

**3.10 Noise and Air Resources**

**3.10.1 Noise**

**3.10.1.1 Existing Conditions**

Noise can be defined as undesirable or “unwanted sound.” Noise can negatively impact a full range of human activities. Most sounds heard in the environment are not composed of a single frequency, but are a band of frequencies each with a different intensity or level. Levels of noise are measured in units called decibels (dB).

A one decibel change in sound is the smallest change detectable by the human ear under suitable laboratory conditions. However, under normal conditions, a change in sound levels of two or three decibels is required for the average person to perceive a difference. Tables 3.10-1 and 3.10-2 show typical community responses to increased sound levels. The A-weighted sound level (dBA) is useful for gauging and comparing the subjective loudness of sounds. Since the human ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to correspond to human hearing. This adjusted unit is known as the A-weighted decibel, or dBA.

<b>Table 3.10-1 Perception of Changes in Sound Levels</b>	
<b>Change (dBA)</b>	<b>Average Ability to Perceive Changes in Noise Levels Human Perception of Change</b>
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 Baranek and Neuman, Inc. Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.

<b>Table 3.10-2 Community Response to Increases in Sound Levels</b>		
<b>Change (dBA)</b>	<b>Estimated Community Response</b>	
	<b>Category</b>	<b>Description</b>
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Widespread complaints
15	Strong	Threats of community action
20	Very strong	Vigorous community action

Source: International Standard Organization, *Noise Assessment with Respect to Community Reactions*, 150/TC 43. (New York: United Nations, November 1969.)

The following specific regulations apply to noise levels in the City of Yonkers.

*City of Yonkers Noise Ordinance*

Chapter 66, Noise, of the Yonkers City Code was adopted to control noise. The chapter states: *“the making, creation or maintenance of loud, unnecessary, unnatural or unusual noises which are prolonged, unusual and unnatural in their time, place and use affect and are a detriment to the public health, comfort, convenience, safety, welfare and prosperity of the residents of the City of Yonkers.”* Chapter 66 states as follows: *“It shall be unlawful for any person to make, continue, cause, permit or allow, verbally or mechanically, any noise disturbance.”* The following acts are declared to be a violation of the foregoing:

- Sound Systems - The operation of sound reproduction systems, such as radios, phonographs, tape players, compact disc players, televisions, receivers or similar devices which amplifies sound in a similar manner that create a noise disturbance to people other than the person operating the device.
- Loudspeakers - The use of any loudspeaker or public address system (or similar device) which causes a disturbance across a residential real property is prohibited between the hours of 10:00 pm and 9:00 am.
- Animals - Owning, possessing or harboring any animal that frequently or continually makes or creates a noise disturbance across a residential real property line. An example of a noise disturbance would be a dog barking continually for 10 minutes or intermittently for 30 minutes.
- Loading or Unloading - Loading, unloading, opening, closing or other handling of boxes, crates, containers, bales, cans, drums, refuse or similar objects or the pumped loading or unloading of liquid materials, gaseous, powder, or pellet form which causes a noise disturbance across residential real property lines is prohibited between the hours of 10:00 pm and 7:00 am.
- Motor Vehicles - The operation or permitting the operation of any motor vehicles or auxiliary equipment attached to a vehicles for a period longer than 5 minutes in any 60 minute period while this vehicle is stationary for reasons other than traffic congestion or emergency work is prohibited on a public right of way or public space within 150 feet of a residential.

Operating a motor vehicle without a properly functioning muffler on a public right of way is prohibited as well as operating a vehicle with no muffler or a vehicle equipped with straight pipes is prohibited.

The operation of a car radio or stereo that is audible at a distance of 25 feet is prohibited.

It is prohibited to sound the horn of a vehicle other than if it is used as a warning signal to danger.

A shaker switch or any other device installed for purposes of vibration of movement detecting, which contributes to false alarms is prohibited.

The car alarm installed should not sound for more than 5 minutes continuously or 10 minutes intermittently.

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A violation of the above is given to the registered owner, if present. If the owner is not present, the violation is given to the person in charge of the vehicle.

- Construction, Repair, Demolition - Operating any tool used in construction, repair, demolition, or excavation is prohibited between the hours of 6:00 pm and 7:00 am, on weekends, and on legal holidays. Exceptions from this code rule are road maintenance/improvement on pre-existing roads (on which daytime construction would be disruptive to the traffic flow) and home construction completed by homeowners themselves. The limits set forth in Table I in Chapter 66 of the City of Yonkers Code do not apply to construction activities conducted during appropriate times (7:00 am to 6:00 pm).

All equipment used for construction must be operated with a muffler.

- Noncommercial or non industrial tools used for landscaping and yard maintenance are prohibited between the hours of 9:00 pm and 8:00 am on weekdays, or between the hours of 9:00 pm and 9:00 am on weekends and legal holidays (unless activities meet limits set forth in Table I in the Chapter 66). All motorized equipment needs a muffler. The sound levels from these tool may not exceed 70 dBA, when measured at or within the property line of affected person, for a duration exceeding 15 minutes continuously or 30 minutes intermittently in a single day.
- Commercial or industrial tools used for landscaping and yard maintenance, not including emergency work, can not be operated within 200 feet of a residential property line between the hours of 7:00 pm and 8:00 am on weekdays or between the hours of 7:00 pm and 9:00 am on weekends and legal holidays (unless activities meet limits set for thin Table I of Chapter 66). All motorized equipment requires a muffler. The sound level of these power tools can not exceed 70 dBA when measured at or within the property line of the affected person, for a duration of 15 minutes continuously or 30 minutes intermittently on any single day.
- Sound Devices and Producers - operating a radio, phonograph, tape player, compact disc player, television, or similar devices on any method of public transportation in a manner that is audible to any other person is prohibited.

Creating or emitting a noise with causes disturbance such as a horn, siren, whistle, yell, shot, bell, musical instrument, tool, engine, etc. is prohibited.

On December 9, 2009, Chapter 66, Noise, of the City of Yonkers Code was amended by General Ordinance 9 of 2009. The following new subsection K has been added to Section 66-6, "Exemptions" as follows:

*"§66-6. Exemptions.*

*K. The sounds in excess of 50 dBA as measured at a residential property, where such sounds are generated from an industrial or commercial facility described in section K(1) provided further that the sound level from such facility does not increase beyond the sound level from the facility's normal overall operations as of the effective date of this amendment:*

- (1) an industrial or commercial facility that does not meet the noise standards of section 66-5(E) or 66-5(F) of Chapter 66 of the Code due to the introduction of a residential use on an adjacent or nearby property due to a rezoning, a new land*

*use, or a new occupancy in an otherwise existing building, where such new residential use begins on or after the effective date of this amendment provided that this exemption applies solely with respect to such new residential use."*

The purpose of this amendment was to allow new residential uses while protecting industrial or commercial facilities which may be operating in close proximity to the new residential use.

#### *Existing Ambient Noise Levels*

The project site consists of three component sites: the Trolley Barn, three residential buildings on the east side of Buena Vista Avenue, and vacant commercial and occupied residential structures on the west side of Buena Vista Avenue. There are no proposed changes in the intensity or nature of any activities occurring at the Trolley Barn or the east side of Buena Vista Avenue that would create a change in existing noise levels. However, the structures on the west side of Buena Vista Avenue will be demolished and a 25-story apartment building will be constructed at this location changing existing ambient noise levels at this property. Thus, existing and future noise levels were examined relative to this portion of the Project Site.

The west side of Buena Vista Avenue is occupied by vacant buildings and two occupied residential structures. Off-site generated noise is audible on the Project Site, including noise from trains traveling on the Metro North line and traffic on Buena Vista Avenue. Existing ambient noise levels were monitored at two locations on-site as well as at several sensitive receptor locations off-site. Table 3.10-3 indicates the locations, times and noise levels recorded.

Noise was measured using an A-weighted decibel scale and stored using a Casella 460 noise dosimeter (Casella). The information from the Casella was then transferred to a computer using dB12 software for compilation and tabulation to interpret the data. Noise monitoring locations were selected based upon the proximity of local sensitive receptors as per the adopted Scoping Document. The two on-site locations (Locations 1 and 2) were set up for the entirety of the noise monitoring period, as was the meter that was placed at the Queens Daughters Day Care (Location 3) so that the on-site measurements could be compared to off-site readings. Locations 4, 5, 6, and 7 were selected for proximity to local sensitive receptors and/or proximity to the site. These locations were monitored for approximately 20 minutes during the morning, afternoon and late afternoon. The noise monitoring locations are shown in Figure 3.10-1. The results of the existing ambient noise monitoring are provided in Table 3.10-3. In general, noise levels were highest during the AM time period. Except for Location 7 (Buena Vista Avenue near Prospect Street), the late afternoon noise levels were also higher than afternoon noise levels. AM and later afternoon time periods reflect the time periods when traffic on the surrounding road network is highest.

<b>Table 3.10-3 Existing Daytime Noise Data</b>					
<b>Morning Monitoring (8:00-9:30)</b>		<b>Leq (dB) (A)</b>	<b>L10 (dB) (A)</b>	<b>L90 (dB) (A)</b>	<b>LMax (dB) (A)</b>
Location 1*	Onsite - adjacent to warehouse buildings and railroad	62.9	70.1	50.9	91.8
Location 2*	Onsite - adjacent to residential building (north side of property)	57.7	66.5	48.8	81.5
Location 3*	On Queens Daughters Daycare property	59.8	68.8	55.2	84.4
Location 4	At the corner of Main St. and Buena Vista Ave.	73.3	74.0	58.0	100.9
Location 5	At the corner of Hawthorne Ave. and Hudson St.	65.1	65.5	56.5	89.8
Location 6	Along Hawthorne Ave. south of Prospect St.	59.6	63.0	50.0	76.9
Location 7	Along Buena Vista Ave. south of Prospect St.	63.1	66.5	52.5	84.5
<b>Mid Afternoon Monitoring (11:30-1:00)</b>		<b>Leq (dB) (A)</b>	<b>L10 (dB) (A)</b>	<b>L90 (dB) (A)</b>	<b>Lmax (dB) (A)</b>
Location 1*	Onsite - adjacent to warehouse buildings and railroad	58.5	64.9	51.0	88.1
Location 2*	Onsite - adjacent to residential building (north side of property)	50.7	59.7	50.3	82.7
Location 3*	On Queens Daughters Daycare property	54.9	67.4	54.6	86.1
Location 4	At the corner of Main St. and Buena Vista Ave.	66.5	70.0	54.5	86.7
Location 5	At the corner of Hawthorne Ave. and Hudson St.	65.0	68.5	56.5	85.2
Location 6	Along Hawthorne Ave. south of Prospect St.	59.9	61.0	49.5	81.7
Location 7	Along Buena Vista Ave. south of Prospect St.	65.5	68.5	53.0	83.1
<b>Late Afternoon Monitoring (3:00-4:30)</b>		<b>Leq (dB) (A)</b>	<b>L10 (dB) (A)</b>	<b>L90 (dB) (A)</b>	<b>Lmax (dB) (A)</b>
Location 1*	Onsite - adjacent to warehouse buildings and railroad	59.6	66.5	55.0	79.0
Location 2*	Onsite - adjacent to residential building (north side of property)	57.9	68.8	55.2	84.8
Location 3*	On Queens Daughters Daycare property	56.3	67.3	56.6	80.7
Location 4	At the corner of Main St. and Buena Vista Ave.	72.3	74.5	57.5	97.7
Location 5	At the corner of Hawthorne Ave. and Hudson St.	71.1	73.5	59.5	95.9
Location 6	Along Hawthorne Ave. south of Prospect St.	61.7	65.0	53.5	78.4
Location 7	Along Buena Vista Ave. south of Prospect St.	62.7	66.0	52.0	80.6

Source - Tim Miller Associates, Inc, 2010. Casella 460 Dosimeter, DB12 software.  
 \* - Locations 1 through 3 were collected for the entirety of the noise monitoring time period. These results were calculated for the specific time periods above.

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Location #1 is at the northern western portion of the property, near existing buildings and adjacent to the Metro-North rail line. The ambient noise at this location had a Leq of 62.9 dBA (am period), 58.5 dBA (mid afternoon period), and 59.6 dBA (late afternoon period). Ambient noise levels are affected entirely by off-site noise since the Project Site is vacant. With train noise, the LMax is 91.8 dBA (am period), 88.1 dBA (mid afternoon period), and 79.0 dBA (later afternoon period).

Location #2 is at the southwestern portion of the property, adjacent to Queens Daughters Day Care. Ambient noise levels at this location were a Leq of 57.7 dBA (am period), 50.7 dBA (mid afternoon period), and 57.9 dBA (late afternoon period). Ambient noise is influenced by train service. Audible train service results in a LMax of 81.5 dBA (am period), 82.7 dBA (mid afternoon period), and 84.8 dBA (later afternoon period).

Location #3 is on the Queens Daughters Daycare property. The ambient noise at this location had a Leq of 59.8 dBA (am period), 54.9 dBA (mid afternoon period), 56.3 dBA (late afternoon period). Ambient noise levels are influenced by train service and children playing in the outdoor playground area. As noted in Table 3.10-3 above, the train service creates a LMax of 84.4 dBA (am period), 86.1 dBA (mid afternoon period), and 80.7 dBA (later afternoon period).

Location #4 is at the corner of Buena Vista Avenue and Main Street. This location is approximately 250 feet south of the northern property boundary. Ambient noise levels measured a Leq of 73.3 dBA (am period), 66.5 dBA (mid afternoon period), and 72.3 (late afternoon period). Noise audible from Location 4 include traffic (buses, trucks and cars), air traffic (helicopters) and the train service giving it a LMax of 100.9 dBA (am period), 86.7 dBA (mid afternoon period), and 97.7 dBA (later afternoon period).

Location #5 is at the corner of Hawthorne Avenue and Hudson Street. This location is approximately 200 feet east of the easterly property boundary. Ambient noise at this location measured a Leq of 65.1 dBA (am period), 65.0 dBA (mid afternoon period), and 71.1 dBA (late afternoon period). Ambient noise levels at this location were influenced by traffic (buses, trucks and cars), air traffic (helicopters) and residential noises (people and pets) measuring a LMax of 89.8 dBA (am period), 85.2 dBA (mid afternoon period), and 95.9 dBA (late afternoon period).

Location #6 is approximately 180 feet south of Hawthorne Avenue and Prospect Street. This location is approximately 500 feet southeast of the southeastern property corner. Ambient noise at this location measured a Leq of 59.6 dBA (am period), 59.9 dBA (mid afternoon period), and 61.7 dBA (late afternoon period). Noise levels were influenced by traffic (buses, trucks, cars), air traffic (helicopters), and residential noise (people and pets) resulting in a LMax of 76.9 dBA (am period), 81.7 dBA (mid afternoon period), and 78.4 dBA (late afternoon period).

Location #7 is approximately 430 feet south of Buena Vista Avenue and Prospect Street. The ambient noise at this location had a Leq of 63.1 dBA (am period), 65.5 dBA (mid afternoon period), and 62.7 dBA (late afternoon period). This location is influenced by traffic (buses, trucks, and cars), air traffic (helicopters), residential noise (people and pets), trains from the Metro-North Hudson Line, and the American Sugar Refinery resulting in a LMax of 84.5 dBA (am period), 83.1 dBA (mid afternoon period), and 80.6 dBA (later afternoon period). This location is approximately 920 feet southwest of the southern property boundary.

Daytime noise monitoring was supplemented by nighttime noise monitoring which was conducted on October 7-8, 2010, from Thursday evening into Friday early morning. The results are provided in Table 3.10-4.

<b>Table 3.10-4 Existing Nighttime Noise Data - Onsite</b>					
<b>Nighttime Monitoring (10:00 PM - 7:00 AM)</b>		<b>Leq (dB) (A)</b>	<b>L10 (dB) (A)</b>	<b>L90 (dB) (A)</b>	<b>LMax (dB) (A)</b>
Location 1	Onsite - adjacent to warehouse buildings and railroad	60.8	55.5	46.8	92.8
Location 2	Onsite - adjacent to residential building (north side of Property)	62.2	57.4	47.9	92.6
Source: Tim Miller Associates, Inc., 2010. Casella 460 Dosimeter, DB12 Software.					

Location 1 is at the northwestern portion of the property, near existing buildings and adjacent to the Metro-North rail line. The nighttime ambient noise at this location had a Leq of 60.8 dBA. Ambient noise levels are affected entirely by off-site noise since the Project Site is vacant. Sources include train service and an industrial facility located south of the Project Site. Train noise resulted in a LMax is 92.8 dBA. Location 2 is at the southwestern portion of the property, adjacent to Queens Daughters Day Care. Ambient noise levels at this location had a Leq of 62.2 dBA. Ambient noise is influenced by train service and industrial facilities south of the site. Audible train service results in a LMax of 92.6 dBA.

*Sensitive Receptors*

Sensitive noise receptors are facilities and uses that are dependent on a state of serenity and quiet, or are uses that are particularly sensitive to noise levels. Land uses that are typically considered to be sensitive to noise include residences, schools, daycare facilities, hospitals, churches, cemeteries, libraries, nature preserves and certain types of outdoor recreation areas.

Sensitive receptors within 1,000 feet of the Project Site include the Queens Daughters Daycare, residences, the City of Yonkers Library (Riverfront Branch), and churches. These uses, not including specific multi-family residential properties, are listed below in Table 3.10-5.

<b>Table 3.10-5 Sensitive Receptors within 1,000 feet of the Project Site</b>			
<b>Sensitive Receptor</b>	<b>Address</b>	<b>Use</b>	<b>Map ID #</b>
Queens Daughters Daycare	73 Buena Vista Avenue	School	A
Holy Apostolic Catholic	129 Buena Vista Avenue	Religious Use	B
Public School 10	60 Hawthorne Avenue	School	C
City Harvest Church	40 Hudson Street	Religious	D
Church of God	21 Hudson Street	Religious	E
St. Johns Church	1 Hudson Street	Religious	F
City of Yonkers Library - Riverfront Branch	1 Larkin Center	Community	G
Buena Vista Park	Buena Vista Avenue	Community	H
Source: Tim Miller Associates, Inc. 2010.			

*Existing Noise Generators in the Project Vicinity*

Industrial uses were common near the project site in the past. However, the land uses in the area of the property have been subject to change due to recent redevelopment efforts occurring in the study area. The primary active industrial use in the vicinity of the site is the American Sugar Refining, Inc., which is a Domino Sugar's refinery, located approximately 900 feet south of the southern property boundary. As stated above, the City of Yonkers Noise Code, §66-6, has been amended to exempt residential properties from complying with the noise standards where the residential uses are in close proximity to an industrial facility. As observed from the nighttime noise monitoring, ambient noise levels were influenced by the existing industrial use activities to the south of the site. Nighttime noise levels were the same or somewhat higher than daytime ambient noise levels. The recent amendment to Chapter 66 allows existing industrial facilities to maintain noise at the levels in existence on the date of the amendment. Noise from the industrial facility will not be deemed an impact to the new residential buildings proposed in the area.

3.10.1.2 Potential Impacts*Short Term Construction-related Noise*

During construction activities, the project could result in elevated noise levels that would affect nearby sensitive receptors. The nearest sensitive receptors are residences and Queens Daughters Daycare which are located south and adjacent to the project site, and the existing Trolley Barn to the north which is also a part of the PUR.

Local daytime ambient noise levels will increase both on and off of the project site during construction of the new apartment building. Construction activities and the operation of construction equipment are an expected and required consequence of any new construction project and cannot be avoided. Thus, short-term construction related noise impacts are anticipated. Noise from construction activities is a temporary impact and will cease upon completion of the project. The following table shows representative maximum sound levels for diesel powered equipment and activities at a range of receptor distances.

Table 3.10-6 Construction Noise Levels (dBA)					
Equipment/Activity	Maximum Sound Level				
	50 feet	100 feet	200 feet	500 feet	1000 feet
Backhoe	83-86	77-80	71-74	63.5-66.5	57.5-60.5
Bulldozer	80	74	68	60.5	54.5
Cement Mixer	63-71	57-65	51-59	43.5-51.5	37.5-45.5
Compressor	67	61	55	47.5	41.5
Generator	78	72	66	58.5	52.5
Jackhammer/ Paving Breaker	82	76	70	62.5	56.5
Trucks	91	85	79	71.5	65.5

Source: Tim Miller Associates, Inc., 2010, From NYSDEC Assessing and Mitigating Noise Impacts guidance document, February 2001.

For sensitive receptors adjacent or within 100 feet of the property such as residences and the Queens Daughters Daycare, the level of impact from construction noise depends upon the type and number of pieces of construction equipment being operated and the duration of the construction activities. As shown above, construction noise would not exceed 85 dBA beyond 100 feet from the property, as indicated in the NYSDEC guidance document Assessing and Mitigating Noise Impacts, February 2001. The Queens Daughters Daycare is within 100 feet and therefore noise impacts at the Queens Daughters Daycare may exceed 85 dBAs during construction. The noisiest period of construction will occur during site demolition of the existing buildings when the site is prepared for development; although all construction activities at the site are likely to produce increased noise levels.

Elevated noise occurrences are typically sporadic during the construction period. Noise levels actually experienced on a nearby property would be expected to be lower, accounting for distance from the noise source and other attenuating factors. As shown above, Table 3.10-6, from the NYSDEC Assessing and Mitigating Noise Impacts guidance document shows different types of construction equipment sound levels at different distances from the equipment. The noise heard offsite from these pieces of equipment depends on the location of the use onsite and the amount of machinery being used at any one time.

Given the depth of bedrock at the site, blasting and rock removal are not proposed. Thus, no noise will be introduced from these activities.

*Long-Term Noise Effects*

The new apartment building will generate sounds typical of multifamily residential buildings. Sources of noise would include vehicles entering and exiting the parking garage, residents coming to and from the building, common area maintenance (e.g., landscaping), and any mechanical noises related to utility uses (e.g. HVAC units). The bay doors proposed to be used as the entrance to the parking garage would face to Buena Vista Avenue and would not direct any noise toward the adjoining daycare facility. A solid wall will face to the daycare center,

blocking and mitigating against noises that may be generated by the operation of the mechanical stacking system associated with the garage.

The Project will convert an existing site presently occupied by vacant commercial buildings and two residential structures to a 25-story apartment building - it is anticipated that sound levels emanating from the property will change. For the most part, the introduction of a residential use, even a multifamily building, does not significantly change ambient noise levels. The only component of the Project that would have the potential to generate significant noise levels would be any on-site heating, ventilating, and air conditioning ("HVAC") equipment that may be located close to ground level and in proximity to an adjoining sensitive receptor.

Information on the specific equipment to be used for the apartment building or placement/layout of the equipment has not been finalized at this time. However, it is known that outdoor HVAC equipment will be located on the roof of the 25-story residential building and screens surrounding these units would attenuate the sound. Given the height of the residential structure above surrounding buildings, the HVAC units will not result in any increase in ambient noise levels at the ground level. Any maintenance vehicles that may serve the site, including refuse vehicles, will enter the auto court to pick up refuse or service the property. The auto court is self-contained and surrounded by solid walls. Thus, any noise associated with activities within the auto court are blocked and attenuated by the design of the building.

Chapter 66, Noise, of the Yonkers Code states that a noise disturbance is evidenced by any sound level reading taken at a residential property, arising from another residential property, that is above 55 dBA during the time period commencing at 7:00 am to end at 10:00 pm and 50 dBA commencing at 10:00 pm and ending at 7:00 am. The Project will be required to adhere to this Code requirement.

The Metro North Hudson Line will remain adjacent to the property. Existing readings (Leq and LMax for Locations 1 and 2 in Table 3.10-3) can be used to assess the impacts to future residents. The LMax readings, discussed above in the Existing Conditions section, are single point readings collected during a specific minute within the monitoring period. The Leq is a representative noise measurement for that time period, including the LMax readings from the passing train, and ranges from 57.7 to 62.9 dBAs (am period), 50.7 to 58.5 dBA (mid afternoon period), 57.9 to 59.6 dBA (late afternoon period) and 60.8 to 62.2 (nighttime period). The New York State Department of Environmental Conservation (NYSDEC) Assessing and Mitigating Noise Criteria indicates that the ambient noise level should not be raised above 65 dBA. Therefore, the continuous operation Metro North Hudson Line should not result in adverse noise impacts to future residents.

### 3.10.1.3 Mitigation Measures

#### *Construction Mitigation*

Construction activities must comply with the City of Yonkers noise regulations. To mitigate against potential noise impacts, construction will be limited as follows:

- In the City of Yonkers, construction activities can occur only between the hours of 7:00 am and 6:00 pm on weekday. No work will be conducted on weekends or legal holidays.

During construction, noise will be mitigated through the proper maintenance of the construction equipment. In accordance with Federal and State regulations, devices such as exhaust mufflers and acoustic casing enclosures will be required.

Other mitigation measures can reduce noise or reduce the public reaction regarding the noise impacts during the proposed project construction. As suggested in the NYSDEC Assessing and Mitigating Noise Impacts manual it is helpful to send notification to nearby property owners, as to when specific noise impacts related to construction will occur. The construction manager will notify the Queen's Daughter's Daycare Center regarding activities that are expected to produce high noise levels. If necessary, the use of a temporary noise barrier may reduce the impacts related to construction to the Queen's Daughter's Daycare Center.

#### *Mitigation Measures Associated with Proposed Use*

The proposed residential property and residents will be expected to comply with Chapter 66 of the City of Yonkers Code. The HVAC units proposed for the top of the building are not to not anticipated to result in a noise impact as stated above. Given the height of the residential structure above surrounding buildings, the HVAC units will not result in any increase in ambient noise levels at the ground level. Any maintenance activities such as refuse collection is proposed to occur in the auto court area. Any noise associated with these activities within this area will be blocked and attenuated due to the design of the building.

### **3.10.2 Air Quality**

#### 3.10.2.1 Existing Conditions

Ambient air quality is measured and regulated under rules established by the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC). For this project, baseline air quality conditions at and in the vicinity of the Project Site were characterized using measured data available from nearby NYSDEC monitoring stations.

National and New York State Ambient Air Quality Standards (N/SAAQS) have been issued in accordance with the Clean Air Act and amendments for wide-spread pollutants considered harmful to public health and the environment. Six (6) pollutants have been listed with acceptable thresholds - these pollutants are called criteria pollutants. Criteria pollutants are: sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), lead (Pb), carbon monoxide (CO) and particulate matter (PM). The PM standard is actually two standards - one for particles with a diameter of less than 10 microns (PM<sub>10</sub>) and one for those with a diameter less than 2.5 microns (PM<sub>2.5</sub>).

In addition to the criteria pollutants listed above, New York has adopted ambient air quality guidelines for over 1,000 toxic compounds including but not limited to photochemical oxidants, non-methane hydrocarbons, fluorides, beryllium, hydrogen sulfide. The guidelines are known as DAR-1 AGC/SGC Guidelines, which include both annual guideline concentrations (AGCs) and short-term guideline concentrations (SGCs). Ambient monitoring for only a handful these pollutants is conducted by NYSDEC. Projects with air emissions must consider both criteria pollutants and toxic or hazardous air pollutants (HAPs) as part of an impact and/or permitting analysis.

Ambient air monitoring is conducted by the NYSDEC throughout the State. A summary of the air quality data collected at nearby stations and a comparison to N/SAAQS for each pollutant is provided in Table 3.10-7. The data were obtained from the NYSDEC 2009 Ambient Air Quality Report<sup>1</sup> and represents background ambient air quality for the proposed project. This is the most up-to-date report available as of June 2010.

Table 3.10-7 Summary of Ambient Air Quality Data for 2009					
Pollutant	Period	Station Location	County	Concentration <sup>(1)</sup>	N/SAAQS
NO <sub>2</sub>	1-hour	Botanical Gardens	Bronx	0.086 ppm	0.10 ppm
	Annual Average			0.022 ppm	0.053/0.05 ppm
O <sub>3</sub>	1-hour	Botanical Gardens	Bronx	0.095 ppm	0.12 ppm
	8-hour			0.075 ppm	0.08 ppm
SO <sub>2</sub>	3-hour Max	Botanical Gardens	Bronx	0.066 ppm	0.5 ppm
	24-hour Max			0.031 ppm	0.14 ppm
	Annual Average			0.0054 ppm	0.03 ppm
CO	1-hour Max	Botanical Gardens	Bronx	3.4 ppm	35 ppm
	8-hour Max			2.5 ppm	9 ppm
PM <sub>10</sub>	24-hour	IS52 (MS302)	Bronx	57.0 ug/m <sup>3</sup>	150 ug/m <sup>3</sup>
PM <sub>2.5</sub>	24-hour	Botanical Gardens	Bronx	27.4 ug/m <sup>3</sup>	35 ug/m <sup>3</sup>
	Annual			13.2 ug/m <sup>3</sup>	15.0 ug/m <sup>3</sup>
Pb	Quarterly	Walkkill	Orange	0.069 ug/m <sup>3</sup>	1.5 ug/m <sup>3</sup>
	Quarterly	Scotchtown		0.01 ug/m <sup>3</sup>	1.5 ug/m <sup>3</sup>
Notes: ppm - parts per million ug/m <sup>3</sup> - microgram per meter (1) - See the notes section of Table 1 in the Air Quality Technical Report to determine how monitored concentrations relate to each standard (Appendix I) Source: NYSDEC 2009 Ambient Air Quality Report.					

### 3.10.2.2 Potential Impacts

Potential project related air quality impacts are associated with stationary sources (microturbines), traffic and parking. The air quality impact of nearby stationary sources on the project site was also analyzed. RTP Environmental Associates, Inc., was retained to conduct air quality screening and modeling analyses to determine the potential impact of the proposed project on existing air quality.

#### *Microturbine Impacts*

The Proposed project includes the installation and operation of a combined heat and power (CHP) system. The 390 kilowatt (kW) system will include six (6) 65kW microturbines. The power generated will be used to feed a geothermal HVAC system and the automated parking garage. The heat generated by the CHP will be used by the proposed hydroponic garden system to be located atop the parking garage. The microturbines will be manufactured by Capstone and are considered clean, state-of-the-art power and heat generation units. The

<sup>1</sup> NYSDEC, 2009, "New York State 2009 Ambient Air Quality Report," 2009, <<http://www.dec.state.ny.us>>

microturbines will be fueled with natural gas and will therefore emit minor quantities of both criteria and hazardous air pollutants (HAPs).

The potential-to-emit (PTE) from the microturbines has been estimated and is summarized in Table 3.10-7. An emergency generator is also proposed and as such, PTE for this unit has also been calculated and is included in Table 3.10-8. PTE was calculated from a combination of manufacturer's emissions data and USEPA AP-42<sup>2</sup>. Detailed emission calculations for both criteria and hazardous air pollutants are provided in Attachment 1 of the Air Quality Technical Report (Appendix I).

<b>Table 3.10-8 Summary of Project Potential Air Emissions in Tons per Year (TPY)</b>								
<b>Emission Source</b>	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>HAPS (Total)</b>
Micoturbines - 6 Units (Natural Gas)	0.15	0.15	0.15	0.02	0.29	2.22	0.17	0.02
Emergency Generator (Diesel)	0.01	0.01	0.01	0.24	0.87	0.14	0.01	0.004
<b>Total:</b>	<b>0.16</b>	<b>0.16</b>	<b>0.16</b>	<b>0.26</b>	<b>1.16</b>	<b>2.36</b>	<b>0.18</b>	<b>0.024</b>
Major Source Thresholds (PSD/Title V) <sup>1,2</sup>	250/ 100	250/ 100	100	250/ 100	25	250/ 100	25	25/10 <sup>4</sup>
PSD Significant Emission Rates <sup>3</sup>	25	15	N/A	40	40	100	40	N/A

Source: RTP Environmental Associates, Inc., 2010.

Notes:

- Detailed emission calculations are provided as Attachment 1.
- <sup>1</sup> - Potential facility emissions over the Prevention of Significant Deterioration (PSD) Major Source Thresholds would require a PSD construction permit. Potential emissions over Title V (Part 70) would require a major source operating permit.
- <sup>2</sup> - The project is located in a severe ozone non-attainment area and a non-attainment area for PM<sub>2.5</sub>. As such, major source thresholds for NO<sub>x</sub>, VOC, and PM<sub>2.5</sub> are lower than for attainment pollutants.
- <sup>3</sup> - If potential emissions from a modification to an existing major facility exceed PSD Significant Emission Rates (SERs), then the modification would be applicable to PSD permitting requirements. Since this project is for a new source, SERs do not apply; however, have been included in the Table 3.10-8 for completeness.
- <sup>4</sup> - The major source threshold for total HAPs is 25 TPY and 10 TPY for any single HAP.

As indicated in Table 3.10-7, potential emissions from stationary sources will be below major source permitting thresholds and will therefore not be considered a major source. However, the project will require an Air Facility Registration issued by the NYSDEC.

Air quality impacts associated with the CHP system were determined using the USEPA air dispersion screening model SCREEN3. Maximum modeled impacts were then added to criteria pollutant "background" air quality concentrations and compared to N/SAAQs. Background concentrations are based on monitoring data at nearby NYSDEC monitoring stations as explained earlier. Hazardous air pollutants (HAPs) were also part of the modeling analysis. Maximum HAP-modeled impacts were compared to NYSDEC SGC/AGC guideline values.

Details regarding modeling procedures and model results are provided in the Air Quality Technical Report located in Appendix I. The modeling results indicate that the air quality impacts from the microturbines are less than both the criteria and hazardous pollutant

<sup>2</sup> Compilation of Air Pollutant Emission Factors, Volume I, Fifth Edition. <http://www.epa.gov/ttn/chief/ap42/index.html>.

standards, and as such, microturbine operations will have no significant impact on the air quality at or in the vicinity of the project.

### *Traffic Impacts*

The proposed project is expected to generate traffic which will cause emissions of CO, NO<sub>x</sub>, VOCs, PM<sub>10</sub> and PM<sub>2.5</sub> and HAPs which are associated primarily with vehicle exhaust. Traffic data collected by Tim Miller Associates, Inc. (TMA) were utilized to evaluate air quality impacts from project-generated traffic. Traffic details are provided in Section 3.5 of this DEIS.

Traffic-related air quality impacts are maximized at roadway intersections (both signalized and unsignalized) based on the vehicle exhaust stop-and-go profile of an intersection. As such, traffic information at each intersection that was part of the traffic study conducted in the DEIS Section 3.5 was analyzed to determine if a quantitative carbon monoxide (CO) "hot spot" air quality impact analysis was required.

Traffic data used as part of the evaluation include existing conditions (traffic data collected in late-2009 and 2010), Build year conditions (2014) when project completion is expected and No Build conditions (Build year without the project). As explained in Section 3.5 of the DEIS, the traffic analysis included Build and No Build traffic scenarios which incorporated approved future projects in the local area. These scenarios are designated as "Build w/ SFC" and "No Build w/ SFC" traffic conditions. Therefore, the evaluation of four (4) Build/No Build scenarios were performed to determine if a "hot spot" analysis was required.

To determine if a project requires a "hot spot" or microscale analysis at local intersections, an extensive 3-step screening process, as detailed in the NYSDOT Environmental Procedures Manual (EPM)<sup>3</sup>, was completed. The traffic analysis included 11 intersections (both signalized and unsignalized), and therefore, 11 intersection were subject to the screening process.

The screening process indicated that no intersections required a CO "hot spot" microscale analysis. As such, CO impacts from project-related traffic are considered insignificant.

Due to an insignificant increase in traffic volume, an air quality modeling impact analysis for particulate matter (both PM<sub>10</sub> and PM<sub>2.5</sub>) was not required. However, since the project site is in a non-attainment area for PM<sub>2.5</sub>, traffic-related PM<sub>2.5</sub> impacts were quantitatively evaluated. The analysis indicates that traffic-related PM<sub>2.5</sub> impacts will be minimal. Further details are provided in the Air Quality Technical Report located in Appendix I.

### *Parking Impacts*

An automated clean tech parking garage is proposed, and as such, the normal air quality impact of parking light duty vehicles will be significantly reduced. A study by EEA Consultants, Inc.<sup>4</sup> (Appendix I) indicated that the proposed system, compared to a conventional garage, would result in a 68% to 83% reduction in vehicle emissions depending on the specific pollutant. This occurs due in part that vehicles will enter the garage, park in the staging area, and then the car engines will be turned off. The cars will not drive and circulate through the garage.

<sup>3</sup> NYSDOT Environmental Analysis Bureau, "Environmental Procedure Manual," January 2001, (Albany, New York) Chapter 1.1.

<sup>4</sup> EEA, Inc., "Environmental Consulting Insights," Electronic Newsletter of EEA's Environmental Consulting Activities, (Garden City, NY: July 2009).

Rather, the automated conveyor system will move the vehicles to a location in the garage. These emissions rate reductions were based on a public garage operating 12-hours per day from 7:00 am to 7:00 pm, 365 days per year.

Vehicle exhaust emissions will only occur when vehicles enter or exit the garage at ground level. To mitigate vehicle queuing issues, the garage will have a total of four (4) lifts, which will distribute traffic into four (4) separate areas. The proposed project will generate a maximum of 119 new vehicle trips during the worst-case hour of operation. Since there will be no vehicle exhaust emissions when vehicles are moved or stored, no subsurface air quality impacts are expected.

#### *Construction-Related Impacts*

The construction of the apartment building will result in air pollutant emissions that will impact local air quality levels during the construction phase. These impacts primarily result from the operation of construction equipment and fugitive particulate emissions during construction. Construction traffic associated with the labor force and supplies/materials can also affect local air quality.

Impacts to air quality from project construction activities are anticipated to be short-term and relatively insignificant. The project is 2.04 acres in size and will require some demolition/rehabilitation activities, site grading and then construction. Demolition/Construction phasing is expected to be completed in approximately 36 months with completion by 2014. A quantitative analysis was performed to calculate the total amount of particulate matter (PM) generated from fugitive dust during construction. Due to the project's size and construction schedule, air quality impacts from fugitive dust will be minimal. In addition, contractors will implement typical dust mitigation measures such as water trucks, covering of storage piles and will utilize "good housekeeping practices", which will limit dust emissions. Stormwater mitigation measures will also likely contribute to dust reduction.

Considering the period of time, expected construction phasing and the distribution of these emissions over substantial areas with control measures typically applied during construction, air quality impacts are expected to be minimal and are not expected to exceed air quality nuisance guidelines.

#### *Nearby Stationary Source Impacts*

An air quality impact assessment was performed to determine if nearby sources of air pollution will have a significant impact on the project. This was accomplished by identifying major stationary sources of air emissions (as per 6 NYCRR Part 201-2) within 1,000 feet of the project site and minor stationary sources of air emissions within 400 feet of the project site. Locating stationary sources in the vicinity of the project was based on information from the Aerometric Information Retrieval System – Air Facility Subsystem (AIRS/AFS) as part of USEPA's Facility Registry System (FRS). Both graphical (GIS) and informational data were reviewed to determine facility locations. Based on the data reviewed, no minor sources were located within 400 feet of the project site. However, one major source, the American Sugar Refining Company, Inc. (ASRC) is located within 1,000 feet of the project to the south. The northeast corner of the ASRC property intersects the southwest portion of the 1,000 foot study radius.

An air dispersion modeling analysis was performed to determine if ASRC air emissions will have a significant impact on the Project. The modeling analysis focused on both criteria pollutant and HAP impacts. Modeled impacts were compared to NYSDEC SGC/AGC guideline values.

Model input including emission rates and stack parameters (i.e. stack height) were determined from the ASRC Title V Air Permit and air permit application as available from the NYSDEC. However, due to a lack of detail regarding emissions in the Permit and permit application, potential emissions were calculated from maximum equipment heat input ratings, and are therefore, considered conservative. However, the permit contains a facility-wide emission cap for NO<sub>x</sub>, emission used in the modeling analysis are based on the permit cap rather than equipment heat input ratings.

The SCREEN3 model was used to predict worst-case pollutant impacts from ASRC on the project site, specifically the proposed 25-story apartment building. Since the ASRC stack height is 150 feet high and the proposed building is 250 feet in height, located approximately 1,300 feet from the stack, maximum impacts are expected to occur at some elevated level of the building. As such, SCREEN3 was run to predict the maximum impact every 10 meters beginning at ground level (zero meters) and end at the top of the building (76 meters) by using the flagpole receptor option in the model. A separate SCREEN3 model run was required for each elevated receptor.

The modeling analysis indicates that the maximum impact occurs at 76 meters (the top of the building) and impacts decrease as building height decreases. As such, the impact at the building rooftop was used for NYSDEC AGC/SGC guideline comparison purposes. The results indicate that modeled impacts are below both short-term (SGC) and annual (AGC) guidelines for all pollutants, with the exception of arsenic, cadmium, formaldehyde and manganese, which exceed their respective AGCs.

Although the screening modeling analysis indicates that ASRC impacts for four (4) compounds exceed annual guideline values at the proposed apartment building, the likelihood of experiencing actual annual concentrations at these levels is very unlikely. This is based on the extremely conservative nature of the modeling analysis, which can be demonstrated through the following list of modeling assumptions:

1. SCREEN3 is a conservative model based on “worst-case atmospheric conditions” and does not use real meteorology;
2. Emissions from three (3) stacks were combined and released from one stack, which will concentrate emissions. In addition, exhaust flow rate was not increased for the combined flow of the three (3) sources, which indicates the exhaust velocity is conservatively low;
3. Exhaust temperature was conservatively set at the lowest of the three (3) emission sources (300°F), which will minimize buoyancy driven plume rise;
4. Annual impacts assume all three (3) emission sources operate for the entire year (8,760 hours per year) at maximum capacity, which is highly unlikely;
5. Since all three (3) sources are permitted to combust fuel oil and natural gas, emissions were calculated for both fuels and the maximum emission rate per fuel, per pollutant was selected for the modeling analysis. In the case of the four (4) compounds that

exceed annual guidelines, emissions based on fuel oil were selected. As such, the analysis assumed that fuel oil was the fuel used in all three (3) emission sources for the entire year (8,760 hours per year).

In addition, NYSDEC SGC/AGCs ambient air guidelines are not ambient air standards. As such, an exceedance of either a SGC or AGC does not signify an exceedance or violation of a standard. Details regarding how SGC/AGC guidelines are derived can be found in the *DAR-1 AGC/SGC Tables Memorandum* Dated September 10, 2007, which is provided in Attachment 5 of the Air Quality Technical Report (Appendix I).

#### *Potential Wind Effects*

It is not anticipated that the new apartment building would create any significant negative wind impacts. In New York State, based on National Oceanic and Atmospheric Administration data, prevailing winds are from the west (tend to be from the southwest in the warmer summer months and from the northwest during the winter months). Along Buena Vista Avenue, a "wind shadow" will be created by the building (as it will block the prevailing winds) - this will be an area of lower air circulation, i.e., less "windy".<sup>5</sup>

It is unlikely that winds will be channeled through the adjoining street corridor, i.e., Buena Vista Avenue, because the avenue is oriented north-south and perpendicular to prevailing winds - to get higher and accelerated wind speeds from a building canyon effect, the avenue would have to be parallel to the prevailing wind. Also, the buildings along Buena Vista Avenue, with a mix of building heights themselves and some with yards and open spaces around them, are not oriented or designed in a manner that would induce accelerated wind speeds.

#### 3.10.2.3 Mitigation Measures

##### *Traffic-Related Mitigation Measures*

The air quality analysis of the proposed project has focused on CO and PM (primarily PM<sub>2.5</sub>) associated with traffic generated by the project, which based on NYSDOT Air Quality Assessment Guidance<sup>6</sup>, are the significant pollutants from an air quality perspective. Based on the traffic screening analysis performed, no quantitative air quality analysis was required. Therefore, air quality impacts are considered insignificant and no air quality mitigation measures are necessary. The traffic mitigation, as proposed in Section 3.5, will be sufficient and appropriate, from an air quality perspective.

##### *Parking-Related Mitigation Measures*

The project design incorporates an automated parking garage which provides for a significant mitigation of air emissions relative to a standard garage. The reductions in vehicle air emissions are achieved by substantially reducing the vehicle travel distance as explained above. In addition, since there will be no air quality impacts associated with underground parking levels, no air quality mitigation is necessary.

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<sup>5</sup> For a general discussion of air flow and circulation, see Air Quality at Street-Level: Strategies for Urban Design, Anne Whiston Spirn for the Boston Redevelopment Authority, 1986.

<sup>6</sup> NYSDOT Environmental Analysis Bureau, "Environmental Procedure Manual," January 2001, (Albany, New York) Chapter 1.1.

*Microturbine-Related Mitigation Measures*

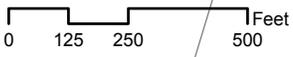
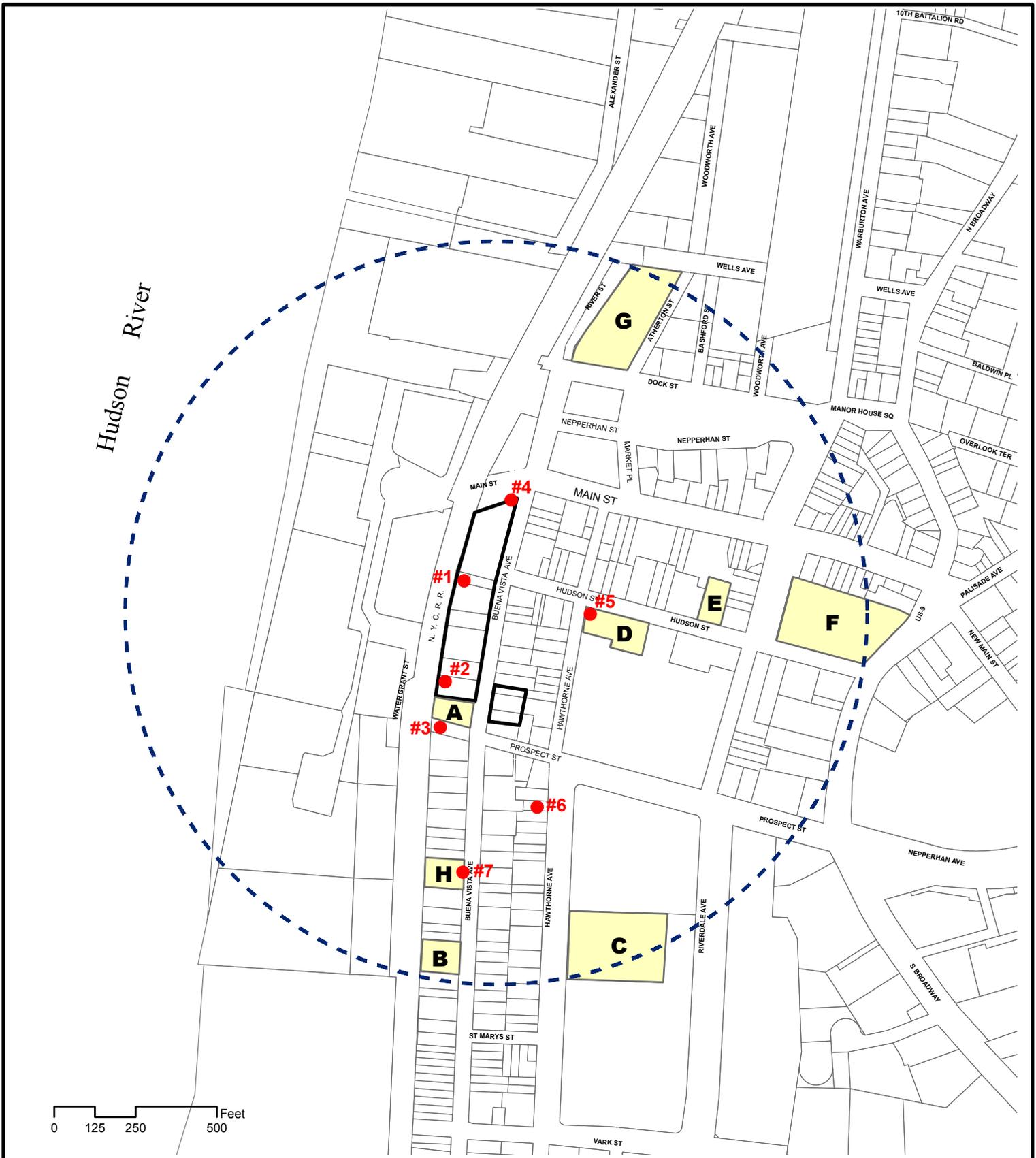
The Project will include a thermally and environmentally-efficient, state-of-the-art CHP system that will utilize natural gas-fired microturbines. This system provides a benefit from an air pollutant and greenhouse gas (GHG) emissions perspective since it will offset necessary grid power and heat generation from other sources. An air dispersion modeling analysis was performed and demonstrated that microturbine emissions will not compromise applicable air quality rules and regulations, and as such, no further air quality mitigation measures are necessary.

*Nearby Source-Related Mitigation Measures*

A screening air dispersion modeling analysis indicates that emissions associated with the nearby ASRC may have a long-term impact on the air quality in the vicinity of the proposed 25-story apartment complex for certain compounds. However, the impacts produced by the screening analysis are considered overly conservative based on the information provided earlier. It is, therefore, highly unlikely that the long-term impacts indicated by the modeling analysis would actually occur. In addition, the HVAC system servicing the apartment complex will be equipped with particulate filtration systems to filter outdoor air and deliver improved indoor air quality to residents.

*Construction-Related Mitigation Measures*

The construction of the proposed project would produce minimal incremental air emissions increases at and around the project area. Since no adverse effects to air quality are expected from the proposed project, monitoring has not been included as a component of proposed project activities. Further, mitigation measures beyond typical dust suppression activities should not be necessary since construction air quality impacts will be short-term and relatively small.



Legend	
	Site Property Boundary
	Noise Monitoring Location
	Sensitive Receptor
	1000' Radius Boundary

Figure 3.10-1: Noise Monitoring Locations and Sensitive Receptor Locations  
 Buena Vista Teutonia PUR  
 City of Yonkers, Westchester County, NY  
 Base Map: Westchester County GIS  
 Scale: 1" = 400'