Chapter 13: Noise

A. INTRODUCTION AND SUMMARY OF FINDINGS

This chapter considers the potential for the Proposed Project to result in significant adverse noise impacts. A noise analysis was performed to determine existing noise levels through ambient noise measurements at the locations shown in **Figure 13-1** and examine the potential impacts of the Proposed Project on sensitive noise receptors, and potential effects on the interior noise levels of the proposed residential and commercial uses.

The analysis concludes that noise levels associated with the Proposed Project would be in compliance with Chapter 66 ("Noise") of the Yonkers' City Code. Additionally, the Proposed Project would not result in significant adverse impacts at nearby residential receptors according to the NYSDEC noise guidance document, *Assessing and Mitigating Noise Impacts* (DEP-00-1, February 2, 2001).[1] Finally, the analysis concludes that future noise levels at the proposed buildings would be acceptable for residential and commercial use according to the NYSDEC guidance document.

B. NOISE 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 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 discernible and therefore more intrusive than many of the lower frequencies (e.g., a diesel truck engine).

B.1. "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 13-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

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[1] http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf.

Table 13-1
Common Noise Levels

Sound Source	dBA
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80–90
Busy city street, loud shout	80
Busy traffic intersection	70–80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50–60
Background noise in an office	50
Suburban areas with medium-density transportation	40–50
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note: A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.
Sources: Cowan, James P. *Handbook of Environmental Acoustics,* Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

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.

B.2. NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise 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 used to indicate noise levels that are exceeded 1, 10, 50, 90 and x percent of the time, respectively.

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

For the purposes of the noise analysis, the maximum one-hour equivalent sound level ($L_{eq(1)}$) has been selected as the noise descriptor to be used in the mobile source noise impact evaluation. $L_{eq(1)}$ is the noise descriptor used by most governmental agencies, including NYSDEC for noise impact evaluation, and is used to provide an indication of highest expected sound levels.

For the stationary source noise analysis, the minimum measured daytime L_{90} was selected as the noise descriptor to represent the baseline ambient noise levels at each receptor. The L_{90}, as a descriptor representing ambient noise levels, serves as a conservative estimate of the minimum $L_{eq(1)}$ noise level. Since the mechanical equipment noise levels provided for this analysis would potentially occur at any point during daytime or nighttime hours, comparison to a minimum $L_{eq(1)}$ noise level would have the greatest potential to identify a significant change in noise levels.

B.3. NOISE STANDARDS AND IMPACT CRITERIA

B.3.a. City of Yonkers Noise Ordinance

Section 66-3 of the Yonkers City Code prohibits a person from making any noise disturbance and Section 66-5 of the City Code outlines specific outdoor sound levels which would be considered prima facie evidence of a noise disturbance. The noise disturbance sound levels applicable to the operation of the Proposed Project are shown in **Table 13-2** below.

Table 13-2
City of Yonkers Evidence of Noise Disturbance for Residential Source Properties

Noise Receiving Property	Daytime (7 AM–10 PM)	Nighttime (10 PM–7 AM)
Residential Property	55 dBA	50 dBA
Commercial Property	65 dBA anytime	
Industrial Property	70 dBA anytime	

Note:
Residential Property is defined in section 66-2 as property used for human habitation, including but not limited to private property used for human habitation, commercial living accommodations and commercial property used for human habitation, etc.
Source:
https://ecode360.com/15089130, City Code, Chapter 66

Section 66-6(J) of the City Code provides an exemption for emergency generators which may be used during a power failure.

B.3.b. New York State Department of Environmental Conservation

NYSDEC has published a policy and guidance document, *Assessing and Mitigating Noise Impacts* (DEP-00-1, February 2, 2001), which presents noise impact assessment methods, identifies thresholds for significant impacts, and discusses potential avoidance and mitigative measures to reduce or eliminate noise impacts.[2]

NYSDEC's guidance document sets forth thresholds that can be used in determining whether a noise increase due to a project may constitute a significant

[2] http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf.

adverse impact, noting that these thresholds should be viewed as guidelines subject to adjustment as appropriate for the specific circumstances. According to DEP-00-1:

- Increases in noise ranging from 0 to 3 dBA should have no appreciable effect on receptors;
- Increases of 3 to 6 dBA may have the potential for adverse impacts only in cases where the most sensitive of receptors (e.g., hospital or school) are present;
- Increases of more than 6 dBA may require a closer analysis of impact potential depending on existing noise levels and the character of surrounding land use and receptors; and
- Increases of 10 dBA or greater deserve consideration of avoidance and mitigation measures in most cases.

The guidance document also sets forth noise thresholds that can be used in identifying whether a noise level due to a project should be considered a significant adverse impact. According to the guidance, the addition of any noise source in a non-industrial setting should not raise the ambient noise level above a maximum of 65 dBA, and ambient noise levels in industrial or commercial areas may exceed 65 dBA with a high end of approximately 79 dBA. As set forth in the guidance, projects that exceed these levels should explore the feasibility of implementing mitigation.

B.4. PROPOSED PROJECT IMPACT CRITERIA

For purposes of the noise analysis, consistent with NYSDEC guidance and City noise regulations, operations of the mobile and stationary sources associated with the Proposed Project that would result in an increase in ambient noise levels of more than 6 dBA at receptor sites or produce ambient noise levels of more than 65 dBA at residences or 79 dBA at an industrial or commercial area would be considered a significant adverse noise impact.

C. METHODOLOGY

C.1. MOBILE SOURCES

Future noise levels (including the future without the Proposed Project and the future with the Proposed Project) were calculated using a proportional modeling technique, which was used as a screening tool to estimate changes in noise levels. The proportional modeling technique is an analysis methodology commonly used for projection of noise resulting from vehicular traffic. The noise analysis examined the weekday AM and PM peak hours at all receptor locations. The time periods selected for analysis are the peak traffic hours identified in Chapter 11, “Traffic and Transportation,” and therefore result in the maximum potential for significant adverse noise impacts. The proportional modeling used for the noise analysis is described below.

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

FB NL - EX NL = 10 * log10 (FB PCE / EX PCE)

where:

FB NL = Future Build Noise Level

EX NL = Existing Noise Level

FB PCE = Future Build PCEs

EX PCE = Existing PCEs

Sound levels, measured in decibels, increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCE, and the future traffic volume 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.

C.2. PARKING LOT AND PARKING GARAGE METHODOLOGY

The Proposed Project includes the addition of surface parking lots as well as above-ground and open-façade parking garages (see **Figure 13-2**). Noise levels generated by vehicles accessing and traversing the parking facilities were calculated using methodologies set forth in the Federal Transit Administration's (FTA) September 2018 version of the *Transit Noise and Vibration Impact Assessment* guidance manual. Specifically, the parking lots and parking garages were modeled using the techniques described for general noise assessment of park and ride lots and parking garages, respectively. The general noise assessment methodology consists of the following steps:

- Adjust the parking facility reference sound exposure level based on the number of automobiles and buses expected to enter and exit each Site during each of the one-hour analysis time periods to determine the Proposed Project noise exposure level at 50 feet from the center of the parking facility; and
- Compare maximum parking facility noise exposure to measured existing baseline noise levels to determine the potential for significant increase in noise level.

C.3. STATIONARY SOURCES

The operation of the major mechanical equipment associated with the Proposed Project would be subject to Chapter 66 of the City Code and NYSDEC guidance, as discussed in Section B.3, "Noise Standards and Impact Criteria." The following methodology was used in the noise impact assessment.

- Select noise-sensitive receptor sites closest to the Project Sites that would be expected to experience the greatest levels of noise from the Proposed Project's mechanical equipment;
- Determine existing noise levels throughout the Study Area by conducting noise measurements at representative noise monitoring locations, discussed in Section D;
- Apply noise levels measured at the representative noise monitoring locations to all noise-sensitive receptors included in the analysis, including receptors beyond which measurements were collected;
- Utilizing manufacturer-provided equipment noise data for each piece of mechanical equipment and site plan drawings showing equipment locations relative to nearby noise receptors, estimate the noise from the mechanical equipment at receptors;
- Compare the estimated equipment noise levels at each receptor to the levels in Chapter 66 of the City Code, based on the receiving property land use;
- Combine the estimated equipment noise levels with the existing noise levels at each receptor to determine the future total noise levels with the Proposed Project for comparison to NYSDEC's guidelines;
- Calculate incremental change in noise levels due to the operation of the Proposed Project for comparison to NYSDEC's guidelines; and
- Calculate total noise exposure at noise sensitive land uses introduced by the Proposed Project for comparison to NYSDEC's guidelines.

D. EXISTING CONDITIONS

D.1. SELECTION OF NOISE RECEPTOR LOCATIONS

A total of eight receptor locations were selected for evaluation of existing and future noise levels. These locations are detailed below in **Table 13-3** and are shown in **Figure 13-1**. The receptor locations were selected to include locations near the Project Sites and to provide comprehensive geographic coverage throughout the Noise Study Area. Noise levels measured at each of these representative locations were then applied to noise-sensitive land uses throughout the Study Area in the noise analysis, including locations beyond those at which measurements were collected.

D.2. NOISE MONITORING

At each receptor location, existing noise levels were determined by field measurements. Noise monitoring was performed on March 9 and March 10, 2021. At all receptor locations, 20-minute noise measurements were conducted at grade level during the 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, with the exception of receptor location 8. At location 8, located approximately 10 feet above grade at the Teutonia Site, measurements were conducted for 24 continuous hours. At all noise measurement locations except 8, the microphones were mounted at a height of approximately five feet above the ground surface on a tripod and approximately six feet or more away from any large sound-reflecting surface to avoid major interference with sound propagation. At location 8, the microphone was located approximately 10 feet above grade, and had direct line of sight to the Metro-North Railroad ("MNR") tracks.

Where traffic noise is a primary contributing or dominant source of noise, 20-minute noise measurements are a statistical representation of the hourly equivalent noise level, allowing sufficient time for L_{eq} values, as well as other statistical noise descriptors, to stabilize and not fluctuate based on individual noise events (e.g., vehicle passbys). A 20-minute noise measurement will include several cycles of nearby traffic lights and the traffic cycles associated with those light cycles, as well as any other natural short-term traffic cycles that would manifest themselves within a single hour. Since the 20 minutes of traffic accounted for by the 20-minute noise measurement would be comparable to a full hour of traffic at the same location, and traffic is the dominant source of noise at the location, the 20-minute noise measurement provides a representation of the 1-hour noise level, generally within 1–3 dBA.

The measured noise levels were not adjusted to account for the influence of the ongoing COVID-19 pandemic during the noise measurement period. At location 8, where the MNR operations were a primary contributing or dominant source of noise, train pass-by events were at more than 80 percent capacity. Consequently, noise levels at this location did not require an adjustment to remove potential pandemic influence. At locations where vehicular traffic was the primary contributing or dominant source of noise, any slightly reduced volume of vehicular traffic due to the COVID-19 pandemic would tend to result in lower measured baseline noise levels. The lower baseline noise levels would tend to result in larger noise level increments as a result of the Proposed Project and are therefore conservative.

Table 13-3
Noise Measurement Locations

Noise Receptor	Location	Duration
1	Palisade Avenue between Locust Hill Avenue and New School Street	20 minutes
2	New School Street near John Street	20 minutes
3	Nepperhan Avenue between New Main Street and New School Street	20 minutes
4	New Main Street near Ann Street	20 minutes
5	Buena Vista Avenue between Hudson Street and Prospect Street	20 minutes
6	North Broadway between Main Street and Mill Street	20 minutes
7	Locust Hill Avenue between Overlook Terrace and Palisade Avenue	20 minutes
8	Teutonia Site immediately adjacent to MNR tracks	24 hours

D.3. EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using Brüel & Kjær Type 2250 Sound Level Meters (SLMs), NTi-Audio Type XL2 SLMs, Brüel & Kjær Type 4189 1/2-inch microphones, NTi-Audio Type M2230 1/2-inch microphones, Brüel & Kjær Type 4231 Sound Level Calibrators, and NTi-Audio Class 1 calibrators. The Brüel & Kjær and NTi-Audio SLMs are Class 1 instruments according to ANSI Standard S1.4-1983 (R2006). Each SLM had a laboratory calibration date within the past one year at the time of use. Each SLM was calibrated before and after readings with either a Brüel & Kjær Type 4231 or NTi-Audio Class 1 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.

D.4. EXISTING NOISE LEVELS AT NOISE RECEPTOR LOCATIONS

The results of the measurements of existing noise levels are summarized in **Tables 13-4 and 13-5**. Roadway traffic was the dominant noise source for all receptor locations with the exception of receptor location 8. At location 8, train activity on the adjacent MNR tracks was the dominant noise source. Noise levels along adjacent roadways in the Noise Study Area are moderate to relatively high, reflecting the level of vehicular activity present. Noise levels along the MNR tracks were moderate, reflecting the level of train activity adjacent to the Teutonia Site. As shown below in **Tables 15-4 and 15-5**, the measured existing L_{eq} values at all receptor locations exceed the 65 dBA threshold considered acceptable for a non-industrial setting according to NYSDEC noise evaluation guidelines.

Table 13-4
Existing Noise Levels (in dBA)

Receptor	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Palisade Avenue between Locust Hill Avenue and New School Street	AM	67.3	79.5	69.5	60.2	54.6
		MD	60.2	71.0	62.7	56.5	52.3
		PM	64.8	75.0	67.4	60.8	55.4
2	New School Street near John Street	AM	66.7	75.0	69.9	62.5	57.8
		MD	68.4	78.7	71.3	64.3	58.2
		PM	69.0	76.0	69.2	64.3	60.2
3	Nepperhan Avenue between New Main Street and New School Street	AM	70.7	77.9	74.5	66.0	59.0
		MD	74.7	88.2	74.8	68.3	59.4
		PM	71.9	84.1	74.2	65.4	59.6
4	New Main Street near Ann Street	AM	66.5	76.2	69.5	63.8	56.9
		MD	64.9	75.0	68.3	60.9	56.3
		PM	67.1	78.4	69.8	62.6	56.2
5	Buena Vista Avenue between Hudson Street and Prospect Street	AM	64.1	74.4	68.9	56.0	49.4
		MD	63.2	72.0	67.2	59.2	50.3
		PM	65.3	75.3	67.9	60.6	51.1
6	North Broadway between Main Street and Mill Street	AM	67.2	77.0	71.5	60.6	52.5
		MD	62.3	69.6	64.5	61.1	57.6
		PM	66.5	76.3	70.2	62.5	56.8
7	Locust Hill Avenue between Overlook Terrace and Palisade Avenue	AM	65.8	76.6	68.5	58.8	54.5
		MD	66.1	76.3	69.0	62.8	58.7
		PM	66.9	77.9	69.1	63.3	58.5

Note: Field measurements were performed by AKRF, Inc. on March 9 and 10, 2021.

Table 13-5
Noise Levels Measured at Teutonia Hall (Location 8), in dBA

Receptor	Location	Time	L_{eq}
8	Teutonia Site immediately adjacent to MNR tracks	10:00 AM	66.3
		11:00 AM	65.0
		12:00 AM	64.5
		1:00 PM	66.6
		2:00 PM	66.5
		3:00 PM	65.5
		4:00 PM	66.1
		5:00 PM	65.8
		6:00 PM	66.3
		7:00 PM	64.6
		8:00 PM	65.4
		9:00 PM	63.4
		10:00 PM	67.8
		11:00 PM	68.2
		12:00 AM	63.1
		1:00 AM	65.3
		2:00 AM	65.6
		3:00 AM	63.4
		4:00 AM	46.8
		5:00 AM	57.4
		6:00 AM	64.3
		7:00 AM	67.1
		8:00 AM	65.7
		9:00 AM	65.4
Note: Continuous noise level measurements were conducted by AKRF, Inc. March 9–10, 2021.			

E. FUTURE WITHOUT THE PROPOSED PROJECT

Using the methodology previously described and based on the increases in traffic that are anticipated to occur in the No Build condition, as shown in **Figures 11-5a, 11-5b**, **and 11-6**, noise levels for the No Build condition were calculated for the 2032 Build year at receptor locations 1 through 7.[3] Receptor 8 is excluded because noise levels at this location are dominated by train activity and are not expected to be influenced by changes in traffic. The No Build condition noise levels are shown in **Table 13-6**.

[3] It is assumed that there would be no increases in noise levels from stationary sources (e.g., building mechanical systems) in the Future without the Proposed Project.

Table 13-6
2032 Future Noise Levels without the Proposed Project (in dBA)

Site	Time	Existing $L_{eq(1)}$	Future No Build $L_{eq(1)}$	No Build Increment
1	AM	67.3	67.5	0.2
	PM	64.8	65.1	0.3
2	AM	66.7	67.0	0.3
	PM	69.0	69.2	0.2
3	AM	70.7	71.3	0.6
	PM	71.9	72.6	0.7
4	AM	66.5	66.8	0.3
	PM	67.1	67.4	0.3
5	AM	64.1	64.4	0.3
	PM	65.3	65.7	0.4
6	AM	67.2	67.5	0.3
	PM	66.5	66.9	0.4
7	AM	65.8	66.1	0.3
	PM	66.9	67.1	0.2

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

F. FUTURE WITH THE PROJECT (BUILD CONDITION)

F.1. MOBILE SOURCES OF NOISE (TRAFFIC)

Using the methodology previously described and based on the increases in traffic that are anticipated to occur in the Build condition as shown in **Figures 11-10, 11-11, and 11-12**, noise levels for the Build condition were calculated for the 2032 Build year at receptor locations 1 through 7. These future Build condition noise levels are shown in **Table 13-7** (see **Appendix M-1** for complete traffic noise analysis results).

Table 13-7
2032 Future Noise Levels With the Proposed Project (in dBA)

Site	Time	No Build $L_{eq(1)}$	Future Build $L_{eq(1)}$	Build Increment
1	AM	67.5	67.9	0.4
	PM	65.1	65.7	0.6
2	AM	67.0	69.4	2.4
	PM	69.2	71.4	2.2
3	AM	71.3	71.6	0.3
	PM	72.6	73.0	0.4
4	AM	66.8	67.0	0.2
	PM	67.4	67.8	0.4
5	AM	64.4	64.7	0.3
	PM	65.6	66.0	0.3
6	AM	67.5	67.5	0.0
	PM	66.8	66.9	0.0
7	AM	66.1	67.9	1.8
	PM	67.1	70.2	3.1

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

As discussed above in Section D.4, the measured existing L_{eq} values at all receptor locations exceed the 65 dBA threshold considered acceptable for a non-industrial setting according to NYSDEC noise evaluation guidelines. As shown above in **Table 13-7**, projected noise levels with the Proposed Project would continue to exceed the 65 dBA threshold in both the Build and No Build condition. Additionally, noise levels in the Build condition would be similar to the No Build condition at the analyzed noise receptor locations. The projected noise level increments compared to existing noise levels would be no greater than 3.1 dBA in the Build condition. Increments of this magnitude would be considered "perceptible" and are described in NYSDEC guidelines as having "no appreciable effect." The increments are less than the 6 dBA threshold requiring a closer analysis of impact and less than the 10 dBA threshold for a significant increase according to NYSDEC noise impact guidelines. Consequently, noise level increases as a result of the Proposed Project would not result in significant adverse impacts at sensitive noise receptors in the Study Area.

F.2. STATIONARY SOURCES OF NOISE

F.2.a. Parking Lots and Parking Garages

The maximum predicted noise level at a distance of 50 feet from any of the above-ground and open-façade parking garages or surface lots would be approximately 51 dBA using the methodology described above (see **Appendix M-1** for complete parking facility noise analysis results), which is at least 9 dBA lower than the lowest existing noise levels measured in the Noise Study Area and is less than the limits set by Chapter 66 of the City Code. Furthermore, the maximum predicted noise level is approximately 14 dBA lower than the level recommended by NYSDEC guidelines for residential use. Consequently, the parking garages and surface lots would not have the potential to result in a significant adverse noise impact.

F.2.b. Rooftop Cooling Towers and Outdoor Air Supply Units

Noise levels from the rooftop cooling towers and rooftop dedicated outdoor air supply units associated with the Proposed Project were projected to noise receptors nearest each of the proposed buildings using the methodology described above. Existing background L_{90} noise levels in the Noise Study Area determined by noise measurements were in the high 40s to high 50s dBA depending on proximity to major roadways. Maximum equipment noise levels from rooftop equipment projected to the noise-sensitive receptors ranged from the 43 to 50 dBA and were less than the limits in Chapter 66 of the City Code at all receptors (see **Appendix M-1** for complete mechanical equipment noise analysis results). The total noise levels with the operation of the Proposed Project were in the low to high 50s dBA resulting in an incremental change in noise level of at most 2 dBA. This represents an imperceptible change in noise levels and is less than the NYSDEC guidelines for mitigation. This analysis is conservative because it considers the worst-case rooftop location for equipment relative to the receptor, when in fact equipment may be located farther away from the receptor. Further, the analysis does not consider any shielding effects from potential rooftop noise barriers or low-noise equipment selections that may be necessary due to the design of the individual buildings.

F.2.c. Emergency Generators

Noise from the operation of emergency generators during a power failure or other emergency is exempt from regulation under Chapter 66 of the City Code and

NYSDEC guidelines. However, emergency generators would be required to comply with City noise regulations during routine testing or exercising. The Proposed Project's emergency generators would be designed with the appropriate sound attenuation features (e.g., sound attenuating enclosures, hot engine exhaust mufflers, intake air and exhaust air ductwork sound attenuators, acoustical louvers, etc.) as necessary to comply with applicable noise regulations at the nearest noise-sensitive receptors. This would be confirmed by final design of the buildings' emergency generator systems.

F.3. NOISE EXPOSURE AT PROPOSED USES

Maximum measured and predicted noise levels from all sources throughout the Noise Study Area would continue to exceed the 65 dBA criteria recommended by NYSDEC guidelines for residential use by up to approximately 8 dBA. However, the proposed buildings would be constructed to provide at least 28 dBA façade noise attenuation to ensure interior noise levels are below 45 dBA, which is considered acceptable for residential use. Consequently, the predicted noise exposure at the proposed residential uses would not constitute a significant adverse impact.

Maximum measured and predicted noise levels from all sources throughout the Noise Study Area would not exceed the 79 dBA criteria recommended by NYSDEC guidelines for commercial use. Consequently, the predicted noise exposure at the proposed commercial uses would not constitute a significant adverse impact.

G. MITIGATION MEASURES

The Proposed Project would not result in a significant adverse impact from noise. Therefore, no mitigation measures are proposed. ✷