A. INTRODUCTION

This chapter considers the potential for the Proposed Actions to result in significant adverse noise impacts. As described in **Chapter 1, "Project Description,"** approval of the Proposed Actions would facilitate the redevelopment of portions of four blocks in the East New York neighborhood of Brooklyn Community District (CD) 5. The Project Area includes Block 1555, Lots 1 and 19; Block 1576, Lots 1, 9, 13, 32, and 34; and Block 1577, Lots 1, 7, 17, 26, 32, 35, 51, 53, 56, and 58. According to the guidance of the 2021 *CEQR Technical Manual*, an initial noise impact screening considers whether a proposed project would generate any mobile or stationary source noise or be located in an area with high ambient noise levels. A noise analysis examines a project for its potential effects on sensitive noise receptors, and the effects on the interior noise levels of residential, commercial, and institutional uses.

As discussed in **Chapter 13, "Transportation,"** the Proposed Actions would change traffic volumes in the general vicinity of the Project Area. Therefore, a mobile source 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. Furthermore, because the Proposed Actions would introduce new noise-sensitive receptors, an analysis of cumulative noise exposure, including vehicular sources, at these receptors was conducted to determine the necessary level of window/wall attenuation at each projected development site in the Project Area and evaluate noise levels at newly introduced project-generated open space.

Consequently, the noise analysis is focused on the level of building attenuation necessary to ensure that interior noise levels within the newly introduced residential uses would satisfy applicable interior noise criteria.

B. PRINCIPAL CONCLUSIONS

A noise analysis was conducted based on the methodology set forth in the 2021 *CEQR Technical Manual* and determined that the Proposed Actions would not result in significant adverse noise impacts. The analysis determined that increased traffic volumes generated by the Proposed Actions would not result in significant adverse noise impacts as the relative increases in noise levels would fall well below the applicable 2021 *CEQR Technical Manual* significant adverse impact threshold (3.0 dBA).

Table 16-10 shows the minimum window/wall attenuation necessary to meet 2021 *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations. Based on the values shown in **Table 16-10**, window/wall attenuation would be required in order to provide acceptable interior noise levels per the 2021 *CEQR Technical Manual* noise exposure guideline. These noise levels account for noise from projected vehicular traffic in the future as well as contribution from existing railway noise. These values are summarized in **Table 16-11** and shown in **Figure 16-2**. To ensure window/wall attenuation at the projected development sites in the Project Area, an (E) designation (E-857) for noise would be applied, specifying the required amount of required window/wall attenuation. With implementation of the attenuation levels outlined in **Table 16-11**, the projected development sites would provide sufficient window/wall attenuation to achieve the 2021 *CEQR Technical Manual* interior noise

level guidelines. Therefore, the Proposed Actions would not result in any significant adverse noise impacts related to noise attenuation.

C. ACOUSTICAL FUNDAMENTALS

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called "decibels" (dB). The particular character of the sound that we hear (e.g., a whistle compared with a diesel engine, for example) is determined by the speed, or "frequency," at which the air pressure fluctuates, or "oscillates." Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz (Hz). People can hear over a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily discernable and therefore more intrusive than many of the lower frequencies (e.g., diesel truck engine).

"A"-Weighted Sound Level (dBA)

To establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted decibel level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in **Table 16-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (e.g., a library) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

TABLE 16-1
Noise Levels of Common Sources

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

Source: 2021 *CEQR Technical Manual*.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office, at 50 dBA, is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable.

Sound Level Descriptors

Because the sound pressure level unit of dBA describes a noise level at just one moment and few noises are constant, other ways of describing noise that fluctuates over extended periods have been developed.

One way is to describe the fluctuating sound heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus, the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

A descriptor for cumulative 24-hour exposure is the day-night average sound level, abbreviated as L_{dn}. This is a 24-hour measurement that accounts for the moment-to-moment fluctuations in A-weighted noise levels due to all sound sources, combined. Mathematically, the L_{dn} noise level is the energy average of all $L_{eq(1)}$ noise levels over a 24-hour period, where nighttime noise levels (10 p.m. to 7 a.m.) are increased by 10 dBA before averaging because of increased noise sensitivity during nighttime, when people are typically sleeping.

For purposes of the Proposed Actions, the L_{eq} descriptor has been selected as the noise descriptor to be used in this noise impact evaluation. Consistent with 2021 *CEQR Technical Manual* guidance, the 1-hour L_{10} descriptor is used to determine the required attenuation values to achieve acceptable interior noise levels when vehicular traffic is the dominant noise source, and the L_{dn} descriptor is used to determine the required attenuation values to achieve acceptable interior noise levels when railways are the dominant noise source.

D. NOISE STANDARDS AND CRITERIA

New York CEQR Noise Criteria

The 2021 *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 16-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

TABLE 16-2
Noise Exposure Guidelines for Use in City Environmental Impact Review

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------	NA	NA	NA	(i) 65 < Ldn ≤ 70 dBA, (ii) 70 ≤ Ldn	NA	---------- Ldn ≤ 75 dBA ----------
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA	---------- 60 < Ldn ≤ 65 dBA ----------	$65 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
Residence, residential hotel, or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient public health facility		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)	
Commercial or office		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10PM)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more.

(ii) *CEQR Technical Manual* noise criteria for train noise are similar to the above aircraft noise standards; the noise category for train noise is found by taking the L_{dn} value for such train noise to be an L_{dn} (L_{dn} contour) value.

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

[2] Tracts of land where serenity and quiet are extraordinarily important and serve an important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks, or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.

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

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

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

The 2021 *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table 16-3**). Recommended noise attenuation values for buildings are designed to maintain an interior L_{10} noise level of 45 dBA for residential and community facility uses and 50 dBA for commercial office uses when vehicular traffic is the dominant noise source, and an interior L_{dn} noise level of 40 dBA for residential and community facility uses and 45 dBA for commercial office uses when trains are the dominant noise source.

TABLE 16-3
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

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

Notes:
[A] DNL descriptor based on average values of L_{dn} over a year period.
[B] The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dBA less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
[C] The required attenuation value is the difference between L_{build} and $L_{interior}$, using the appropriate noise descriptor
Where:
L_{build} is the projected noise level under the build condition rounded up to the whole number
$L_{interior}$ is the designed interior noise level (45 dBA for vehicular noise, 40 dBA for aircraft and train noise)
Source: DEP.

E. EXISTING NOISE LEVELS

A total of nine receptor locations around the Project Area were selected for evaluation of noise attenuation requirements. These locations are detailed below in **Table 16-4** and shown in **Figure 16-1**.

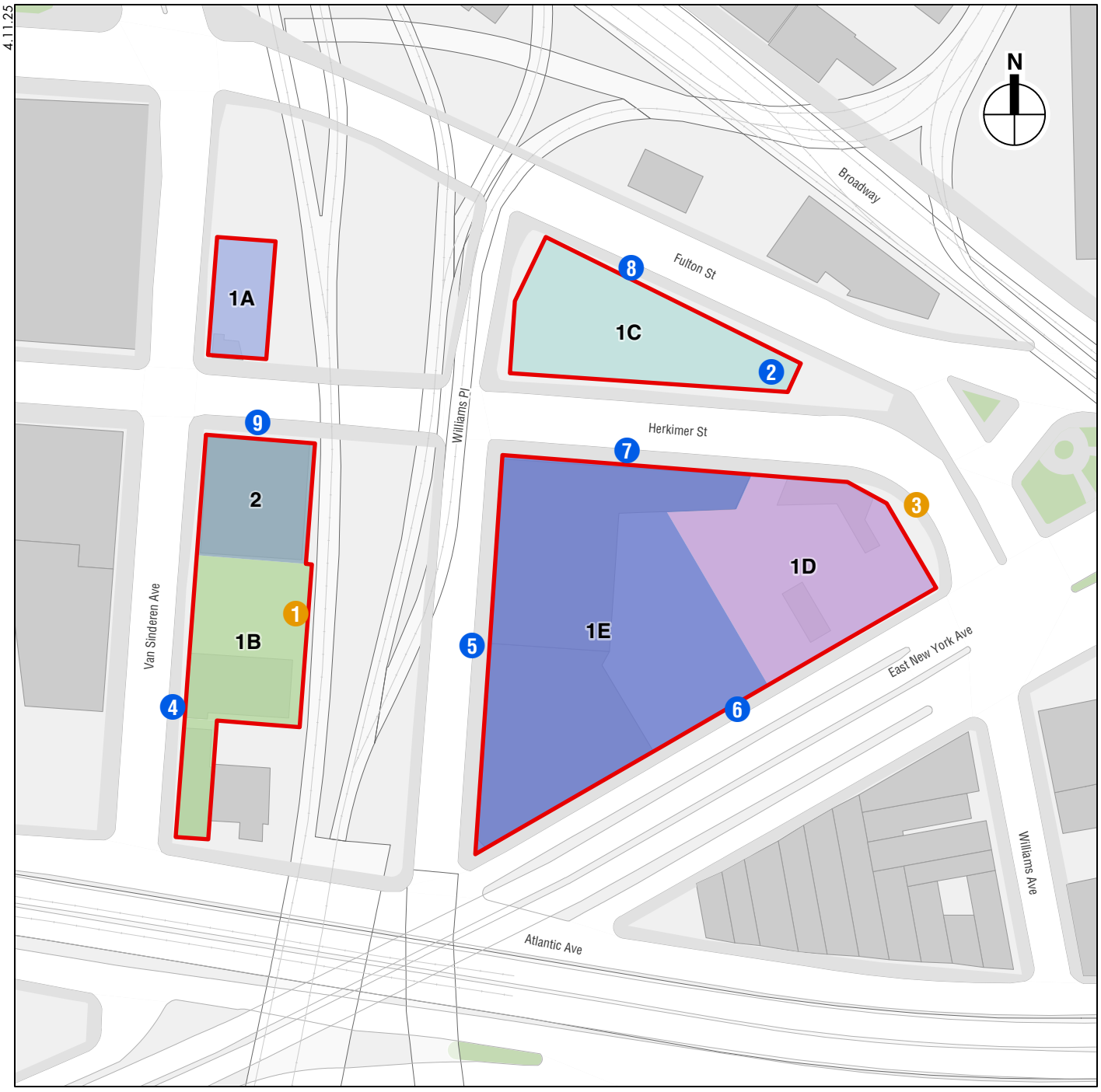
TABLE 16-4
Noise Measurement Locations

Noise Receptor Site	Location
1	Block 1576 Mid-Block Along Rail Line [Elevated]
2	Block 1577 East Boundary between Fulton and Herkimer Streets
3	Herkimer Street north of East New York Avenue [Elevated]
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue
5	Williams Place between Herkimer Street and Atlantic Avenue
6	East New York Avenue between Williams Place and Herkimer Street
7	Herkimer Street east of Williams Place
8	Fulton Street east of Williams Place
9	Herkimer Street between Van Sinderen Avenue and Williams Place

At receptor site 1, a 24-hour continuous noise level measurement was conducted on the existing building approximately 100 feet above grade. At receptor site 2, a 24-hour continuous noise level measurement was conducted at grade within Projected Development Site 1C. At receptor sites 3 through 9, 60-minute spot noise measurements were conducted during the typical weekday AM (7:00 AM—9:00 AM), midday (12:00 PM—2:00 PM), and PM (4:00 PM—6:00 PM) peak periods. Additionally, at receptor site 3, the microphone was placed on a pole at a height of approximately 12 feet above the ground surface and approximately six feet or more away from any large sound-reflecting surface to avoid major interference with sound propagation. Lastly, at receptor sites 4 and 6, where vehicular traffic is the dominant source, an additional 60-minute measurement was conducted during the Saturday (12:00 PM—2:00 PM) peak period. Measurements were conducted on October 22 and 23, 2024, and on January 11 and 16, 2025.

Equipment Used During Noise Monitoring

Measurements were performed using three Brüel & Kjær Types 2250/2270 Sound Level Meters (SLMs), one NTi Type XL2 SLM, three Brüel & Kjær Type 4189 1/2-inch microphones, one NTi Type M2230 1/2-inch microphone, two Brüel & Kjær Type 4231 Sound Level Calibrators, and one Larson Davis Type CAL200 Sound Level Calibrators. The Brüel & Kjær and NTi SLMs are Class 1 instruments according to ANSI



Noise Measurement Locations

HERKIMER WILLIAMS

Figure 16-1

Standard S1.4-1983 (R2006). The SLMs have a laboratory calibration date within the past one year at the time of use. The SLMs were calibrated before and after readings with either a Brüel & Kjær Type 4231 or Larson Davis Type CAL200 Sound Level Calibrator using the appropriate adaptor. The data were digitally recorded by the SLMs and displayed at the end of the measurement period in units of dBA. Measured quantities included the L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. Windscreens were used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

Noise Measurement Results

The results of the existing noise level measurements are summarized in **Tables 16-5** and **16-6**.

TABLE 16-5
Existing Noise Levels at Receptor Sites 3-9 (in dBA)

Receptor Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
3	Herkimer Street north of East New York Avenue [Elevated]	AM	70.4	79.9	72.7	67.4	63.6
		MD	68.1	75.8	70.8	66.4	63.2
		PM	70.0	79.7	72.4	66.7	63.1
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue	AM	65.6	76.9	68.8	60.2	56.5
		MD	64.7	74.3	67.8	61.0	57.8
		PM	68.7	75.5	69.2	61.4	56.3
		SAT	66.5	78.0	68.5	58.4	53.7
5	Williams Place between Herkimer Street and Atlantic Avenue	AM	76.0	86.7	81.9	64.2	59.9
		MD	73.1	82.8	78.6	65.2	59.0
		PM	74.0	84.3	80.1	61.6	56.6
6	East New York Avenue between Williams Place and Herkimer Street	AM	65.3	74.0	67.6	63.4	59.1
		MD	65.0	74.1	67.7	62.7	58.2
		PM	66.6	77.4	68.8	63.1	58.3
		SAT	62.2	68.2	64.8	61.0	56.4
7	Herkimer Street east of Williams Place	AM	69.0	76.6	74.3	64.0	55.9
		MD	67.3	76.1	71.9	62.7	57.6
		PM	69.3	78.6	75.3	62.8	54.4
8	Fulton Street east of Williams Place	AM	69.1	77.2	72.8	66.6	58.6
		MD	67.1	75.6	71.2	63.2	55.3
		PM	69.4	80.4	72.3	65.3	58.4
9	Herkimer Street between Van Sinderen Avenue and Williams Place	AM	80.6	94.6	78.0	64.4	60.2
		MD	79.0	92.6	76.9	63.5	55.2
		PM	79.4	93.6	75.7	61.0	53.8

Note: Measurements were of 60-minute duration and were performed by AKRF, Inc. on October 22 and 23, 2024, and on January 11 and 16, 2025.

At receptor site 4, trains are the existing dominant noise source due to direct line of sight to the elevated L subway line. However, when new development at Projected Development Site 1B is complete, shielding of rail-generated noise from Building B on Projected Development Site 1B would result in vehicular traffic along Van Sinderen Avenue becoming the dominant noise source at receptor site 4. At receptor site 6, vehicular traffic at the intersection of East New York Avenue and Herkimer Street was the dominant noise source. Measured levels are moderate and reflect the dominant noise sources. In terms of the CEQR criteria, the existing noise levels at receptor sites 4 and 6 are in the "marginally acceptable" category.

TABLE 16-6
Existing Noise Levels at Receptor Sites 1 and 2 (in dBA)

Receptor Site	Measurement Location	Maximum Hour	Measured L_{eq} at Maximum Hour
1	Block 1576 Mid-Block Along Rail Line [Elevated]	6:00 PM	75.1
2	Block 1577 East Boundary between Fulton and Herkimer Streets	5:00 PM	68.7
Note: Twenty-four-hour continuous noise measurements conducted by AKRF, Inc. on October 22 and 23, 2024.			

For receptor sites 1 and 2, railway was the dominant noise source. Measured levels are relatively moderate to high and reflect the level of rail activity. Since the dominant source of noise at receptor site 1 (i.e., elevated L subway line) is also the dominant source at receptor sites 5, 7, and 9, hourly noise levels at receptor site 1 were used to establish a 24-hour sound level profile at receptor sites 5, 7, and 9. Since the dominant source of noise at receptor site 2 (i.e., elevated J/Z subway line) is also the dominant source at receptor sites 3 and 8, hourly noise levels at receptor site 2 were used to establish a 24-hour sound level profile at receptor sites 3 and 8. The L_{eq} levels at these locations, based on the measured and projected 24-hour sound level profiles, were used to retrieve the L_{dn} at each receptor site. The results are shown in **Table 16-7**.

TABLE 16-7
Measured and Calculated L_{dn} at Train Dominant Receptor Sites (in dBA)

Receptor Site	Measurement Location	L_{dn}	Noise Profile Receptor Site Based on[1]
1	Block 1576 Mid-Block Along Rail Line [Elevated]	78.1	N/A
2	Block 1577 East Boundary between Fulton and Herkimer Streets	70.4	N/A
3	Herkimer Street north of East New York Avenue [Elevated]	75.3	2
5	Williams Place between Herkimer Street and Atlantic Avenue	78.5	1
7	Herkimer Street east of Williams Place	71.0	1
8	Fulton Street east of Williams Place	74.7	2
9	Herkimer Street between Van Sinderen Avenue and Williams Place	83.9	1

Notes:
[1] N/A indicates the L_{dn} was calculated from a 24-hour measurement instead of a noise profile.
[2] Measurements were performed by AKRF, Inc. on October 22 and 23, 2024, and on January 11 and 16, 2025.

In terms of the CEQR criteria, the existing noise levels at receptor sites 2, 7, and 8 are in the "marginally unacceptable" category, and the existing noise levels at receptor sites 1, 3, 5, and 9 are in the "clearly unacceptable" category.

F. NOISE PREDICTION METHODOLOGY

General Methodology

Future noise levels (including in the future without the Proposed Actions and the future with the Proposed Actions) at the receptor sites where vehicular traffic is the dominant source of noise (i.e., receptor sites 4 and 6) were conservatively estimated using a proportional modeling technique. The proportional modeling technique is an analysis methodology recommended for analysis purposes in the 2021 *CEQR Technical Manual*. The selected time periods are when the development facilitated by the Proposed Actions would be expected to result in the maximum traffic generation, and therefore result in the maximum potential for significant adverse noise impacts. The proportional modeling used for the noise analysis is described below.

Proportional Modeling

Proportional modeling is one of the techniques recommended in the 2021 *CEQR Technical Manual* for mobile source analysis.

Using this technique, the prediction of future noise levels where traffic is the dominant noise source is based on a calculation using measured existing noise levels and predicted changes in traffic volumes to determine No-Action condition and With-Action condition noise levels. Vehicular traffic volumes are converted into Noise Passenger Car Equivalent (Noise PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars. Future noise levels (including No-Action and With-Action conditions) are calculated using the following equation:

$F\ NL = E\ NL + 10 * \log_{10} (F\ PCE / E\ PCE)$

where:

F NL = Future Noise Level

E NL = Existing Noise Level

F PCE = Future Noise PCEs

E PCE = Existing Noise PCEs

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

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

Using the methodology previously described, 2036 No-Action condition noise levels were calculated at receptor sites 4 and 6, where vehicular traffic was dominant, during each of the analysis periods. These No-Action values are shown in **Table 16-8**.

Comparing the future 2036 No-Action condition with existing conditions, the maximum increase in $L_{eq(1)}$ noise levels would be 3.7 dBA or less. Increases of this magnitude would be considered just noticeable according to 2021 *CEQR Technical Manual* guidance.

In terms of CEQR noise exposure guidelines, No-Action condition noise levels at receptor site 4 would be in the “marginally unacceptable” category, and noise levels at receptor site 6 would remain in the “marginally acceptable” category.

TABLE 16-8
No-Action Condition Noise Levels (in dBA)

Receptor Site	Measurement Location	Time	Existing $L_{eq(1)}$	No Action $L_{eq\ (1)}$	$L_{eq(1)}$ Change	No Action $L_{10(1)}$[1]
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue	AM	65.6	69.2	3.6	72.4
		MD	64.7	67.5	2.8	70.6
		PM	68.7	71.8	3.1	72.3
		SAT	66.5	70.2	3.7	72.2
6	East New York Avenue between Williams Place and Herkimer Street	AM	65.3	66.1	0.8	68.4
		MD	65.0	65.5	0.5	68.2
		PM	66.6	67.1	0.5	69.3
		SAT	62.2	62.8	0.6	65.4

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

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

Using the methodology previously described, 2036 With-Action condition noise levels were calculated at receptor sites 4 and 6, where vehicular traffic was dominant, during each of the analysis periods. These With-Action values are shown in **Table 16-9**.

Comparing the future 2036 With-Action condition with No-Action condition, the maximum increase in $L_{eq(1)}$ noise levels would be 1.8 dBA or less. Increases of this magnitude would be considered barely noticeable according to 2021 *CEQR Technical Manual* guidance.

In terms of CEQR noise exposure guidelines, With-Action condition noise levels at receptor sites 4 and 6 would be in the "marginally unacceptable" category.

TABLE 16-9
With-Action Condition Noise Levels (in dBA)

Receptor Site	Measurement Location	Time	No-Action $L_{eq(1)}$	With-Action $L_{eq\ (1)}$	$L_{eq(1)}$ Change	With-Action $L_{10(1)}$[1]
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue	AM	69.2	70.2	1.0	73.4
		MD	67.5	69.0	1.5	72.1
		PM	71.8	72.3	0.5	72.8
		SAT	70.2	72.0	1.8	74.0
6	East New York Avenue between Williams Place and Herkimer Street	AM	66.1	67.9	1.8	70.2
		MD	65.5	66.5	1.0	69.2
		PM	67.1	67.9	0.8	70.1
		SAT	62.8	63.5	0.7	66.1

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

I. NOISE ATTENUATION MEASURES

As shown in **Table 16-3**, the 2021 *CEQR Technical Manual* has set noise attenuation values for buildings based on exterior noise levels in order to maintain acceptable interior noise levels for residential, community facility, and commercial office uses.

Table 16-10 shows the minimum window/wall attenuation necessary to meet 2021 *CEQR Technical Manual* requirements for internal noise levels at each of the noise measurement locations. The With-

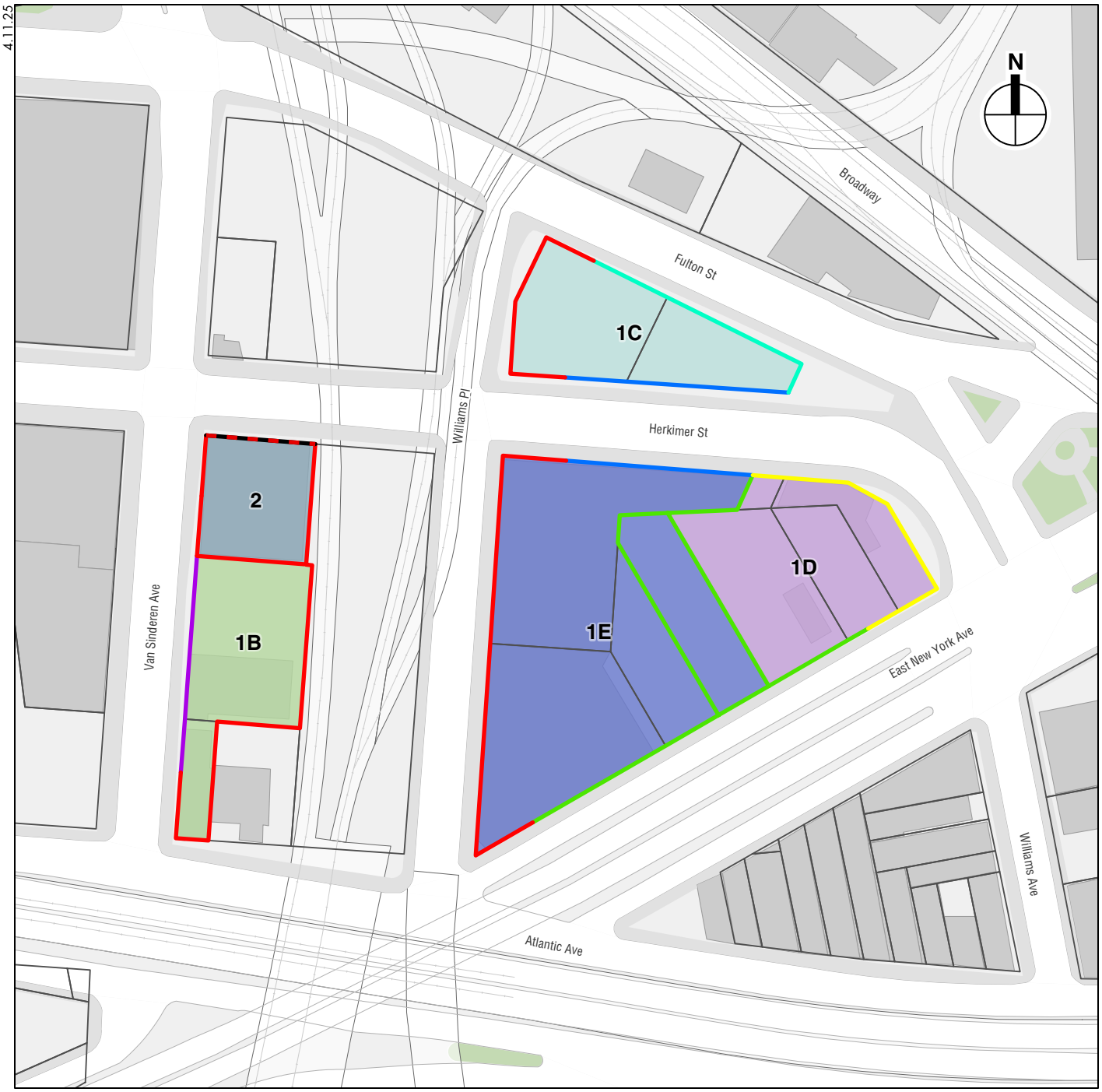
Action condition $L_{10(1)}$ noise levels at locations where vehicular traffic is the dominant source of noise were determined as described above and include the noise contribution from vehicular traffic on adjacent roadways. At receptor sites where the elevated subway was the dominant noise source, the measured existing L_{dn} noise levels were used to establish those in the With-Action condition since service is not expected to change in the future.

TABLE 16-10
Minimum Building Attenuation to Comply With CEQR Requirements (in dBA)

Site	Location	Observed Dominant Noise Source	Applicable Noise Exposure Descriptor	Noise Exposure	Required Building Attenuation[1]
1	Block 1576 Mid-Block Along Rail Line [Elevated]	Railway	L_{dn}	78.1	39
2	Block 1577 East Boundary between Fulton and Herkimer Streets	Railway	L_{dn}	70.4	31
3	Herkimer Street north of East New York Avenue [Elevated]	Railway	L_{dn}	75.3	36
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue	Vehicular Traffic	L_{10}	74.0	31
5	Williams Place between Herkimer Street and Atlantic Avenue	Railway	L_{dn}	78.5	39
6	East New York Avenue between Williams Place and Herkimer Street	Vehicular Traffic	L_{10}	70.2	28
7	Herkimer Street east of Williams Place	Railway	L_{dn}	72.6	3
8	Fulton Street east of Williams Place	Railway	L_{dn}	74.7	35
9	Herkimer Street between Van Sinderen Avenue and Williams Place	Railway	L_{dn}	83.9	44

Note:
[1] Required attenuation values shown are for residential or community facility use. Commercial office uses would require 5 dBA less attenuation.

Based on the values shown in **Table 16-10**, window/wall attenuation would be required in order to provide acceptable interior noise levels per the 2021 *CEQR Technical Manual* noise exposure guideline. These noise levels account for noise from projected vehicular traffic in the future as well as contribution from existing railway noise. These values are summarized in **Table 16-11** and shown in **Figure 16-2**.



Required Building Noise Attenuation

HERKIMER WILLIAMS

Figure 16-2

TABLE 16-11
Minimum Required Attenuation at Projected Development Sites (in dBA)

Projected Development Site	Façade(s)	Associated Noise Measurement Site(s)[1]	Required Attenuation[2,3]
(Projected Development Site 1B) Development Building 1B Block 1576, Lots 1 and 34	North facing Interior of Block 1576, Lot 9	1, 5	39
	East facing Williams Place		
	South facing Atlantic Avenue		
	West along Van Sinderen within 50 feet of Atlantic Avenue		
	West facing Van Sinderen Avenue more than 50 feet away Atlantic Avenue	4	31
(Projected Development Site 1C) Development Building 1C Block 1577, Lots 17 and 26	North facing Fulton Street more than 50 feet away from Williams Place	8	35
	East facing Fulton Street	8, 2	35
	West facing Williams Place	5	39
	North along Fulton Street within 50 feet of Williams Place		
	South along Herkimer Street within 50 feet of Williams Place		
	South facing Herkimer Street more than 50 feet away from Williams Place	7, 2	33
(Projected Development Site 1D) Development Building 1D Block 1577, Lots 32, 35, 51, 53	North and East facing Herkimer Street	3	36
	South facing East New York Avenue within 50 feet of Herkimer Street		
	North and West facing Interior of Block 1577	6	28
	South facing East New York Avenue more than 50 feet away from Herkimer Street		
(Projected Development Site 1E) Development Building 1E Block 1577, Lots 1, 7, 56, 58	West facing Williams Place and north and south	5	39
	North facing Herkimer Street within 50 feet of Williams Place		
	South facing East New York Avenue within 50 feet of Williams Place		
	North facing Herkimer Street more than 50 feet away from Williams Place	7	33
	East facing Interior of Block 1577	6	28
	South facing East New York Avenue more than 50 feet away from Williams Place		
(Projected Development Site 2) Development Building 2 Block 1576, Lot 9	North (Below Elevation of Adjacent L Train Tracks) facing Herkimer Street	9	44
	North (Above Elevation of Adjacent L Train Tracks) facing Herkimer Street	1	39
	West facing Van Sinderen		
	East facing Williams Place	1, 5	39

Notes:
[1] Attenuation Requirement determined by the greater Associated Noise Measurement Site.
[2] Attenuation values are shown for residential dwellings or community facility uses; commercial office uses would require 5 dBA less attenuation.
[3] "N/A" indicates that the highest calculated L_{10} is below 70 dBA. The 2021 *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L_{10} values below this level.

To ensure attenuation at the projected development sites within the Project Area, an (E) designation (E-857) for noise would be applied, specifying the required amount of required window/wall attenuation. The text of the (E) designation would be as follows:

To ensure an acceptable interior noise environment, the building façade(s) of future development on the sites shown in Table 16-10 must provide minimum composite building façade attenuation as shown in Table 16-10, in order to maintain an acceptable interior noise level not greater than the thresholds specified for residential, community facility, or commercial office. To maintain a closed-window condition in these areas, and alternate means of ventilation that brings outside air into the building without degrading the acoustical performance of the building façade(s) must also be provided.

J. MECHANICAL SYSTEMS

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