A. INTRODUCTION

This chapter assesses the potential for the proposed action to result in significant adverse noise impacts. The Applicant, Franklin Ave. Acquisition LLC, is seeking several discretionary actions (collectively, the "Proposed Actions") that would facilitate the development of an approximately 1,369,314 gross square foot (gsf) mixed-use commercial/residential development (the "Proposed Development") in the Crown Heights neighborhood of Brooklyn Community District (CD) 9. The Proposed Development would comprise approximately 1,263,039 gsf of residential uses (1,578 dwelling units, of which 50 percent or 789 dwelling units would be affordable), approximately 21,183 gsf of local retail uses, and approximately 9,678 gsf of community facility uses.

The proposed rezoning area is located on the block bound by Montgomery Street, Franklin Avenue, Sullivan Place, and Washington Avenue, on the eastern side of the Franklin Avenue subway shuttle right-of-way, and is comprised of Brooklyn Block 1192, Lots 41, 46, 63, and 66 (the "Development Site"), as well as lot 40 and parts of lot 1, 77, and 85 (the "Project Area"). The Project Area would be rezoned from R6A to R9D with a C2-4 commercial overlay (mapped in the Project Area within 100 feet of Franklin Avenue). The Applicant is also seeking a zoning text amendment to Zoning Resolution (ZR) Appendix F to establish the Project Area as a Mandatory Inclusionary Housing (MIH) area, which would require the construction of permanently affordable residential units on the Applicant-owned and controlled Development Site. The requested LSGD special permit would allow for greater flexibility in site design, particularly the location of buildings on the Development Site, without regard to applicable height and setback regulations, the distance between buildings, and yard regulations. A special permit to waive the parking requirements per ZR section 25-23 is also being requested by the Applicant.

As discussed in **Chapter 14, "Transportation,"** the Proposed Actions are expected to change traffic volumes in the general vicinity of the Project Area. As the Proposed Actions 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 Actions 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. As the Proposed Development would be constructed directly across from an existing playground (i.e., the Jackie Robinson Playground), a play area noise analysis was also conducted to determine whether noise levels generated by the existing playground would result in significant adverse noise impacts for the new sensitive receptors that would be introduced to the Project Area as a result of the Proposed Actions.

B. PRINCIPAL CONCLUSIONS

In the future with the Proposed Actions, the predicted peak period L_{10} values at the receptor locations would range from a minimum of 62.97 A-weighted decibels (dBA) to a maximum of 71.13 dBA. When compared to the future without the Proposed Actions, the relative increases in noise levels are expected to range between 0.29 and 1.56 dBA. The highest increase in noise levels would occur at Receptor Location 2, with a change in L_{eq} of 1.56 dBA during the AM weekday peak hour. As the relative increases in noise levels would fall below the applicable *CEQR Technical Manual* significant adverse impact threshold (3.0 dBA), the Proposed Actions would not result in any significant adverse noise impacts due to action-generated vehicular traffic.

To ensure acceptable interior noise levels, noise attenuation specifications would be mandated through the assignment of an (E) designation (E-586) 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 I, "Attenuation Requirements," of this chapter, state that the future building facades of residential and community facility uses on Block 1192, Lots 41, 46, 63, and 66 with frontage on Franklin Avenue (eastern façade) and Montgomery Street (northern façade) within 50 feet of Franklin Avenue must provide 28 dBA of composite window/wall attenuation. The minimum composite window/wall attenuation for commercial office 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. In order to satisfy the E-designation requirements, OER will have final determination on the OITC requirements, for the northern and eastern facades, for attenuation on any portion of the building above 100 feet.

With implementation of the attenuation levels required pursuant to the (E) designation, the Proposed Development 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 office uses. Therefore, the Proposed Actions 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 17-1**.

TABLE 17-1
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 17-2 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 17-2**, 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 17-2
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. The Day-Night Sound Level (i.e., L_{dn}) refers to a 24-hour average noise level with a 10 dB penalty applied to the noise levels during the hours between 10:00 PM and 7:00 AM, due to increased sensitivity to noise levels during these hours. 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 relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by ten or more decibels. Thus the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

For purposed of this analysis, the maximum one-hour equivalent continuous sound level (i.e., L_{eq}) has been selected as the noise descriptor to be used in the noise impact evaluation. L_{eq} is the noise descriptor recommended for use in the *City Environmental Quality Review (CEQR) Technical Manual* for vehicular traffic and is used to provide an indication of highest expected sound levels. The one-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidance for city environmental impact review classification. The L_{dn} is the noise descriptor used in the U.S. Department of Housing and Urban Development (HUD) Noise Guidebook, which sets exterior noise standards for housing construction projects receiving federal funds.

D. NOISE STANDARDS AND 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 17-3**.

New York CEQR Technical Manual Noise Standards

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 levels (see **Table 17-4**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential uses and 50 dBA or lower for commercial office uses, and are determined based on exterior L_{10} noise levels. Attenuation requirements are shown on the following page in **Table 17-4**.

TABLE 17-3
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 ≤ 60 dBA ----------		---------- 60 < Ldn ≤ 65 dBA ----------		(1) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn		---------- Ldn ≤ 75 dBA ----------
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA		55 < $L_{10} \leq 65$ dBA		65 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ 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 17-4
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*

HUD Development Guidelines

The HUD Noise Guidebook sets exterior noise standards for housing construction projects based on L_{dn} values (see **Table 17-5**). As discussed above, the L_{dn} refers to a 24-hour average noise level with a ten dB penalty applied to the noise levels during the hours between 10:00 PM and 7:00 AM, due to increased sensitivity to noise levels during these hours. If the exterior noise level is 65 L_{dn} to 70 L_{dn}, 25 dBA of noise attenuation must be provided; if the exterior noise level is 70 L_{dn} to 75 L_{dn}, 30 dBA of noise attenuation is required; and if the exterior noise level exceeds 75 L_{dn}, sufficient attenuation must be provided to bring interior levels down to 45 L_{dn} or lower for residential uses.

TABLE 17-5
HUD Exterior Noise Standards

	Acceptable	Normally Unacceptable	Unacceptable
Noise Level with Proposed Actions	$L_{dn} \leq 65$	$65 < L_{dn} \leq 75$	$75 < L_{dn}$

Source: HUD.

For this analysis, L_{dn} levels were estimated using the following equation:

$$L_{dn} = L_{10} - 3$$

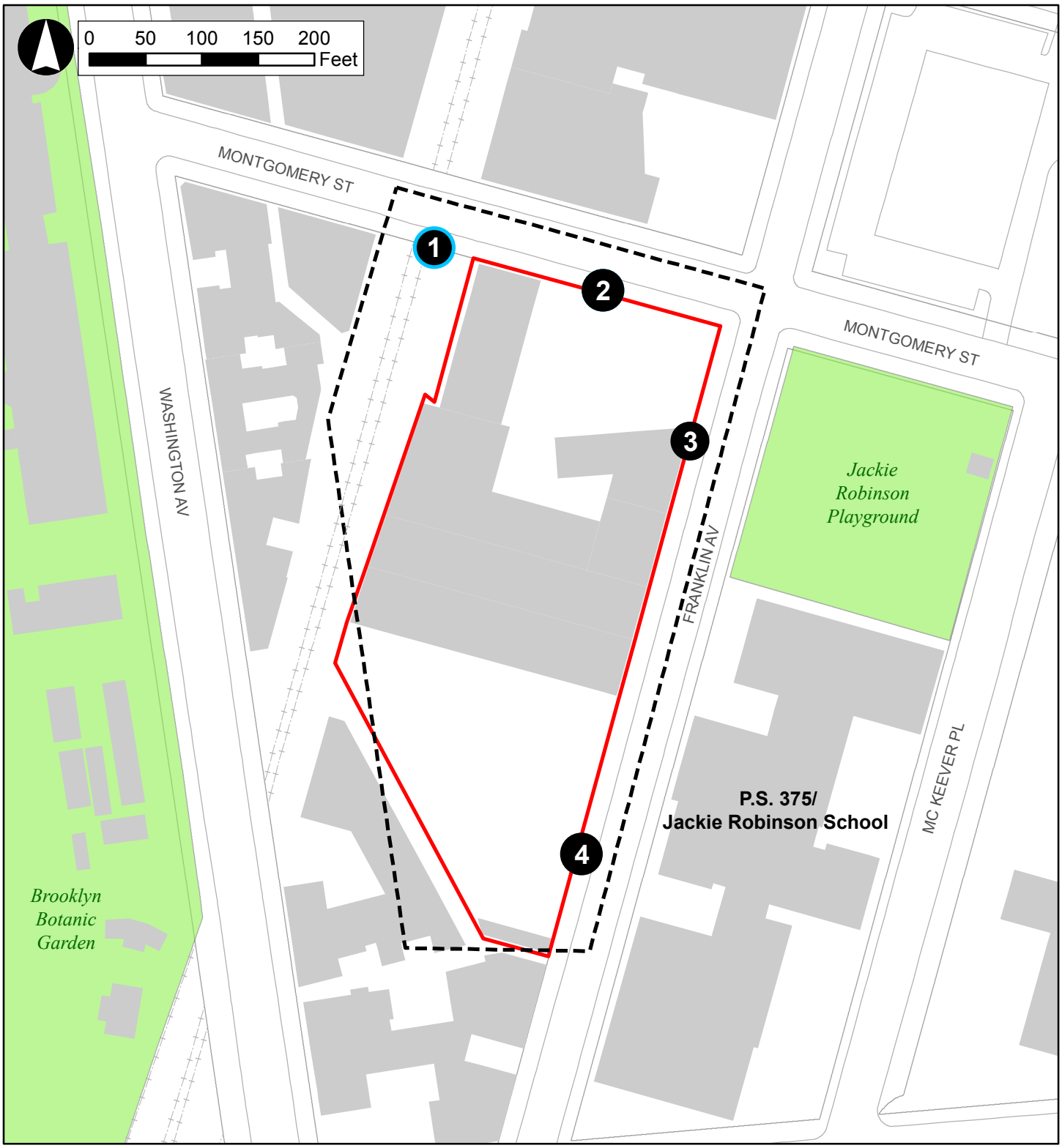
The method used to determine L_{dn} values is to measure the loudest hourly L_{10} for a typical day and then to estimate the L_{dn} from this loudest hourly L_{10}.

E. EXISTING CONDITIONS

As shown in **Figure 17-1**, Franklin Avenue is a one-way southbound street with one travel lane and parking on both sides of the street. Montgomery Street, between Washington Avenue and Franklin Avenue, is a one-way eastbound street with one travel lane and parking on both sides of the street; east of Franklin Avenue, it becomes a two-way street, with one lane in each direction and parking on both sides of the street. Washington Avenue is a two-way street with north- and southbound travel lanes and parking on both sides of the street.

The surrounding area is served by a number of transit options. The MTA New York City Transit 2/3/4/5 subway lines (the Seventh Avenue Express and Lexington Avenue Express) travels on underground tracks beneath Eastern Parkway with a station at Franklin Avenue approximately 1,500 feet north of the Project

Figure 17-1
Noise Monitor Locations



Legend

- 1 Noise Monitor Location (1-Hour)
- 2 Noise Monitor Location (20-Minute)
- Development Site
- Project Area
- Open Subway Cut for MTA Franklin Avenue Shuttle

Area. The Project Area is also adjacent to an open subway cut for the MTA Franklin Avenue Shuttle right-of-way, which runs parallel to Franklin Avenue spanning across tax lot 1, with stations at Botanic Garden (approximately 1,500 feet north of the Project Area) and Prospect Park (approximately 1,500 feet south of the Project Area), the latter of which also provided service to the B (the IND Sixth Avenue Line) and Q (the BMT Broadway Line) subway lines. The MTA B48 bus provides additional service along Franklin Avenue adjacent the Project Area. Additionally, Eastern Parkway is located approximately 1,500 feet north of the Project Area.

Selection of Noise Receptor Locations

The MTA Franklin Avenue Shuttle is the dominant source of noise west of the Project Area, while local traffic is the dominant noise source north, east, and south of the Project Area. The noise receptor locations were selected to be along the perimeter of the future building under the Proposed Actions. The assumption was made that all windows on all frontages of the buildings would be operable. The four selected receptor locations around the Project Area are presented in **Table 17-6** and shown in **Figure 17-1**.

TABLE 17-6
Noise Receptor Locations

Receptor Location / Map ID[1]	Duration	Monitoring Location
1	1 Hour	Intersection of Montgomery Street and MTA Franklin Avenue Shuttle (Montgomery Street, approximately 225 feet west of Franklin Avenue; with a clear direct line-of-sight to Franklin Avenue Shuttle)
2	20 Minutes	Approximate midpoint of Montgomery Street frontage (approximately 112 feet west of Franklin Avenue)
3	20 Minutes	Franklin Avenue Street frontage (approximately 125 feet south of Montgomery Street)
4	20 Minutes	Franklin Avenue Street frontage (approximately 450 feet south of Montgomery Street)

Notes: [1] Refer to **Figure 17-1** for noise receptor locations.

Noise Monitoring

Of the four receptor locations, 20-minute spot measurements of existing noise levels were performed at three receptor locations (Receptor Locations 2, 3, and 4) 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 1 is located in adjacent to the open subway cut for the MTA Franklin Avenue Shuttle, 1-hour measurements of existing noise levels were performed during the same three analysis time periods as Receptor Locations 2, 3, and 4. Noise measurement equipment at Receptor Location 1 was placed with a clear direct line-of-sight to the open subway cut to capture noise from the MTA Franklin Avenue Shuttle. Additional noise measurements were performed at Receptor Locations 2, 3, and 4 during the school dismissal/bus departure (School PM) peak period (2:00PM to 4:00PM), due to the location of both the P.S. 375/Jackie Robinson School located across from the Project Area at 46 McKeever Place, and the Jackie Robinson Playground located just north of the public school roughly bounded by Franklin Avenue to the west, Montgomery Street to the north, and McKeever Place to the east. 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 Franklin Avenue and Montgomery Street. 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.[1]

Noise monitoring was performed on Wednesday, November 1, and Wednesday, November 8, 2017. On November 1, the weather was cloudy and temperatures were in the mid-50s ºF. On November 8, the weather was cloudy and temperatures were in the high 60s 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 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 14ºF and below 122ºF (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 17-7**. Area traffic was the dominant source of noise at the Receptor Locations 2, 3 and 4; train noise was the dominant source of noise at Receptor Location 1. 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 4, which were along the relatively more heavily-trafficked Franklin Avenue.

As shown in **Table 17-7**, the highest L_{10} value was recorded in the AM peak hour at Receptor Location 3 (69.97 dBA), placing this receptor location in the "Marginally Acceptable" Noise Exposure category pursuant to 2014 *CEQR Technical Manual* Guidelines. Receptor locations 2 and 4 had a maximum L_{10} value of 67.26 dBA and 66.78 dBA, respectively, placing each in the "Marginally Acceptable" CEQR Noise Exposure category as well. Receptor Location 1 had L_{10} values that were below 65 dBA during all three peak hours, placing it in the "Acceptable" CEQR Noise Exposure category.

[1] The monitored L_{10} at Receptor Locations 2, 3, and 4 during the School PM weekday peak period was 60.83 dBA, 66.62 dBA, and 63.73 dBA, respectively, which is less than the maximum L_{10} measured during the midday weekday peak period at Receptor Location 2 (67.26 dBA), the AM weekday peak period at Receptor Location 3 (69.97 dBA), and the PM weekday peak period at Receptor Location 4 (66.78 dBA), respectively.

TABLE 17-7
Existing Noise Levels (in dBA) at the Monitoring Locations

Receptor Location[1]	Time[2]	L_{max}	L_{min}	L_{eq}	L_1	L_{10}[3]	L_{50}	L_{90}	CEQR Noise Exposure Category
1	AM	85.02	48.06	62.75	72.82	**64.76**	56.33	52.47	Acceptable
	MD	85.12	45.75	61.61	74.01	63.62	51.20	48.11	
	PM	84.65	47.79	61.54	73.16	63.55	53.08	50.50	
2	AM	75.20	52.40	61.57	69.68	65.09	58.84	55.22	Marginally Acceptable
	MD	89.15	47.12	63.14	74.37	**67.26**	55.10	50.31	
	SC PM	70.84	49.06	57.45	66.07	60.83	54.67	51.76	
	PM	77.14	48.02	59.95	69.37	64.07	55.09	50.53	
3	AM	91.25	51.18	67.83	81.16	**69.97**	58.85	52.98	Marginally Acceptable
	MD	87.84	47.23	64.08	75.44	66.22	54.00	49.94	
	SC PM	88.01	51.07	64.52	74.97	66.62	59.92	55.61	
	PM	89.74	49.17	63.88	74.00	66.02	59.59	53.34	
4	AM	82.78	48.10	63.19	72.77	66.61	59.46	52.48	Marginally Acceptable
	MD	76.67	50.53	61.32	70.92	65.04	56.67	52.10	
	SC PM	77.55	48.95	60.89	70.59	63.73	58.33	54.40	
	PM	81.71	50.41	63.07	72.99	**66.78**	57.73	52.72	

Notes: Field measurements were performed by Philip Habib & Associates on November 1 and November 8, 2017.
[1] Refer to **Figure 17-1** for noise monitoring receptor location.
[2] AM = AM weekday peak period; MD = midday weekday peak period; PM = PM weekday peak period; SC PM = school dismissal/bus departure weekday peak period.
[3] The highest L_{10} noise levels at each monitoring location are shown in **bold**.

Existing L_{dn} Noise Levels

As part of the Proposed Actions, the Proposed Development may receive Federal funding. L_{dn} noise levels were therefore calculated for each receptor location, as described above in the "HUD Development Guidelines" section. Using this methodology, the L_{dn} for Receptor Locations 1, 2, 3, and 4 were estimated to be 61.76 dBA, 64.26 dBA, 66.97 dBA, and 63.78 dBA, respectively. According to HUD criteria, the calculated Existing L_{dn} noise levels at Receptor Locations 1, 2, and 4 would be in the "acceptable" category; the calculated Existing L_{dn} noise levels at Receptor Location 3 would be in the "normally unacceptable" category.

F. NOISE PREDICTION METHODOLOGY

General Methodology

Future noise levels were calculated using a proportional modeling technique, which was uses as a screening tool to estimate change 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 typical weekday AM, midday, and PM peak hours. As discussed above, additional noise measurements were performed at Receptor Locations 2, 3, and 4 during the School PM (2:00 PM to 4:00 PM) peak period, due to the location of both the P.S. 375/Jackie Robinson School located across from the Project Area at 46 McKeever Place, and the Jackie Robinson Playground located just north of the public school.

The selected time periods are when development facilitated by the Proposed Actions would be expected to produce the maximum traffic generation (based on the traffic studies presented in Chapter 14, "Transportation") and, therefore, result in the maximum potential for significant noise level increases. The methodologies used for the noise analyses 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 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-Action and With-Action noise levels. The proportional modeling utilized the future (2024) No-Action and With-Action traffic volumes anticipated within the vicinity of the Project Area, consistent with the vehicle trip assignments presented in Chapter 14, "Transportation."

Vehicular traffic volumes are then 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, 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:

$$FNA\ NL = 10 * \log (NA\ PCE/E\ PCE) + E\ NL$$

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, changes to the study area's traffic network as a result of general background growth and increased travel demand from new, nearby development were factored in. As per *CEQR Technical Manual* guidance, an annual background growth rate of 0.50 percent for the 2024 Build year, plus the estimated incremental travel demand from new development within the vicinity of the Project Area, was applied to the PCE noise values based on the existing vehicle volumes presented in Chapter 14, "Transportation."[2] In order to obtain the necessary With-Action PCE values to calculate the

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

With-Action noise levels, the 2024 With-Action traffic increment assignments presented in Chapter 14, "Transportation", were converted into PCE values and added to the calculated No-Action PCE values.

Play Area Noise

While people are not usually thought of as stationary noise, children in playgrounds or spectators at outdoor sporting events or concerts can introduce additional sources of noise within communities. According to the *CEQR Technical Manual*, noise generated by children in playgrounds or people using parks is considered a stationary source of noise. As noted above, the Jackie Robinson Playground is located directly across the street from a portion of the Proposed Project's eastern frontage. Jackie Robinson Playground, which is a jointly operated playground between the New York City's Department of Parks and Recreation (DPR) and Department of Education (DOE), serves P.S. 375 Jackie Robinson School and Ebbets Field Middle School during school hours, and is open to the public during non-school hours.

Potential noise impacts on the Proposed Project due to the use of Jackie Robinson Playground were determined using methodology based on the measurements and procedures outlined in a study entitled, "Development of Noise Assessment Method for School Playground Noise."[3] This study was conducted for the New York City School Construction Authority (SCA), and included intensive noise monitoring programs at a total of nine schools – one early childhood center, four elementary schools, three intermediate schools, and one high school. Based on the noise monitoring results, hourly equivalent (L_{eq}) noise levels were determined for the various types of schools. **Table 17-8** summarizes the playground boundary L_{eq} noise levels for each school type according to the study. The measurement results and method from the study have been widely recognized in New York City and used for assessing school playground noise impacts for preparation of various environmental reviews approved by the New York City Department of City Planning (DCP) and school development projects approved by the SCA.

To predict potential noise impacts at a given distance from a play area boundary, the study suggests a 4.5 dBA reduction in L_{eq} noise levels per doubling of distance at a distance between 40 and 300 feet, with initial reductions of 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, and 9.1 dBA at 40 feet. Noise levels can be estimated with the following equation at sensitive receptor with a direct line of sight to the play area between 40 to 300 feet:

$$Lp1 = Lp2 - 15*\log(d/10)$$

Where:

Lp1 = the predicted noise level at a specific distance.
Lp2 = the maximum L_{eq} at the boundary of the school play area.
d = the distance from the play area boundary to the sensitive receptor in feet.

[3] Wu, Weixiong, AKRF Inc. "Development of Noise Assessment Method for School Playground Noise," Inter-Noise 2006, Volume 6.

Table 17-8
Maximum Playground Boundary Noise Level in Leq

School Type	Leq Noise Level (in dBA)
Early Childhood Center	71.5
Elementary School	71.4
Intermediate School	71.0
High School	68.2

Source: Wu, Weixiong, AKRF Inc. "Development of Noise Assessment Method for School Playground Noise," Inter-Noise 2006, Volume 6.

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

As described in Chapter 1, "Project Description," in the future without the Proposed Actions, it is anticipated that an as-of-right residential development would be constructed on the Development Site (lots 41, 46, 63, and 66) in two phases pursuant to the existing R6A zoning. Therefore, the No-Action development would include a total of approximately 414,607 gsf or residential uses with approximately 518 market rate condominiums and approximately 259 parking spaces.

Using the methodology described in the previous section, future noise levels in the No-Action condition were calculated for the three analysis periods for the 2024 Build year. **Table 17-9** 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, **Table 17-9** shows that increases in L_{eq} noise level would range from 0.22 dBA to 1.59 dBA at Receptor Locations 2, 3, and 4. As there are no known significant planned changes in train frequency anticipated by the 2024 Build Year, noise resulting from train traffic on the open subway cut for the Franklin Avenue Shuttle 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 1 would be 64.76 dBA, as under existing conditions. 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 receptor locations would range from 61.72 dBA to 70.26 dBA, and noise levels at Receptor Locations 1, 2, and 4 would remain in their same respective CEQR Noise Exposure categories as under existing conditions. However, the projected No-Action L_{10} noise levels at Receptor Location 3 (70.26 dBA) would now fall in the "Marginally Unacceptable (I)" CEQR Noise Exposure category.

TABLE 17-9
2024 No-Action Condition Noise Levels and Total PCE Values at Receptor Locations (in dBA)

Noise Receptor Location	Time	Existing PCEs	No-Action PCEs	Existing Leq	No-Action Leq	Change[1]	No-Action L10[2]	CEQR Noise Exposure Category
1	AM	N/A[3]	N/A	62.75	62.75	0.00	**64.76**	Acceptable
	MD	N/A	N/A	61.61	61.61	0.00	63.62	
	PM	N/A	N/A	61.54	61.54	0.00	63.55	
2	AM	85.0	122.6	61.57	63.16	1.59	66.68	Marginally Acceptable
	MD	182.7	199.2	63.14	63.52	0.38	**67.64**	
	SC PM	153.0	187.6	57.45	58.34	0.89	61.72	
	PM	130.0	163.9	59.95	60.96	1.01	65.08	
3	AM	382.8	409.5	67.83	68.12	0.29	**70.26**	Marginally Unacceptable (I)
	MD	374.0	393.4	64.08	64.30	0.22	66.44	
	SC PM	438.0	467.3	64.52	64.80	0.28	66.90	
	PM	474.8	505.3	63.88	64.15	0.27	66.29	
4	AM	418.2	467.9	63.19	63.68	0.49	67.10	Marginally Acceptable
	MD	339.5	361.8	61.32	61.60	0.28	65.32	
	SC PM	534.0	567.2	60.89	61.15	0.26	63.99	
	PM	446.3	476.8	63.07	63.36	0.29	**67.07**	

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**.
[3] N/A = Not Applicable.

No-Action L_{dn} Noise Levels

As described above in the "HUD Development Guidelines" section, the L_{dn} for Receptor Locations 1, 2, 3, and 4 were estimated according to the methodology described above to be 61.76 dBA, 64.64 dBA, 67.26 dBA, and 64.07 dBA, respectively. According to HUD criteria, the calculated No-Action L_{dn} noise levels at Receptor Locations 1 through 4 would remain in their same respective HUD *Noise Guidebook* categories as under existing conditions.

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

As described above, in the future with the Proposed Actions, two mixed-use buildings would be constructed with a total combined area of approximately 1,369,314 gsf, comprised of approximately 1,263,039 gsf of residential space (1,578 DUs, of which 50 percent or 789 DUs would be affordable), approximately 21,183 gsf of local retail space, approximately 9,678 gsf of community facility space, and parking for approximately 16 percent of all market-rate DUs (75,414 gsf).

Using the methodology described in Section F, future noise levels in the With-Action condition were calculated for the three analysis periods for the 2024 Build year. The With-Action noise levels for all receptor locations are shown in **Table 17-10**. After accounting for additional traffic introduced by the Proposed Actions, the maximum projected L_{10} noise level in the With-Action condition would be 70.71 dBA during the AM peak hour at Receptor Location 3. In terms of CEQR noise exposure guidance, noise levels at Receptor Location 1 would remain in the "Acceptable" CEQR Noise Exposure category, noise levels at Receptor Locations 2 and 4 would remain in the "Marginally Acceptable" CEQR Noise Exposure

category, and noise levels at Receptor Location 3 would remain in the "Marginally Unacceptable (I)" CEQR Noise Exposure category, as under No-Action conditions.

As presented in **Table 17-10**, the maximum increase in L_{eq} noise levels in the With-Action condition (compared to No-Action conditions) for all receptor sites would be 1.56 dBA (at Receptor Location 2). According to *CEQR Technical Manual* guidance, increases of this magnitude would be not be perceptible as they are less than 3.0 dBA, and therefore, 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 Actions would not result in any significant adverse impacts.

TABLE 17-10
2024 With-Action Condition 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	N/A[3]	62.75	62.75	0.00	**64.76**	Acceptable
	MD	N/A	61.61	61.61	0.00	63.62	
	PM	N/A	61.54	61.54	0.00	63.55	
2	AM	175.6	63.16	64.72	1.56	68.24	Marginally Acceptable
	MD	231.2	63.52	64.16	0.65	**68.28**	
	SC PM	250.6	58.34	59.59	1.26	**62.97**	
	PM	226.9	60.96	62.37	1.41	66.49	
3	AM	453.5	68.12	68.57	0.44	**70.71**	Marginally Unacceptable (I)
	MD	420.4	64.30	64.59	0.29	66.73	
	SC PM	516.3	64.80	65.23	0.43	67.33	
	PM	554.3	64.15	64.55	0.40	66.69	
4	AM	551.9	63.68	64.39	0.72	**67.81**	Marginally Acceptable
	MD	398.8	61.60	62.02	0.42	65.74	
	SC PM	618.2	61.15	61.53	0.37	64.37	
	PM	527.8	63.36	63.80	0.44	67.51	

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**.
[3] N/A = Not Applicable.

With-Action L_{dn} Noise Levels

As described above in the "HUD Development Guidelines" section, the L_{dn} for Receptor Locations 1 through 4 were estimated according to the methodology described above. As such, the L_{dn} for Receptor Locations 1, 2, 3, and 4 was determined to be 61.76 dBA, 65.28 dBA, 67.71 dBA, and 64.81 dBA, respectively. According to HUD criteria, the calculated With-Action L_{dn} noise levels at Receptor Locations 1 and 4 would remain in the "acceptable" category, and the calculated With-Action L_{dn} noise levels at Receptor Location 3 would remain in the "normally unacceptable" category, as under Existing and No-Action conditions. However, the calculated With-Action L_{dn} noise levels at Receptor Location 2 would now fall in the "normally unacceptable" category.

Play Area Noise

As the Jackie Robinson Playground serves both public elementary and intermediate level school children, this noise assessment will utilize the maximum playground boundary noise level for public elementary schools presented in **Table 17-8**. Therefore, the referenced noise levels in L_{eq} at the boundary of Jackie Robinson Playground are assumed to be 71.4 dBA.[4]

Due to the location of Jackie Robinson Playground, the portion of the Proposed Project's eastern frontage directly across the street from the playground at a distance of 70 feet would experience L_{eq} play area noise levels of up to 58.7 dBA (refer to **Table 17-11**).

Table 17-11
Noise Levels due to Jackie Robinson Playground (in dBA)

Sensitive Receptor	Distance to Play Area (in feet)	Maximum Playground Boundary Noise Level (in Leq)	Estimated Playground Noise at Receptor (L_{eq}) (in dBA)
Eastern Façade of Proposed Project (facing Jackie Robinson Playground)	70	71.4	58.7

As shown in **Table 17-12** below, based on the logarithmic relationship, the combined noise levels from (1) the worst-case L_{eq} play area noise level of 58.7 dBA at a distance of 70 feet from Jackie Robinson Playground's western boundary to the Proposed Project's eastern frontage, and (2) the predicted With-Action background noise levels during the weekday peak hours were calculated. After calculating the predicted combined L_{eq} and L_{10} noise levels at Receptor Location 3, the portion of the Proposed Project's eastern façade facing Jackie Robinson Playground would remain in the "Marginally Unacceptable (I)" CEQR Noise Exposure category. Comparing the predicted combined L_{eq} noise levels with No-Action noise levels, increases in noise levels at the Receptor Location 3 would range from 0.87 to1.41 dBA. Increases of these magnitudes would not be perceptible as they are less than 3.0 dBA, and based upon CEQR impact criteria would not be significant.

[4] Wu, Weixiong, AKRF Inc. "Development of Noise Assessment Method for School Playground Noise," Inter-Noise 2006, Volume 6.

Table 17-12
Measured and Predicted Noise Levels at the Proposed Project's Eastern Façade Facing Jackie Robinson Playground (Receptor Location 3)

Receptor Location[1]	Period	Predicted No-Action L_{eq} (in dBA)[2]	Predicted With-Action L_{eq} (in dBA)[2]	Predicted L_{eq} due to Jackie Robinson Playground (in dBA)	Predicted Combined L_{eq} (in dBA)	Change in L_{eq} from No-Action Conditions (in dBA)[3]	Predicted Combined L_{10} (in dBA)[4]
3	AM	68.12	68.57	58.7	68.99	0.87	71.13
	MD	64.30	64.59		65.59	1.29	67.73
	SC PM	64.80	65.23		66.11	1.31	68.25
	PM	64.15	64.55		65.56	1.41	67.70

Notes:
[1] Keyed to **Figure 17-1**.
[2] Highest L_{10} noise value indicated in **bold**.
[3] As playground noise from the existing Jackie Robinson Playground would exist in both the future No-Action and With-Action conditions, any predicted changes in L_{eq} between the No-Action and With-Action condition would be considered as highly conservative.
[4] For conservative purposes, predicted combined L_{10} noise levels at Receptor Location 3 were calculated by combining the predicted combined L_{eq} and the most conservative difference between L_{eq} and L_{10} monitored noise levels at Receptor Location 3 (2.14 dBA) under existing conditions.

I. ATTENUATION REQUIREMENTS

CEQR

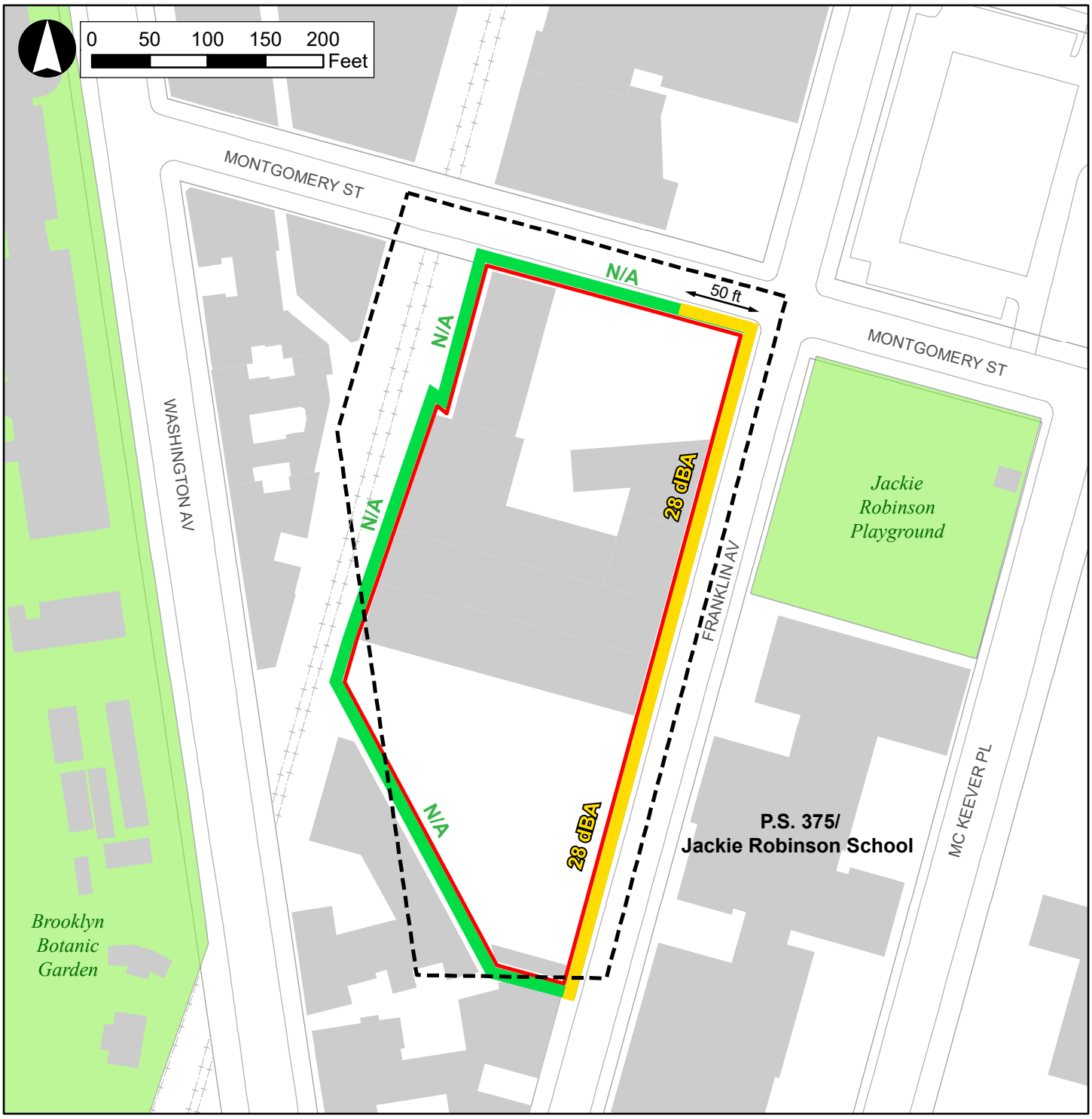
As shown above in **Table 17-4**, the *CEQR Technical Manual* has set noise attenuation requirements for buildings based on exterior noise levels. Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential/community facility uses and 50 dBA or lower for commercial office uses, and are determined based on exterior L_{10} noise levels. As noted in **Table 17-4**, 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 17-13** below and shown in **Figure 17-2**.

Table 17-13 shows the minimum window/wall attenuation necessary to meet *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations based on the predicted With-Action L_{10} noise levels discussed above.

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. The Proposed Development would be designed to provide a composite Outdoor-Indoor Transmission (OITC) rating greater than or equal to the attenuation requirements listed in **Table 17-13** and shown in **Figure 17-2**. 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.

Figure 17-2

CEQR Window/Wall Attenuation Requirements



FOR ILLUSTRATIVE PURPOSES ONLY

Legend

Development Site

Project Area

CEQR window/wall attenuation requirements for residential/community facility uses
(Refer to Table 17-16)

N/A | 28 dBA | 31 dBA | 33 dBA | 35 dBA

*Attenuation requirements for commercial uses would be 5 dBA less.

TABLE 17-13
Proposed Development Window/Wall Attenuation Requirements

Frontage	Associated Receptor Location[1]	Maximum With-Action L_{10} (in dBA)	CEQR Minimum Required Attenuation (in dBA)[2]	Maximum With-Action L_{dn} (in dBA)	HUD Minimum Required Attenuation (in dBA)[3]
Western Façade (Franklin Avenue Shuttle)	1	64.76	N/A[4]	61.76	N/A
Northern Façade (Montgomery Street; >50 from Franklin Avenue)	2	68.28	N/A	65.28	25
Northern Façade (Montgomery Street; ≤50 from Franklin Avenue)	3	71.13[5]	28	65.28[6]	25
Eastern Façade (Franklin Avenue)	3	71.13[5]	28	68.13	25
Southern Façade	4	67.81	N/A	64.81	N/A

Notes: [1] Receptor locations shown in **Figure 17-1**; required attenuation levels are shown in **Figure 17-2**.
[2] The above composite window/wall attenuation values are for residential/community facility uses. Commercial office uses would be 5.0 dBA less in each category. All the above categories require a closed window situation and an alternate means of ventilation.
[3] The composite window/wall attenuation values are for residential uses only.
[4] N/A = Not Applicable. Additional noise attenuation measures above standard construction practices are not required to achieve interior noise levels of 45 dBA or lower for residential/community facility uses.
[5] Predicted L_{10} noise levels based on play area noise analysis (refer to Table 17-12).
[6] For the HUD noise analysis, all northern frontages facing Montgomery Street are associated with Receptor Location 2.

As presented in **Table 17-13**, to satisfy CEQR noise level requirements at the Development Site, residential/community facility uses must provide 28 dBA window/wall attenuation along Franklin Avenue and along Montgomery Street within 50 feet of Franklin Avenue, as well as an alternate means of ventilation. The minimum composite building façade attenuation for commercial office uses would be 5 dBA less than that for residential/community facility uses. All other future building facades will not require any special attenuation measures beyond standard construction practices.

(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, as part of the Proposed Actions, an (E) designation for noise would be recorded against the property that would introduce new noise

sensitive receptors as a result of the Proposed Actions (i.e., Block 1192, Lots 41, 46, 63, and 66). The text for the (E) designation E-586 would be as follows:

> **Block: 1192, Lots: 41, 46, 63, and 66**
>
> **To ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 28 dBA window/wall attenuation on all facades facing Franklin Avenue and the facades facing Montgomery Street within 50 feet of Franklin Avenue to maintain an interior noise level not greater than 45 dBA for residential and 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.**

Per the (E) designation requirements, in order to receive a Certificate of Occupancy from the NYC Department of Buildings (DOB) the Proposed Actions must comply with these required composite window/wall attenuation values in order to maintain proper interior noise levels. OER will have final determination on the OITC requirements for attenuation above 100 feet from the base plane on the northern and eastern facades. With this institutional control in place, the Proposed Development would not result in any significant adverse noise impacts related to building attenuation and no further analysis is necessary.

HUD

As described above in the "HUD Development Guidelines" section, the L_{dn} noise levels for the receptor locations were estimated and are shown above in **Table 17-13**. Based on the methodology for estimating the L_{dn} value described above, the L_{dn} noise levels were determined to be 61.76 dBA at Receptor Location 1, 65.28 dBA at Receptor Location 2, 68.13 dBA at Receptor Location 3, and 64.81 dBA at Receptor Location 4. According to HUD criteria, the calculated With-Action L_{dn} noise levels at Receptor Locations 1 and 4 would fall in the "acceptable" category, and the calculated With-Action L_{dn} noise levels at Receptor Locations 2 and 3 would fall in the "normally unacceptable" category. To satisfy HUD development guidelines, any future residential uses within the Project Area would require a minimum of 25 dBA of building attenuation at the northern (facing Montgomery Street) and eastern (facing Franklin Avenue) facades (refer to **Table 17-13** and **Figure 17-3**). For the Proposed Development, the HUD requirements for façade attenuation, as well as the requirement for an alternate means of ventilation, would be required through the Restrictive Declaration (RD) that would govern the provisions of the proposed LSGD.

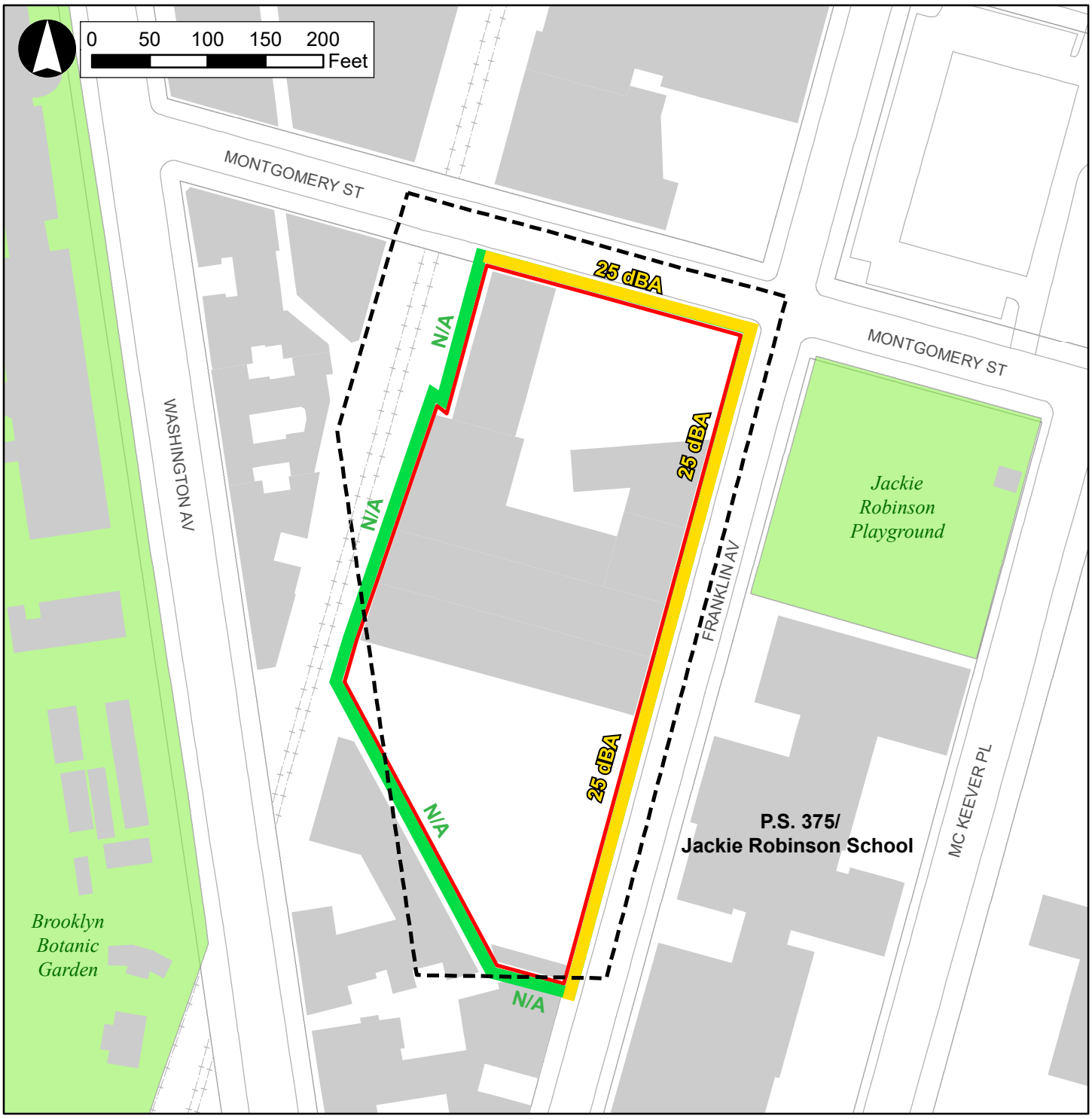
J. OTHER NOISE CONCERNS

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

Figure 17-3

HUD Window/Wall Attenuation Requirements



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Legend

Development Site

Project Area

HUD window/wall attenuation requirements for residential uses
(Refer to Table 17-16)

N/A 25 dBA 30 dBA

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.