A. INTRODUCTION

This chapter assesses the potential for the Proposed Actions to result in significant adverse noise impacts. As described in Chapter 1, "Project Description," the Proposed Actions include modifications to the previously approved Stevenson Commons large scale residential development (LSRD) (CP-22380) and City-aided limited-profit housing (CP-22381) to reflect the proposed predominantly residential development on Bronx Block 3600, Lots 4, 10, 15, 20, 30, 40, and 50. ~~Lot 4 to~~The Proposed Actions would facilitate the construction of an approximately 826,209 gross square foot ("gsf") mixed-use development (the "Proposed Project"). The new development would be spread across six building on the Stevenson Commons site (referred to as Buildings B1, B2, B3, B4, B5, and B6) and would result in an incremental (net) increase of approximately 735 dwelling units (DUs) (including 621 income-restricted housing units and 114 affordable independent residences for seniors (AIRS)), approximately 33,995 gsf of community facility uses (including an approximately 19,879 gsf child care center and approximately 14,116 gsf of indoor recreational space for community recreational needs and in support of the adjacent tennis courts), and approximately 1.94 acres of publicly accessible open space and an additional 0.68 acres of private open space. The Proposed Project would also provide approximately 466 parking spaces in the Project Area (a net decrease of 104 spaces). The Project Area (former Tax Lot 4 on Block 3600) recently underwent a tax lot subdivision that apportioned it into eight tax lots to facilitate future residential development. The Proposed Project would occupy the western and southwestern segments of the overall Project Area (Tax Lots 4, 10, 15, 20, 30, 40, and 50, the "Development Site"), with the existing Stevenson Commons development comprising the northeastern and eastern portion of the Project Area (Tax Lot 25)~~Additionally, while the Project Area currently exists as Tax Block 3600, Lot 4, it is undergoing a proposed subdivision and will be apportioned into eight new tax lots to facilitate future residential development, as discussed in Section G below~~.

As discussed in Chapter 11, "Transportation," approval of the Proposed Actions would change traffic volumes in the general vicinity of the Project Area. As the Proposed Actions would generate or reroute vehicular traffic, 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. 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 publicly accessible space would include an approximately 5,135 sf play area (located between Buildings B1 and B2) and ~~a~~ new tennis courts (relocated directly to the west of Building 3), a play area noise analysis was also conducted to determine whether project-generated noise levels from the proposed play area and relocated tennis courts would result in significant adverse noise impacts for nearby sensitive receptors.

B. PRINCIPAL CONCLUSIONS

The analysis finds 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 *CEQR Technical Manual* significant adverse impact threshold (3.0 dBA).

Based on the calculated With-Action L_{10} noise levels, window/wall attenuations would be required for future residential/community facility uses at the Development Site through an (E) designation (E-626) which would be established as part of approval of the Proposed Actions.

With implementation of the attenuation levels outlined in Section H, "Attenuation Requirements," ~~below~~ and described in Table 14-12, the Proposed Actions and subsequent development would provide sufficient attenuation to achieve the *CEQR Technical Manual* interior noise level guidance. Therefore, the Proposed Actions would not result in any significant adverse impacts related to noise attenuation.

C. NOISE FUNDAMENTALS

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

"A"-Weighted Sound Level (dBA)

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in Table 14-1, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 120 dBA.

TABLE 14-1
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
Public Library	40
Soft Whisper at 5 meters	30
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Source: *2020 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.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of ~~ten~~ 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 ~~three~~ 3 dBA. At ~~five~~ 5 dBA, the change will be readily noticeable.

Community Response to Changes in Noise Levels

Table 14-2 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 14-2, 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 14-2
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 relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

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. These are the descriptors recommended by the *CEQR Technical Manual* for City environmental impact review classification. The L_{dn} is the noise descriptor used in the *HUD Noise Guidebook* and sets exterior noise standards for housing construction projects receiving federal funds.

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 14-3.

The *CEQR Technical Manual sets* Noise Exposure standards and classifies noise exposure 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 14-4.

TABLE 14-3

Noise Exposure Guidance 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 14-4

Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise level with proposed development	70<L_{10}≤73	73<L_{10}≤76	76<L_{10}≤78	78<L_{10}≤80	80<L_{10}
Attenuation	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	36 + (L_{10} - 80)[B] dB(A)

Notes: [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 / 2020 *CEQR Technical Manual*

D. NOISE PREDICTION METHODOLOGY

Proportional Modeling

Proportional modeling was used to determine the No-Action and With-Action noise levels at each of the three receptor locations adjacent to the Project Area, as discussed in more detail below. Proportional modeling is one of the techniques recommended in the *CEQR Technical Manual* for mobile source analysis.

Using this technique, the prediction of future noise levels (where traffic is the dominant noise source) is based on a calculation using measured existing noise levels and predicted changes in traffic volumes to determine No-Action and With-Action noise levels. Vehicular traffic volumes (counted during the noise recording), are converted into passenger car equivalent (PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 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:

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 2028 No-Action noise levels, an annual background growth rate of 0.25 percent for years one through five, and 0.125 percent for years six and beyond ~~through 12 for the 2028 Build Year~~ was applied to the PCE noise values based on counted vehicles.[1] The proportional modeling utilized the future (2028) With-Action traffic volumes anticipated within the vicinity of the Project Area, consistent with the vehicle trip assignments presented in Chapter 11~~2~~, "Transportation." No-Action and With-Action vehicular traffic volumes were then converted into PCE values in accordance with the methodology described above.

[1] The background growth rate is based on information provided in Table 16-4 of the 20203~~14~~ *CEQR Technical Manual.*

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, a publicly accessible play area and tennis courts are proposed for the northern and western portion of the Project Area, respectively. The proposed play area will be located between Buildings B1 and B2, and the proposed tennis courts will be located directly west of Building 3. As such, a play area noise analysis was conducted to determine the need for additional attenuation requirements for the building façades with frontage on the new play area and/or tennis courts.

Potential noise impacts for the Proposed Actions due to the use of the proposed play area and tennis courts were determined using methodology based on the measurements and procedures outlined in a study entitled, "Development of Noise Assessment Method for School Playground Noise" (2006).[2] 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 receptors 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.

In certain situations these values may overstate play area noise levels.

Proposed Buildings B1, B2, B3, and B4, as well as the existing residential buildings at 1865 Lafayette Avenue and 717 Thieriot Avenue, would have the greatest potential for noise level impacts due to noise from the proposed play area and tennis courts. Specifically, the eastern and southern façades of Building B1, the western and southern façades of Building B2, the northern and western façades of Building B3, the northern façades of Building B4, the southern façade of 1865 Lafayette Avenue, and the eastern façade of 717 Thieriot Avenue would be the most likely to experience noticeable noise level increases during certain limited periods due to the proposed play area and tennis courts, as they are adjacent to ~~the~~ these stationary noise sources and would have a direct line of sight.

Table 14-5 shows the results of the playground noise assessment at these receptors using the methodology described above for predicting play area-generated noise levels. As indicated in the table, the maximum predicted L_{eq} noise levels along the eastern and southern façades of proposed Building B1 due to the proposed publicly accessible play area only would be 68.9 dBA; the maximum predicted L_{eq} play area noise levels along the western and southern façades of proposed Building B2 would be 64.7 dBA and 57.2 dBA, respectively; the maximum predicted L_{eq} play area noise levels along the northern and

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

western façades of proposed Building B3 would be 60.9 dBA; the maximum predicted L_{eq} play area noise levels along the northern façades of proposed Building B4 would be 59.8 dBA; the maximum predicted L_{eq} play area noise levels along the southern façade of the existing residential building at 1865 Lafayette Avenue would be 52.3 dBA; and the maximum predicted L_{eq} play area noise levels along the east façade of the existing residential building at 717 Thieriot Avenue would be 55.3 dBA. The predicted play area noise levels presented in Table 14-5 will be utilized to determine the maximum predicted L_{eq} and L_{10} noise levels at each sensitive receptor by combining the predicted play area noise values with predicted With-Action noise values based on the proportional modeling methodology, further detailed in Section G, "The Future with the Proposed Actions (With-Action Condition)." ~~below.~~

TABLE 14-5
Highest Predicted Noise Levels due to the Proposed Publicly Accessible Play Area and Tennis Courts Only (in dBA)

Receptor Location		Closest Approximate Distance (feet) to Proposed Play Area and/or Tennis Courts	Play Area L_{eq} at Receptor (in dBA)
Building	**Façade**		
B1	Eastern	15	68.9
	Southern	15	68.9
B2	Western	30	64.7
	Southern	90	57.2
B3	Northern	50	60.9
	Western	50	60.9
B4	Northern	60	59.8
1865 Lafayette Avenue	Southern	190	52.3
717 Thieriot Avenue	Eastern	120	55.3

Notes: Play Area L_{eq} noise levels presented in this table do not factor in background noise levels.

Impact Significance Criteria

According to *CEQR Technical Manual*, for the purposes of determining a significant impact during daytime hours, it is reasonable to consider a L_{eq} noise level of 65 dBA as an absolute noise level that should not be significantly exceeded. Therefore, a significant noise impact would occur at a sensitive noise receptor (i.e., residences, play areas, parks, schools, libraries and houses of worship) during daytime hours under the following circumstances:

- A noise increase of 3 dBA or greater is predicted in the future as a result of the proposed action (the With-Action condition), when the future noise levels without the proposed action (the No-Action condition) is at 62 dBA or greater; or

- When the No-Action noise level is below 62 dBA, a predicted noise increase with the proposed action exceeds the difference between 65 dBA and the No-Action noise level. For example, if the No-Action noise level is 61 dBA, then the maximum noise increment with the proposed action would be 4 dBA, since an increase higher than 4 dBA would result in a noise level that exceeds the 65 dBA L_{eq} significant impact threshold.

- Additionally, an increase of With-Action noise levels by 5 dBA over a No-Action noise level that is below 60 dBA would be considered significant.

E. EXISTING CONDITIONS

As shown in Figure 14-1, the Project Area is located on a rectangular superblock bounded by Lafayette Avenue to the north, White Plains Road to the east, Seward Avenue to the south, and Thieriot Avenue to the west. The Development Site, which is located on the western and southern portions of the Project Area, contains frontages along Lafayette, Seward, and Thieriot avenues; the Development Site does not contain any frontages along White Plains Road. Lafayette Avenue is a 100-foot-wide, two-way arterial roadway with two-lanes carrying traffic east and west with a parking lane on both sides and separated bike lanes located in between the traffic and parking lanes. Seward Avenue is an 80-foot-wide, two-way collector roadway carrying traffic east and west with parking lanes on both sides. Thieriot Avenue is a 70-foot-wide, two-way local roadway carrying traffic north and south with parking lanes on both sides. As described above, the Proposed Project will have no frontage along White Plains Road, though it is a 100-foot-wide, two-way arterial roadway carrying traffic north and south with parking on both sides of the street.

Selection of Noise Receptor Locations

As discussed above, local traffic is the dominant source of noise in the vicinity of the Project Area. A total of three noise receptor locations were selected to be along the perimeter of the future buildings under the Proposed Actions for evaluation of potential noise impacts and noise attenuation requirements, in consultation with DCP. The three selected receptor locations surrounding the Project Area are presented in Table 14-6 and shown in Figure 14-1.[3]

TABLE 14-6
Noise Receptor Locations

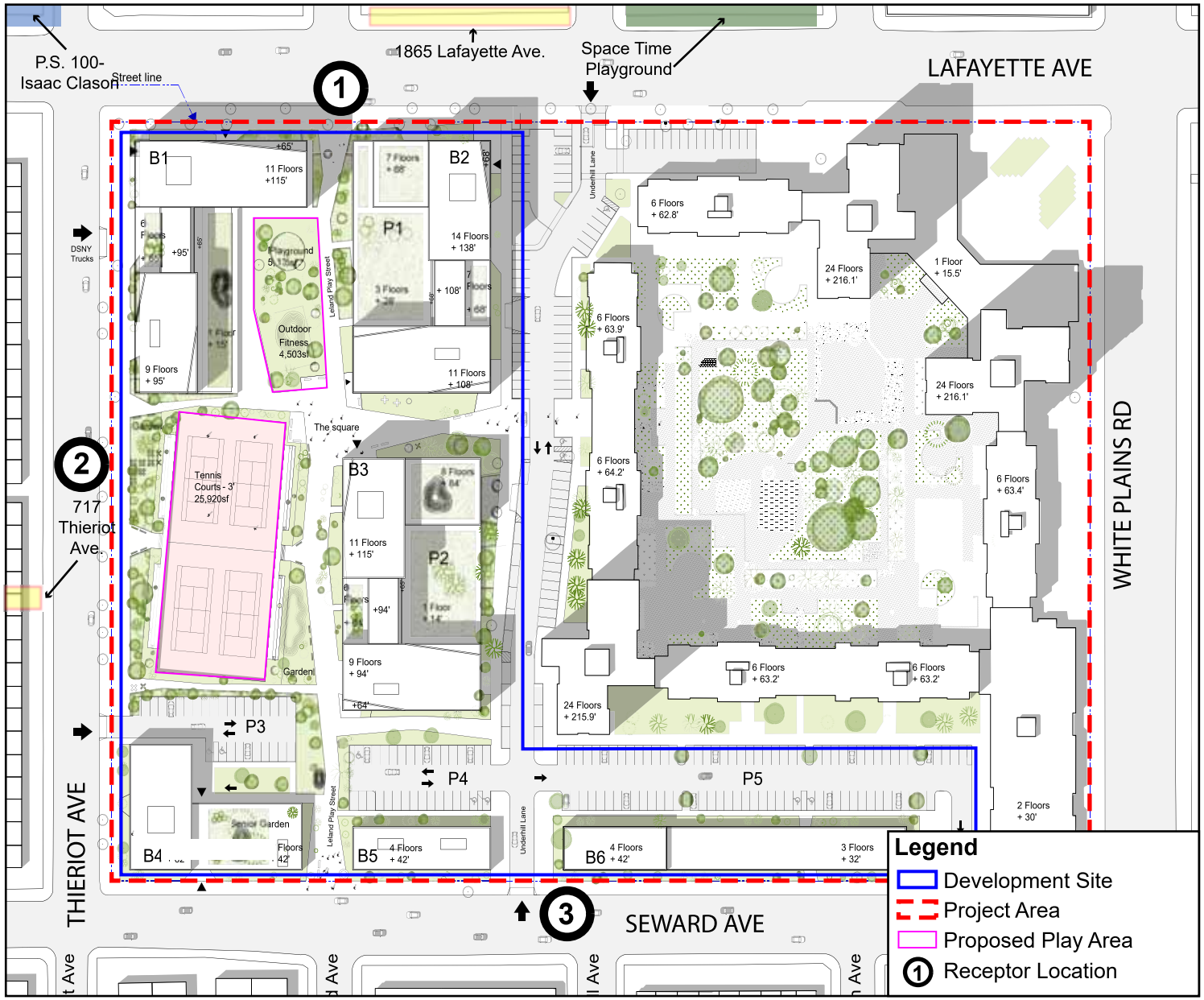
Receptor Location / Map ID[1]	Monitoring Location
1	Midpoint of the Development Site's northern frontage along Lafayette Avenue (approximately 200 feet east of Thieriot Avenue)
2	Midpoint of the Development Site's western frontage along Thieriot Avenue (approximately 350 feet south of Lafayette Avenue)
3	Midpoint of the Development Site's southern frontage along Seward Avenue (approximately 425 feet east of Thieriot Avenue)

Notes: [1] Refer to **Figure 14-1** for noise receptor locations.

Noise Monitoring

Given the constraints in performing noise and traffic (e.g., vehicle classification) data collection due to the COVID-19 pandemic, this noise analysis utilizes noise and traffic data from both the approved *1965 Lafayette Avenue Rezoning EAS (2017)* (ULURP Nos. C-170392-ZMK; N-170393-ZRX) and the *1755 Watson*

[3] It should be noted that due to the COVID-19 pandemic and the resultant constraints in performing data collection, no noise data were physically collected from the three identified receptor locations surrounding the Project Area. Instead, and in consultation with DCP, noise data from nearby, recently approved environmental studies (*1965 Lafayette Avenue Rezoning EAS* and *1755 Watson Avenue Rezoning EAS*) were used as supplemental noise data to establish a baseline noise environment for the three identified receptor locations to be analyzed in this EAS, which is further detailed in the following sub-section, "Noise Monitoring."



Stevenson Commons
This Figure has been updated for the FEIS

Figure 14-1
Noise Receptor Locations

Avenue Rezoning EAS (2016) (ULURP Nos. 170150ZMX; 170151ZRX). By establishing a baseline noise environment utilizing comparable receptor locations presented in the *1965 Lafayette Avenue Rezoning EAS* and *1755 Watson Avenue Rezoning EAS*, the noise analysis for the Stevenson Commons project can effectively determine the potential for significant adverse noise impacts along the Development Site's frontages, as well as the potential need for attenuation along the Proposed Project's building façades. The noise analyses presented in these two approved rezonings are described in greater detail below.

1965 Lafayette Avenue Rezoning EAS (2017)

The 1965 Lafayette Avenue project site (Bronx Block 3672, p/o Lot 1) is located directly northeast of the Project Area and shares several roadways with those fronting the Project Area (i.e., Lafayette Avenue and White Plains Road). As described in Attachment L, "Noise," of the *1965 Lafayette Avenue Rezoning EAS*, noise monitoring was conducted at three nearby receptor locations in relation to the Development Site: receptor location 1 was located on Turnbull Avenue (a 60-foot-wide, two-way local roadway) approximately 115 feet east of White Plaines Road; receptor location 2 was located on Lafayette Avenue approximately 115 feet east of White Plains Road; and receptor location 3 was located on White Plains Road approximately 100 feet north of Lafayette Avenue (refer to Figure 14-2).

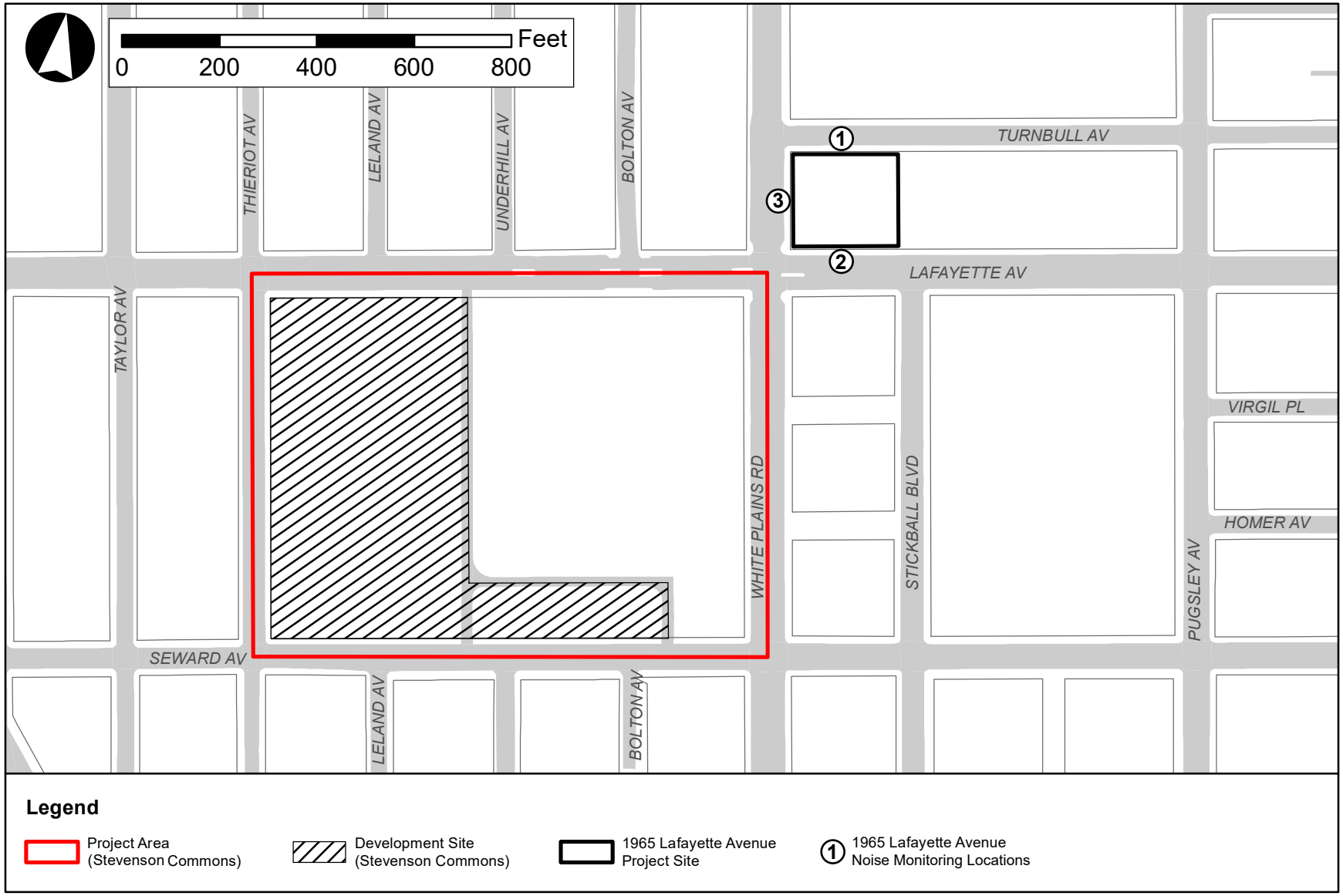
As the 1965 Lafayette Avenue Rezoning's Project Area is located directly adjacent to the Stevenson Commons Project Area, and as the two projects contain street frontage from either the same (Lafayette Avenue) or comparable types of roadways (Lafayette Avenue compared to Seward Avenue), it was determined that the noise and traffic data collected and utilized for the *1965 Lafayette Avenue Rezoning EAS* would be appropriate in establishing the baseline noise environment within the vicinity of the Development Site. Specifically, Receptor Locations 1 (Lafayette Avenue) and 3 (Seward Avenue) would utilize data associated with receptor location 2 (Lafayette Avenue) of the 1965 Lafayette Avenue project.

According to the *1965 Lafayette Avenue Rezoning EAS*, 20-minute spot measurements of existing noise levels at the receptor locations were performed for each of the three noise analysis time periods, including the weekday AM peak hour (8:00 AM to 9:00 AM), the weekday midday peak hour (12:00 PM to 1:00 PM), and the weekday PM peak hour (5:00 PM to 6:00 PM). In addition, due to the location of the existing public school (at 1960 Pugsley Avenue; Block 3604, Lot 39), supplemental monitoring was conducted at receptor location 2 (Lafayette Avenue) during the school PM dismissal/bus departure peak hour (2:30 PM to 3:30 PM) to determine whether higher (worst-case) noise levels occurred outside of the identified AM, midday, and PM peak hours.[4] Noise monitoring was performed on Tuesday, September 13, and Thursday, October 13, 2016. The weather on September 13 was partly cloudy with temperatures in the 70s and the weather on October 13 was mostly cloudy with temperatures in the 60s.

1755 Watson Avenue Rezoning EAS (2016)

The 1755 Watson Avenue project site (Bronx Block 3751, Lot 1) is located approximately ~~0.5~~half-a-mile northwest of the Project Area and is bordered by several roadways similar to those fronting the Project Area. As described in Attachment M, "Noise," of the *1755 Watson Avenue Rezoning EAS*, noise monitoring was conducted at three nearby receptor locations in relation to the project site: Noise Monitoring Site 1 was located on Rosedale Avenue (an 80-foot-wide, two-way local roadway) approximately 160 feet north of Watson Avenue; Noise Monitoring Site 2 was located on Watson Avenue (an 80-foot-wide, two-way

[4] As detailed in the *1965 Lafayette Avenue Rezoning EAS (2017)*, the monitored L_{eq} during the school PM peak hour was 65.9 dBA, which is greater than the L_{eq} measured at receptor location 2 during the AM and midday peak hours (64.8 dBA and 64.6 dBA, respectively) but lower than the L_{eq} measured during the PM peak hour (66.7 dBA). Therefore, the noise levels monitored during the school PM peak hour were not used for noise analysis at receptor location 2.



Stevenson Commons

Figure 14-2
1965 Lafayette Avenue
Noise Monitoring Locations

local roadway) approximately 100 feet east of Rosedale Avenue; and Noise Monitoring Site 3 was located on Commonwealth Avenue (a 60-foot-wide, one-way local roadway) approximately 100 feet north of Lafayette Avenue (refer to Figure 14-3).

As the *1755 Watson Avenue Rezoning*'s Proposed Development Site is located within a half-mile from the Stevenson Commons Project Area, and as the two projects contain street frontages that are considered to be comparable types of roadways (Rosedale Avenue compared to Thieriot Avenue), the noise and traffic data collected and utilized for the *1755 Watson Avenue Rezoning EAS* would be appropriate in establishing the baseline noise environment for any western-facing façades at the Stevenson Commons Development Site. Specifically, Receptor Location 2 (Thieriot Avenue) would utilize data associated with Noise Monitoring Site 1 (Rosedale Avenue) of the *1755 Watson Avenue* project.

According to the *1755 Watson Avenue Rezoning EAS*, spot measurements of existing noise levels at the noise receptor locations were performed for each of the three noise analysis time periods, including the weekday AM, midday, and PM peak hours.

Equipment Used During Noise Monitoring

1965 Lafayette Avenue Rezoning EAS (2017)

The instrumentation used for the measurements collected for the *1965 Lafayette Avenue Rezoning EAS* was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær 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 & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at the receptor locations 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 14°F and below 122°F (pursuant to ANSI Standard S1.13-2005).

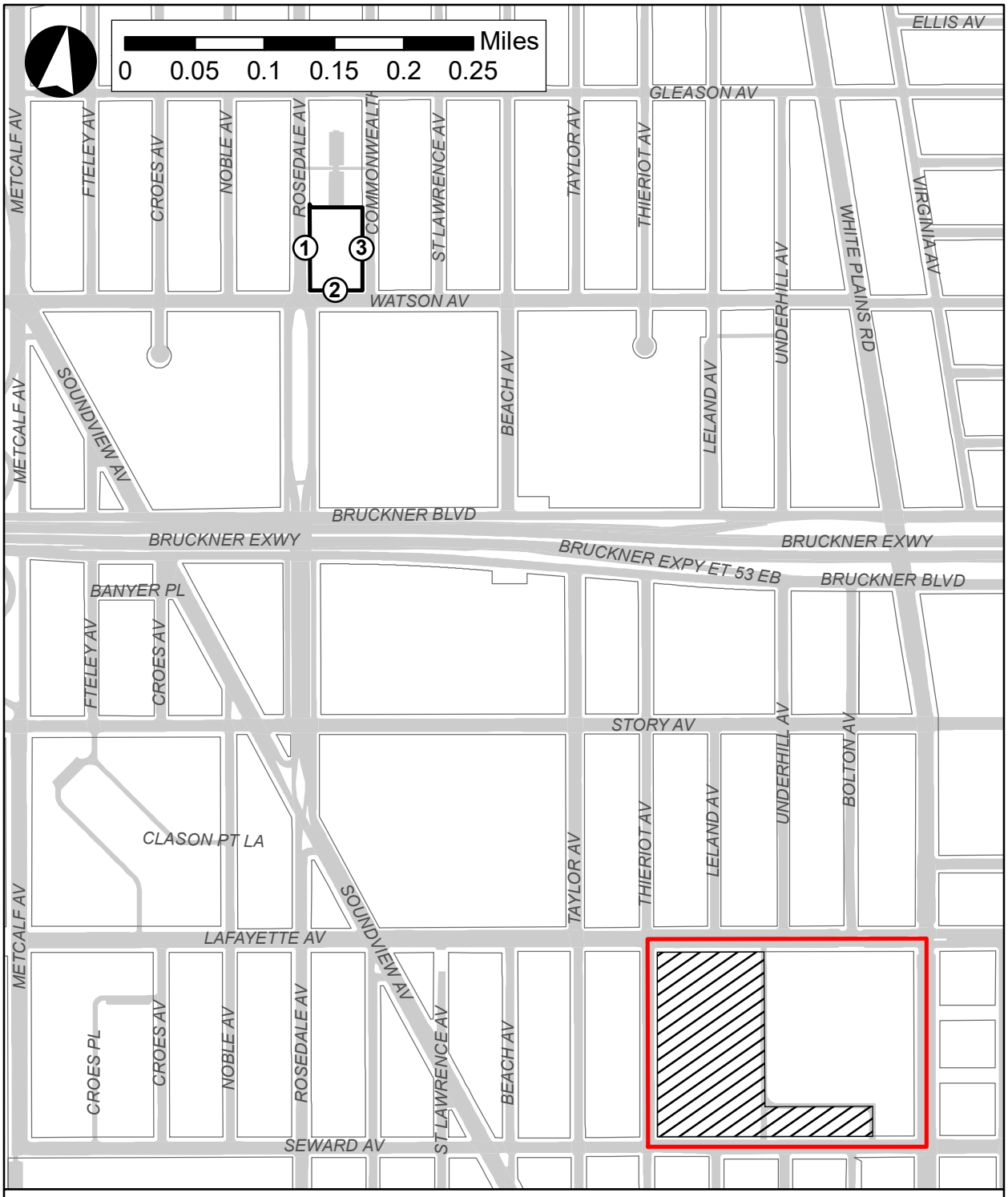
1755 Watson Avenue Rezoning EAS (2016)

The instrumentation used for the measurements collected for the 1755 Watson Avenue Rezoning EAS is not detailed in that EAS's noise attachment. However, it is assumed that the instrumentation used and the conditions during noise measurement collection were consistent with the American National Standards Institute (ANSI) S1.13-2005.

Existing Noise Levels at the Noise Receptor Locations

The existing noise levels at each of the receptor locations are shown below in Table 14-7. As noted above, area traffic is the dominant source of noise at the receptor locations. The existing noise levels reflect the moderate level of vehicular activity on the roadways adjacent to the Development Site, with the highest existing noise levels observed at Receptor Location 1, during the PM peak hour.

Figure 14-3
1755 Watson Avenue
Noise Monitoring Locations



Legend

- Project Area (Stevenson Commons)
- Development Site (Stevenson Commons)
- 1755 Watson Avenue Project Site
- ① Noise Monitoring Site (1755 Watson Avenue)

As shown in Table 14-7, noise levels are generally highest during the weekday AM and PM peak periods. The highest L_{10} noise value was observed at Receptor Locations 1 and 3, measuring 69.5 dBA in the weekday PM peak period. Existing L_{10} noise levels at Receptor Location 1 ranged from 67.7 dBA to 69.5 dBA; existing L_{10} noise levels at Receptor Location 2 ranged from 67.9 dBA to 68.9 dBA; and existing L_{10} noise levels at Receptor Location 3 ranged from 67.7 dBA to 69.5 dBA. In terms of *CEQR Technical Manual* criteria, existing noise levels at each of the receptor locations are in the "Marginally Acceptable" CEQR Noise Exposure category.

TABLE 14-7
Existing Noise Levels (in dBA) at the Monitoring Locations

Receptor Location	Time	L_{max}	L_{min}	L_{eq}	L_1	L_{10}[2]	L_{50}	L_{90}	CEQR Noise Exposure Category
1	AM	82.0	52.8	64.8	74.2	67.7	61.7	56.8	Marginally Acceptable
	MD	84.9	54.0	64.6	72.7	67.8	61.9	57.5	
	SC PM	95.3	56.2	65.9	73.2	67.8	63.1	59.8	
	PM	82.5	56.8	66.7	75.3	**69.5**	64.5	60.8	
2	AM	82.9	53.7	66.0	75.4	**68.9**	62.8	58.0	Marginally Acceptable
	MD	80.5	52.4	64.8	75.8	67.9	60.1	55.8	
	PM	92.9	57.1	68.2	77.8	68.2	62.8	59.8	
3	AM	82.0	52.8	64.8	74.2	67.7	61.7	56.8	Marginally Acceptable
	MD	84.9	54.0	64.6	72.7	67.8	61.9	57.5	
	PM	82.5	56.8	66.7	75.3	**69.5**	64.5	60.8	

Notes: Field measurements for Receptor Locations 1 and 3 were ~~taken~~ sourced from the *1965 Lafayette Avenue Rezoning EAS* and originally performed by Philip Habib & Associates on September 13, 2016 and October 13, 2016; field measurements for Receptor Location 2 ~~was~~ were ~~taken~~ sourced from the *1755 Watson Avenue Rezoning EAS* and originally performed by Sam Schwartz Engineering, D.P.C.
[1] Refer to **Figure 14-1** for noise monitoring receptor locations.
[2] The highest L_{10} noise levels at each monitoring location are shown in **bold**.

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

As described in Chapter 1, "Project Description," in the 2028 future without the Proposed Actions, it is expected that no new development would occur within the Project Area. As such, the Project Area would continue to be occupied by 948 DUs, 10,648 gsf of local retail uses, and 36,214 gsf of community facility uses (health center).

Using the methodology described in Section D, "Noise Prediction Methodology," future noise levels in the No-Action condition were calculated for the three analysis periods for the 2028 Analysis Year. Table 14-8 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.

TABLE 14-8
2028 No-Action 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	869.0~~923.0~~	988.0~~987.0~~	64.8	65.4~~65.1~~	0.56~~0.29~~	**68.2**~~68.0~~	Marginally Acceptable
	MD	807.0~~861.0~~	885.0~~884.0~~	64.6	65.0~~64.7~~	0.40~~0.11~~	68.2~~67.9~~	
	SC PM	932.0~~954.0~~	959.0~~981.0~~	65.9	66.0	0.12	67.9	
	PM	612.0~~617.0~~	661.0	66.7	67.0	0.33~~0~~	**69.8**	
2	AM	439.0	442.0	66.0	66.0	0.03	**68.9**	Marginally Acceptable
	MD	113.0	113.0	64.8	64.8	0.00	67.9	
	PM	114.0	114.0	68.2	68.2	0.00	68.2	
3	AM	1173.0	1201.0	64.8	64.9	0.10	67.8	Marginally Acceptable
	MD	760.0	779.0	64.6	64.7	0.11	67.9	
	PM	608.0	617.0	66.7	66.7	0.06	**69.6**	

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**.

Comparing future No-Action noise levels with existing noise levels, the increases in L_{eq} noise level would range from approximately 0.00 to 0.56~~30~~ dBA at each of the receptor locations. Increases of this magnitude would be barely perceptible, and based upon the *CEQR Technical Manual* impact criteria, would not be significant. In addition, No-Action noise levels at each of the receptor locations would remain in the ~~in the~~ "Marginally Acceptable" CEQR Noise Exposure category, as under existing conditions.

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

As presented in Chapter 1, "Project Description," in the 2028 future with the Proposed Actions, six new buildings would be constructed within the Project Area. In the future with the Proposed Actions, the Project Area would be occupied by a total of approximately 1,683 affordable DUs (including existing units), including 114 AIRS units, approximately 70,209 gsf of community facility uses (including an approximately 19,879 gsf child care center and approximately 14,116 gsf of indoor recreational space for community recreational needs and in support of the adjacent tennis courts), approximately 10,648 gsf of commercial uses, approximately 1.94 acres of publicly accessible open space, and approximately 466 parking spaces. The Proposed Project would occupy the western and southwestern segments of the overall Project Area (Tax Lots 4, 10, 15, 20, 30, 40, and 50, the "Development Site"), with the existing Stevenson Commons development comprising the northeastern and eastern portion of the Project Area (Tax Lot 25). ~~In addition, the overall Project Area is planned for a future subdivision, which would result in the tentative future Tax Lots 4, 10, 15, 20, 25, 30, 40, and 50. Of the tentative future Tax Lots, Lots 4, 10, 15, 20, 30, 40, and 50 would comprise the Applicant-owned Development Site.~~

Using the methodology described in Section D, "Noise Prediction Methodology," future noise levels in the With-Action condition were calculated for the three analysis periods for the 2028 Analysis Year. As shown in Table 14-9, after accounting for additional traffic introduced by the Proposed Actions, the maximum projected L_{10} noise level under the With-Action condition would be 70.8~~71.4~~ dBA during the PM peak hour at Receptor Location 1. With-Action noise levels at Receptor Location 3 would remain in the "Marginally Acceptable" CEQR Noise Exposure category, as under existing conditions; however, With-Action noise levels at Receptor Locations 1 and 2 would now each fall within the "Marginally Unacceptable (I)" CEQR Noise Exposure category.

Comparing the future With-Action noise levels with No-Action noise levels, increases in noise levels would be minimal at the three receptor locations, ranging from 0.3 to 2.57 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. 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 14-9
2028 With-Action 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	1109.01308.0	65.465.1	65.966.3	0.51.2	68.769.2	Marginally Unacceptable (I)
	MD	975.01015.0	65.064.7	65.465.3	0.40.6	68.668.5	
	SC PM	1142.01297.0	66.0	66.767.2	0.81.2	68.769.1	
	PM	818.0951.0	67.0	67.968.6	0.91.6	**70.871.4**	
2	AM	499.0502.0	66.0	66.6	0.50.6	69.5	Marginally Unacceptable (I)
	MD	158.0161.0	64.8	66.3	1.5	69.4	
	PM	201.0210.0	68.2	70.79	2.57	**70.79**	
3	AM	1282.0	64.9	65.2	0.3	68.1	Marginally Acceptable
	MD	839.0	64.7	65.0	0.3	68.2	
	PM	660.0	66.7	67.0	0.3	**69.9**	

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**.

Play Area Noise

As the Proposed Project includes a publicly accessible play area, this noise assessment will utilize the maximum playground boundary noise level presented in Table 14-5. Therefore, the referenced noise levels in L_{eq} from the proposed project's play areas are assumed to be:

- 68.9 dBA at Building B1's eastern and southern façades;
- 64.7 dBA and 57.2 dBA at Building B2's western and southern façades, respectively;
- 60.9 at Building B3's northern and western façades;
- 59.8 dBA at Building B4's northern façades;
- 52.3 dBA at 1865 Lafayette Avenue's southern façade; and
- 55.3 dBA at 717 Thieriot Avenue's eastern façade.[5]

As presented in Table 14-10, due to the location of the proposed play area and tennis courts, the Proposed Project would experience combined L_{eq} play area noise levels of up to 71.47 dBA at Building B1's eastern and southern façades, 69.670.1 dBA and 70.971.0 dBA at Building B2's western and southern façades, respectively, 71.13 dBA at Building B3's northern and western façades, and 71.02 dBA at Building B4's

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

northern façades facing the proposed play areas and/or tennis courts. After calculating the predicted L_{10} noise levels from the proposed stationary noise sources (refer to Table 14-10), Building B1's eastern and southern façades fronting the proposed publicly accessible play area and tennis courts would fall in the "Marginally Unacceptable (II)" CEQR Noise Exposure category, Building B2's western façades fronting the proposed publicly accessible play area and tennis courts would fall in the "Marginally Unacceptable (I)" CEQR Noise Exposure category, Building B2's southern façades fronting the proposed publicly accessible play area and tennis courts would fall in the "Marginally Unacceptable (I)" CEQR Noise Exposure category, Building B3's northern and western façades facing the proposed publicly accessible play area and tennis courts would fall in the "Marginally Unacceptable (I)" CEQR Noise Exposure category, and Building B4's northern façades fronting the proposed publicly accessible play area and tennis courts would fall in the "Marginally Unacceptable (I)" CEQR Noise Exposure category. With implementation of the attenuation levels outlined in Section H, "Attenuation Requirements," below, the Proposed Project would provide sufficient attenuation to achieve *CEQR Technical Manual* interior noise level guidance of 45 dBA for residential/community facility uses.

TABLE 14-10
Predicted Noise Levels on the Proposed Project due to the Proposed Play Area (in dBA)

Sensitive Receptor		Approximate Distance (feet) to Proposed Play Space	Playground L_{eq} at Receptor	Highest Predicted Combined L_{eq} at Receptor	Highest Predicted Combined L_{10} at Receptor[1]
Building	Façade				
B1	Eastern	15	68.9	71.47	74.36
	Southern	15	68.9	71.47	74.36
B2	Western	30	64.7	69.670.1	72.59
	Southern	90	57.2	70.971.0	70.971.0
B3	Northern	50	60.9	71.13	71.13
	Western	50	60.9	71.13	71.13
B4	Northern	60	59.8	71.02	71.02

Notes:
[1] For conservative purposes, predicted L_{10} play area noise levels calculated by combining the predicted playground L_{eq} and the difference between L_{eq} and L_{10} monitored noise levels under existing conditions.

Land uses adjacent to the Development Site include residential buildings, public facility/institutional buildings, and commercial office buildings. Specifically, the existing residences at 1865 Lafayette Avenue and 717 Thieriot Avenue would have the greatest potential for noise level impacts due to play area noise.

As depicted in Figure 14-1, the closest existing sensitive receptor with a direct line-of-sight to the proposed publicly accessible play area is 1865 Lafayette Avenue's southern façade located directly across the street from the Development Site, located at a distance of approximately 190 feet northeast from the proposed play area. At this distance, the worst-case noise level generated by the proposed publicly accessible play area is predicted to be approximately 52.3 dBA, based on the methodology discussed above (see Table 14-5 above). In addition, the closest existing sensitive receptor with a direct line-of-sight to the proposed tennis courts is 717 Thieriot Avenue's eastern façade located directly west of the Development Site at a distance of approximately 120 feet. The worst-case noise level generated by the proposed tennis courts at this distance is predicted to be approximately 55.3 dBA (see Table 14-5 above).

As shown in Table 14-11 below, the projected No-Action L_{eq} hourly noise levels at the Development Site in the vicinity of the proposed play areas range from 65.0~~64.7~~ dBA to 67.0 dBA at Receptor Location 1 and 64.8 dBA to 68.2 dBA at Receptor Location 2. Since the No-Action L_{eq} noise levels are above 62 dBA during all weekday peak periods, with the Proposed Actions, 3.0 dBA would be the maximum noise increment below which no significant noise impact would occur. Based on the logarithmic relationship, the combined noise levels from (1) the worst-case project-generated L_{eq} play area noise level of 52.3 dBA at a distance of 190 feet from the proposed play area boundary or 55.3 dBA at a distance of 120 feet from the proposed tennis courts, and (2) the predicted With-Action background noise levels during the weekday peak hours, were calculated for the closest residential building window and are presented in Table 14-11.

TABLE 14-11
Measured and Predicted Noise Levels at Closest Residential Buildings

Sensitive Receptor	Nearest Associated Noise Receptor Location[1]	Period	Predicted No-Action L_{eq} (in dBA)[2]	Distance between Sensitive Receptor and Proposed Play Area (in feet)	Predicted L_{eq} due to Proposed Play Area(s) (in dBA)	Predicted Combined With-Action L_{eq} (in dBA)[2]	Change in L_{eq} from No-Action Conditions (in dBA)
1865 Lafayette Avenue	1	AM	65.4~~1~~	190	52.3	66.1~~5~~	~~1.39~~0.69
		MD	~~64.7~~65.0			65.6~~5~~	~~0.81~~0.63
		SC PM	66.0			66.9~~67.3~~	~~1.35~~0.91
		PM	**67.0**			**68.1~~7~~**	~~1.68~~1.04
717 Thieriot Avenue	2	AM	66.0	120	55.3	66.9	0.8~~47~~
		MD	64.8			66.6~~7~~	~~1.87~~1.79
		PM	**68.2**			**70.8~~71.0~~**	2.59~~77~~

Notes:
[1] Key~~ed~~ to **Figure 14-1**.
[2] Highest L_{eq} noise value indicated in **bold**.

Comparing the predicted combined L_{eq} noise levels with No-Action noise levels, increases in noise levels at 1865 Lafayette Avenue would range from 0.63 to 1.04 dBA and increases in noise levels at 717 Thieriot Avenue would range from 0.84 to 2.59 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. As the noise levels at the residential buildings at 1865 Lafayette Avenue and 717 Thieriot Avenue 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 Project's~~Actions'~~ play area would not result in any significant adverse impacts.

H. ATTENUATION REQUIREMENTS

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 and community facility uses and 50 dBA or lower for commercial office uses, and are determined based on exterior L_{10} noise levels.

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. Typically, a building façade is composed of the wall, windows, and any vents or louvers for HVAC systems in various ratios of area. Since

the Proposed Project would most likely be of masonry construction, which typically provides a high level of sound attenuation, the attenuation requirements for HUD or CEQR purposes apply primarily to the windows, but may also represent a composite window/wall attenuation value. Window/wall attenuation can be described in terms of sound transmission class (STC), transmission loss (TL), and outdoor-indoor transmission class (OITC). Although these terms are sometimes used interchangeably, they are unique from each other. Transmission loss refers to how many decibels of sound a façade (wall) or façade accessory (window or door) can stop at a given frequency. The TL for a given construction material varies with the individual frequencies of the noise.

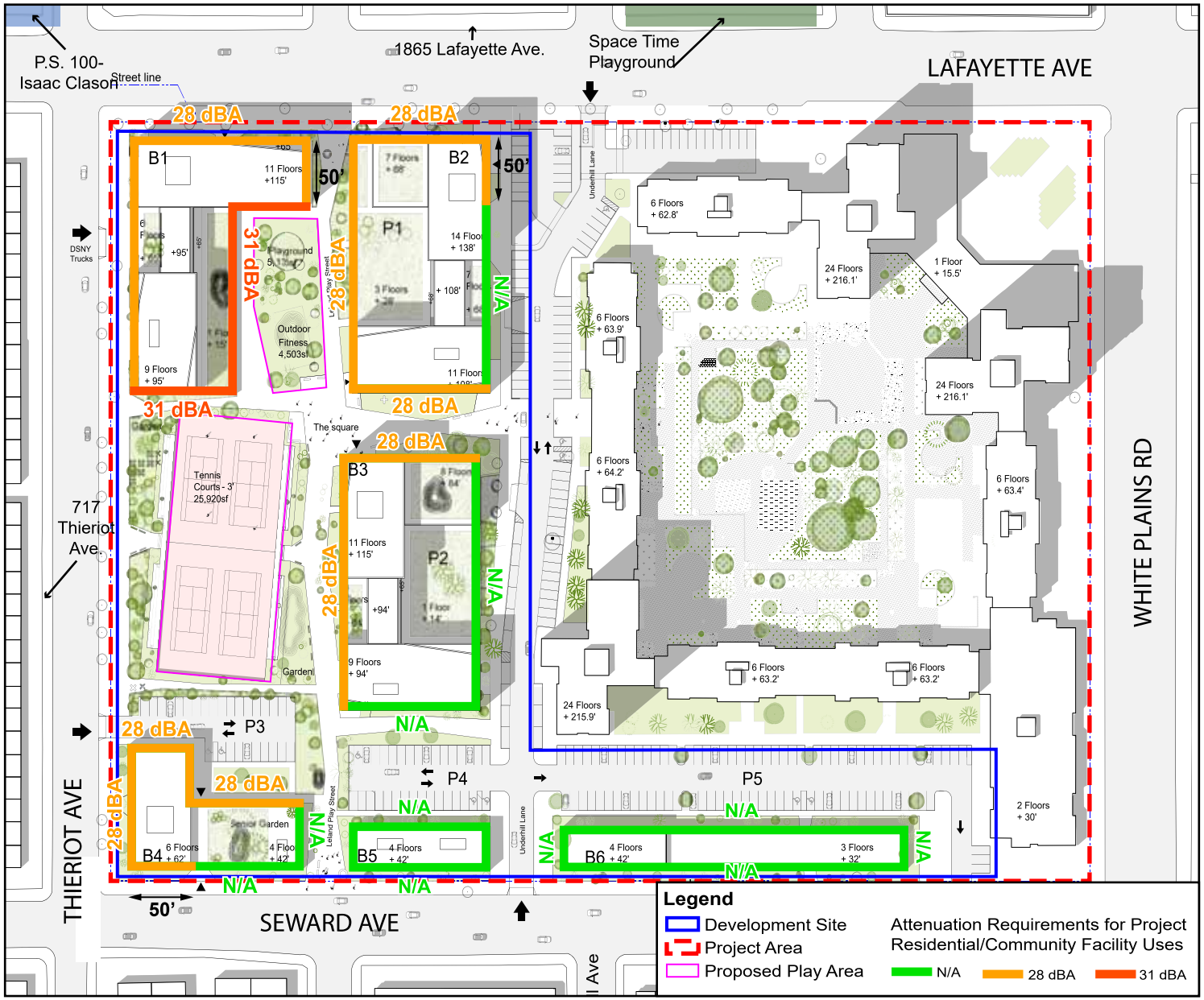
To simplify the noise attenuation properties of a wall, the STC rating was developed. It is a single number that describes the sound isolation performance of a given material for the range of test frequencies between 125 and 4,000 Hz. These frequencies sufficiently cover the range of human speech. Higher STC values reflect greater efficiencies to block airborne sound. HUD uses the STC when identifying the required sound attenuation for a façade.

The OITC is similar to the STC, except that it is weighted more towards the lower frequencies associated with aircraft, rail, and truck traffic. The OITC classification is defined by the American Society of Testing and Materials (ASTM E1332-90 (Reapproved 2003)) 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. ~~NYC~~DEP uses the OITC when identifying the required sound attenuation for a façade.

Noise Attenuation Measures

As described above and presented in Tables 14-9 and 14-10, the maximum predicted With-Action L_{10} noise levels adjacent to the Development Site are expected to be 70.8~~1.4~~ dBA at Receptor Location 1, 70.7~~9~~ dBA at Receptor Location 2, and 69.9 dBA at Receptor Location 3. In addition, due to the location of the proposed publicly accessible play area and tennis courts, L_{10} noise levels are expected to be 74.3~~6~~ dBA at the proposed Building B1's eastern and southern façades, 72.5~~9~~ dBA at the proposed Building B2's western façades, 70.9~~1.0~~ dBA at the proposed Building B2's southern façades, 71.1~~3~~ dBA at the proposed Building B3's northern and western façades, and 71.0~~2~~ dBA at the proposed Building B4's northern façades. Composite building attenuation requirements for the Proposed Project's frontages were calculated based on these maximum With-Action L_{10} noise levels and are presented in Table 14-12 and shown in Figure 14-4.

Table 14-12 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. As presented in Table 14-12 and shown in Figure 14-4, to satisfy CEQR interior noise level requirements and ensure acceptable interior noise levels for residential/community facility uses, a minimum composite window/wall attenuation rating of 28 dBA for all façades fronting and within 50 feet of Lafayette Avenue and Thieriot Avenue would be required. Additionally, as a result of the proposed play area and tennis courts, 31 dBA of attenuation would be required on Building B1's southern and eastern façades facing the play area and 28 dBA of attenuation would be required on Building B2's western and southern façades, Building B3's northern and western façades, and Building B4's northern façades facing the proposed play areas.



*FOR ILLUTRATIVE PURPOSES ONLY

Stevenson Commons

This Figure has been updated for the FEIS

Figure 14-4

Noise Attenuation Requirements

TABLE 14-12
Required Attenuation at Noise Measurement Locations (CEQR)

Building	Frontage	Associated Receptor Location[1]	Maximum Calculated Total L10 Noise Level in dBA	CEQR Minimum Required Attenuation in dBA[2]
B1 (tentative Lot 10)	Northern	1	70.8~~71.4~~	28
	Southern	Play Area[3]	74.3~~6~~	31
	Eastern (≥50 feet from Lafayette Avenue with frontages facing the Play Area)	Play Area[3]	74.3~~6~~	31
	Eastern (<50 feet from Lafayette Avenue)	1	70.8~~71.4~~	28
	Western	2	70.7~~9~~	28
B2 (tentative Lot 20)	Northern	1	70.8~~71.4~~	28
	Southern	Play Area[3]	70.9~~71.0~~	28
	Eastern(≤50 feet from Lafayette Avenue)	1	70.8~~71.4~~	28
	Eastern (>50 feet from Lafayette Avenue)	3	69.9	N/A
	Western	Play Area[3]	72.5~~9~~	28
B3 (tentative Lot 15)	Northern	Play Area[3]	71.1~~3~~	28
	Southern	3	69.9	N/A
	Eastern	3	69.9	N/A
	Western	Play Area[3]	71.1~~3~~	28
B4 (tentative Lot 50)	Northern	Play Area[3]	71.0~~2~~	28
	Southern (≤50 feet from Thieriot Avenue)	2	70.7~~9~~	28
	Southern (>50 feet from Thieriot Avenue)	3	69.9	N/A[4]
	Eastern	3	69.9	N/A
	Western	2	70.7~~9~~	28
B5 (tentative Lot 40)	Northern	3	69.9	N/A
	Southern	3	69.9	N/A[4]
	Eastern	3	69.9	N/A[4]
	Western	3	69.9	N/A[4]
B6 (tentative Lot 30)	Northern	3	69.9	N/A
	Southern	3	69.9	N/A[4]
	Eastern	3	69.9	N/A[4]
	Western	3	69.9	N/A[4]

Notes:

[1] Receptor locations shown in **Figure 14-1**; required attenuation levels are shown in **Figure 14-4**.

[2] The above composite window-wall attenuation values are for residential/community facility uses. Commercial office spaces and meeting rooms 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] Refer to "Play Area Noise" in Section G, "The Future with the Proposed Actions (With-Action Condition)" of this chapter for play area noise analysis and building attenuation methodology.

[4] "N/A" indicates that the highest calculated L_{10} noise level is below 70 dBA. The *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L_{10} values below this level.

(E) Designation

The composite window/wall noise attenuations described above and shown in Table 14-12 would be required through the assignment of an (E) designation for noise to ~~tentative future~~ Tax Lots 10, 15, and 20 of the Applicant-owned Development Site (~~tentative future~~ Tax Block 3600, Lots 4, 10, 15, 20, 30, 40, and 50) in conjunction with the Proposed Actions. With the implementation of this composite window/wall noise attenuation, no significant adverse noise impacts would occur as a result of the proposed actions. The text of the (E) designation (E-626) for window/wall attenuation would be as follows:

> **Bronx Block 3600, ~~(tentative)~~ Lots 10, 15, 20, and 50:**
>
> **To ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum attenuation as shown in Table 14-12 of the Stevenson Commons Environmental Impact Statement in order to maintain an interior noise level not greater than 45 dBA for residential and community facility uses. In order 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, central air conditioning.**

With the implementation of the attenuation levels outlined above and described in Table 14-12, the Proposed Actions would provide sufficient attenuation to achieve *CEQR Technical Manual* interior noise level guidance. Therefore, the Proposed Actions would not result in any significant adverse noise impacts.

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.

Train Noise

An initial train noise impact screening analysis would be warranted if a new receptor would be located within 1,500 feet of existing rail activity and have a direct line of sight to that activity. As the Development Site is not within 1,500 of an existing rail line nor does the site have a direct line of sight to a rail activity, no initial train noise impact screening analysis is warranted.

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. As the Development Site is not within one mile of an existing flight path, no initial aircraft noise impact screening analysis is warranted.