Chapter 14: Noise

A. INTRODUCTION

Noise pollution in an urban area comes from many sources. Some sources are activities essential to the health, safety, and welfare of a city's inhabitants, such as noise from emergency vehicle sirens, garbage collection operations, and construction and maintenance equipment. Other sources, such as traffic, stem from the movement of people and goods, activities that are essential to the viability of a city as a place to live and do business. Although these and other noise-producing activities are necessary to a city, the noise they create is, at times, undesirable. Urban noise detracts from the quality of the living environment, and there is increasing evidence that excessive noise may represent a threat to public health.

The noise analysis for the proposed actions consists of two parts:

- A screening analysis to determine whether there are any noise-sensitive locations where project-generated traffic would have the potential to result in significant noise impacts; and
- An analysis to determine the level of building attenuation necessary to ensure that interior noise levels would satisfy applicable interior noise criteria.

PRINCIPAL CONCLUSIONS

The noise analysis of the proposed project included an assessment of mobile noise sources associated with the project and an examination of the level of building that would be necessary to ensure acceptable interior noise levels at buildings included in the proposed project.

The mobile source noise screening analysis concludes that the proposed project would not generate sufficient vehicular traffic to 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 would be necessary to cause a 3 dBA increase in noise levels).

The building attenuation analysis concludes that in order to meet *CEQR Technical Manual* interior noise level requirements, between 28 and 35 dBA of building attenuation would be required for buildings on projected development sites 1 and 2. An (E) designation will be assigned to projected development sites 1 and 2 to account for the building attenuation requirements. With the specifications required by (E) designations, the proposed actions would not result in significant adverse noise impacts.

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 discernable 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 14-1**, 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 14-1
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.

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 that fluctuates over extended periods have been developed. One way is to describe the fluctuating sound 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 by $L_{eq(24)}$), 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 building attenuation analysis for 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 NOISE STANDARDS

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 14-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table 14-3**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential, hotel, or community facility uses and interior noise levels of 50 dBA or lower for commercial uses and are determined based on exterior $L_{10(1)}$ noise levels.

Table 14-2
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 ≤ 60 dBA ----	NA	NA	NA	NA	NA	NA
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA	---- 60 < Ldn ≤ 65 dBA ----	$65 < L_{10} \leq 80$ dBA	(i) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn	$L_{10} > 80$ dBA	---- Ldn ≤ 75 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-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
Commercial or office		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
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.

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).

Table 14-3
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level with Proposed Action	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation*	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)^{**}$ dB(A)

Notes:

* The above composite window-wall attenuation values are for residential development. Commercial uses would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

** Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.

Source: New York City Department of Environmental Protection.

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. 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 5 dBA, or more, in Build $L_{eq(1)}$ noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those calculated for the No Build condition, if the No Build levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 4 dBA, or more, in Build $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No Build condition, if the No Build levels are 61 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 3 dBA, or more, in Build $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No Build condition, if the No Build levels are greater than 62 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 3 dBA, or more, in Build $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No Build condition, if the analysis period is a nighttime period (defined by the *CEQR Technical Manual* criteria as being between 10 PM and 7 AM).

D. EXISTING NOISE LEVELS

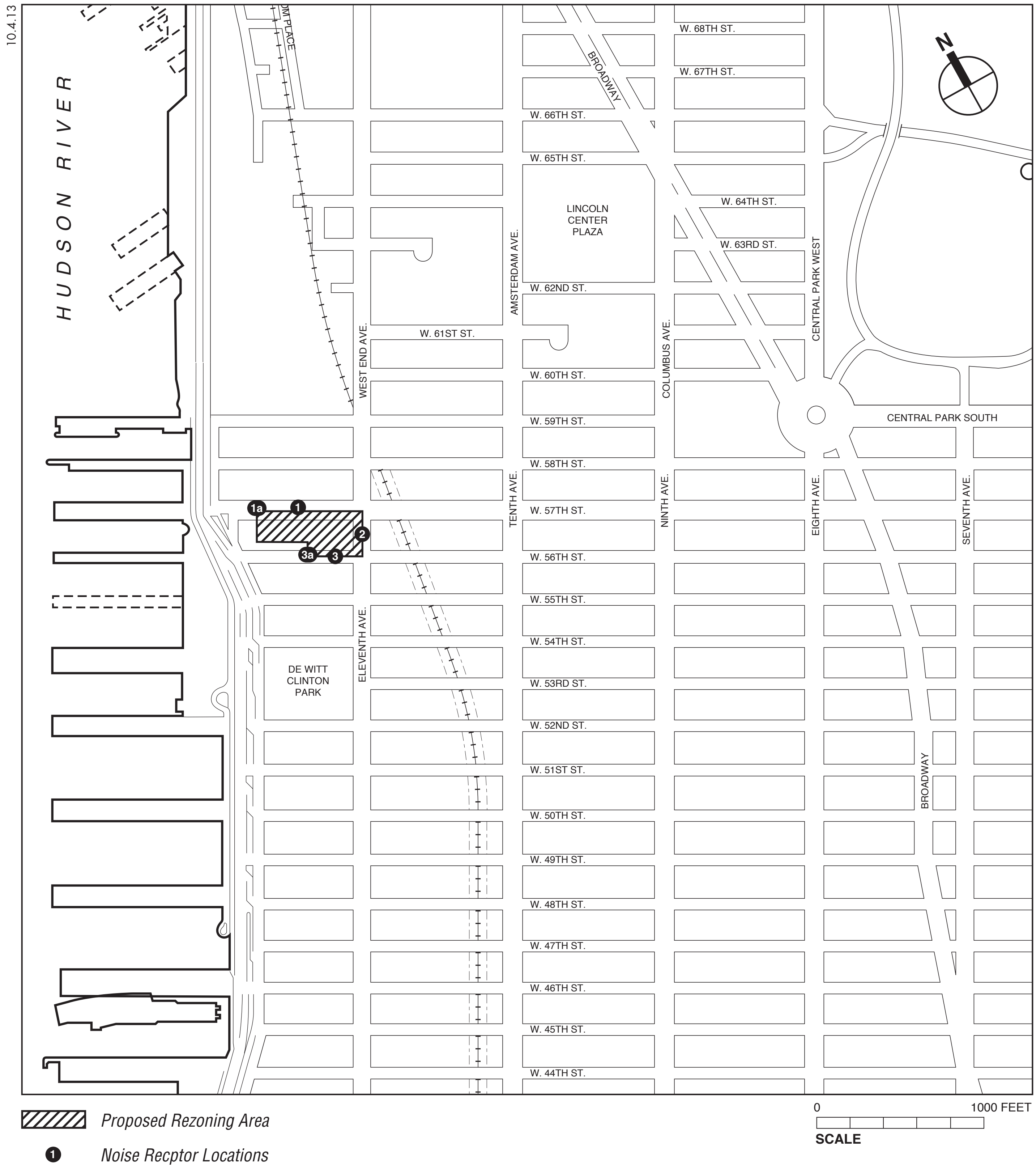
Existing noise levels ~~at the proposed project site~~ were measured at five (5) locations near projected development sites 1 and 2. Noise receptor Site 1 was located on West 57th Street mid-block between Eleventh Avenue and Twelfth Avenue; Site 1a was located on West 57th Street between Eleventh Avenue and Twelfth Avenue closer to the entrance/exit to the Department of Sanitation of New York (DSNY) facility just west of the proposed rezoning area; Site 2 was located on Eleventh Avenue between West 56th Street and 57th Street; Site 3 was located mid-block on West 56th Street between Eleventh Avenue and Twelfth Avenue; and Site 3a was located on West 56th Street between Eleventh Avenue and Twelfth Avenue closer to the entrance/exit to the DSNY facility (see **Figure 14-1**).

Receptor sites 1, 2, and 3 were used to evaluate noise at ~~the project site~~ projected development sites 1 and 2, primarily associated with general vehicular traffic on adjacent roadways during the traffic peak periods. At these receptor sites, existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (8:00 AM to 9:30 AM), midday (MD) (11:30 PM to 1:00 PM), and PM (5:00 PM to 6:30 PM). Measurements were taken on October 17, 2012.

Receptor sites 1a and 3a were used to evaluate noise at ~~the project site~~ projected development sites 1 and 2 associated with DSNY vehicles traveling to and from the DSNY facility. At these receptor sites, existing noise levels were measured during each hour of the peak periods of DSNY vehicle activity, including AM (6:00 AM to 7:00 AM) and MD (11:00 AM to 2:00 PM). Measurements were taken on October 3, 2013.

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using a Brüel & Kjær Sound Level Meter (SLM) Type 2260, a Brüel & Kjær ½-inch microphone Type 4189, and a Brüel & Kjær Sound Level Calibrator Type 4231. The SLM has a laboratory calibration date of November 30, 2011 which is valid through November of 2012. The Brüel & Kjær SLM is a Type 1 instrument according to ANSI Standard



Noise Receptor Locations

Figure 14-1

S1.4-1983 (R2006). The microphone was mounted on a tripod at a height of approximately 5 feet above the ground and was mounted at least approximately 5 feet away from any large reflecting surfaces. The SLM was calibrated before and after readings with a Brüel & Kjær Type 4231 Sound Level Calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, L_{90}, and 1/3 octave band levels. 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.

The results of the existing noise level measurements are summarized in **Table 14-4**.

Table 14-4
Existing Noise Levels (in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}
1	West 57th Street mid-block between Eleventh Avenue and Twelfth Avenue	AM	70.9	77.0	73.5	70.0	66.3	62.0	83.2
		MD	70.7	78.7	72.4	67.7	63.5	59.7	91.1
		PM	71.8	81.5	74.9	69.2	64.5	60.5	84.6
1a	West 57th Street between Eleventh Avenue and Twelfth Avenue near DSNY Facility	6AM	73.7	83.5	78.0	68.0	62.7	60.1	89.4
		11AM	72.7	82.5	75.8	69.4	66.6	64.4	86.4
2	Eleventh Avenue between West 56th Street and West 57th Street	AM	74.7	84.3	77.2	71.9	67.1	62.9	91.2
		MD	74.2	81.9	77.0	72.4	66.4	62.1	92.3
		PM	74.4	84.9	77.3	70.4	65.8	62.3	90.3
3	West 56th Street mid-block between Eleventh Avenue and Twelfth Avenue	AM	72.4	81.3	75.3	69.4	65.4	63.0	86.6
		MD	73.6	84.3	76.8	69.5	65.3	59.4	88.7
		PM	70.1	79.7	72.6	67.5	63.8	59.6	87.6
3a	West 56th Street between Eleventh Avenue and Twelfth Avenue near DSNY Facility	6AM	75.9	87.2	78.2	71.5	66.9	63.9	90.9
		12PM	73.8	82.1	77.5	70.6	66.9	64.3	83.1

Note: Measurements were conducted by AKRF on October 17, 2012 and October 3, 2013.

At receptor sites 1, 2, and 3, general vehicular traffic on adjacent roadways was the dominant noise source. Measured levels are moderately- to relatively high and reflect the level of vehicular activity on the adjacent roadways. At receptor sites 1a and 3a, particularly during the 6AM hour, traffic associated with the DSNY facility was the dominant noise source. In terms of the CEQR criteria, the existing noise levels at Sites 1, 1a, 2, 3, and 3a would be in the "marginally unacceptable" category.

E. NOISE PREDICTION METHODOLOGY

Future noise levels were calculated with a proportional modeling technique used as a screening tool to estimate changes in noise levels. The proportional modeling technique is an analysis methodologies recommended for analysis purposes in the *CEQR Technical Manual*. The noise analysis examined the weekday AM, MD, and PM peak hours. The selected time periods are when the proposed actions would be expected to produce the maximum traffic generation (based on the traffic studies presented in Chapter ~~9~~ 11, "Transportation") and therefore result in the maximum potential for significant adverse noise impacts. Both the traffic study and this noise analysis consider the mixed-use Reasonable Worst-Case Development Scenario (RWCDS 2), since it would generate higher levels of traffic (and mobile source noise) than RWCDS 1 (discussed in greater detail in Chapter ~~9~~ 11, “Transportation”). The proportional modeling 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 No Build and Build levels. Vehicular traffic volumes are converted into 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 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.

ANALYSIS PROCEDURE

The following procedure was used in performing the noise analysis:

- Noise monitoring locations were selected adjacent to and within the proposed rezoning area to determine the appropriate level of building attenuation required to satisfy CEQR interior noise level criteria.
- Existing noise levels were determined at each of the three receptor sites listed above, for each analysis time period, by performing field measurements.
- Using the results of the analyses presented in Chapter ~~9~~ 11, “Transportation,” a screening analysis was performed using proportional modeling to identify locations that had the potential for a doubling of Noise PCEs (and thus a significant increase in noise levels).

- Lastly, the level of building attenuation to satisfy CEQR requirements was determined for the proposed project's building based on the noise monitoring and proportional modeling results.

F. NOISE ANALYSIS RESULTS

MOBILE NOISE SOURCE SCREENING ANALYSIS

Using the methodology described above, a screening analysis was performed to determine whether project-generated traffic would have the potential for significantly increasing noise levels. The analysis examined the change in noise levels that would occur at the three receptor locations identified above (Sites 1, 2, and 3). These three locations are immediately adjacent to the project site projected development sites 1 and 2 and are locations where the largest increases in project-generated traffic would be expected to occur. As shown in **Table 14-5** the maximum increase in noise levels with the proposed project is predicted to be 1.0 dBA at receptor site 3. At all three receptor sites the increases in noise levels would not be perceptible, and no significant adverse noise impacts would be expected.

Table 14-5
Noise Screening Analysis Results

Site	Time	Existing		No Action			With Action		
		L_{eq}	L_{10}	L_{eq}	L_{10}	Increment	L_{eq}	L_{10}	Increment
1	AM	70.9	73.5	71.3	73.9	0.4	71.4	74.0	0.1
	MD	70.7	72.4	71.0	72.7	0.3	71.2	72.9	0.2
	PM	71.8	74.9	72.2	75.3	0.4	72.4	75.5	0.2
2	AM	74.7	77.2	75.0	77.5	0.3	75.3	77.8	0.3
	MD	74.2	77.0	74.5	77.3	0.3	74.7	77.5	0.2
	PM	74.4	77.3	74.6	77.5	0.2	74.7	77.6	0.1
3	AM	72.4	75.3	72.8	75.7	0.4	73.3	76.2	0.5
	MD	73.6	76.8	74.0	77.2	0.4	74.9	78.1	0.8
	PM	70.1	72.6	70.4	72.9	0.3	70.7	73.2	0.3

BUILDING NOISE ATTENUATION

As shown in **Table 14-3**, above, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for residential, hotel, or community facility uses and interior noise levels of 50 dBA or lower for commercial uses. The results of the building attenuation analysis are summarized in **Table 14-6**.

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 consists of wall, glazing, and any vents or louvers associated with the building mechanical systems in various ratios of area. Currently, the proposed design for the building on projected development site 1 the project site includes acoustically rated windows and heat pumps coupled with trickle vents (a means of alternate ventilation). The façades of the building on the proposed project site projected development site 1, including these elements, would be designed to provide a composite Outdoor-Indoor Transmission Class[1] (OITC) rating greater than or equal to the attenuation requirements listed in **Table 14-5**. The attenuation specifications for both ~~the project site and~~ projected development sites 1 and 2 would be required by placing (E) designations on both sites. There are three levels of required noise attenuation depending upon the ambient noise levels, 31 dBA, 33, and 35 dBA.

Table 14-6
CEQR Building Attenuation Requirements

Location	Façade	Applicable Noise Receptor	Maximum Predicted L_{10} (in dBA)[1]	Height[2] (in feet)	Attenuation Required (in dBA)[2]
Block 1104; Lots 31, 40, 44, and 45	North	1, 1a	~~78.0~~78.5	0-100	35~~[3]~~
			~~75.0~~73.5	101-top	33~~[3]~~
	East	2	77.8	0-100	33
			76.1	101-top	31
	South	3, 3a	78.2	0-100	35
			75.2	101-top	31
	West	3, 3a	~~78.2~~79.1	0-100	35
			~~75.2~~76.1	101-top	~~31~~33
Block 1104; Lots 25 and 29	All	2, 3, 3a	77.8, ~~78.2~~79.1	all	35

Notes:
Attenuation requirements are for spaces containing residential, hotel, or community facility uses. Commercial uses would require 5 dBA less attenuation.
(1) Maximum Predicted L_{10} levels reflect the predicted changes in traffic during traffic peak periods.
(2) The maximum L_{10} values at elevations above 100 feet were conservatively assumed to be 3 dBA less than the levels at-grade due to increased distance from the at-grade roadways, which are the dominant noise source at this location.
~~(3) Because the maximum future L_{10} noise level at this location is only 0.1 dBA from being in the next highest category of window/wall attenuation requirements, and no increment has been added between the existing and future conditions, the higher category of attenuation requirements has been applied.~~

The text of the (E) designation for sites requiring 31 dBA attenuation would be as follows:

> ***In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed window condition with a minimum of 31 dB(A) window/wall attenuation in all façades in order to maintain an interior noise level of 45 dB(A). In order to maintain a closed window condition, an alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building must also be provided. The specific attenuation requirements to be implemented for all facades are provided in the 606 West 57th Street EIS, Table 14-6.***

The text of the (E) designation for sites requiring 33 dBA attenuation would be as follows:

> ***In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed window condition with a minimum of 33 dB(A) window/wall attenuation in all façades in order to maintain an interior noise level of 45 dB(A). In order to maintain a closed window condition, an alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building must also be provided. The specific attenuation***

[1] The OITC classification is defined by ASTM International (ASTM E1332-10a) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise.

requirements to be implemented for all facades are provided in the 606 West 57th Street EIS, Table 14-6.

The text of the (E) designation for sites requiring 35 dBA attenuation would be as follows:

In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed window condition with a minimum of 35 dB(A) window/wall attenuation in all façades in order to maintain an interior noise level of 45 dB(A). In order to maintain a closed window condition, an alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building must also be provided. The specific attenuation requirements to be implemented for all facades are provided in the 606 West 57th Street EIS, Table 14-6.

By adhering to these design specifications, sufficient attenuation will be provided to achieve the CEQR interior noise level guideline of 45 dBA or lower for residential, hotel, or community facility uses and interior noise levels of 50 dBA or lower for commercial uses.

Based upon the measured $L_{10(1)}$ values, the proposed project's design measures would be expected to provide sufficient attenuation to achieve the CEQR interior noise level requirements.

BUILDING MECHANICAL SYSTEMS

In addition, the building mechanical systems (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels.

A 1 megawatt natural gas-fueled emergency generator would be installed for project development site 1 to serve the building on this development site ~~1~~ in the event of the loss of utility electrical power. The emergency generator would be tested periodically for a short period to ensure its availability and reliability. The emergency generator would be installed and operated in accordance with all applicable codes and standards. Potential noise impacts from the emergency generator would be insignificant, since it would be used only for testing purposes on a periodic basis for limited durations outside of an actual emergency use. ✷