Chapter 13: Noise

A. INTRODUCTION

As described in Chapter 1, "Project Description," based on projections issued by the national Centers for Disease Control, Memorial Sloan Kettering Cancer Center (MSKCC) expects that new cancer cases in New York City will increase from the current rate of 40,000 annually to 60,000 annually by 2050. While this increase is a projection among all age groups, this rise is being driven by two populations: older patients, whose cases are more acute and require more complex treatment, and younger patients who are being diagnosed with prostate, colon, and breast cancer at alarming rates. To meet this increase in patient volume and the new interventions that are needed to treat the growing number of acute cases, MSKCC will need to supplement its existing capacity with a purpose-built structure with 28 operating rooms (with four dedicated to interventional radiology procedures) and up to 206 patient beds including intensive care unit (ICU) and single rooms for immunocompromised patients, as well as medical support areas.

To fulfill this need, MSKCC is requesting a series of zoning actions to establish a building envelope to facilitate the development of a new 31-story (up to 598.3 feet including mechanical bulkhead), approximately 903,065 gross square foot (gsf) inpatient hospital building (the Proposed Project), also referred to as the "MSK Pavilion." It would be located on York Avenue between East 66th and East 67th Streets and would consist of 28 operating rooms, including recovery and intensive care facilities, up to 206 single-bedded patient rooms, clinical support, a double-height lobby, and 5 mechanical floors to house intensive technologies and air exchange systems. A two-story patient bridge across East 67th Street (Patient Bridge) connecting floors 5 and 6 of the Proposed Project with floors 8 and 9 of the Memorial Hospital building would serve as the primary connector for patients in either building to access medical services in the other building.

This chapter assesses the potential for the Proposed Project to result in significant adverse noise impacts. The analysis determines whether the Proposed Project 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. According to the guidelines established in the 2021 *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 introduce noise-sensitive receptors 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.

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 hospital or nursing home uses and 50 dBA or lower for commercial office and laboratory 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 Project 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 future vehicular traffic noise on adjacent roadways.

Based on the projected noise levels, up to 28 dBA window/wall attenuation would be required to achieve acceptable interior noise levels per the *CEQR Technical Manual* noise exposure guideline for hospital or nursing home uses.

To implement the attenuation requirements, an (E) Designation (E-760) 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.

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 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., diesel truck engine).

"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
Noise Levels of Common Sources

Sound Source	SPL (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60–70
Typical Suburban Area	50–60
Quiet Suburban Area at Night	40–50
Typical Rural Area at Night	30–40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0
Source: 2021 *CEQR Technical Manual*	

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_{eq} descriptor has been selected as the noise descriptor to be used in this noise impact evaluation and the L_{10} descriptor has been selected for noise exposure evaluation. The L_{10} descriptor is specified in the *CEQR Technical Manual* noise exposure guidelines when vehicular traffic is the dominant source of noise as is the case at the Development Site.

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 16-2**. 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	DNL ≤ 60 dBA	**NA**	60 < DNL ≤ 65 dBA	**NA**	(i) 65 < DNL ≤ 75 dBA	**NA**	DNL > 75 dBA
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA		$65 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
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	
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–10PM)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:
(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}^{y} (L_{dn} contour) value.
[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.
[3] One may use Federal Aviation Administration (FAA)-approved L_{dn} contours supplied by the Port Authority of New York and New Jersey, or the noise contours may be computed from the federally approved Integrated Noise Model (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 (DEP) (adopted policy 1983).

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table 13-3**).

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

	Marginally Unacceptable				Clearly Unacceptable
Vehicular Traffic	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Aircraft[A]	$65 < DNL \leq 68$	$68 < DNL \leq 71$	$71 < DNL \leq 73$	$73 < DNL \leq 75$	$75 < DNL$
Train	$65 < L_{dn} \leq 68$	$68 < L_{dn} \leq 71$	$71 < L_{dn} \leq 73$	$73 < L_{dn} \leq 75$	$75 < L_{dn}$
Attenuation[B]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	See note [C]

Notes:
[A] DNL descriptor based on average values of L_{dn} over a year period.
[B] The above composite window-wall attenuation values are for residential dwellings and community facility development. 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.
[C] The required attenuation value is the difference between L_{build} and $L_{interior}$, using the appropriate noise descriptor
Where:
L_{build} is the projected noise level under the build condition rounded up to the whole number
$L_{interior}$ is the designed interior noise level (45 dBA for vehicular noise, 40 dBA for aircraft and train noise)
Source: DEP.

D. EXISTING NOISE LEVELS

SELECTION OF NOISE RECEPTOR LOCATIONS

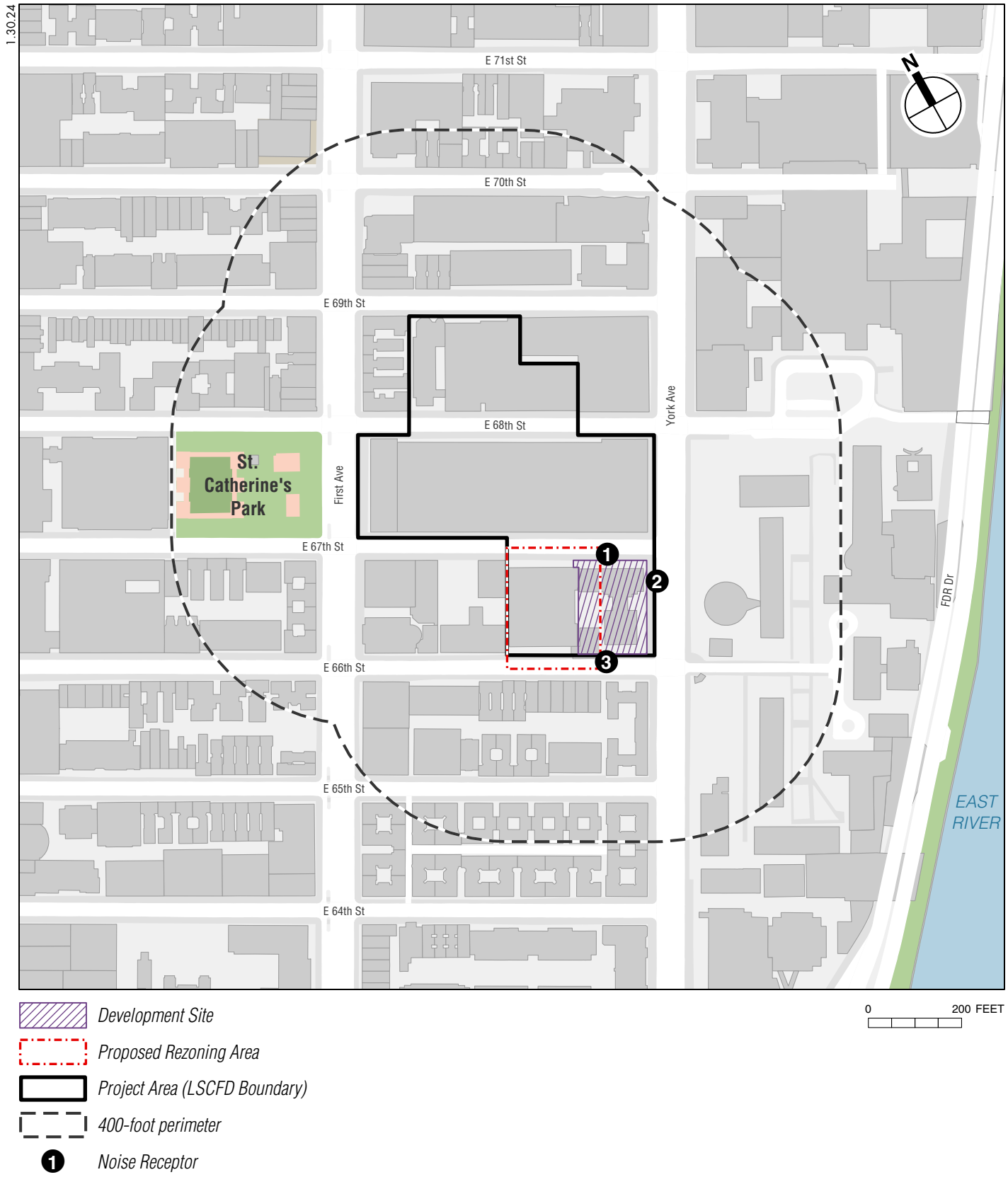
A total of three receptor locations within the Development Site were selected for impact identification and evaluation of noise attenuation requirements. These locations are detailed below in **Table 13-4** and shown in **Figure 13-1**.

Table 13-4
Noise Receptor Locations

Noise Receptor	Location
1	East 67th Street between York Avenue and First Avenue
2	York Avenue between East 66th and East 67th Streets
3	East 66th Street between York Avenue and First Avenue

NOISE MONITORING

At each receptor location, existing noise levels were determined by field measurements. Noise monitoring was performed on March 21, 2023. At all receptor locations, 20-minute duration measurements were conducted. All measurements were conducted during the typical weekday AM (7:00 AM–9:00 AM), midday (12:00 PM–2:00 PM) and PM (4:00 PM–6:00 PM) peak periods. An additional measurement was conducted for all receptor locations during the weekday pre-PM peak period (2:30 p.m. to 4:00 p.m.) to account for the influence of nearby schools' potential to influence traffic and noise levels at these locations. At all noise measurement locations, the microphones were mounted at a height of approximately five feet above grade on a tripod and approximately six feet or more away from any large sound-reflecting surface to avoid major interference with sound propagation.



Noise Receptor Locations

MSK PAVILION

Figure 13-1

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using one Brüel & Kjær Type 2270 Sound Level Meter (SLM), one Brüel & Kjær Type 4189 1/2-inch microphones, and one Brüel & Kjær Type 4231 Sound Level Calibrators. The Brüel & Kjær and SLM is a Class 1 instrument according to ANSI Standard S1.4-1983 (R2006). The SLM had a laboratory calibration date within the past one year at the time of use. The SLM was calibrated before and after readings with a Brüel & Kjær Type 4231 Class 1 Sound Level Calibrator using the appropriate adaptor. The data were digitally recorded by the SLM 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}. 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 13-5**. Roadway traffic was the dominant noise source for all receptor locations. In terms of *CEQR Technical Manual* criteria, noise levels measured at receptor Location 3 are categorized as "acceptable," and noise levels measured at receptor Locations 1 and 2 categorized as "marginally unacceptable."

Table 13-5
Measured Noise Levels (in dBA)

Receptor	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	East 67th Street between York Avenue and First Avenue	AM	68.5	74.5	69.3	66.1	63.9
		MD	67.1	74.1	70.2	64.8	62.5
		Pre-PM	67.2	73.6	69.7	66.0	63.4
		PM	65.7	71.7	68.5	64.5	62.5
2	York Avenue between East 66th and East 67th Streets	AM	69.4	78.7	72.0	66.2	61.9
		MD	67.6	74.1	70.2	66.2	63.4
		Pre-PM	69.4	78.4	71.3	66.2	63.1
		PM	65.3	72.7	67.8	63.9	60.9
3	East 66th Street between York Avenue and First Avenue	AM	62.3	71.2	63.8	59.5	58.2
		MD	62.2	70.5	64.1	60.7	59.6
		Pre-PM	62.4	71.0	64.5	59.7	57.6
		PM	61.2	69.8	62.9	58.0	56.5

Note: Field measurements were performed by AKRF, Inc. on March 21, 2023.

E. NOISE PREDICTION METHODOLOGY

GENERAL METHODOLOGY

Future noise levels (including in the future without the Proposed Project [the No Action condition] and the future with the Proposed Project [the With Action Condition]) 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 (MD), pre-PM, and PM hours at all receptor locations. The selected time periods are when the Proposed Project would be expected to result in 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.

F. THE FUTURE WITHOUT THE PROPOSED PROJECT (NO ACTION CONDITION)

Using the methodology previously described, No Action condition noise levels were calculated at the three mobile source noise analysis receptors for the 2030 analysis year. These No Action values are shown in **Table 13-7**.

By 2030, the maximum increase in $L_{eq(1)}$ noise levels for the No Action condition would be 0.7 dBA or less at the mobile source noise analysis receptors. Changes of this magnitude would be considered imperceptible and not significant according to *CEQR Technical Manual* noise impact criteria.

In terms of CEQR noise exposure guidelines, noise levels at receptor Locations 1 and 2 would remain in the "marginally unacceptable" category, and noise levels at receptor Location 3 would remain in the "acceptable" category.

Table 13-7
2030 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 $L_{10(1)}$
1	East 67th Street between York Avenue and First Avenue	AM	68.5	69.2	0.7	70.0
		MD	67.1	67.3	0.3	70.4
		Pre-PM	67.2	67.5	0.3	70.0
		PM	65.7	65.9	0.2	68.8
2	York Avenue between East 66th and East 67th Streets	AM	69.4	69.6	0.2	72.3
		MD	67.6	67.7	0.1	70.3
		Pre-PM	69.4	69.5	0.1	71.4
		PM	65.3	65.5	0.2	68.0
3	East 66th Street between York Avenue and First Avenue	AM	62.3	62.3	0.0	63.8
		MD	62.2	62.3	0.1	64.2
		Pre-PM	62.4	62.4	0.0	64.6
		PM	61.2	61.2	0.0	63.0

Note: Noise levels at all receptor locations were calculated by using proportional modeling.

G. THE FUTURE WITH THE PROPOSED PROJECT (WITH ACTION CONDITION)

Using the methodology previously described, With Action condition noise levels were calculated at the three mobile source noise analysis receptors for the 2030 analysis year. These With Action values are shown in **Table 13-8**.

Table 13-8
2030 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 $L_{10(1)}$
1	East 67th Street between York Avenue and First Avenue	AM	69.2	69.9	0.7	70.7
		MD	67.3	68.2	0.9	71.3
		Pre-PM	67.5	68.2	0.7	70.7
		PM	65.9	67.0	1.1	69.9
2	York Avenue between East 66th and East 67th Streets	AM	69.6	69.7	0.1	72.4
		MD	67.7	67.8	0.1	70.4
		Pre-PM	69.5	69.6	0.1	71.5
		PM	65.5	65.6	0.1	68.1
3	East 66th Street between York Avenue and First Avenue	AM	62.3	61.6	-0.7	63.1
		MD	62.3	61.3	-1.0	63.2
		Pre-PM	62.4	61.7	-0.7	63.9
		PM	61.2	59.6	-1.6	61.4

Note: Noise levels at all receptor locations were calculated by using proportional modeling.

By 2030, the maximum increase in $L_{eq(1)}$ noise levels for the With Action condition would be less than 3 dBA at all noise analysis receptors. Changes of this magnitude would be considered imperceptible and not significant according to *CEQR Technical Manual* noise impact criteria.

In terms of CEQR noise exposure guidelines, With Action condition noise levels at receptor Locations 1 and 2 would remain in the "marginally unacceptable" category, and noise levels at receptor Location 3 would remain in the "acceptable" category.

H. NOISE ATTENUATION MEASURES

As shown in **Table 13-3**, the *CEQR Technical Manual* has set noise attenuation values for buildings based on exterior noise levels.

Table 13-9 shows the minimum window/wall attenuation necessary to meet the *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations. The projected future $L_{10(1)}$ noise levels include the noise contribution from vehicular traffic on adjacent roadways.

Table 13-9
CEQR-Required Attenuation at Noise Measurement Locations (in dBA)

Receptor	Location	Highest With Action $L_{10(1)}$ Value	Minimum Required Attenuation[1,2]
1	East 67th Street between York Avenue and First Avenue	71.3	28
2	York Avenue between East 66th and East 67th Streets	72.4	28
3	East 66th Street between York Avenue and First Avenue	63.9	N/A

Notes:
[1] Attenuation values are shown for hospital or nursing home facility uses; commercial office or laboratory uses would require 5 dBA less attenuation.
[2] "N/A" indicates that the highest calculated L_{10} is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior $L_{10(1)}$ values below this level.

Based on the values shown in **Table 13-9**, required attenuation levels to provide an interior noise level of 45 dBA for residential or community facility uses and 50 dBA for commercial office or laboratory uses were determined for the Proposed Project. These values are shown in **Table 13-10**.

Table 13-10
Minimum Required Attenuation at Development Sites (in dBA)

	Block	Lot	Façade(s)	Associated Noise Measurement Site(s)	Required Attenuation[1,2]
Development Site	1461	21	North (East 67th Street)	1	28
			East (York Avenue)	2	28
			South (East 66th Street) within 50 feet of York Avenue	2	28
			South (East 66th Street) beyond 50 feet from York Avenue	3	N/A
			West (Block Interior) within 50 feet of East 67th Street	1	28
			West (Block Interior) beyond 50 feet from East 67th Street	3	N/A

Notes:
[1] Attenuation values are shown for community facility uses. Commercial office and laboratory uses would require 5 dBA less attenuation.
[2] "N/A" indicates that the highest calculated L_{10} is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L_{10} values below this level.

To require attenuation at the Development Site, an (E) Designation or equivalent mechanism for noise would be applied, specifying the appropriate amount of window/wall attenuation.

The text of the (E) Designation (E-760) restrictions that would be placed on the Development Site (Block 1461, Lot 21, and a portion of Lot 13) would be as follows:

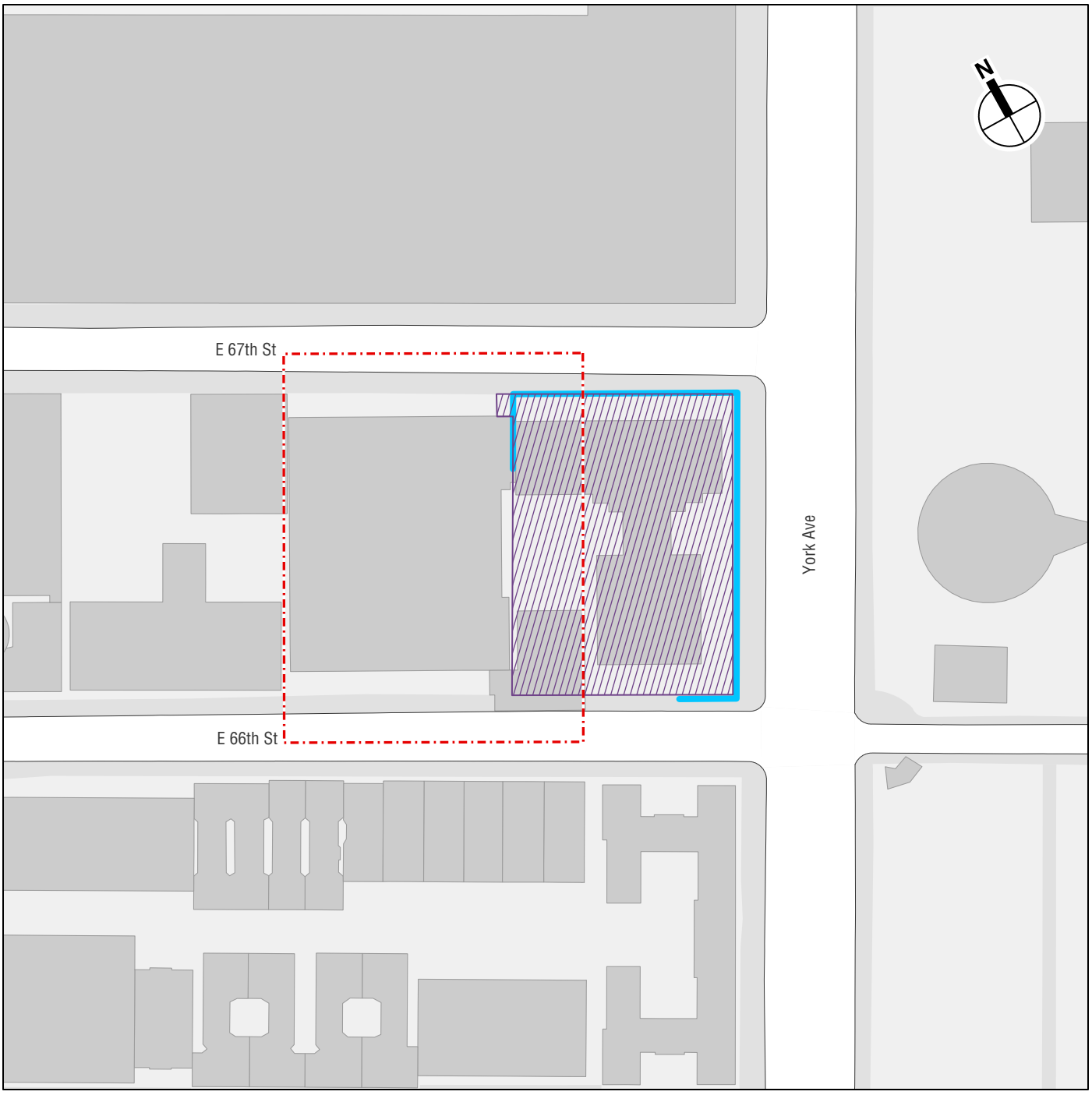
> **Block 1461, Lot 21: To ensure an acceptable interior noise environment, future community facility uses must provide a closed-window condition with a minimum of 28 dBA window/wall attenuation on façades facing East 67th Street and façades facing York Avenue and façades facing East 66th Street within 50 feet of York Avenue and façades facing 1st Avenue within 50 feet of East 67th Street to maintain an interior L_{10} noise levels not greater than 45 dBA for community facility uses as illustrated in the EIS. 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 13-10**. These requirements are also shown in **Figure 13-2**.

By adhering to the (E) Designation described above, the Proposed Project would provide sufficient attenuation to achieve acceptable interior noise levels according to *CEQR Technical Manual* interior noise level guidelines. Therefore, the Proposed Project would not result in any significant adverse noise impacts.

I. MECHANICAL EQUIPMENT

It is assumed that the building mechanical systems (i.e., HVAC systems) in the Proposed Project 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 Project would not result in any significant adverse noise impacts related to building mechanical equipment. ✷



NOTE: Commercial office and laboratory uses would require 5 dBA less attenuation

Noise Attenuation Requirements

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Figure 13-2