A. INTRODUCTION

This chapter assesses the potential for the proposed action to result in significant adverse noise impacts. The Applicant, Harrison Realty LLC, is seeking a zoning map amendment and a zoning text amendment to designate a Mandatory Inclusionary Housing Area (MIHA) (collectively, the "proposed action") to facilitate a new predominantly residential mixed-use development on two blocks it owns in the South Williamsburg section of Brooklyn Community District 1.

The project area consists of the two trapezoidal-shaped blocks, including: (1) the "Northern Block," bounded on the north by Walton Street, on the east by Harrison Street, on the south by Wallabout Street, and on the west by Union Avenue (Block 2249, Lots 23, 37, 41, and 122); and (2) the "Southern Block" bounded on the north by Wallabout Street, on the east by Harrison Street, on the south by Gerry Street, and on the west by Union Avenue (Block 2265, Lot 14). The project area, which is currently vacant with no buildings, would be rezoned from M3-1 to R7A, R7D, and R8A, and would have a C2-4 commercial overlay on the entire Northern and Southern Blocks. As a result, both blocks would be split into R7A/C2-4, R7D/C2-4, and R8A/C2-4 districts. The Applicant is also seeking a zoning text amendment to Zoning Resolution (ZR) Appendix F to establish the project area as an MIHA, which would require a share of residential floor area be reserved for affordable housing pursuant to the Mandatory Inclusionary Housing (MIH) program.

As discussed in Chapter 12, "Transportation," the proposed action is expected to change traffic volumes in the general vicinity of the project area. As the proposed action would result in more than 50 peak hour vehicle trips through any given intersection, a mobile source noise analysis was conducted to determine whether there are any noise-sensitive locations where project-generated traffic would have the potential to result in significant adverse noise impacts. Additionally, as the proposed action would create new noise-sensitive uses within the project area, an analysis was conducted in order to determine the level of building attenuation required to ensure that future interior noise levels would satisfy applicable noise criteria. Based on a field survey of land uses in the area, it was determined that no stationary noise sources contribute significantly to noise levels in the area, and a stationary noise source analysis was not warranted.

B. PRINCIPAL CONCLUSIONS

Noise from the increased traffic volumes generated by the proposed action would not cause significant adverse noise impacts as the relative increases in noise levels would fall below the applicable 2014 *CEQR Technical Manual* significant adverse impact threshold (3.0 dBA).

To ensure acceptable interior noise levels for the proposed project, noise attenuation specifications would be mandated through the assignment of an (E) designation (E-427) assigned to the tax lots that make up the project area. The requirements of the (E) designation resulting from the noise analysis, outlined in Section H of this chapter, state that the future building facades of residential and community facility uses on Block 2249, Lots 23, 37, 41, and 122uses must provide 2831.0 dBA of composite window/wall attenuation along Union Avenue between Wallabout Street and Gerry Street, and the westernmost 100 feet of Gerry Street; and 28.0 dBA of composite window/wall attenuation for future building facades along the easternmost 517 feet of Gerry Street, Harrison Avenue between Gerry Street and Walton Street, the easternmost 100 feet of Wallabout Street, and the easternmost 100 feet of Walton Street.on the eastern façade facing and within 100 feet from Harrison Avenue; and for any future building of residential and community facility uses on Block 2265, Lot 14, building facades must provide 31 dBA of composite window/wall attenuation on the western façade facing Union Avenue within 118 feet from Flushing Avenue and the southern façade facing Gerry Street within 155 feet from Flushing Avenue, and 28 dBA of composite window/wall attenuation on the southern and eastern facades, as well as the northern façade within 100 feet from Harrison Avenue. The minimum composite window/wall attenuation for commercial uses would be 5 dBA less than that for residential and community facility uses. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided.

With implementation of the attenuation levels required pursuant to the (E) designation, the proposed project would provide sufficient attenuation to achieve the 2014 *CEQR Technical Manual* interior noise level guidelines of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial uses. Therefore, the proposed action would not result in any significant adverse noise impacts related to building attenuation requirements.

C. NOISE FUNDAMENTALS

Quantitative information on the effects of airborne noise on people is well documented. If sufficiently loud, noise may adversely affect people in several ways. For example, noise may interfere with human activities such as sleep, speech communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Although it is possible to study these effects on people on an average or statistical basis, it must be remembered that all the stated effects of noise on people vary greatly with the individual. Several noise scales and rating methods are used to quantify the effects of noise on people. These scales and methods consider factors such as loudness, duration, time of occurrence, and changes in noise level with time.

"A"-Weighted Sound Level (dBA)

Noise is typically measured in units called decibels (dB), which are ten times the logarithm of the ratio of the sound pressure squared to a standard reference pressure squared. Because loudness is important in the assessment of the effects of noise on people, the dependence of loudness on frequency must be taken into account in the noise scale used in environmental assessments. Frequency is the rate at which sound pressures fluctuate in a cycle over a given quantity of time, and is measured in Hertz (Hz), where 1 Hz equals 1 cycle per second. Frequency defines sound in terms of pitch components. In the measurement system, one of the simplified scales that accounts for the dependence of perceived loudness on frequency is the use of a weighting network - known as A-weighting - that simulates the response of the human ear. For most noise assessments, the A-weighted sound pressure level in units of dBA is used due to its widespread recognition and its close correlation to perception. In this analysis, all measured noise levels are reported in dBA or A-weighted decibels. Common noise levels in dBA are shown in Table 15-1.

Table 15-1, Common Noise Levels

Sound Source	(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
Soft Whisper at 5 meters	30
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Source: *2014 CEQR Technical Manual* / Cowan, James P. Handbook of Environmental Acoustics. Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

Note: A 10 dBA increase appears to double the loudness, and a 10 dBA decrease appears to halve the apparent loudness.

Community Response to Changes in Noise Levels

Table 15-2 shows the average ability of an individual to perceive changes in noise. Generally, changes in noise levels less than 3 dBA are barely perceptible to most listeners. However, as illustrated in Table 15-2, 5 dBA changes are readily noticeable. 10 dBA changes are normally perceived as doublings (or halvings) of noise levels. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 15-2, Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound

Source: Bolt Beranek and Neuman, Inc., Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.

Noise Descriptors Used In Impact Assessment

Because the sound pressure level unit, 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 sometimes used to indicate noise levels that are exceeded 1, 10, 50, 90 and x percent of the time, respectively. Discrete event peak levels are given as L_1 levels. L_{eq} is used in the prediction of future noise levels, by adding the contributions from new sources of noise (i.e., increases in traffic volumes) to the existing levels and in relating annoyance to increases in noise levels.

The one-hour equivalent continuous noise level ($L_{eq\,(1h)}$ in dBA), the tenth percentile level L_{10} and the day-night average sound level L_{dn} were selected as the noise descriptors for the purposes of this analysis. Hourly statistical noise levels (particularly L_{10} and L_{eq} levels) were used to characterize the relevant noise sources and their relative importance at each receptor location.

Applicable Noise Codes and Impact Criteria

New York City Noise Code

The New York City Noise Control Code, amended in December 2005, contains prohibitions regarding unreasonable noise and specific noise standards, including plainly audible criteria for specific noise sources. In addition, the amended code specifies that no sound source operating in connection with any commercial or business enterprise may exceed the decibel levels in the designated octave bands at specified receiving properties. The New York City Department of Environmental Protection (DEP) has set external noise exposure standards. These standards are shown on the following page in Table 15-3.

Noise Exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable. The standards shown are based on maintaining an interior noise level for the worst-case hour L_{10} of less than or equal to 45 dBA. Attenuation requirements are shown on the following page in Table 15-4.

Table 15-3, Noise Exposure Guidelines for Use in City Environmental Impact Review

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

Source: New York City Department of Environmental Protection (adopted policy 1983).
Notes: (i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more;

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

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

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

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

Table 15-4, Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Acceptable	**Marginally Unacceptable**				**Clearly Unacceptable**
Noise level with proposed project	$65<L_{10}\leq70$	$70<L_{10}\leq73$	$73<L_{10}\leq76$	$76<L_{10}\leq78$	$78<L_{10}\leq80$	$80<L_{10}$
Attenuation[A]	25 dB(A)	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	36 + (L_{10} - 80)[B] dB(A)

Note: [A] The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms 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.
[B] 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 / 2014 *CEQR Technical Manual*

D. NOISE PREDICTION METHODOLOGY

Proportional Modeling

Proportional modeling was used to determine No-Build and Build noise levels at one of the five receptor locations adjacent to the project area, as discussed in more detail below. Proportional modeling is one of the techniques recommended in the 2014 *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 noise levels. Vehicular traffic volumes (counted during the noise recording), are converted into 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 thirteen cars, 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 eighteen cars. Future noise levels are calculated using the following equation:

$$\text{FNA NL} = 10 \log (\text{NA PCE}/\text{E PCE}) + \text{E NL}$$

where:

FNA NL = Future No-Action Noise Level
NA PCE = No-Action PCEs
E PCE = Existing PCEs
E NL = Existing Noise Level

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

To calculate the No-Action noise levels, an annual background growth rate of 0.50 percent for the 2019 Build year was applied to the PCE noise values based on counted vehicles.[1] In order to obtain the necessary With-Action PCE values to calculate the With-Action noise levels, the 2019 With-Action traffic increment assignments presented in Chapter 12, "Transportation", were converted into PCE values and added to the calculated No-Action PCE values.

[1] The background growth rate is based on information provided in Table 16-4 of the 2014 *CEQR Technical Manual.*

Train Noise Modeling

As the rezoning area is located in close proximity to elevated rail tracks, namely the ~~M,~~ J, M, and Z lines of the New York City Subway located approximately 870 feet to the east, noise emissions from train operations have the potential to impact the proposed land uses analyzed in the RWCDS. Pursuant to the guidelines of the *CEQR Technical Manual* Section 332.3 "Train Noise," noise from train operations are calculated using the detailed noise analysis methodology contained in the Federal Transit Administration (FTA) guidance manual, Transit Noise and Vibration Impact Assessment (May 2006). Using this methodology, L_{eq} values may be calculated as a function of a number of factors, including the distance between the track and receptor, number of trains, average number of cars per train, train speed, track conditions, whether the track is on grade or on structure. Values calculated using the FTA methodology may either be used directly or, based upon measurements, adjustment factors may be developed to account for site-specific differences between measured and model-predicted values.

The principle sources of rail system noise are the interaction between wheels and rails, the propulsion system of the railcars, breaks, and auxiliary equipment (ventilation and horns). The dominant cause of railcar noise over most of the typical speed range is interaction between the wheels and rails. Generally, noise levels increase with increases in train speed and length. Noise levels are also dependent upon the railway configuration (i.e., whether the track is at-grade, welded rail, joined track, embedded track on grade, or aerial structures with slab track) and whether there are any noise barriers or berms in place. When railcars travel on tight curves, the dominant noise emitted may be a high pitched squeal or screech. This is usually caused by metal wheels sliding on the rail and scraping metal on metal when the train negotiates a curve. The FTA analysis starts with predicting the source noise levels, expressed in terms of Sound Exposure Level (SEL) at a reference distance and a reference speed. These are given in Table 5-1 of the FTA guidance manual, and are reproduced in Table 15-5.

Table~~ABLE~~ 15-5: Reference SEL's at 50 feet from Track and 50 mph

Source/ Type		Reference Conditions	Reference SEL (SEL_{ref}), dBA
Commuter Rail, At-Grade	Locomotives	Diesel-electric, 3000 hp, throttle 5	**92**
		Electric	**90**
	Diesel Multiple Unit (DMU)	Diesel-powered, 1200 hp	**85**
	Horns	Within ¼ mile of grade crossing	**110**
	Cars	Ballast, welded rail	**82**
Rail Transit		At-grade, ballast, welded rail	**82**
Transit whistles/ warning devices		Within ⅛ mile of grade crossing	**93**
AGT	Steel wheel	Aerial, concrete, welded rail	**80**
	Rubber tire	Aerial, concrete guideway	**78**
Monorail		Aerial straddle beam	**82**
Maglev		Aerial, open guideway	**72**

The reference SEL's are used in the equations of Table 5-2 of the FTA guidance manual (reproduced in Table 15-6) to predict the noise exposure at 50 feet. Also shown in Table 15-6 are rough estimates of the noise reduction available from wayside noise barriers, the most common noise mitigation measure. After determining the reference levels for each of the noise sources, the next step is to determine the noise exposure at 50 feet expressed in terms of $L_{eq(h)}$ and L_{dn}. The additional data needed include: number of train passbys during the day (defined as 7 AM to 10 PM) and night (defined as 10 PM to 7 AM); peak hour train volume; number of vehicles per train; maximum speed; guideway configuration; noise barrier location; location of highway and street grade crossings, if any. These data are used in the equations in Table 15-6 on the following page to obtain adjustment factors to calculate $L_{eq(h)}$ and L_{dn} at 50 feet. Once the $L_{eq(h)}$ at 50 feet from both the northbound and southbound tracks located to the northeast of the project area ~~site~~ were determined, the values were adjusted based on the distance between each track and the project area ~~site~~ using the noise exposure vs. distance formulas presented in Section 6.3.1 of the FTA guidance manual. The applicable distance corrections for the tracks, based on their locations between 870 and 900 feet from the project site's northern and eastern facade ranged from 12.41 dBA (for the track located closest to the project ~~site~~ area) to 12.55 dBA (for the track located furthest from the site). Lastly, the resultant $L_{eq(h)}$ for both the northbound and southbound tracks were added logarithmically to the monitored background value to determine the combined $L_{eq(h)}$ along the project site's eastern façade facing the elevated J, M, and Z subway lines.

Table~~ABLE~~ 15-6: Computation of Noise Exposure at 50 feet for Fixed-Guideway General Assessment

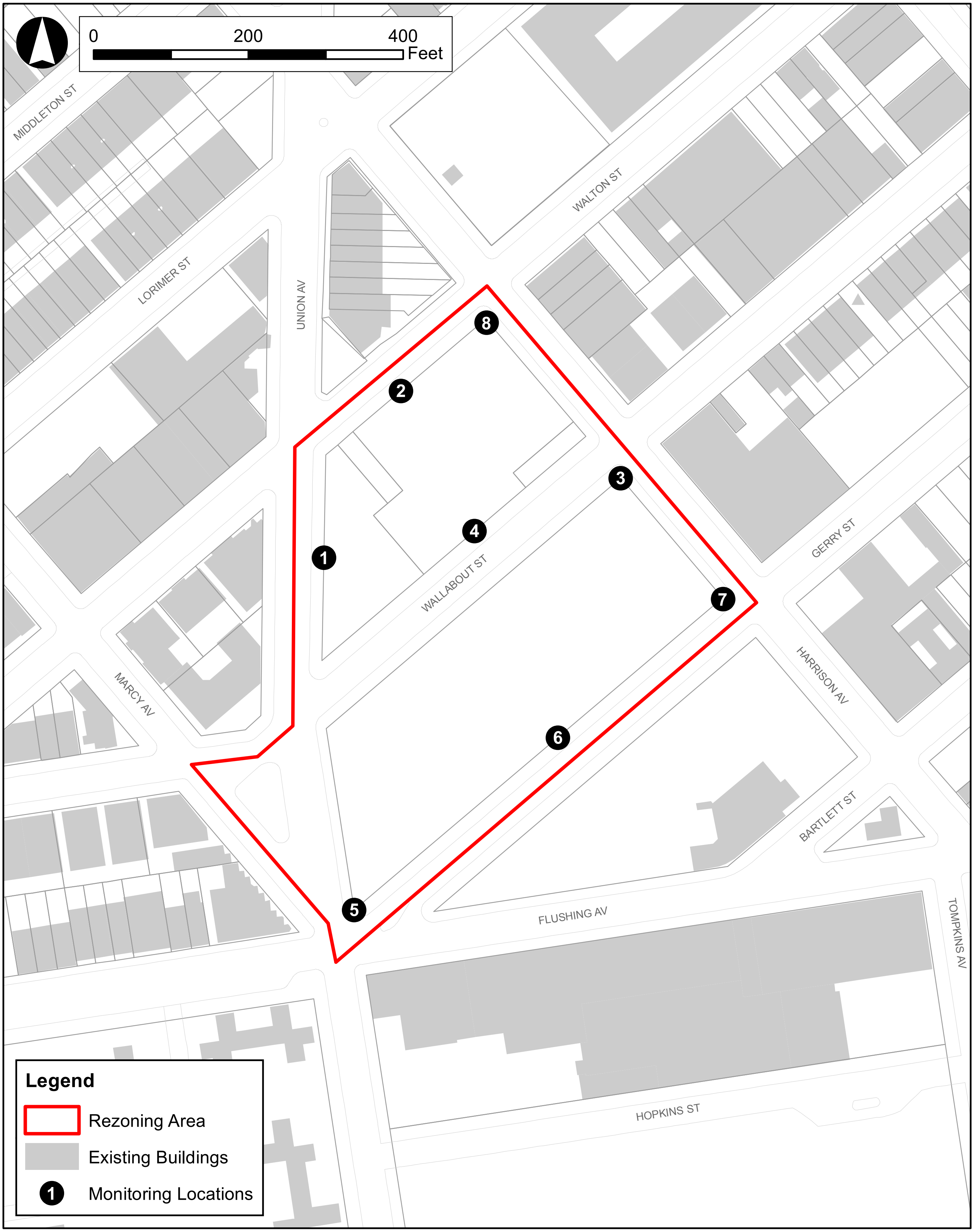
LOCOMOTIVES[I] Hourly L_{eq} at 50 ft:	$L_{eqL}(h) = SEL_{ref} + 10\log(N_{locos}) + K\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$ Where K = -10 for passenger diesel; = 0 for DMU; = +10 for electric
LOCOMOTIVE WARNING HORNS[III] Hourly L_{eq} at 50 ft:	$L_{eqH}(h) = SEL_{ref} + 10\log(V) - 35.6$
RAIL VEHICLES[II] Hourly L_{eq} at 50 ft:	$L_{eqC}(h) = SEL_{ref} + 10\log(N_{cars}) + 20\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$ use the following adjustments as applicable: + 5 → JOINTED TRACK + 3 → EMBEDDED TRACK ON GRADE + 4 → AERIAL STRUCTURE WITH SLAB TRACK (except AGT & monorail) - 5 → if a NOISE BARRIER blocks the line of sight
TRANSIT WARNING HORNS[III] Hourly L_{eq} at 50 ft:	$L_{eqH}(h) = SEL_{ref} - 10\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$
COMBINED Hourly L_{eq} at 50 ft:	$L_{eq}(h) = 10\log\left[10^{\left(L_{eq}/10\right)} + 10^{\left(L_{eq}/10\right)}\right]$
Daytime L_{eq} at 50 ft:	$L_{eq}(day) = L_{eq}(h)\big\|\ v = v_d$
Nighttime L_{eq} at 50 ft:	$L_{eq}(night) = L_{eq}(h)\big\|\ v = v_n$
L_{dn} at 50 ft:	$L_{dn} = 10\log\left[(15)\times 10^{\left(L_{eq}(day)/10\right)} + (9)\times 10^{\left((L_{eq}(night)+10)/10\right)}\right] - 13.8$

N_{locos} = average number of locomotives per train
N_{cars} = average number of cars per train
S = train speed, in miles per hour
V = average hourly volume of train traffic, in trains per hour
V_d = average hourly daytime volume of train traffic, in trains per hour
$= \frac{\text{number of trains, 7am to 10pm}}{15}$
V_n = average hourly nighttime volumes of train traffic, in trains per hour
$= \frac{\text{number of trains, 10pm to 7am}}{9}$

[I] Assumes a passenger diesel locomotive power rating at approximately 3000 hp
[II] Includes all commuter rail cars, transit cars, AGT and monorail
[III] Based on FRA's horn noise model (www.fra.dot.gov/downloads/RRDev/hornmodel.xls)

E. EXISTING CONDITIONS

As shown in Figure 15-1, Union Avenue, between Gerry Street and Wallabout Street, is a one-way northbound street with one travel lane and parking on the right side of the street; north of Wallabout Street, it becomes a two-way street, with one lane in each direction and parking on both sides of the street. Gerry Street is a two-way street with one lane in each direction and parking on both sides of the street. Wallabout Street, which runs parallel to Gerry Street, is a two-way street with one lane in each direction and parking on both sides of the street. Walton Street, which also runs parallel to both Gerry and Wallabout Street, is a one-way eastbound street with one lane and parking on both sides of the street. Harrison Avenue, which runs perpendicular to Gerry, Noise Monitoring Locations



This figure has been revised for the FEIS

Wallabout, and Walton Street, is a one-way two lane southbound street with parking on both sides of the street.

The surrounding area is served by a number of transit options. The MTA New York City Transit G subway line (Brooklyn-Queens Crosstown Local Line) travels on underground tracks beneath Union Avenue with a station at Flushing Avenue adjacent to the project area's southwest corner. Likewise, The MTA New York City Transit J (Nassau Street Express) and M (Myrtle Avenue Local) subway lines run on elevated tracks along Broadway north and east of the project area, but the project area does not have an unobstructed direct line of site to the tracks. The MTA B43 and B57 busses provide additional service along Flushing Avenue south of the project area, while the B48 bus provides service on Lorimer Avenue one block west and north of the project area. Additionally, the Brooklyn Queens Expressway (I-278) is located approximately half a mile west of the project area.

Selection of Noise Receptor Locations

As discussed above, local traffic is the dominant source of noise in the vicinity of the project area. The noise receptor locations were selected to be along the perimeter of the future buildings under the proposed action. The assumption was made that all windows on all frontages of the buildings would be operable. The eight~~six~~ selected receptor locations around the project area are presented in Table 15-7~~5~~ and shown in Figure 15-1.

Table 15-~~5~~7, Noise Receptor Locations

Receptor Location / Map ID[1]	Monitoring Location
1	Midpoint of Union Ave. between Walton St. and Wallabout St.
2	Midpoint of Walton St. between Union Ave. and Harrison Ave.
3	Intersection of Harrison Ave. and Wallabout St.
4	Midpoint of Wallabout St. between Union Ave. and Harrison Ave.
5	Intersection of Flushing Ave. and Union Ave.
6	Midpoint of Gerry St. between Union Ave. and Harrison Ave.
7[2]	Intersection of Harrison Ave. and Gerry St.
8[2]	Intersection of Harrison Ave. and Walton St.

Notes: [1] Refer to Figure 15-1 for noise receptor locations.
[2] Noise monitor locations added during the period between the DEIS and the FEIS as per the request from the Department of City Planning

~~An additional noise monitoring was conducted at the southwestern corner of the intersection of Walton Street and Harrison Avenue (the northeastern corner of the project area), which is diagonally across from the I.S. 318 Eugenio Maria de Hostos Playground. This noise monitoring was conducted during the school dismissal/bus departure (2:30PM-3:30PM) (School PM) weekday period in order to determine the noise levels emanating from the playground when it is in use. If the noise levels measured at this location were greater than those along Walton Street (receptor location 1) and Harrison Avenue (receptor location 3), they would supersede those values and be used in their place to determine building attenuation requirements.[2]~~

~~[2] The monitored L_{eq} at this additional monitoring location was 65.7 dBA, which is greater than the maximum L_{eq} measured at receptor location 1 (63.9 dBA in the PM peak period) but lower than the maximum L_{eq} measured at receptor location 3 (68.8 dBA in the AM peak period). Therefore,~~

Noise Monitoring

Of the eight~~At the six~~ receptor locations, 20-minute spot measurements of existing noise levels were performed at seven receptor locations (Receptor Locations 1 through 7) for each of the three noise analysis time periods - weekday AM peak hour (8:00AM to 9:00AM), weekday midday peak hour (12:00PM to 1:00PM), and weekday PM peak hour (5:00PM to 6:00PM). As Receptor Location 8 is located in close proximity to the elevated ~~M,~~ J, M, and Z subway lines (approximately 870 feet), 1-hour measurements of existing noise levels were performed during the same three analysis time periods as Receptor Locations 1 through 7. Additional noise measurements were performed at Receptor Locations 6, 7, and 8 during the school dismissal/bus departure (School PM) peak period (2:00PM to 4:00PM), due to the location of both the Bais Ruchel School located at 177 Harrison Avenue and I.S. 318 Eugenio Maria de Hostos Playground located on Harrison Avenue between Walton Street and Lorimer Street. Noise monitoring was conducted during the School PM weekday peak period in order to determine the noise levels emanating from both the playground when it is in use and vehicles along Harrison Avenue. If noise levels measured during the School PM weekday peak period at these locations were greater than those during the AM, midday, and PM weekday peak periods, they would supersede those values and be used in their place to determine building attenuation requirements.[3]

Noise monitoring was performed on Wednesday, November 16th, ~~and~~ Tuesday, November 22nd, 2016, and June 21, 2017[4]. On both November 16th and November 22nd, ~~both days,~~ the weather was partly sunny and temperatures were in the low 40s ºF. On June 21, the weather was sunny and temperatures were in the high 70s ºF.

Equipment Used During Noise Monitoring

The instrumentation used for the measurements was a Brüel & Kjaer Type 4189 ½-inch microphone connected to a Brüel & Kjaer Model 2250 Type 1 (as defined by the American National Standards Institute) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least 6 feet away from any sound-reflecting surfaces to avoid major interference with source sound level that is being measured. The meter was calibrated before and after readings with a Brüel & Kjaer Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at the receptor 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}, and L_{90}. A windscreen was used during all sound measurements except for calibration. Only traffic-related noise was measured; noise from other sources (e.g., emergency sirens, aircraft flyovers, etc.) was

~~the future noise levels at receptor location 3 were used to determine attenuation requirements along Harrison Avenue and the adjacent extent of Walton Street.~~

[3] The monitored L_{eq} at Receptor Location 6 during the School PM weekday peak period was 63.6 dBA, which is less than the maximum L_{eq} measured during the PM weekday peak period (66.8 dBA). Therefore, the future noise levels at Receptor Location 6 during the PM weekday peak period were used to determine attenuation requirements along Gerry Street. The monitored L_{eq} at Receptor Locations 7 and 8 during the School PM weekday peak period was 70.2 dBA and 69.3 dBA, respectively, which is greater than the maximum L_{eq} measured during the PM weekday peak period of each receptor location (67.8 dBA and 68.7 dBA, respectively). Therefore, the future noise levels at Receptor Locations 7 and 8 during the School PM weekday peak period were used to determine attenuation requirements along Harrison Avenue and the adjacent extent of Gerry Street (Receptor Location 7) and Walton Street (Receptor Location 8).

[4] June 21, 2017 noise monitoring was conducted as per the request from DCP during the period between the DEIS and the FEIS. Noise monitoring on June 21, 2017 includes Receptor Locations 6 (School PM only), 7, and 8.

excluded from the measured noise levels. Weather conditions were noted to ensure a true reading as follows: wind speed under 12 mph; relative humidity under 90 percent; and temperature above 14°F and below 122°F (pursuant to ANSI Standard S1.13-2005).

Existing Noise Levels at the Noise Receptor Locations

Measured Noise Levels

The noise monitoring results are shown on the following page in Table 15-8~~6~~. Area traffic was the dominant source of noise at the R~~r~~eceptor L~~l~~ocations 1 through 7; both area traffic and train noise were the dominant source of noise at Receptor Location 8. The existing noise levels reflect the moderate level of vehicular activity on the roadways adjacent to the project area, with the highest existing noise levels observed at receptor locations 3~~, and~~ 5, 7, and 8, which were along the relatively more heavily-trafficked Harrison Avenue and Union Avenue.

Table 15-8~~6~~, Existing Noise Levels (in dBA) at the Monitoring Locations

Receptor Location[1]	Time[2]	L_{eq}	L_{max}	L_{min}	L_1	L_{10}[~~2~~3]	L_{50}	L_{90}	CEQR Noise Exposure Category
1	AM	63.6	88.0	49.2	73.6	64.4	57.7	52.8	Marginally Acceptable
	MD	62.2	79.4	46.3	73.8	65.8	56.0	49.9	
	PM	63.9	82.3	47.8	75.6	**66.4**	57.5	51.9	
2	AM	61.9	84.3	50.4	72.8	63.9	58.4	54.1	Marginally Acceptable
	MD	64.7	82.7	48.8	76.9	**66.8**	58.8	53.0	
	PM	63.8	91.8	49.4	74.3	65.5	57.4	52.9	
3	AM	68.8	87.6	57.4	79.7	71.5	64.8	61.6	Marginally Unacceptable (I)
	MD	67.4	87.4	54.5	79.7	69.4	62.2	58.2	
	PM	68.1	89.7	55.8	77.3	**71.7**	63.6	59.9	
4	AM	61.6	77.5	51.0	71.8	64.7	57.8	55.2	Acceptable
	MD	60.4	80.0	47.8	71.8	63.0	54.2	50.9	
	PM	62.2	82.4	50.5	73.6	**64.8**	57.0	53.5	
5	AM	70.5	91.6	56.3	79.3	**73.0**	68.1	63.1	Marginally Unacceptable (II)
	MD	69.6	88.2	52.4	78.6	72.5	66.5	61.3	
	PM	68.4	87.2	55.4	77.6	71.0	66.2	60.7	
6	AM	66.6	87.4	55.5	77.5	68.2	62.9	59.2	Marginally Acceptable
	MD	63.0	73.5	53.8	70.3	66.1	61.2	57.6	
	PM	66.8	85.7	58.0	77.0	**69.1**	63.5	60.9	
	SC	63.6	83.4	55.4	73.1	66.1	60.3	58.1	
7	AM	66.7	93.6	54.5	74.6	68.2	62.7	57.5	Marginally Acceptable
	MD	67.6	90.6	56.6	77.9	69.6	63.5	59.3	
	PM	67.8	88.9	56.5	78.8	69.7	63.6	60.0	
	SC	70.2	99.8	57.3	78.6	**69.9**	63.8	59.8	
8	AM	65.3	92.6	53.7	74.8	66.8	60.8	57.1	Marginally Unacceptable (I)
	MD	65.5	85.1	58.3	74.9	67.7	62.5	60.5	
	PM	68.7	97.7	53.5	77.6	67.4	61.0	57.5	
	SC	69.3	101.4	55.3	78.5	**70.6**	64.1	59.9	

Notes: Field measurements were performed by Philip Habib & Associates on November 16th, 2016,~~ and~~ November 22nd, 2016, and June 21st, 2017.

[1] Refer to Figure 15-1 for noise monitoring receptor location.

[2] AM = AM weekday peak period; MD = midday weekday peak period; PM = PM weekday peak period; SC = school dismissal/bus departure weekday peak period.

[3~~2~~] The highest L_{10} noise levels at each monitoring location are shown in **bold**.

As shown in Table 15-86, the highest L_{10} value was recorded in the AM peak hour at receptor location 5 (73.0 dBA), placing this receptor location in the "Marginally Unacceptable (II)" Nnoise Eexposure category pursuant to 2014 *CEQR Technical Manual* Guidelines. Receptor location 3 had a maximum L_{10} value of 71.7 dBA, placing it in the "Marginally Unacceptable (I)" CEQR Nnoise Eexposure category. Receptor location 8 had a maximum L_{10} value of 70.6 dBA, placing it in the "Marginally Unacceptable (I)" CEQR Noise Exposure category. Receptor locations 1, 2, and 6, and 7 had L_{10} values that were all below 70 dBA during all three peak hours, placing these locations in the "Marginally Acceptable" CEQR nNoise Eexposure category. Receptor location 4 had L_{10} values that were all below 65 dBA during all three peak hours, placing it in the "Acceptable" CEQR Nnoise Eexposure category.

Using the FTA methodology previously described, existing noise levels emitted from the elevated tracks were calculated for the weekday Daytime (7AM to 10PM) and Nighttime (10PM to 7AM) periods according to the current MTA subway timetable for the M, J, M, and Z lines. This included calculating the L_{eq} SEL values at 50 feet and comparing these to the monitored noise levels at Receptor 8. The forecasted L_{eq} and L_{10} values for the proposed development site's northern and eastern frontage along Harrison Avenue and Walton Street was 61.1 dBA and 62.4 dBA, respectively, which is below the maximum L_{eq} and L_{10} based on the monitored value at Receptor 8 (69.3 dBA and 70.6, respectively). Therefore, it was determined that train noise from the elevated J, M, and Z lines was not a significant source of noise in the area, and local traffic was the main source of ambient noise at this receptor. Therefore, the proportional modeling methodology described in Section D will be used for further analyses regarding projected noise levels at Receptor 8.

F. FUTURE WITHOUT THE PROPOSED ACTION (NO-ACTION)

Using the methodology described in Section D, future noise levels in the No-Action condition were calculated for the three analysis periods for the 2019 Build year. Table 15-97 shows the measured existing noise levels, as well as the No-Action PCE values and the No-Action noise levels at each of the receptor locations.

Comparing future No-Action noise levels with existing noise levels, the increases in L_{eq} noise level would range from 0.04 toequal 0.06 dBA at all of the receptor locations. Increases of this magnitude would be barely perceptible, and based upon the 2014 *CEQR Technical Manual* impact criteria, would not be significant. The projected No-Action L_{10} noise levels at the eightsix receptor locations would range from 64.8 dBA to 73.1 dBA, and noise levels at all of the Rreceptor Llocations 1, 2, 3, 4, 5, 6, and 8 would remain in their same respective CEQR Nnoise Eexposure categories as under existing conditions. However, the projected No-Action L_{10} noise levels at Receptor Location 7 (70.0 dBA) would now fall in the Marginally Unacceptable (I) Noise Exposure category.

Table 15-97, Future No-Build Noise Levels and total PCE Values at Receptor Locations (in dBA)

Noise Receptor Location	Time	Existing PCEs	No-Action PCEs	Existing L_{eq}	No-Action L_{eq}	Change[1]	No-Action L_{10}[2]	CEQR Noise Exposure Category
1	AM	789.0	800.9	63.6	63.7	0.06	64.4	Marginally Acceptable
	MD	798.0	810.0	62.2	62.3	0.06	65.8	
	PM	552.0	560.3	63.9	63.9	0.06	**66.4**	
2	AM	204.0	207.1	61.9	62.0	0.06	64.0	Marginally Acceptable
	MD	156.0	158.4	64.7	64.8	0.06	**66.9**	
	PM	198.0	201.0	63.8	63.9	0.06	65.5	
3	AM	1983.0	2012.9	68.8	68.9	0.06	71.6	Marginally Unacceptable (I)
	MD	1230.0	1248.5	67.4	67.5	0.06	69.5	
	PM	1512.0	1534.8	68.1	68.1	0.06	**71.8**	
4	AM	867.0	880.1	61.6	61.7	0.06	64.8	Acceptable
	MD	264.0	268.0	60.4	60.5	0.06	63.1	
	PM	387.0	392.8	62.2	62.3	0.06	**64.8**	
5	AM	5208.0	5286.5	70.5	70.5	0.06	**73.1**	Marginally Unacceptable (II)
	MD	3093.0	3139.6	69.6	69.7	0.06	72.5	
	PM	2736.0	2777.2	68.4	68.5	0.06	71.0	
6	AM	345.0	350.2	66.6	66.7	0.06	68.3	Marginally Acceptable
	MD	102.0	103.5	63.0	63.0	0.06	66.2	
	PM	168.0	170.5	66.8	66.8	0.06	**69.1**	
7	AM	1257.0	1275.9	66.7	66.8	0.06	68.3	Marginally Unacceptable (I)
	MD	1218.0	1236.4	67.6	67.7	0.06	69.6	
	PM	1554.0	1577.4	67.8	67.8	0.06	69.7	
	SC	1128.0	1139.3	70.2	70.2	0.04	**70.0**	
8	AM	1425.0	1446.5	65.3	65.3	0.06	66.9	Marginally Unacceptable (I)
	MD	936.0	950.1	65.5	65.6	0.06	67.8	
	PM	915.0	928.8	68.7	68.8	0.06	67.4	
	SC	1272.0	1284.8	69.3	69.4	0.04	**70.7**	

Notes: All PCE and noise value are shown for a weekday.
[1] No-Action Leq - Existing Leq
[2] The highest L_{10} noise levels at each monitoring location are shown in **bold**.

As there are no known significant planned changes in train frequency anticipated by the 2019 Build Year, noise resulting from train traffic on the elevated track in the No-Action condition is expected to remain similar to that in the Existing condition. As such, the maximum predicted L_{10} noise level at Receptor 8 would be 62.4 dBA, as under existing conditions.

G. FUTURE WITH THE PROPOSED ACTION (WITH-ACTION)

Using the methodology described in Section D, future noise levels in the With-Action condition were calculated for the three analysis periods for the 2019 Build year.[5] As shown in Table 15-108, after accounting for additional traffic introduced by the proposed action, the maximum projected L_{10} noise level in the With-Action condition would be 73.2 dBA during the AM peak hour at receptor location 5. Therefore, the highest noise level would remain in the "Marginally Unacceptable (II)" CEQR nNoise Eexposure category. The maximum projected L_{10} noise levels in the With-Action condition at receptor locations 3, 6, 7, and 8 would be 72.0 dBA, 70.3 dBA, 70.2 dBA, and 70.7 dBA, respectively, placing them in the "Marginally Unacceptable (I)" CEQR

[5] For Receptor Locations 7 and 8, a school dismissal/bus departure (School PM) weekday peak analysis period was also calculated to project future noise levels in the With-Action condition.

Noise Exposure category. The maximum projected L_{10} noise levels in the With-Action condition at receptor locations 1, 2, and 4 would be 66.8 dBA, 67.4 dBA, and 66.3, respectively, placing them in the "Marginally Acceptable" CEQR Nnoise Eexposure category.

As there are no known significant planned changes in train frequency anticipated by the 2019 Build Year, noise resulting from train traffic on the elevated track in the With-Action condition is expected to remain similar to that in the Existing condition. As such, M, The maximum projected L_{10} noise levels in the With-Action condition at receptor locations 3 and 6 would be 72.0 dBA and 70.3, respectively, placing them in the "Marginally Unacceptable (I)" CEQR noise exposure category. the maximum predicted L_{10} noise level at Receptor 8 would be 62.4 dBA, as under existing conditions.

Comparing the future With-Action noise levels with No-Action noise levels, increases in noise levels would vary at the six receptor locations, ranging from 0.1 to 1.8 dB. However, increases of these magnitudes would all still not be perceptible as they are less than 3.0 dBA, and based upon CEQR impact criteria would not be significant. As the noise levels at all receptor locations would experience changes of less than 3.0 dBA in all peak hours, the overall changes to noise levels as a result of the proposed action would not result in any significant adverse impacts.

As noted above in Section D, the FTA methodology forecasted value will be used for further analysis along the northern and eastern frontage of the rezoning area facing the elevated M, J, M, and Z lines, while the monitored L_{eq} and L_{10} noise levels at Receptor 8 will be used as the background variable for the formula used in the train noise modeling methodology. However, after calculating the FTA methodology forecasted value and applying the distance corrections at Receptor 8, the highest predicted With-Action L_{10} noise levels at the proposed development site's northern and eastern frontage (along Harrison Avenue and Walton Street) will be 62.4 dBA, which is lower than the highest predicted With-Action L_{10} noise levels using the proportional modeling methodology at Receptor Location 8 (70.7 dBA). Therefore, for conservative purposes, the highest predicted With-Action L_{10} noise levels using the proportional modeling methodology at Receptor Location 8 will determine building attenuation requirements. Thus, noise levels at Receptor 8 will remain in the Marginally Unacceptable (I) Noise Exposure category.

Comparing the future With-Action noise levels with No-Action noise levels, increases in noise levels would vary at the eight receptor locations, ranging from 0.1 to 1.8 dBA. However, increases of these magnitudes would all still not be perceptible as they are less than 3.0 dBA, and based upon CEQR impact criteria would not be significant. As the noise levels at all receptor locations would experience changes of less than 3.0 dBA in all peak hours, the overall changes to noise levels as a result of the proposed action would not result in any significant adverse impacts.

Table 15-810, Future Build Noise Levels and total PCE Values at Receptor Locations (in dBA)

Receptor Location	Time	With-Action PCEs	No-Action L_{eq}	With-Action L_{eq}	Change[1]	With-Action L_{10}[2]	CEQR Noise Exposure Category
1	AM	870.2	63.7	64.1	0.4	64.8	**Marginally Acceptable**
	MD	845.1	62.3	62.5	0.2	66.0	
	PM	612.4	63.9	64.3	0.4	**66.8**	
2	AM	224.4	62.0	62.4	0.3	64.3	**Marginally Acceptable**
	MD	177.9	64.8	65.3	0.5	**67.4**	
	PM	229.5	63.9	64.4	0.6	66.1	
3	AM	2072.8	68.9	69.0	0.1	71.7	**Marginally Unacceptable (I)**
	MD	1314.8	67.5	67.7	0.2	69.7	
	PM	1617.9	68.1	68.4	0.2	**72.0**	
4	AM	1029.8	61.7	62.4	0.7	65.5	**Marginally Acceptable**
	MD	378.5	60.5	62.0	1.5	64.6	
	PM	555.3	62.3	63.8	1.5	**66.3**	
5	AM	5363.7	70.5	70.6	0.1	**73.2**	**Marginally Unacceptable (II)**
	MD	3182.5	69.7	69.8	0.1	72.6	
	PM	2854.1	68.5	68.6	0.1	71.2	
6	AM	438.5	66.7	67.7	1.0	69.2	**Marginally Unacceptable (I)**
	MD	156.8	63.0	64.8	1.8	68.0	
	PM	222.6	66.8	68.0	1.2	**70.3**	
7	AM	1398.9	66.8	67.2	0.4	68.7	**Marginally Unacceptable (I)**
	MD	1313.1	67.7	68.0	0.3	69.9	
	PM	1635.7	67.8	68.0	0.2	69.9	
	SC	1197.6	70.2	70.4	0.2	**70.2**	
8	AM	1498.5	65.3	65.5	0.2	67.0	**Marginally Unacceptable (I)**
	MD	983.9	65.6	65.7	0.2	67.9	
	PM	953.6	68.8	68.9	0.1	67.5	
	SC	1309.6	69.4	69.5	0.1	**70.7**	

Notes: All PCE and noise value are shown for a weekday.
[1] With-Action Leq – No-Action Leq
[2] The highest L_{10} noise levels at each monitoring location are shown in **bold**.

H. ATTENUATION REQUIREMENTS

As shown above in Table 15-4, the 2014 *CEQR Technical Manual* has set noise attenuation requirements for buildings based on exterior noise levels. Recommended noise attenuation values for buildings are designed to maintain a maximum interior noise level of 45 dBA or lower for residential and community facility uses and 50 dBA or lower for commercial uses, and are determined based on exterior L_{10} noise levels. As noted in Table 15-4, additional attenuation measures would be required at the site wherever exterior noise levels exceed 70 dBA. The results of the building attenuation analysis for the proposed project are summarized in Table 15-911 below and shown in Figure 15-2.

As presented in Table 15-911, future building facades along the southernmost 118 feet of Union Avenue between Wallabout Street and Gerry Street, and the westernmost 15500 feet of Gerry Street between Union Avenue and Harrison Avenue would require an attenuation level of 31.0 dBA; future building facades along Harrison Avenue between Gerry Street and Walton Street, the easternmost 462517 feet of Gerry Street between Union Avenue and Harrison Avenue, Harrison

Building Attenuation Requirements

This figure has been revised for the FEIS

Avenue between Gerry Street and Walton Street,, the easternmost 100 feet of Wallabout Street between Union Avenue and Harrison Avenue, and the easternmost 100 feet of Walton Street between Union Avenue and Harrison Avenue would require an attenuation level of 28.0 dBA. All other future building facades will not require any special attenuation measures beyond standard construction practices.

Table 15-119, Proposed Development Attenuation Requirements

Facade[1]	Corresponding Monitoring Location	With-Action Maximum L_{10} (dBA)	Attenuation Required (dBA)[2]
East side of Union Ave., between Walton St. and Wallabout St.	1	66.8	N/A[3]
East side of Union Ave., between Wallabout St. and Gerry St. (northern 118 ft.)	5	703.2	2831
East side of Union Ave., between Wallabout St. and Gerry St. (southern 118 ft.)	5	73.2	31
South side of Walton St., between Union Ave. and Harrison Ave. (wWestern 168 ft.)	2	67.4	N/A
South side of Walton St., between Union Ave. and Harrison Ave. (eEastern 100 ft.)	83	70.772.0	28
North side of Wallabout St., between Union Ave. and Harrison Ave. (wWestern 295 ft.)	4	66.3	N/A
North side of Wallabout St., between Union Ave. and Harrison Ave. (eEastern 100 ft.)	3	72.0	28
South side of Wallabout St., between Union Ave. and Harrison Ave. (wWestern 393 ft.)	4	66.3	N/A
South side of Wallabout St., between Union Ave. and Harrison Ave. (eEastern 100 ft.)	3	72.0	28
West side of Harrison Ave. between Walton St. and Wallabout St.Gerry St.	33	72.0	28
West side of Harrison Ave. between Wallabout St. and Gerry St.	3	72.0	28
North side of Gerry St., between Union Ave. and Harrison Ave. (wWestern 15500 ft.)	5	73.2	31
North side of Gerry St., between Union Ave. and Harrison Ave. (eEastern 462517 ft.)	6	70.3	28

Notes: [1] Per DCP guidance, the neighboring 100 feet of any façade immediately adjacent to a different façade that requires a higher level of attenuation will require the same level of attenuation as that façade.
[2] The specified attenuation level required would maintain interior noise levels of 45 dBA or lower for proposed residential and community facility uses on the project area. Required attenuation for commercial uses would be 5 dBA less.
[3] N/A - additional noise attenuation above standard construction practices is not required to achieve interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial uses.

Furthermore, additional noise monitoring sessions to supplement the information provided in this analysis will be conducted between the DEIS and FEIS. This would account for additional noise sources of concerns in the area including nearby playgrounds, schools, and elevated trains

~~operating along Broadway. If warranted, adjustments would be made to the required attenuation values to be memorialized in the (E) designation.~~

(E) Designation

A (E) designation for noise provides a notice of the presence of an environmental requirement pertaining to high ambient noise levels on a particular tax lot. If an area is proposed to be rezoned, and the accompanying environmental analysis indicates that development on a property may be adversely affected by noise, then an (E) designation for window/wall attenuation and alternate means of ventilation may be placed on the property by the lead agency in order to address such issues in conjunction with any new development or new use of the property. For new developments, enlargements of existing buildings, or changes in use, the NYC Department of Buildings will not issue a building permit until the environmental requirements of the (E) designation are satisfied. The Office of Environmental Remediation (OER) administers the (E) Designation Environmental Review Program

To avoid any potential impacts associated with noise on the project area (Block 2249, Lots 23, 37, 41, and 122 and Block 2269, Lot 14), as part of the proposed action, an (E) designation for noise would be recorded against the property. The text for the (E) designation E-427 will be as follows:

> **Block: 2249, Lots: 23, 37, 41 and 122**
>
> **To ensure an acceptable interior noise environment, future Residential/Commercial uses must provide a closed window condition with a minimum of 28 dBA window/wall attenuation on any eastern-facing façade located within 100 feet of Harrison Avenue to maintain an interior noise level of 45 dBA. 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.**
>
> **Block: 2265, Lot: 14**
>
> **To ensure an acceptable interior noise environment, future Residential/Commercial uses must provide a closed window condition with a minimum of 31 dBA window/wall attenuation on any western-facing façade along Union Avenue, and located within 118 feet of Flushing Avenue; and on any southern-facing façade along Gerry Street, and located within 155 feet of Flushing Avenue. A 28 dBA window/wall attenuation is required on all southern and eastern facades. A 28 dBA window/wall attenuation is required on northern façades located within 100 feet of Harrison Avenue. 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.~~In order to ensure an acceptable interior noise environment, future residential and community facility uses must provide 31.0 dBA of composite window/wall attenuation for future building facades along Union~~**

> ~~**Avenue between Wallabout Street and Gerry Street, and the westernmost 100 feet of Gerry Street; and 28.0 dBA of composite window/wall attenuation for future building facades along the easternmost 517 feet of Gerry Street, Harrison Avenue between Gerry Street and Walton Street, the easternmost 100 feet of Wallabout Street, and the easternmost 100 feet of Walton Street in order to maintain an interior noise level of 45 dBA. The minimum composite window/wall attenuation for commercial uses would be 5 dBA less than that for residential and community facility uses. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided.**~~

Per the (E) designation requirements, in order to receive a Certificate of Occupancy from the NYC Department of Buildings (DOB) the proposed action must comply with these required composite window/wall attenuation values in order to maintain proper interior noise levels. With this institutional control in place, the proposed project would not result in any significant adverse noise impacts related to building attenuation and no further analysis is necessary.

I. OTHER NOISE CONCERNS

Mechanical Equipment

No detailed designs of the building's mechanical systems (i.e., heating, ventilation, and air conditioning systems) are available at this time. However, those systems will be designed to meet all applicable noise regulations and requirements and would be designed to produce noise levels that would not result in any significant increase in ambient noise levels. In addition, the building mechanical systems would be designed with enclosures where necessary to meet all applicable noise regulations (i.e., Subchapter 5 §24-227 of the New York City Noise Control Code and the NYC DOB Building Code) and to avoid producing levels that would result in any significant increase in ambient noise levels.

Aircraft Noise

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

~~Train Noise~~

~~According to the 2014 *CEQR Technical Manual*, if a proposed development would be within 1,500 feet of existing rail activity and have a direct line of sight to that activity, a more detailed analysis would be appropriate. An elevated subway track running the J & Z (Nassau Street Express) and M (Myrtle Avenue Local) lines is located approximately 900 feet northeast of the project area along Broadway, however, the only direct line of sight to the track is from the middle of the street, along Walton and Wallabout Streets, as there are approximately half a dozen five- to ten-story buildings~~

~~directly adjacent to the elevated track obstructing a direct line of sight and furthermore blocking the project area from most of the noise produced by passing trains. Additionally, any train-associated noise that could reach the site is already accounted for in the existing noise levels recorded around the site. Therefore, a detailed train noise analysis related to rail operations is not warranted.~~