated by using proportional modeling.
[1] Represents noise levels on East 67th Street between First and Second Avenues
[2] Represents noise levels on East 66th Street between First and Second Avenues
[3] Future projected $L_{10(1)}$ noise levels were estimated to be 3 dBA higher than projected $L_{eq(1)}$ values

G. THE FUTURE WITH THE PROPOSED ACTIONS

Using the methodology previously described, With Action condition noise levels were calculated at the two analysis receptors for the 2026 analysis year. These With Action values are shown in **Table 13-9**.

Table 13-9
2026 With Action Condition Noise Levels (in dBA)

Receptor	Measurement Location	Time	No Action $L_{eq(1)}$	With Action $L_{eq(1)}$	$L_{eq(1)}$ Change	With Action $L_{10(1)}$[3]
1	East 68th Street between First and York Avenues[1]	AM	71.2	71.2	0.0	74.2
		MD	69.1	69.1	0.0	72.1
		PM	72.2	72.2	0.0	75.2
2	East 66th Street between First and York Avenues[2]	AM	72.6	72.6	0.0	75.6
		MD	72.4	72.4	0.0	75.4
		PM	72.0	72.0	0.0	75.0

Note: Noise levels at all receptor locations were calculated by using proportional modeling.
[1] Represents noise levels on East 67th Street between First and Second Avenues
[2] Represents noise levels on East 66th Street between First and Second Avenues
[3] Future projected $L_{10(1)}$ noise levels were estimated to be 3 dBA higher than projected $L_{eq(1)}$ values

By 2026, the maximum increase in $L_{eq(1)}$ noise levels for the With Action condition would be 0.0 dBA or less at the noise analysis receptors. Changes of this magnitude would not be noticeable, and would fall below the CEQR threshold for a significant adverse noise impact. In terms of CEQR noise exposure guidelines, noise levels at receptor locations 1 and 2 are categorized as "marginally unacceptable."

H. NOISE ATTENUATION MEASURES

As shown in **Table 13-3**, the *CEQR Technical Manual* has set noise attenuation values for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial office uses.

Table 13-10 shows the minimum window/wall attenuation necessary to meet *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations. The With Action condition $L_{10(1)}$ noise levels were determined by adjusting the existing noise measurements to account for future increases in traffic with the Proposed Actions based on the Noise PCE screening analysis results. The projected future $L_{10(1)}$ noise levels include the noise contribution from vehicular traffic on adjacent roadways, and stationary source noise from the surrounding uses including contribution from the nearby playground.

Table 13-10
CEQR Required Attenuation at Noise Measurement Locations (in dBA)

Receptor	Location	Highest With Action $L_{10(1)}$ Value	Minimum Required Attenuation[1]
1	East 68th Street between First and York Avenues[2]	75.2	31
2	East 66th Street between First and York Avenues[3]	75.6	31

Notes:
[1] Attenuation values are shown for community facility uses; commercial, office or laboratory uses would require 5 dBA less attenuation.
[2] Represents noise levels on East 67th Street between First and Second Avenues
[3] Represents noise levels on East 66th Street between First and Second Avenues

Table 13-11 below outlines the required façade attenuation values for the Proposed Project based on the 2026 With Action $L_{10(1)}$ noise levels.

Table 13-11
Façade Attenuation Requirements (in dBA)

Façade(s)	Governing Noise Receptor	2026 Maximum $L_{10(1)}$	Required Attenuation
North, East, West	1	75.2	31
South	2	75.6	31

Note:
The above composite window-wall attenuation values are for community facility uses. Commercial office spaces and meeting room uses require 5 dBA less attenuation. Storage, corridor, stairwells, lobbies, and other spaces with non-noise-sensitive uses would not require any specific level of attenuation.

Based on the noise levels shown in **Table 13-10 and Table 13-11**, 31 dBA window/wall attenuation would be required to provide acceptable interior noise levels per the *CEQR Technical Manual* noise exposure guideline. These noise levels account for noise from projected vehicular traffic in the future as well as contribution from existing playgrounds near the Proposed Project.

To require attenuation at the Proposed Project, an (E) Designation (E-612) for noise would be applied, specifying the appropriate amount of window/wall attenuation. The text of the (E) Designation would be as follows:

Block 1441, Lot 40: To ensure an acceptable interior noise environment, future community facility/commercial uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on all façades in order to maintain an interior noise level not greater than 45 dBA for community facility uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade is composed of the wall, glazing, and any vents or louvers for HVAC systems in various ratios of area. Buildings proposed to be located on the (E) Designated sites would be designed to provide composite window/wall attenuation greater than or equal to the attenuation requirements listed in **Table 13-12**.

By adhering to the (E) Designation described above, buildings to be developed as a result of the Proposed Actions would provide sufficient attenuation to achieve the *CEQR Technical Manual* interior noise level guidelines of 45 dBA L_{10} for community facility uses and 50 dBA L_{10} for commercial office uses.

I. MECHANICAL EQUIPMENT

It is assumed that the building mechanical systems (i.e., HVAC systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code, the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the Proposed Actions would not result in any significant adverse noise impacts related to building mechanical equipment. ✷