2.N AIR QUALITY

INTRODUCTION

Ambient air quality, or the quality of the surrounding air, may be affected by air pollutants produced by motor vehicles, referred to as "mobile sources;" or by fixed facilities, usually referenced as "stationary sources" or by a combination of both. Under CEQR, an air quality assessment determines both a proposed project's effects on ambient air quality as well as the effects of ambient air quality on the project.

The Proposed Action would replace low-rise, mostly one- and two-story buildings, containing generally low intensity light industrial and automotive uses and vacant formerly industrial space, with seven- to fifteen-story residential buildings, some of which would have ground floor commercial or community facility space and accessory group parking garages. Under the reasonable worst-case development scenario (RWCDS) described in Chapter 1, Project Description, the anticipated development would add 2,635 housing units, 93,000 square feet of commercial space, a child care center, and an outdoor children's playground. It would do so in an area of 11 blocks, parts of which would be in close proximity to the Cross Bronx Expressway, which is slightly elevated in the vicinity of the proposed rezoning area.

This chapter assesses the potential for the Proposed Action to result in significant mobile source air quality impacts by increasing traffic on nearby streets, by adding new parking facilities, or by introducing new residential development near an elevated portion of the Cross Bronx Expressway. It assesses the action's potential to result in significant adverse stationary source air quality impacts because of exhaust vented from the new buildings' heating, ventilation, and air conditioning (HVAC) systems or because the new residential buildings would be subject to existing HVAC emissions, air toxics from remaining industrial uses, or odors.

PRINCIPAL CONCLUSIONS

Mobile Sources and Parking Facilities

The additional traffic volumes anticipated as a result of the Proposed Action would not cause carbon monoxide (CO) or fine particulates ($PM_{2.5}$ and PM_{10}) concentrations to exceed either National Ambient Air Quality Standards (NAAQS) or New York City de minimis criteria at any intersection. Carbon monoxide emissions from the new garages would also not exceed those standards. No new building would be exposed to $PM_{2.5}$ or PM_{10} concentrations in excess of NAAQS as a result of the exhaust from vehicles traveling on the Cross Bronx Expressway. In summary, the Proposed Action would not result in any significant adverse mobile source air quality impact.

Stationary Sources

Searches were performed for federal, state, or city permits for boiler, garage, or air toxics emissions in or near the proposed rezoning area. The searches and subsequent screening and computer modeling showed that no stationary emissions sources are close enough or large enough to have a significant adverse air quality impact on any project or potential development site.

HVAC system boiler emissions from new buildings that might be built on projected or potential development sites would not cause significant air pollutant concentrations at any existing residential building, school, or other sensitive receptor.

Assessment using the federal Environmental Protection Agency's (EPA's) AERMOD dispersion model indicated that, in the absence of restrictions on fuel sources or emissions stack locations, developments on many of the projected and potential development sites could potentially cause significant adverse air

quality impacts on projected or potential new buildings on nearby sites, causing pollutant concentrations that would exceed NAAQS limits, if their boilers are fueled by oil rather than natural gas and if their exhaust stacks are located at rooftop locations sufficiently close to the potentially affected buildings. The Proposed Action would therefore including the mapping of (E) designations on non-applicant-controlled Sites and the recording of restrictive declarations against applicant-controlled Sites that would require the use of natural gas rather than oil, require exhaust stacks to be set back from certain property lines by specified minimum distances, or both. In addition, the applicant proposes to construct exhaust stacks for the boilers that are on the mechanical penthouses and extend seven feet above the penthouses rather than follow the standard, less stringent practice of building stacks three feet higher than the surrounding roof. The more rigorous stack height requirement would be part of restrictive declarations recorded against the applicant-controlled Sites. The mapping of these (E) designations and the recording of these restrictive declarations would avoid the potential significant adverse air quality impacts and ensure that residents of the buildings on proposed and potential development sites would not be subjected to unhealthful levels of air pollution caused by other development resulting from the Proposed Action.

Air Toxics

Four facilities located either within the proposed rezoning area or within 400 feet of its boundaries have permits for the release of air toxics. Analysis indicates that none would have a significant adverse impact on any building that would occupy a projected or potential development site.

Odors

The only establishment likely to generate significant odors that could affect projected or potential development sites is the meat packaging plant at 1560 Boone Avenue (Block 3014, Lot 15). This property exists on Projected Development Site 2N, which is controlled by the applicant, and it would be redeveloped under the Proposed Action. Although construction activity on that site would not commence until years 4 to 6 in construction Phase 3, the firm intends to vacate the premises and relocate its operation well before residential construction on nearby sites has been completed. Therefore, it would not be an odor source affecting the redeveloped lots.

METHODOLOGY

The methodology is based on the *CEQR Technical Manual*. Screening analyses were used to identify pollutant sources which would require a more refined analysis. The modeled concentrations from the more refined analyses were added to background pollutant concentrations and compared with NYC de minimis criteria and interim guidelines, New York State Department of Environmental Conservation (NYSDEC) Short-Term and Annual Guideline concentrations, and NAAQS.

Standards and Evaluation Criteria

National Ambient Air Quality Standards

Ambient air is defined by the United States Environmental Protection Agency (EPA) as that portion of the atmosphere, external from buildings, to which the general public has access. National Ambient Air Quality Standards (NAAQS) were promulgated by EPA for the protection of public health and welfare, allowing for an adequate margin of safety. The EPA has set NAAQS for six criteria pollutants. They consist of primary standards, established to protect public health with an adequate safety margin, and secondary standards, established to protect "plants and animals and to prevent economic damage." Six major pollutants are deemed criteria pollutants because threshold criteria can be established for determining adverse effects on human health. They are described below:

- Carbon Monoxide (CO) is a colorless, odorless gas produced from the incomplete combustion of gasoline and other fossil fuels. The primary source of CO in urban areas is from motor vehicles. Because this gas disperses quickly, CO concentrations can vary greatly over relatively short distances.
- Inhalable Particulates, also known as Respirable Particulates. Particulate matter is a generic term for a broad range of discrete liquid droplets or solid particles of various sizes. They are primarily generated by fuel oil combustion and by vehicular traffic that contributes to airborne particulates from brake and tire wear and the disturbance of dust on roadways. The PM_{10} standard covers particulates with diameters of 10 micrometers or less, which are the ones most likely to be inhaled into the lungs. The $PM_{2.5}$ standard covers particulates with diameters of 2.5 micrometers or less.
- Lead (Pb) is a heavy metal. Emissions are principally associated with industrial sources and motor vehicles that use gasoline containing lead additives. Most U.S. vehicles manufactured since 1975, and all manufactured after 1980, are designed to use unleaded fuel. As a result, ambient concentrations of lead have declined significantly.
- Nitrogen dioxide (NO_2) is a highly oxidizing, extremely corrosive toxic gas. It is formed by chemical conversion from nitric oxide (NO), which is emitted primarily by industrial furnaces, power plants, and motor vehicles.
- Ozone (O_3), a principal component of smog, is not emitted directly into the air but is formed through a series of chemical reactions between hydrocarbons and nitrogen oxides in the presence of sunlight.
- Sulfur dioxide (SO_2) is a heavy gas primarily associated with the combustion of sulfur-containing fuels such as coal and oil. No significant quantities are emitted from mobile sources.

New York State Ambient Air Quality Standards further regulate concentrations of the criteria pollutants discussed above. The Air Resources Division of NYSDEC is responsible for air quality monitoring in the state. Monitoring is performed for each of the criteria pollutants to assess compliance. Table N-1 shows the National and New York State Ambient Air Quality Standards.

New York State Annual and Short-Term Guideline Concentrations

NYSDEC has established Short-Term Guideline Concentrations (SGCs) and Annual Guideline Concentrations (AGCs) for certain toxic or carcinogenic non-criteria pollutants for which the EPA has no established standards. They are maximum allowable 1-hour and annual guideline concentrations, respectively, that are considered acceptable concentrations below which there should be no adverse effects on the health of the general public. SGCs are intended to protect the public from acute, short-term effects of pollutant exposures, and AGCs are intended to protect the public from chronic, long-term effects of the exposures. Pollutants with no known acute effects have no SGC criteria, but do have AGC criteria.

The New York City Department of Environmental Protection (NYCDEP) considers that, for pollutants for which the DEC-established AGC is based on a health risk criterion (i.e., a one in a million cancer risk), impacts of less than ten times the AGC are not considered significant. This is because NYSDEC developed the AGCs for these pollutants by reducing the health risk criteria by a factor of ten as an added safety measure if the source has best available control technology (BACT) installed. In determining potential impacts, therefore, NYCDEP considers concentrations within ten times the AGC to be acceptable.

Table N-1: National and New York State Ambient Air Quality Standards and Monitored Values

Pollutant	Averaging Period	Standard	2009 Value	Monitor
Sulfur Dioxide	12-month arithmetic mean	80 µg/m^3	24 µg/m^3	Botanical Gardens (Bronx)
	24-hour average	365 µg/m^3	110 µg/m^3	
	3-hour average	1,300 µg/m^3	176 µg/m^3	
	1-hour average[f]	75 ppb	NA	
Inhalable Particulates (PM_{10})	24-hour average	150 µg/m^3	64 µg/m^3	I.S. 52 (Bronx)
Inhalable Particulates ($PM_{2.5}$)	3-yr average annual mean	15 µg/m^3	11.8 µg/m^3	I.S. 52 (Bronx)
	Maximum 24-hr. 3-yr. avg.[d]	35 µg/m^3	40.6 µg/m^3	
Carbon Monoxide	8-hour average[a]	9 ppm	2.5 µg/m^3	Botanical Gardens (Bronx)
	1-hour average[a]	35 ppm	3.4 ppm	
Ozone	Maximum daily 1-hr avg.[b]	NA	0.092 ppm	Botanical Gardens (Bronx)
	Maximum daily 8-hr avg.[c]	0.075 ppm	0.065 ppm	
Nitrogen Dioxide	12-month arithmetic mean	100 µg/m^3	51 µg/m^3	Botanical Gardens (Bronx)
	1-hour average[e]	100 ppb (188 ug/m^3)	NA	
Lead	Quarterly mean	1.5 µg/m^3	0.019 µg/m^3	J.H.S. 126 (Brooklyn)

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter; NA = not available
a Not to be exceeded more than once a year.
b Applies only to areas designated non-attainment. The NYC metropolitan area is no longer subject to the 1-hour ozone requirement.
c. Three-year average of the annual fourth highest maximum 8-hour average concentration effective May 27, 2008.
d Not to be exceeded by the 98th percentile of 24-hour $PM_{2.5}$ concentrations in a year (averaged over 3 years).
e Three-year average of the 98th percentile of the daily maximum 1-hour average, effective January 22, 2010.
f Three-year average of the 99th percentile of the daily maximum 1-hour average, final rule signed June 2, 2010.
Sources: New York State Department of Environmental Conservation; New York State Ambient Air Quality Development Report, 2009; New York City Department of Environmental Protection, 2010.

Odor Regulations

NYSDEC enforces regulations under 6 NYCRR 211.2 that generally state that no facility should emit measurable amounts of airborne pollutants that result in the detection of bad odors by the general public. These regulations prohibit "emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic, or duration which … unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emission, either alone or in combination with others." NYSDEC also has a 1-hour ambient air quality standard of 10 ppb for hydrogen sulfide, and NYCDEP considers a 1 ppb increase in hydrogen sulfide to constitute an impact on sensitive receptors.

A significant odor impact would occur if a project results in maximum predicted 1-hour average malodorous pollutant levels above the applicable odor threshold at places of public access, or if it results in the development of a structure that would be subject to such malodorous pollutant levels from nearby sources of these pollutants. While odors may still be detected for time periods from a few seconds to several minutes, it would be unrealistic to define this as a significant impact unless the odor persisted, on average, for at least an hour.

New York City De Minimis and Interim Guidance Criteria

For mobile sources, New York City's *de minimis* criteria are used to determine the significance of the incremental increases in CO concentrations that would result from a proposed action. According to these criteria, a significant impact is defined as follows:

- An increase of 0.5 ppm or more in the maximum 8-hour average carbon monoxide concentration at a location where the predicted No Action 8-hour concentration is equal to or above 8 ppm; or
- An increase of more than half the difference between baseline (i.e., No Action) concentrations and the 8-hour standard (9 ppm) where No Action concentrations are below 8 ppm.

For $PM_{2.5}$ analyses at the microscale level, the City's interim guidance criteria for determining significance are:

- 24-hour average $PM_{2.5}$ concentration increments that are predicted to be greater than 5 $\mu g/m^3$ at a discrete receptor location would be considered a significant adverse impact on air quality under operational conditions (i.e., a permanent condition predicted to exist for many years regardless of the frequency of occurrence);
- 24-hour average PM2.5 concentration increments that are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5 $\mu g/m^3$ would be considered a significant adverse impact on air quality depending on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations. The lead agency must consult with DEP to determine the significance of results between 2 $\mu g/m^3$ and 5 $\mu g/m^3$;
- Predicted annual average $_{PM2.5}$ concentration increments greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for location neighborhood scale monitoring stations); or
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 $\mu g/m^3$ at a discrete or ground-level receptor location.

State Implementation Plan (SIP)

The Clean Air Act requires states to submit to the EPA a SIP for attainment of the NAAQS. The site is within an area classified as nonattainment for ozone and $PM_{2.5}$ because concentrations historically have exceeded the standards. For ozone, Bronx County is classified as nonattainment (moderate) for the 8-hour ozone standard. In August 2007, the state submitted the final proposed revision of the SIP for ozone, documenting how the area will attain the 8-hour ozone standard by 2013. On June 16, 2011, NYSDEC petitioned the EPA to make a binding determination that the NY-N. NJ-Long Island, NY-NJ-CT metropolitan statistical area (NYMA) has attained both the 1990 1-hour ozone standard of 0.12 ppm and the 1997 ozone standard of 0.08 ppm.

On May 5, 2011, NYSDEC petitioned the EPA to make a binding determination that the New York State portion of the New York-N. New Jersey-Long Island, NY-NJ-CT nonattainment area has attained the 2006 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. Based on updated air quality monitoring data

from the New York, New Jersey and Connecticut portions of the New York-N. New Jersey-Long Island, NY-NJ-CT nonattainment area, the 2006 24-hour $PM_{2.5}$ NAAQS is now being met.

As stated previously, the site also falls within a CO maintenance area. The 1-hour values shown for nitrogen dioxide in Table N-1 represent maximum annual averages, as the records are not presently sufficient to calculate annual averages over a 3-year period.

Background Pollutant Concentrations

Background concentrations are added to modeled concentrations to determine total concentrations for comparison with NAAQS. For SO_2, nitrogen dioxide (NO_2), and PM_{10}, the background values at I.S. 52 in the Bronx, as provided by NYCDEP's May 21, 2010 memo and shown below, would be used:

- 228 $\mu g/m^3$ for the 3-hour SO_2 average,
- 123 $\mu g/m^3$ for the 24-hour SO_2 average,
- 29 $\mu g/m^3$ for the annual SO_2 average,
- 55 $\mu g/m^3$ for the annual NO_2 average, and
- 64 $\mu g/m^3$ for the 24-hour PM_{10} average.

As a conservative approach for CO, the highest value from the past 5 years of monitored values was used as the background value. Although the I.S. 52 station is the closest to the rezoning area, it does not have 1-hour and 8-hour CO values. Therefore, the CO concentrations from the Botanical Gardens Pfizer Lab station were used. Based on the past 5 years of data at this station, the CO background would be 3.9 ppm for the 1-hour average and 2.5 ppm for the 8-hour average, as shown in Table N-2.

Table N-2: Monitored CO Values (ppm)

Monitor	Year	1-Hour Value	8-Hour Value
Botanical Gardens, Pfizer Lab, Bronx	2005	**3.9**	**2.5**
	2006	2.6	1.9
	2007	3.1	2.0
	2008	2.3	1.8
	2009	3.4	2.5

Note: Numbers in bold type are the highest in their category.
Source: New York State Department of Environmental Conservation

Mobile Sources

Emissions from vehicular traffic roadways are termed mobile sources. In general, mobile source analyses consider projects that add new vehicles to the roads, change traffic patterns by diverting vehicles, include parking lots or garages, or add new uses near sources of pollutants, as when a residential building is proposed adjacent to a highway. For the Proposed Action, the evaluation of mobile sources included the addition of new (action-generated) vehicles to roads, new parking facilities, and the proximity of new residential uses near elevated highways.

Conditions for Further Analysis

According to the *CEQR Technical Manual*, conditions that may require further analysis include:

- Projects that would result in placement of operable windows (i.e., windows that may be opened and closed by the tenant, balconies, air intakes, or intake vents generally within 200 feet of an atypical (e.g., not at-grade) source of vehicular pollutants, such as a highway or bridge with a total of more than two lanes;
- Projects that would generate peak hour auto traffic or divert existing peak hour traffic, resulting in 170 auto trips;
- Projects that would generate peak hour auto heavy-duty diesel traffic or its equivalent in vehicular emissions resulting in the following:
    - 12 or more HDDV for paved roads with fewer than 5,000 vehicles per day;
    - 19 or more HDDV for collector-type roads;
    - 23 or more HDDV for principal and minor arterial roads; and
    - 23 or more HDDV for expressways and limited-access roads;
- Projects that would result in a sizable number of other mobile sources of pollution, such as a heliport, new railroad terminal, or trucking; and
- Projects that would substantially increase the vehicle miles traveled in a large area (a borough, the City, or larger) may require a mesoscale analysis.

The project would result in new residential development within 200 feet of the elevated Cross Bronx Expressway, meet the threshold screening criteria for autos and heavy-duty diesel equivalents at multiple intersections, and create residential uses in close proximity to new parking facilities. Pollutant and sources of interest included:

- Carbon monoxide and fine particulates (PM_{10} and $PM_{2.5}$) from the increase in motor vehicles due to the Proposed Action during the weekday AM, Midday, and PM peak traffic periods,
- Carbon monoxide from parking facilities, and
- PM_{10} and $PM_{2.5}$ from the Cross Bronx Expressway due to the proposed construction of residential units nearby.

Approach

To assess the potential for vehicular traffic to cause an air quality impact, a preliminary evaluation of intersections was carried out for CO and $PM_{2.5}$ based on the project-generated increment of vehicles for the twenty intersections included in the traffic analysis. Multiple intersections failed the CO and $PM_{2.5}$ screens, and one to two worst-case intersections were selected for modeling with CAL3QHC or CAL3QHCR. If modeling of the worst-case intersections shows no potential for air quality impacts, then no impacts are likely for intersections with lower volumes.

CO Screen

Based on the *CEQR Technical Manual*, actions resulting in 170 or more trips through an intersection in the Bronx may require further analysis. Table N-3 shows that multiple intersections would exceed this threshold. To assess the potential for CO impacts, modeling was carried out for the intersection with the greatest traffic increment and for the intersection with the highest overall volume.

As shown in Table N-3, the maximum project increment, 281 vehicles, would occur at the intersection of West Farms Road/Boston Road/East Tremont Avenue, during the weekday AM period. This intersection also has relatively high volumes compared to the other intersections. The intersection of E. 177th Street and the Sheridan Expressway ramp has the highest overall volume, and it has a relatively high project

increment of 259 vehicles for the peak AM period. Therefore, CO modeling was performed for the peak AM period at these two intersections, which are shown in Figure N-1.

Table N-3: Traffic Volume Increments for CO Screening Analysis

Intersections	Auto Trips Added			Truck Trips Added			Total Trips Added		
	AM	MD	PM	AM	MD	PM	AM	MD	PM
East Tremont Ave at East 177th St.	277	107	111	(12)	(9)	(13)	**265**	98	98
West Farms Rd. at Boston Rd, E. Tremont Ave	293	131	161	(12)	(9)	(13)	**281**	122	148
West Farms Rd. at Rodman Place	240	106	124	(13)	(10)	(12)	**227**	96	112
East 177th St. at E. 177th St. (Sheridan Expressway)	271	103	104	(12)	(8)	(13)	**259**	95	91
West Farms Rd. at Cross Bronx Expressway North Service Rd	211	67	83	(13)	(14)	(12)	**198**	53	71
Bronx River Ave at East 174th St.	(23)	44	127	(3)	(6)	(4)	(26)	38	123
Boone Ave at East 174th St.	4	52	156	(9)	(10)	(8)	(5)	42	148
Longfellow Ave at East 174th St.	(19)	19	61	(3)	(4)	(2)	(22)	15	59
West Farms Rd. at East 173rd St.	231	69	131	(14)	(16)	(14)	**217**	53	117
Boone Ave at East 173rd St.	65	36	109	(15)	(17)	(9)	50	19	100
Longfellow Ave at East 173rd St.	(6)	20	61	(3)	(5)	(2)	(9)	15	59
West Farms Rd. at East 172nd St.	113	65	164	(7)	(9)	(10)	106	56	154
Boone Ave at East 172nd St.	15	14	49	(6)	(7)	(6)	9	7	43
West Farms Rd. at Jennings St.	27	39	131	(4)	(5)	(5)	23	34	126
West Farms Rd. at Boone Ave	22	41	131	(5)	(6)	(5)	17	35	126
Boone Ave at Freeman St., Sheridan Expressway Ramp	4	15	56	(2)	(3)	(2)	2	12	54
Westchester Ave at Boone St., Home St.	(3)	29	106	(3)	(6)	(4)	(6)	23	102
West Farms Rd. at Home St., Longfellow Ave	2	39	129	(5)	(6)	(5)	(3)	33	124
West Farms Rd. at Freeman St.	9	39	129	(5)	(6)	(5)	4	33	124
Westchester Ave. at Sheridan Expressway Ramp	6	16	52	(1)	(3)	(2)	5	13	50

Note: Entries in bold type exceed 170-vehicle threshold screen
Source: Stantec Consulting, April 24, 2011

Minor changes to traffic volumes occurred between the DEIS and the FEIS. However, they were not sufficient to change the selection of worst-case intersections or the modeled results.

Figure N-1: Intersections Modeled for CO

Source: Google Earth, Sandstone Environmental Associates, Inc.

CO Modeling

Mobile source CO was modeled at the two worst-case intersections using traffic data from the traffic study, EPA's MOBILE6.2 emissions model for vehicular emission factors, and EPA's CAL3QHC model to obtain modeled CO concentrations.

Traffic data was obtained from the traffic analysis. This included volumes, by approach, for key links and intersections within the study area as well as vehicular speeds, and vehicular mixes. The vehicular mix used for the analysis was based on field classification counts obtained from the traffic study. Vehicular mix represents the proportions of vehicles falling into the 28 MOBILE6.2 categories. Based on NYCDEP guidelines, taxis and sport utility vehicles are treated as special categories of vehicles. Sport utility vehicles (SUVs), which represent about 24% of the passenger vehicles, were included with light duty gasoline trucks in the LDGT1 category. Taxis are counted as a category separate from autos and are usually treated as autos if they are a very small proportion of the traffic. The mixture of vehicular types is used to obtain composite emission factors from MOBILE6.2.

CO emission factors for 2022 were obtained from EPA's MOBILE6.2 model. The ambient temperature used in the model was 43°F, as recommended by the NYCDEP. Inputs pertaining to inspection/maintenance, anti-tampering programs, etc., were obtained from NYCDEP's most recent guidelines (March 2008). The resulting MOBILE6.2 emission factors for each vehicular type were

multiplied by the percentages for each vehicular mix to calculate the composite emission factors, by speed, for use in the CAL3QHC model.

CAL3QHC was used to determine CO concentrations. CAL3QHC is a Gaussian dispersion model that determines pollutant concentrations at specified receptor points. It accounts for CO from both free-flowing vehicles and vehicles idling at signalized intersections. Inputs to the model include Cartesian coordinates for receptors, free-flow approach and departure links, and the approach links for queued vehicles at intersections. Peak hour traffic volumes, signal cycle information, composite vehicular emission factors, and adjusted saturation flow rate are also input into the model.

In CAL3QHC, free-flowing traffic links are set up separately from the intersection queue links. Free-flow links were modeled for a distance for 1,000 feet from the intersection in each direction. The mixing zone for free-flow links was equal to the width of the traveled way plus an additional 10 feet (3 meters) on each side of the roadway. For queue links, the mixing zone was limited to the width of the traveled way. CAL3QHC calculates the length of the queue links.

Sensitive receptors are homes, parks, schools, or other land uses where people congregate and which would be sensitive to air quality impacts. For the purposes of the air quality analysis, any point to which the public has continuous access can be deemed a sensitive receptor site. Numerous receptor points are typically modeled at each intersection to identify the point exposed to the maximum potential CO concentration. To analyze CO levels, receptor points were modeled on the corners of the intersection, and additional points were modeled at 20-foot intervals for a distance of 100 feet along both sides of each intersection leg. Receptors were placed at mid-sidewalk outside the air quality mixing zone.

Typical worst-case meteorological conditions were used with CAL3QHC. These included a mixing layer height of 1,000 meters, a wind speed of 1 meter per second, and an atmospheric stability class of D (neutral stability). Settling and deposition velocities were assumed to be 0 cm/s. Each computer run covered wind angles form 0 to 360 degrees and identified the worst-case wind angle for each receptor point. A surface roughness of 321 cm, representing central business district land uses, was used in the modeling.

To obtain 8-hour concentrations, the modeled CO values were multiplied by a persistence factor of 0.70, and then added to the 8-hour background values to determine total CO concentrations during that period. The same worst-case wind angle would apply to both the 1-hour and 8-hour averaging periods. Only the 8-hour CO concentrations are presented in the report. If no violation of the 8-hour standard occurs, no violation of the 1-hour CO standard is likely.

Mobile source modeling of CO concentrations accounts solely for emissions from vehicles on modeled streets, but not for overall pollutant levels. Therefore, background CO concentrations were added to modeling results to obtain total CO concentrations at a given receptor site.

$PM_{2.5}$ Screen

The screening analysis in the 2010 *CEQR Technical Manual* for potential $PM_{2.5}$ impacts is based on exhaust emissions from heavy duty diesel-powered vehicles. A more detailed analysis is required if a proposed action would add vehicular emissions equivalent to the following volumes of heavy duty diesel vehicles (HDDVs):

- 12 or more HDDV for paved roads with fewer than 5,000 vehicles per day;
- 19 or more HDDV for collector-type roads;
- 23 or more HDDV for principal and minor arterial roads; and
- 23 or more HDDV for expressways and limited-access roads.

The Proposed Action would generate passenger vehicles (autos and SUVs). Additional trucks generated during peak traffic periods would be minimal, and all intersections would experience a net decrease in trucks under Action Conditions because industrial land uses would be redeveloped with residential uses.

A $PM_{2.5}$ screening analysis was conducted using the spreadsheet on page 17-10 of the *CEQR Technical Manual*. The algorithm uses traffic volume according to vehicular class and determines the equivalent number of HDDVs by type of road. Passenger cars were assumed to represent 74% autos and 24% SUVs based on classification counts conducted for the traffic study. No information was available on the types of trucks that would be eliminated with the new development. Therefore, the trucks to be eliminated were assumed to be medium trucks in the HDGV5 category.

Table N-4 shows the results of the $PM_{2.5}$ screen for the highest project-generated increment at each of the 20 intersections. Based on guidance from NYCDEP, the minor leg of an intersection determines its classification as a local road, collector, arterial, or expressway. As shown in Table N-4, 16 of the 20 intersections would fail the $PM_{2.5}$ screen during at least one peak traffic period.

The intersection with the greatest number of HDDV equivalents is West Farms Road at Rodman Place. Because Rodman Place is a local road, the increase of 240 passenger cars coupled with a decrease of 13 medium trucks is equivalent to the $PM_{2.5}$ emissions of an additional 108 heavy duty diesel trucks. However, this is an unsignalized intersection, and unsignalized intersections are not modeled because the traffic volume on the main roadway flows freely and idling vehicles are limited to the much smaller volume on the minor roadway. The signalized intersection with the greatest HDDV equivalent is Boone Avenue at E. 174th Street with 70 HDDV equivalents. This intersection therefore warrants modeling of PM_{10} and $PM_{2.5}$.

As stated previously, minor changes to traffic volumes occurred between the DEIS and the FEIS. However, they were not sufficient to change the selection of worst-case intersections or the modeled results for CAL3QHCR.

PM_{10} and $PM_{2.5}$ Roadway Modeling

For modeling PM_{10} and $PM_{2.5}$, emission factors obtained from MOBILE6.2 were used in conjunction with the CAL3QHC model to determine worst-case pollutant concentrations at sensitive receptor points. In contrast to CO emissions, speed, ambient temperature and the thermal states of vehicular engines do not affect the emissions of fine particulates. Model parameters included a surface roughness of 321, a mixing height of 1,000 feet, and stability class 4. Fugitive dust emissions were included in the $PM_{2.5}$ and PM_{10} emission factors on public roadways in accordance with NYCDEP guidelines and EPA formulas. CAL3QHC modeling was carried out for the No Action and Proposed Action Alternatives. Based on guidance in the CEQR *Technical Manual* and from NYCDEP, the resulting 1-hour concentrations were converted to 24-hour concentrations using a persistence factor of 0.4 and to annual values using a persistence factor of 0.08. Background values were added to PM_{10} to determine total concentrations. For $PM_{2.5}$, the difference between No Action and Proposed Action Alternatives was compared with the City's Interim Guidelines.

Parking Facilities

Parking facilities include fully enclosed garages, partially enclosed decks, and open lots. On-street parking typically is not analyzed.

Table N-4: $PM_{2.5}$ **Screening Analysis**

Intersection	Maximum Trips Added				Road Class*	HDDV Equiva-lent	Result
	Period	Autos	Trucks	Total			
East Tremont Ave at East 177th Street	AM	277	-12	265	C	51	Fail
West Farms Road at Boston Rd, East Tremont Ave	AM	293	-12	281	P	10	Pass
West Farms Road at Rodman Place	AM	240	-13	227	L	108	Fail**
E. 177th Street @ E. 177th Street	AM	271	-12	259	C	49	Fail
West Farms Road at Cross Bronx Expressway North Service Rd	AM	211	-13	198	L	94	Fail**
Bronx River Ave at East 174th Street	PM	127	-4	123	P	5	Pass
Boone Ave at East 174th Street	PM	156	-8	148	L	70	Fail
Longfellow Ave at East 174th Street	PM	61	-2	59	L	28	Fail
West Farms Road at East 173rd Street	AM	231	-14	217	L	103	Fail**
Boone Ave at East 173rd Street	PM	109	-9	100	L	47	Fail
Longfellow Ave at East 173rd Street	PM	61	-2	59	L	28	Fail
West Farms Road at East 172nd Street	PM	164	-10	154	C	29	Fail
Boone Ave at East 172nd Street	PM	49	-6	43	L	20	Fail
West Farms Road at Jennings Street	PM	131	-5	126	L	60	Fail
West Farms Road at Boone Ave	PM	131	-5	126	P	4	Pass
Boone Ave at Freeman Street, Sheridan Expressway Ramp	PM	56	-2	54	L	26	Fail
Westchester Ave at Boone Street, Home Street	PM	106	-4	102	L	49	Fail
West Farms Road at Home Street, Longfellow Ave	PM	104	-4	100	L	48	Fail
West Farms Road at Freeman Street	PM	129	-5	124	L	59	Fail
Westchester Ave. at Sheridan Expressway Ramp	PM	52	-2	50	P	2	Pass

**L= local roads with <5,000 vehicles per day; C=collector roads, P=principal and minor arterials; E=expressways and limited access highways. ** Indicates unsignalized intersection*
Source: Sandstone Environmental Associates, Inc. and Stantec Consulting (April 24,2011)

Conditions for Further Analysis

According to the *CEQR Technical Manual*, conditions that may require further analysis include:

- Projects that would result in new sensitive uses (particularly schools, hospitals, parks, and residences) adjacent to large existing parking facilities or parking garage exhaust vents, and
- Projects that would result in parking facilities or applications to the City Planning Commission requesting the grant of a special permit or authorization for parking facilities should consult the lead agency regarding whether an air quality analysis of parking facilities is necessary.

Approach

The largest garage, the one serving Buildings 1a and 1b on Site 1, was selected for analysis for CO impacts. If this prototypical analysis shows no potential for CO impacts, then no impacts are likely for smaller garages.

Method of Analysis

The garage analysis was based on the guidelines provided in the 2010 *CEQR Technical Manual*. Per guidance from NYCDEP, a persistence factor of 0.70 was used to convert 1-hour CO values to 8-hour CO values. EPA's MOBILE6.2 emissions model was used to obtain emission factors for hot (entering) and cold (exiting) vehicles as well as idling vehicles. Passenger vehicles were divided into 76% autos and 24% SUVs for the purposes of obtaining a composite emission factor. Exiting vehicles were assumed to idle for one minute before departing, and speeds within the facility were 5 mph. As stated previously, the 8-hour background value for 2022 is 2.5 ppm. This background value of 2.5 ppm was added to the concentrations calculated for the parking facilities. For ground-level receptors, the mobile source contribution from the free-flow traffic in front of the garage on East 172nd Street also was added.

Stationary Sources

Sources of pollutants that are fixed in a given location, rather than being mobile, are termed stationary sources. Stationary sources that may cause air quality impacts for a proposed action include:

- Exhaust from boiler stack(s) used for heating, ventilation and air conditioning (HVAC) systems of a large existing commercial or residential complex;
- The emissions of air toxics from a manufacturing or industrial operation;
- The stack emissions from a major industrial source such as a nearby power generating station; and
- The emissions from incinerators or medical or chemical laboratory vents.

A proposed action may cause significant air quality impacts if it creates new HVAC sources that affect the air quality in the surrounding community. Proposed buildings also may cause stationary source impacts by changing the building geometry or topography of an area so that existing fixed facilities begin to adversely affect other existing structures in the area. Stationary source impacts may also result when a proposed action introduces new uses that would be affected by emissions from existing fixed facilities, such as locating a new residential building beside an existing power generating station. In addition, the emissions of the proposed new buildings may cause impacts to each other (project-on-project impacts) if they are in close proximity.

Criteria for Further Analysis

According to the *CEQR Technical Manual*, conditions that may require further analysis include:

- Projects that would use fossil fuels (fuel oil or natural gas) for heating/hot water, ventilation, and air conditioning systems,
- Projects that would create large emission sources, including but not limited to solid waste or medical waste incinerators, cogeneration facilities, asphalt and concrete plants, or power generating plants,
- Projects that would result in new uses (particularly schools, hospitals, parks, and residences) located near a large emission source, and

- Projects that would result in new uses within 400 feet of a stack associated with commercial, institutional, or residential developments, and the height of the new structures would be similar to or greater than the height of the emission stack.

The project would not create a new source of odors. However, a field survey and evaluation were carried out to determine whether it would place new residential or community facility uses in proximity to an existing facility that generates odors.

Pollutants and sources of interest included:

- Sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) from fuel combustion at existing major sources;
- Sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) from fuel combustion in boilers in future buildings; and
- Air toxics and odors from existing industrial uses in the area.

Approach

As a first step, the *CEQR Technical Manual* recommends a screening analysis to evaluate the potential for air quality impacts. This analysis uses a nomographic procedure based on the square footage of a building and the distance between the boiler stack and the nearest building of similar or greater height. It is appropriate when the emission stack and the edge of the building are at least 30 feet apart. If the proposed development passes this screen, then no further analysis is required. If the procedure indicates potential for impacts, or if analysis of cumulative impacts from multiple stacks and distances is desired, then the more refined Industrial Source Screen may be used, again providing that a building is at least 30 feet from the emissions stack. If this procedure indicates potential for impacts, then detailed modeling with AERMOD and five years of meteorological data would be required. The potential for odors was addressed in a qualitative manner.

Emission Factors

As a worst case analysis, all square footage except for parking facilities was assumed to be residential. Indoor parking areas, which are not heated, were not included in the HVAC analysis. Emission factors were developed for fuel combustion using both oil and natural gas. Heating use was assumed for 24 hours per day, 100 days per year, equaling 2,400 hours per year. For #2 fuel oil, the SO_2 emission factor used a sulfur content of 0.2%, consumption of 0.38 gallons/sq. ft., and an emission factor of 142 lbs/1,000 gallons. Gallons of fuel consumed were converted to pounds of SO_2 using a conversion rate of 28.4 lbs/1,000 gallons of fuel.

Emission factors for natural gas were based on an annual consumption rate of 52.8 cubic feet of natural gas per square foot for a residential structure, as indicated in the NYC *CEQR Technical Manual.* The annual consumption of natural gas, in cubic feet, was converted to pounds using a multiplier of 100 as recommended in Table 1.4-1 of EPA's AP-42 publication for external combustion sources. The resulting annual emissions for both oil and gas were converted to emission rates in grams/second based on 2,400 hours per year of use for heating.

AERMOD Modeling

The air quality analysis for potential stationary source (project-on-project) impacts due to future HVAC operations was carried out using EPA's AERMOD model. The pollutants included stack emissions (point sources) of SO_2 for fuel oil #2 and NO_x for natural gas. Model parameters were obtained from the NYC *CEQR Technical Manual* and the NYC Department of City Planning.

Pollutants

AERMOD was run for 24-hour concentrations of SO2 and annual concentrations of NOx.

Model Parameters

AERMOD was run using the regulatory default option, stack tip downwash, no building downwash, and a 4-hour half-life for SO2. Initially, the model was run both with and without building downwash for selected receptors to determine which method produced the highest concentrations at elevated receptor points. Using building downwash generally produces higher concentrations for receptors at ground level whereas modeling without building downwash generally produces higher concentrations for receptors at elevated locations close to the stack height. This was verified by the selected modeling runs.

Building Downwash

EPA defines GEP (good engineering practice) stack height as the height necessary to ensure that emissions from a building's stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, or wakes that may be created by the source itself, nearby structures, or nearby terrain obstacles. The Building Profile Input Program (BPIP) was run prior to running AERMOD where this was applicable.

Urban/Rural

Both the weather station providing meteorological data and the site are in urban locations, and AERMOD's URBAN option was selected. The population used for the urban area is 1,700,000, and the default urban surface roughness length of 1.0 m was used for the site.

Stack Parameters

Based on information from the architects, HVAC stacks on Sites 1, 2S, and 2N were assumed to be 7 feet higher than the mechanical penthouses on the rooftops. Stacks on all other buildings were assumed to be 3 feet higher than the rooftop. Per guidance from the NYC Department of City Planning the stack parameters that were developed using the NYCDEP "CA[1] Permit" database and the heat input (in million BTUs) of the heating systems were used. They included an exhaust temperature of 300^{o} F, inside stack diameters of 0.5 or 1 foot, and exhaust velocities of 3.9 or 5.8 m/s, depending on the boiler capacity.

For projected and potential development sites, stacks were initially placed 10 feet from the edge of the rooftop closest to the nearest building. They were moved back in increments of 10 feet if the initial location resulted in potential impacts. For existing buildings, such as the Department of Sanitation garage, the modeling was based on observed stack locations.

Meteorology Data

AERMOD was run with five years of meteorological data from LaGuardia Airport in Queens. The data that included surface mixing height, wind speed, stability class, temperature, and wind direction for 2005 through 2009. The upper air station used with La Guardia is Brookhaven.

Sensitive Receptors

Sensitive receptor points were modeled at elevated locations similar to the stack heights. Where the receiving building was higher than the source building, the receptors were placed on exterior walls facing the source and at the same elevation as the stack height. Where the source and receptor buildings were the same height, the receptors were placed at the edge of the building's rooftop one foot higher than the stack height. Receptors on the receptor building were placed across the roof or façade at 10-foot intervals.

Modeling Scenarios

AERMOD was run separately for SO_2 and NO_x with stacks placed in worst-case locations. The runs included individual buildings as sources and clusters of buildings as sources. To run a cluster analysis, the

[1] CA refers to Combustion Applicable

square footages of the buildings comprising the cluster were summed to determine the combined emission factor, and a single stack was placed in the middle of the collective building footprint.

Industrial Sources

Stationary industrial sources are those that produce emissions of non-criteria pollutants. Establishments may include auto body paint shops, iron works, furniture repair and finishing, print shops, and a variety of manufacturing establishments.

Criteria for Further Analysis

According to the *CEQR Technical Manual*, conditions that would result in potential significant adverse impacts related to industrial sources include:

- Projects that would include medical, chemical, or research labs,
- Projects that would result in new uses being located near medical, chemical, or research labs,
- Projects that would include operation of manufacturing or processing facilities,
- Projects that would result in new uses (such as residences, schools, hospitals, parks, etc.) within 400 feet of manufacturing or processing facilities,
- Projects that would result in potentially significant odors,
- Projects that would result in new uses near an odor-producing facility,
- Projects that would create non-point sources, such as unpaved surfaces and storage piles that could result in what is knows as fugitive dust, and
- Projects that would result in new uses near non-point sources.

Development under the future alternatives would not be a source of emissions associated with the uses listed above. However, due to the industrial nature of the uses within and around the rezoning area, new residential or school uses could be within 400 feet of manufacturing or processing facilities as well as uses that produce significant odors.

Approach

Personnel field-checked the establishments within the rezoning area and within 400 feet of the rezoning area for industrial uses. In addition, a list of addresses with industrial uses was sent to NYCDEP to determine whether they had operational permits. This included businesses observed in the field (e.g., auto painting establishments) that would be expected to have permits. Establishments located on projected or potential development sites, and therefore expected to be redeveloped, were not included in the analysis of industrial sources. Copies of permits received from NYCDEP were first analyzed using the Industrial Source Screen. If the Industrial Source Screen showed potential for impacts, they were further analyzed using EPA's AERMOD model.

Industrial Source Screen

The *CEQR Technical Manual* provides a table showing pollutant concentrations ($\mu g/m^3$), at various distances, resulting from a source emitting 1 g/s of a generic pollutant. It assumes that all inputs represent worst-case conditions for stack temperature, exhaust velocity, and other variables. Both the receptor height and stack height are assumed to be 20 feet high. Table N-5 shows the generic table from the 2010 *CEQR Technical Manual.* The emission rates in lbs/hour and lbs/year from the permits are converted to grams/second and then multiplied by their corresponding generic concentrations in the table based on the distances between the source and the receptor.

Table N-5: Generic Pollutant Concentrations for Industrial Source Screen

Generic Pollutant Concentrations (1 g/s emission rate)				
Distance from Source (ft)	Averaging Periods ($\mu g/m^3$)			
	1 Hour	8-Hours	24 Hours	Annual
30	137,169	70,848	40,031	6,020
65	29,719	16,528	9,194	1,336
100	12,729	7,561	4,151	583
130	7,689	4,764	2,590	356
165	4,865	3,136	1,688	228
200	3,370	2,252	1,201	159
230	2,622	1,779	942	123
265	2,113	1,402	736	95
300	1,754	1,144	595	76
330	1,520	978	505	64
365	1,308	832	426	54
400	1,144	720	365	46

Source: NYC CEQR Technical Manual (2010).

EXISTING CONDITIONS

Two neighborhoods encompass the study area. Crotona Park East and West Farms are adjacent mixed-use neighborhoods separated from one another by the Cross Bronx Expressway. They are developed with multi-unit apartment houses and townhouses, public housing projects, light-industrial facilities, auto body shops, and garages. Vacant lots are also common. Two highways, the Cross Bronx Expressway (Interstate 95) and the Sheridan Expressway (Interstate 895), occupy significant portions of the nearby area.

The proposed rezoning area contains 70 tax lots. The current development pattern consists of a mix of warehouses, garages, automotive repair facilities, light manufacturing, a meat packing plant, a tow pound, a laundromat, a hotel, schools, a playground, residential buildings, and vacant buildings.

FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION

Projected Development

In the absence of the Proposed Action, the current development scale and mixture of land uses would remain, and no significant new development is anticipated with the exception of Block 3016, Lot 42, at the northern end of the rezoning area. Currently, it is developed with a 15,000 sf hotel and a vacant lot. Anticipated development on Lot 42 without the Proposed Action would include 140 dwelling units and 38,928 sf of commercial space in a seven-story building.

Mobile Sources

Two intersections were modeled for carbon monoxide based on the methodology described previously. Table N-6 shows the results of the CO modeling under 2022 No Action Conditions for the two modeled

intersections for the peak AM period. Only the worst case receptor point is shown in the table. For the West Farms Road / Boston Road / East Tremont Avenue intersection, the receptor location exhibiting the highest CO concentration would be on the westbound lanes 100 feet east of the intersection. The modeled 1-hour concentration of 2.1 ppm is equivalent to an 8-hour concentration of 1.5 ppm when the 0.70 persistence factor is applied. When added to the 8-hour background value of 2.5 ppm, the worst-case 8-hour CO concentration under No Action Conditions is 4.0 ppm. This is within the 8-hour CO NAAQS of 9 ppm.

For the intersection of E. 177th Street and the Sheridan Expressway ramp, the worst-case receptor location was on the southbound lanes, 40 feet north of the intersection. It had a 1-hour modeled concentration of 2.6 ppm, equivalent to an 8-hour concentration of 1.8 ppm. The total concentration of 4.3 ppm is within the NAAQS of 9 ppm.

Table N-6: Eight-Hour Mobile Source CO (ppm), No Action Conditions

2022 No Action Conditions	
Receptor for West Farms/Boston Roads: R27, 80 ft. east of intersection on WB lane	
Wind angle	111°
Modeled CO	1.5
Background CO	2.5
Total CO	4.0
Receptor for E. 177th Street/Sheridan Expy Ramp: R18, 40 ft. north of intersection on SB lanes	
Wind angle	111°
Modeled CO	1.8
Background CO	2.5
Total CO	4.3

Source: Sandstone Environmental Associates, Inc.

The intersection of Boone Avenue and E. 174th Street was intersection was modeled for PM_{10} and $PM_{2.5}$ using CAL3QHC with worst-case meteorological parameters. The resulting on-hour concentrations were converted to 24-hour concentrations using a persistence factor of 0.4 and to an annual concentration using a persistence factor of 0.08. As shown in Table N-7, the total PM_{10} concentration of 74.8 ug/m^3 is within the NAAQS of 150 ug/m^3. The value shown is the highest predicted concentration for all locations analyzed and includes the ambient background concentrations.

Table N-7: No-Action PM_{10}Concentrations at E. 174th St./Boone Avenue (ug/m^3)

Location	24-Hour PM_{10} (µg/m^3)
E. 174th Street / Boone Avenue	74.8
Note: National Ambient Air Quality Standards – 24-hour, 150 µg/m^3.	

Source: Sandstone Environmental Associates, Inc.

CAL3QHC and CAL3QHCR modeling of PM_{10} and $PM_{2.5}$ were also carried out for a segment of the Cross Bronx Expressway using traffic counts from NYCDOT and the traffic mix from NYSDOT for this region and roadway type. The elevated highway is approximately 20 feet above grade, and receptor points

were placed at the equivalent height for the proposed buildings that would be adjacent to it in 2022. Table N-8 shows the results. PM_{10} was modeled with CAL3QHC, and the one-hour result (16 ug/m^3) was multiplied by a persistence factor of 0.4 to obtain the 24-hour value (6.4 ug/m^3). This is a worst-case approach as CAL3QHC is a more conservative model than CAL3QHCR. No violations of the NAAQS are projected for PM_{10}. The value shown is the highest predicted concentration for all locations analyzed and includes the ambient background concentration.

Table N-8: No Action Conditions, PM_{10} at Cross Bronx Expressway (ug/m^3)

Location	24-Hour PM_{10} (ug/m^3)
Cross Bronx Expressway	70.4
Note: National Ambient Air Quality Standards – 24-hour, 150 µg/m^3.	

Source: Sandstone Environmental Associates, Inc.

Parking Facilities

Under the No Action scenario, no major parking facilities would be constructed. Trucks and passenger vehicles would park in small lots, driveways, or on the street as at present.

Stationary HVAC Sources

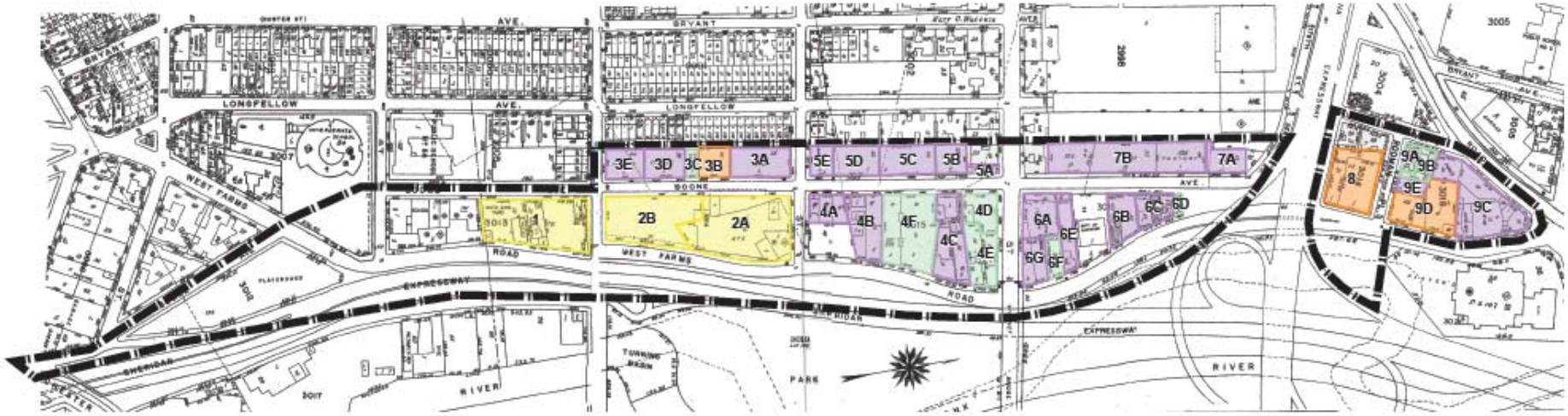
The potential redevelopment of Lot 42 on Block 3016, with 133,912 sq ft. of residential uses and 38,928 sq. ft. of commercial space, would be seven stories high and would be taller than surrounding buildings. No further analysis of this site is required for No Action Conditions because the development would be as-of-right.

FUTURE CONDITIONS WITH THE PROPOSED ACTION

Development Scenario

The Proposed Action would result in a substantial increase in residential, commercial, and community facility space within the rezoning area. The anticipated development would add 2,635 housing units, 93,000 square feet of commercial space, a child care center, and an outdoor children's playground. The projected and potential development sites are shown in Figure N-2.

Figure N-2: Delineation of Projected and Potential Development Sites



CROTONA PARK EAST / WEST FARMS ZONING MAP AMENDMENT

Bronx, New York

Mobile Sources

CO modeling was carried out for 2022 Action Conditions. Table N-9 shows the results for the two intersections that were analyzed. For the intersection of Boston Road / West Farms Road / East Tremont Avenue, the worst case CO concentration is 2.1 ppm for the one-hour period or 1.5 ppm for the 8-hour period. This occurred at on the westbound East Tremont Avenue lanes 80 feet east of the intersection. The total CO concentration of 4.0 ppm is within the NAAQS of 9 ppm for the 8-hour period. No exceedances of the NYC *de minimis* values would occur.

For the intersection of E. 177th Street and the Sheridan Expressway Ramp, the 1-hour modeled CO concentration of 2.7 ppm is equivalent to an 8-hour concentration of 1.9 ppm and a total concentration of 4.4 ppm. This is within the NAAQS and NYC *de minimis* criteria.

Table N-9: Eight-Hour Mobile Source CO Concentrations (ppm), Action Conditions

2022 No Action Conditions		**2022 Action Conditions**		**Difference (Action-No Action)**
Receptor for Boston/West Farms Road: R27, 80 ft. east of intersection on WB lanes		Receptor for Boston/West Farms Road: R27, 80 ft. east of intersection on WB lanes		
Wind angle	111°	Wind angle	118°	
Modeled CO	1.5	Modeled CO	1.5	
Background CO	2.5	Background CO	2.5	
Total CO	4.0	Total CO	4.0	0.0 ppm
Receptor for E.177th St/Sheridan Expressway Ramp: R18, 40 ft. north of intersection on SB lanes		Receptor for E.177th St/Sheridan Expressway Ramp: R18, 100 ft. north of intersection on SB lanes		
Wind angle	111°	Wind angle		
Modeled CO	1.8	Modeled CO	1.9	
Background CO	2.5	Background CO	2.5	
Total CO	4.3	Total CO	4.4	0.1 ppm

Source: Sandstone Environmental Associates, Inc.

Tables N-10 and N-11 show the results of the PM_{10} and $PM_{2.5}$ modeling with CAL3QHC for the two intersections modeled under Action conditions. The values shown are the highest predicted concentrations for all locations analyzed and include the ambient background concentrations. The PM_{10} values are within the NAAQS of 150 ug/m^3, and the $PM_{2.5}$ concentrations are within the NYCDEP interim guidelines. The guidelines are an increment of 2.0 ug/m^3 for the peak 24-hour period and 0.3 ug/m^3 for the annual period.

Table N-10: Action Conditions, PM10 at E. 174th St./Boone Avenue (ug/m^3)

Location	**24-Hour PM_{10} (µg/m^3)**	
	No Action	**Action**
E. 174th St. /Boone Ave.	74.8	77.2
Note: National Ambient Air Quality Standards – 24-hour, 150 µg/m^3.		

Source: Sandstone Environmental Associates, Inc.

Table N-11: Action Conditions, PM2.5 at E. 174th St./Boone Avenue (ug/m^3)

Location	24-Hour $PM_{2.5}$ (µg/m^3)		
	No Action	Action	Difference
E. 174th St. /Boone Ave.	2.8	3.6	0.8
Note: NYCDEP .Interim Guideline Values – Increment of 2 ug/m^3			
Location	**Annual $PM_{2.5}$ (µg/m^3)**		
	No Action	**Action**	**Difference**
E. 174th St. /Boone Ave.	0.6	0.7	0.1
Note: NYCDEP .Interim Guideline Values – Increment of 0.3 ug/m^3			

Source: Sandstone Environmental Associates, Inc.

CAL3QHC and CAL3QHCR modeling of PM_{10} and $PM_{2.5}$ were also carried out for the Cross Bronx Expressway based on the additional traffic added by the proposed action. Tables N-12 and N-13 show the results. No violations of the NAAQS are projected for PM_{10}, which was modeled with CAL3QHC. The results are the same as for No Action Conditions. For PM 2.5, the highest 24-hour concentration again occurred in 2005, and the increment of 0.01 ug/m^3 would not constitute an impact. The worst-case annual concentration again occurred in 2007. The increment of 0.01 ug/m3 would not exceed the interim guideline of 0.3 ug/m^3.

Table N-12: Action Conditions, PM10 at Cross Bronx Expressway (ug/m^3)

Location	24-Hour PM_{10} (µg/m^3)	
	No Action	Action
Cross Bronx Expressway	70.4	70.4
Note: National Ambient Air Quality Standards – 24-hour, 150 µg/m^3.		

Source: Sandstone Environmental Associates, Inc.

Table N-13: Action Conditions, PM2.5 at Cross Bronx Expressway (ug/m^3)

Location	24-Hour $PM_{2.5}$ (µg/m^3)		
	No Action	Action	Difference
Cross Bronx Expressway	1.78	1.79	0.01
Note: NYCDEP Interim Guideline Value – 2.0 ug/m^3.			
Location	**Annual $PM_{2.5}$ (µg/m^3)**		
	No Action	**Action**	**Difference**
Cross Bronx Expressway	0.58	0.59	0.01
Note: NYCDEP Interim Guideline Value – 0.3 ug/m^3.			

Source: Sandstone Environmental Associates, Inc.

Parking Facilities

No information is available on future parking facilities for the potential or the projected development sites that are not under the applicant's control. Therefore, this section focuses on the applicant's planned development. Four of the applicant's six buildings would have a parking facility as shown in Table N-14. The largest one would be in the combined facility in Buildings 1a and 1b on Block 3013. It would total 49,400 sq. ft. and would have 130 spaces on two below-grade levels. Lower Level 2 would be accessible from E. 172nd Street, while Lower Level 1 would be accessible from West Farms Road. This facility was analyzed for CO as the worst case scenario.

Table N-14: Proposed Parking Facilities

Location		Parking Spaces	Square Feet of Parking			
Block	Bldg #		Ground Level	Lower Level 1	Lower Level 2	Total
3013	1a, 1b	130		24,780	24,620	49,400
3014-S	2	0	0	0	0	0
3014-N	3	81	8,280	12,005	24,620	44,905
3009	4	12	0	0	0	0
3016-S	5	50	17,633	0	0	17,633
3016-N	6	58	15,080	0	0	15,080
Grand Total						**102,238**

Source: Stantec Consulting, March 2010

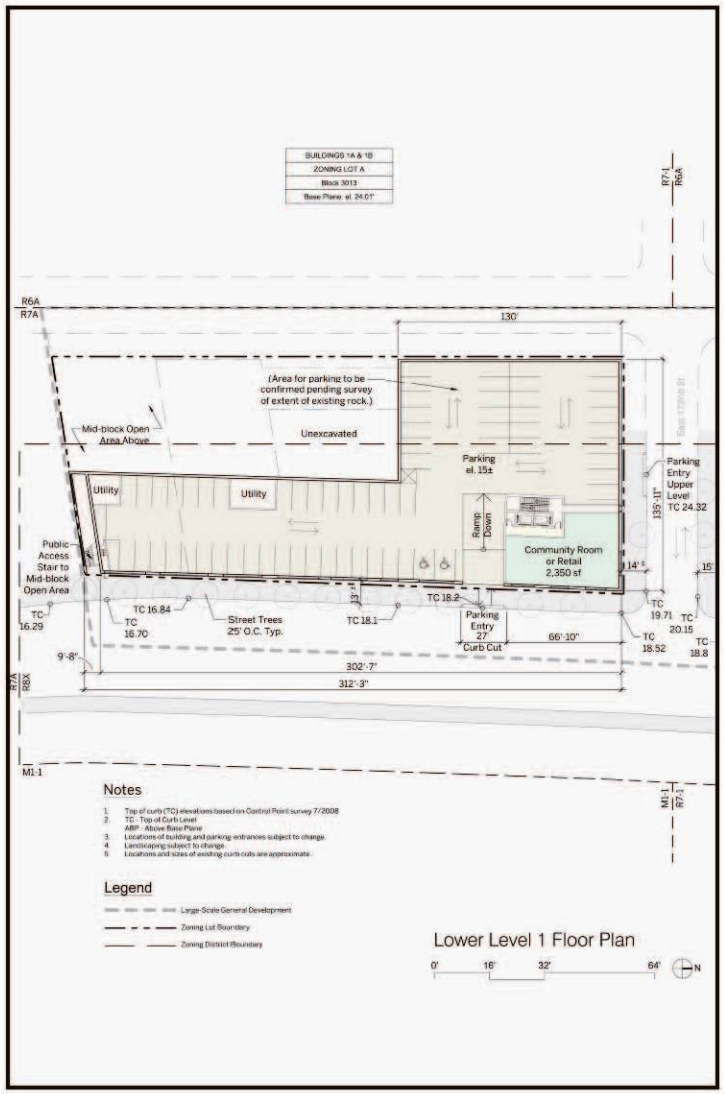
Figure N-3 shows the layout of the parking facility. As a worst case, all vehicles were assumed to enter and exit on E. 172nd Street. The garage has a capacity of 130 vehicles. The worst-case volumes for the garage would be an arrival of 130 vehicles and a departure of 130 vehicles (260 total vehicles) within a one-hour period. All vehicles were assumed to use the same entrance. An average ramp distance of 100 feet was added to the average vehicular travel distance. West Farms Road is 42 feet wide while E. 172nd Street is about 30 feet wide with 14- to 15-foot wide sidewalks. As a conservative analysis, the traffic

from West Farms Road was placed on the narrower roadway, E. 172nd Street, when modeling the line source contribution with CAL3QHC.

Two scenarios were considered. For the first one, receptor points were placed in the middle of the near sidewalk (7 feet from the building), the middle of the far sidewalk (52.5 feet away), the nearest receptor point above the garage exhaust, and a window across the street at the same elevation as exhaust vent (12 feet high, 60 feet away). The total worst case 8-hour concentration is 4.6 ppm for a window above the vent. The calculated concentrations for each receptor were added to the background value of 2.5 ppm and the worst case modeled concentration of 0.1 ppm for the peak traffic volume in front of the garage. Total 8-hour CO concentrations from the garage would range from 0.6 ppm to 1.6 ppm, as shown in Table N-17. The worst-case total concentration, after adding in the background and line source contributions, would be 4.2 ppm, which would occur at a window six feet above the garage vent.

For the second scenario, the garage's vent was located in the courtyard. One sensitive receptor was positioned at a point representing a courtyard bench. The vent would be 7 feet high along the courtyard wall, a bench would be 5 feet away from the wall, and the vent would be placed 3 feet higher than the bench's position. When added to both the background value of 2.5 ppm and the line source value of 0.1 ppm, the total 8-hour CO concentration for this bench location would be 4.4 ppm. This value is below the NAAQS of 9 ppm and the NYCDEP de minimis criteria. Therefore, no impacts from the parking facilities for this alternative scenario are projected.

Table N-15 shows the calculations for the garage air quality. The values at the worst-case receptor points are below the NAAQS of 9 ppm and the NYCDEP de minimis criteria. Therefore, no impacts from other, smaller parking facilities are projected.


BUILDINGS 1A & 1B
ZONING LOT A
Block 3013
Base Plane: el. 24.01'
R7-1
R6A
R6A
R7A
130'
(Area for parking to be confirmed pending survey of extent of existing rock.)
Mid-block Open Area Above
Unexcavated
Parking el. 15±
Utility
Utility
Ramp Down
Parking Entry Upper Level TC 24.32
139'-11"
Community Room or Retail 2,350 sf
14'-5"
15'
Public Access Stair to Mid-block Open Area
TC 16.29
TC 16.84
TC 16.70
Street Trees 25' O.C. Typ.
TC 18.1
TC 18.2
Parking Entry 27' Curb Cut
66'-10"
TC 19.71
TC 18.52
TC 20.15
TC 18.8
9'-8"
302'-7"
312'-3"
R7A
R8X
M1-1
M1-1
R7-1
Notes
1. Top of curb (TC) elevations based on Control Point survey 7/2008
2. TC - Top of Curb Level
ABP - Above Base Plane
3. Locations of building and parking entrances subject to change.
4. Landscaping subject to change.
5. Locations and sizes of existing curb cuts are approximate.
Legend
Large-Scale General Development
Zoning Lot Boundary
Zoning District Boundary
Lower Level 1 Floor Plan
0'
16'
32'
64'
N

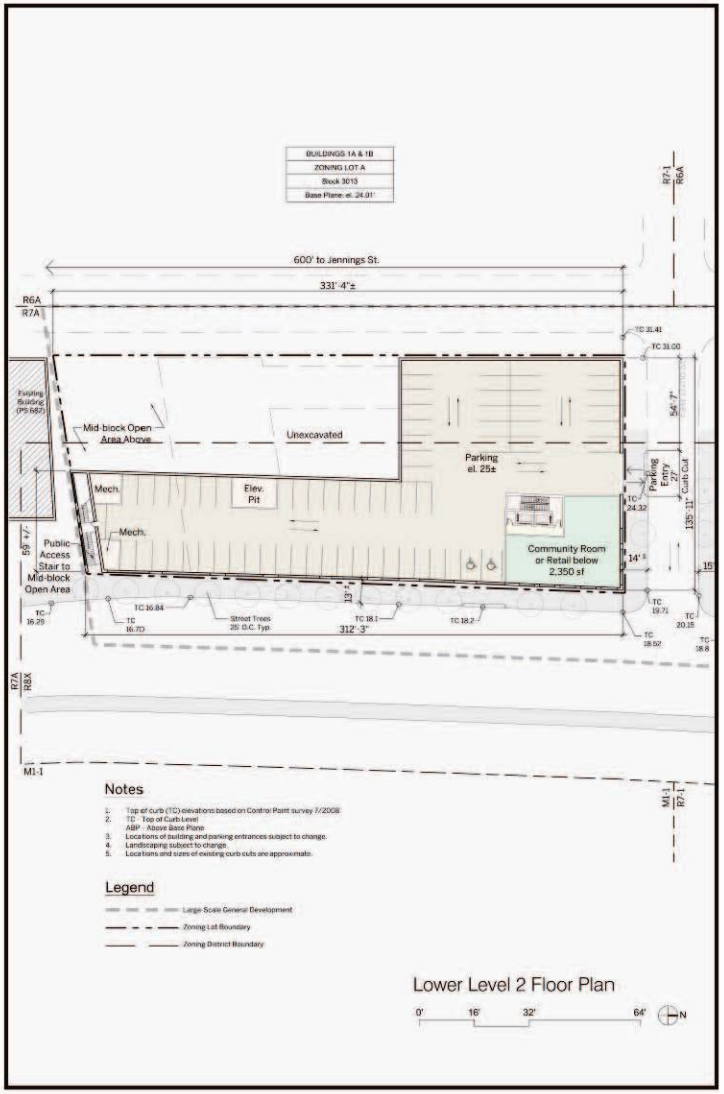

BUILDINGS 1A & 1B
ZONING LOT A
Block 3013
Base Plane: el. 24.01'
R7-1
R6A
600' to Jennings St.
331'-4"±
R6A
R7A
TC 31.41
TC 31.00
Existing Building (PS 682)
Mid-block Open Area Above
Unexcavated
Parking el. 25±
54'-7"
Parking Entry 27'
Curb Cut
135'-11"
Mech.
Elev. Pit
Mech.
TC 24.32
59'-4"
Public Access Stair to Mid-block Open Area
Community Room or Retail below 2,350 sf
14'-5"
15'
TC 16.29
TC 16.84
TC 16.70
Street Trees 25' O.C. Typ.
TC 18.1
TC 18.2
312'-3"
TC 19.71
TC 18.52
TC 20.15
TC 18.8
R7A
R8X
M1-1
M1-1
R7-1
Notes
1. Top of curb (TC) elevations based on Control Point survey 7/2008
2. TC - Top of Curb Level
ABP - Above Base Plane
3. Locations of building and parking entrances subject to change.
4. Landscaping subject to change.
5. Locations and sizes of existing curb cuts are approximate.
Legend
Large-Scale General Development
Zoning Lot Boundary
Zoning District Boundary
Lower Level 2 Floor Plan
0'
16'
32'
64'
N

Table N-15: CO Concentrations from Largest Garage

Building 1 Garage	
2022 Mobile 6.2 Emissions	
Cold idle (g/hr) @ 2.5 × 2.5 mph	47.9
Cold 5 mph	12.4
Hot 5 mph	8.8
Persistence Factor	0.7
Garage Data	
No. of vents	1
Vent elevation (ft)	12
Vent elevation (meters)	3.7
Total sq. ft. (unobstructed)	49,400
Average length (ft)	222
Average width (ft)	222
Average travel @ 2/3 (L + W) (ft)	296
Average total ramp distance (ft)	100
Total Travel Distance (ft)	396
Peak 1-Hour Trips	
In	130
Out	130
Total	260
8-Hour Garage CO Concentrations (ppm)	
Receptor on adjacent sidewalk, 7 feet from vent	1.5
Window 6 feet above vent	1.6
Window on far sidewalk, 52.5 feet from vent	0.6
Window across the street, 60 feet from vent	0.6
Courtyard bench	1.8
Highest Total Hour 8-CO Concentration (ppm)	
Courtyard bench	1.8
8-hour CO background	2.5
Line source contribution	0.1
Total 8-hour CO (ppm)	**4.4**

Source: Sandstone Environmental Associates, Inc.

Stationary HVAC Sources

Only existing boilers with at least 20 million BTU heating input, such as institutional facilities (i.e., schools), large shared commercial facilities (i.e., shopping centers), or large residential complexes would need to be analyzed for potential impacts to the Proposed Action. Stationary HVAC sources of this size would have state and local permits. Lists of draft and issued Title V facilities in the state and federal registries were searched for major sources within 1,000 feet of the rezoning boundaries. No power stations or other major air pollutant emitters with a Title V permit were identified within a 1,000-foot radius of the site. State air facility permits within 400 feet of the rezoning boundaries also were searched. One state facility permit was identified, and it is discussed further below. Figure N-4 shows the 400- and 1,000-foot radii.

Figure N-4: 400- and 1,000- foot Radii from Rezoning Boundaries

Note: Distances shown are approximate. Actual distances were measured on available maps and the industrial uses that fell within them are discussed in the text.

The Air State Facility permit was issued to the NYC Transit Authority for the NYCT West Farms Bus Depot at 1104 E. 177th Street (Block 3904, Lot 40). The facility operates two boilers that use #2 fuel oil, but they also can run on natural gas. Each boiler has the capacity for 12.55 million BTU per hour, resulting in a total heating input of about 25 million BTU. The one-story building is 28 feet high and has 174,731 sf. This building was not analyzed further because it is over 500 feet from the rezoning area boundaries. Figure N-5 shows its location.

Figure N-5: Locations of Boiler Permits with ≥ 20 million BTU

A permit search of NYCDEP files resulted in approximately 40 boiler permits, which are listed in Appendix 2. Of these, 37 were considered to be active or potentially active. Only one permit showed a gross BTU heating input of more than 20 million. It is the West Farms Square Plaza HDFC, a residential apartment complex owned by the New York City Housing Authority (NYCHA) at 990 - 1000 E. 178th Street and 1001-1005 E. Tremont Avenue (Block 3130, Lot 20). Figure N-5 shows the location. The residential complex has three 22-story buildings with a total of 228,404 sq. ft. Each building has its own boiler. The boilers burn #6 fuel oil as the primary fuel, but can also burn natural gas as a secondary fuel.

Together, the boilers have a heating input of 59.9 million BTU. The nearest boiler stack is about 285 feet from the rezoning area.

A screening analysis was carried out for this residential complex using Figure 17-1 from the air quality appendices in the *CEQR Technical Manual*. Figure 17-1 shows the potential for NO_2 impacts using #6 fuel oil for residential uses. As a worst case, all emissions were presumed to originate from the nearest boiler stack. Based on a square footage of 228,404 and a distance of 285 feet from the rezoning boundary, the site screens out. Therefore, no air quality impacts are projected for this housing complex, and no additional analysis is required.

The NYC Department of Sanitation has two garages within the rezoning area. One, located at 1787 Boone Avenue (Lot 58, Block 3015N), is used for vehicle storage for Bronx Enforcement Agents and some clerical functions. It does not carry out repairs or vehicular maintenance. The building is about 20 feet high and has 32,700 sq. ft. of space. Permits for the garage indicate it has a boiler using #2 fuel oil for 1,480 hours per year. The stack appears to be about nine feet from the southern edge of the lot and about 20 feet higher than the rooftop. AERMOD modeling of SO2 was carried out to determine potential impacts on Building 6E, which would be adjacent to it. The results showed no impacts.

The second garage is at 1661 West Farms Road (Block 3015, Lot 49). This facility is used for storage of mechanical brooms for street cleaning and some clerical functions. The building is one story high (22 feet) and has 15,500 square feet. No information on the boiler is available except that it is oil-fired. Based on the boiler at the DSNY garage on 1787 Boone Avenue, it was assumed to burn #2 fuel oil for 8 hours per day and 185 days per year. The closest future development site is Site 4A, which is about 70 feet west of the stack. Due to its smaller square footage, the emission factor is less than half of the one for 1787 Boone Avenue. Since no SO2 impacts were projected for the garage at 1787 Boone Avenue, none are anticipated for the one at 1661 West Farms Road, which has a lower emission factor and a greater distance from any future residential buildings.

Public School 214 (previously PS 167), located at 1044 E. Tremont Avenue (aka 1970 West Farms Road), is across the street from Block 3016 (and Site 9D in particular). Due to its size (185,888 sq. ft.) and distance of 110 feet from the project site, the school's boiler emissions were modeled with AERMOD. The school is two stories high and has three boilers that burn fuel oil #6 as their primary fuel. Modeling results showed no potential impacts on the future development Sites.

The Fannie Lou Hamer High School, is at 1001 Jennings Street (Block 3008, Lot 1). Its size (120,110 sq. ft.) and location within 225 feet of Site 1 warrant modeling with AERMOD. It has three boilers that burn fuel oil #6. No adverse impacts are from the school's boiler were identified from the modeling.

Impacts to the Surrounding Community

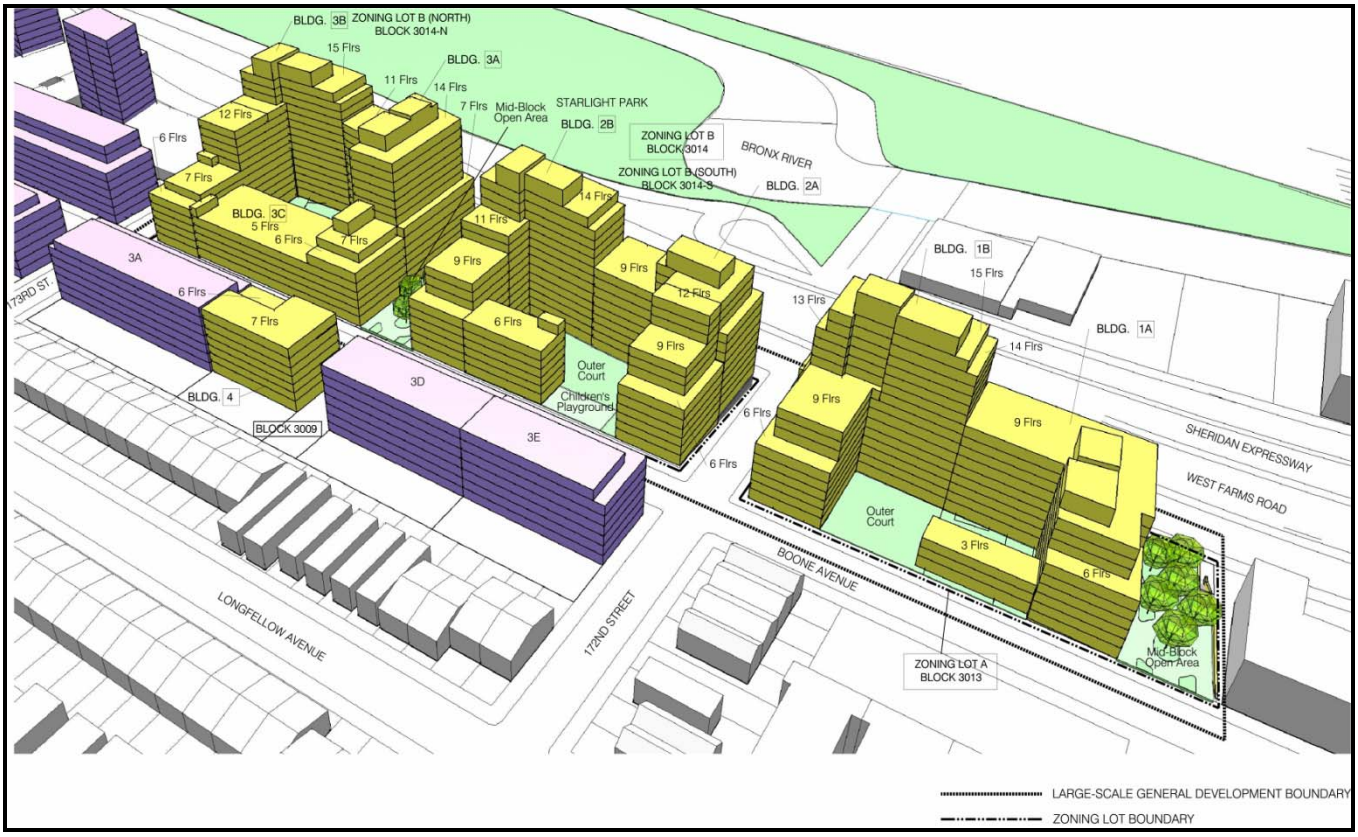
Block 3016 of the proposed development falls within 400 feet of an existing 22-story building located at 999 East Tremont Avenue. A screening analysis was carried out for this residential complex using Figure 17-5 from the air quality appendices in the *CEQR Technical Manual*. Figure 17-5 shows the potential for SO_2 impacts using #2 fuel oil for residential uses. As a worst case, all emissions were presumed to originate from the nearest boiler stack. Based on a square footage of 657,213 ft^2 and a distance of 354 feet from the rezoning boundary, the site screens out. Therefore, no air quality impacts are projected for this housing complex, and no additional analysis is required.

Based on the building heights shown in Figures N-6 through N-11, all of the future new buildings within the rezoning area would be higher than the existing buildings within a radius of 400 feet. Therefore, no stationary source impacts to the surrounding community are projected.

Figure N-6: Blocks 3013, 3014, & 3009

*Source: Dattner Archit*ects. Site 2A=2N; Site 2B=2S

Figure N-7: Blocks 3013, 3014, & 3009

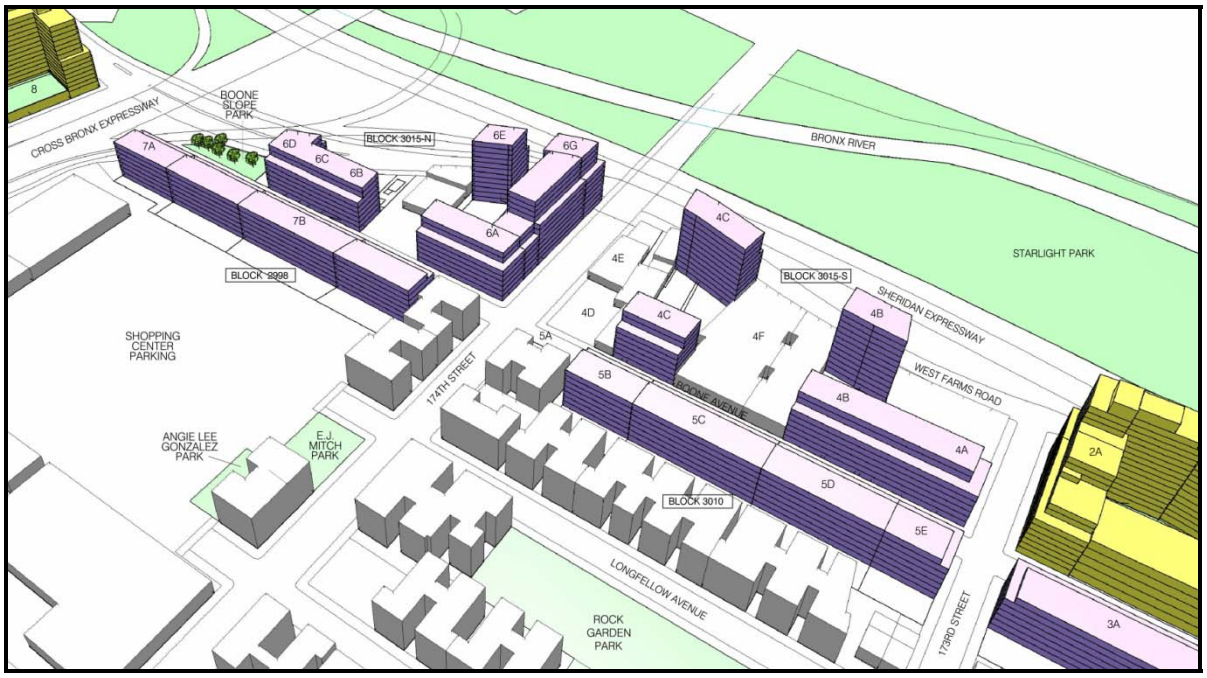


*Source: Dattner Archit*ects. Site 2A=2N; Site 2B=2S

Figure N-8: Blocks 3015, 3010 & 2998

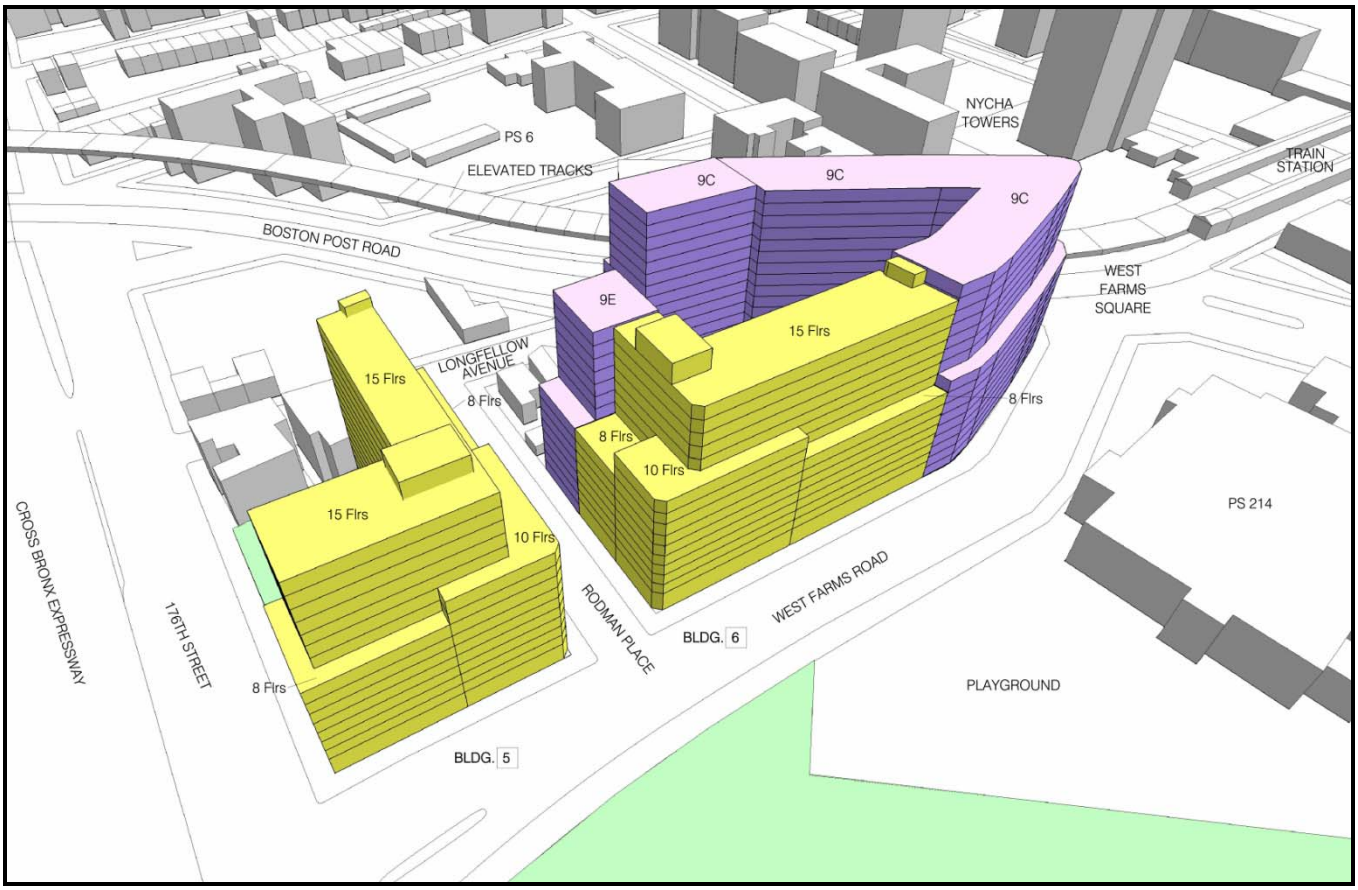
*Source: Dattner Archi*tects.

Figure N-9: Blocks 3015, 3010 & 2998



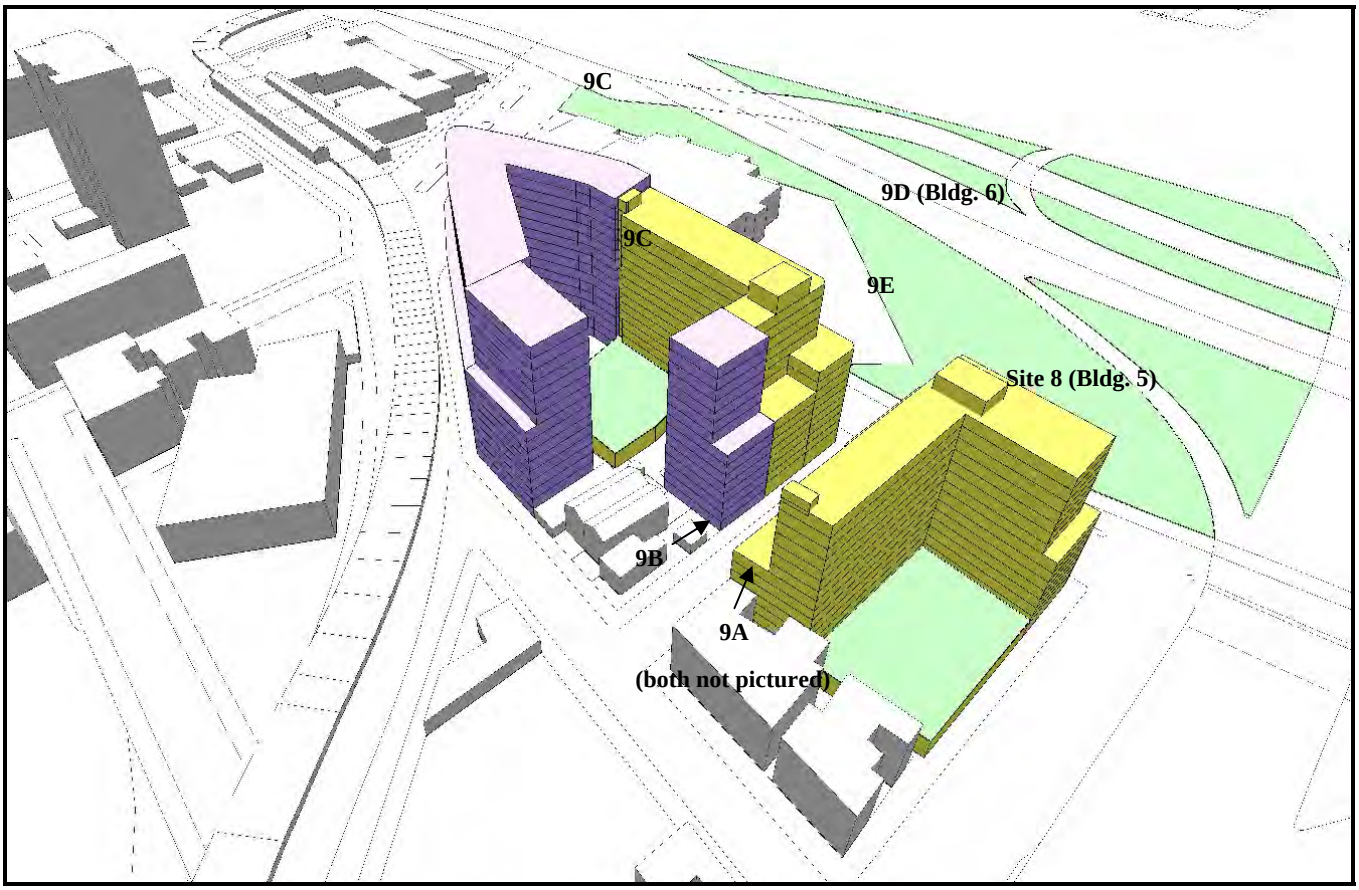
Source: Dattner Architects.

Figure N-10: Block 3016



Source: Dattner Architects.

Figure N-11: Block 3016



Source: Dattner Architects.

Project-on-Project Impacts

Project-on-project impacts are the potential adverse effects of the future buildings on each other. The buildings were analyzed for both #2 fuel oil and natural gas for HVAC. The LSGD buildings may use dual-fired boilers, in which case, they would switch between #2 fuel oil and natural gas depending on the costs. Since residential square footage is dominant in all of the projected and potential developments, and since the pollutant emission factors are highest for residential use, the analysis assumes that the buildings are 100% residential. This constitutes a worst-case analysis. The pollutants of interest are 24-hour SO_2 from #2 fuel oil and annual NO_x from natural gas. If these pollutants and averaging periods show no potential for impacts, then none are likely for other pollutants or averaging periods.

The potential for impacts is determined from building size, which determines the volume of emissions, stack height, and stack location. For Sites 1, 2, and 3, the boiler stacks were located on the mechanical penthouse bulkheads on the roofs of the tallest building segments, and the stacks were assumed to be seven feet high in order to exceed the height of the nearby elevator penthouses by three feet. For all other projected and potential development sites, the stacks were assumed to be three feet higher than the roof . All stacks were initially assumed to be in a worst-case location 10 feet from the edge of the roof or mechanical penthouse.

The first step for each building is to identify buildings of similar or greater height within 400 feet. If the stack on a building is higher than any other buildings within 400 feet, then it screens out because it is unlikely to cause significant adverse impacts. Table N-16 shows that four buildings would pass this screen: Building 1B on Site 1, Buildings 3A and 3B on Site 2N, and Building 2B on Site 2S. The stack heights on these buildings range from 172 to 181 feet above the ground, and they are therefore taller than any of the 15-story buildings proposed for development. No sensitive receptors are at the same height as these stacks within a distance of 400 feet. Therefore, these buildings do not require further analysis.

HVAC stacks within 400 feet of a building of similar or greater height were next evaluated using two nomographs in the *CEQR Technical Manual* Air Quality Appendix. Figure 17-5 was used to screen the residential buildings for impacts if #2 fuel oil was used. Figure 17-7 was used to determine the potential for impacts if natural gas is used. These figures provide a conservative estimate of the minimum distance between buildings of similar or greater height based on their sizes, stack heights and distances from each other. If a user plots a building's size and distance on the graph, and it falls below the curve for its stack height, then no air quality impacts are likely and no further analysis is required. However, the figures are only applicable where the distance between a stack and the closest building of similar or greater height is at least 30 feet. If the distance is less than 30 feet, or if a building fails this screen, the potential for impacts must be determined by modeling with the AERMOD model.

All other buildings shown in Table N-16 require AERMOD modeling. Building 1A on Site 1 almost screens out for natural gas. The stack location on the building's mechanical penthouse is 125 feet high and approximately 85 feet from the taller 14-story tier on Building 1B. Based on Figure 17-7 in the CEQR *Technical Manual Appendices*, Building 1a falls on the curve for its stack height; thus it must be analyzed further with AERMOD. The other buildings required AERMOD modeling because they are less than 30 feet from buildings of similar or greater heights.

Table N-16: Screening Analysis for Project on Project Impacts, Proposed Action

Block	Lot	Address	Source Building*			Receiving Building		Screening Results
			Site	Sq. Ft.	Stack Ht. (ft)	Nearest Residential Tier ≥ Ht	Distance from Stack	
2998	97	1829 Boone Ave.	7A	36,522	73	7B (70)	< 30	Use AERMOD
2998	104 113 124	1817 Boone Ave. 1801 Boone Ave. 1769 Boone Ave.	7B	180,572	73	7A (70)	< 30	Use AERMOD
3009	25	1006 E. 173 St.	3A	72,000	73	3B (70)	< 30	Use AERMOD
3009	33	1559 Boone Ave.	3B (4)	40,000	73	3A, 3C (70)	< 30	Use AERMOD
3009	37	1549 Boone Ave.	3C	13,500	73	3B, 3D (70)	< 30	Use AERMOD
3009	38	1529 Boone Ave.	3D	49,500	73	3C, 3E (70)	< 30	Use AERMOD
3009	44	1015 E. 172 St.	3E	45,000	73	3D (70)	< 30	Use AERMOD
3010	26	1711 Boone Ave.	5A	5,000	73	5B (70)	< 30	Use AERMOD
3010	29	1701 Boone Ave.	5B	36,000	73	5A (70)	< 30	Use AERMOD
3010	33	1695 Boone Ave.	5C	63,090	73	5B,5D (70)	< 30	Use AERMOD
3010	40	1685 Boone Ave.	5D	53,910	73	5C, 5E (70)	< 30	Use AERMOD
3010	46	1661 Boone Ave.	5E	37,000	73	5D (70)	< 30	Use AERMOD
3013	12 46 29	1471 West Farms Rd. 1481 West Farms Rd. 1493 West Farms Rd.	1 (1a)	106,936	125	1 (1b) (148)	85	Use AERMOD
3013	31 35 37	1508 Boone Ave. 1512 Boone Ave. E. 172 St.	1 (1b)	146,750	181	> 400	> 400	Pass
3014N	15 (part)	1560 Boone Ave.	2N (3a)	139,044	174	> 400	> 400	Pass
3014N	15 (part)	1560 Boone Ave.	2N (3b)	190,809	178	> 400	> 400	Pass
3014N	15 (part)	1560 Boone Ave.	2N (3c)	77,270	106	2N (3a) (151)	< 30	Use AERMOD
3014S	9 (part)	1544 Boone Ave.	2S (2a)	129,916	156	2S (2b) (149)	75	Use AERMOD
3014S	9 (part) 45	1544 Boone Ave. 1525 West Farms Rd.	2S (2b)	176,283	172	> 400	> 400	Pass
3015S	1	1015 E. 173 St.	4A	60,168	83	4B (80)	< 30	Use AERMOD
3015S	3 5	1680 Boone Ave. 1717 West Farms Rd.	4B	40,443	83	4A, 4F (80)	< 30	Use AERMOD
3015S	3 5	1680 Boone Ave. 1717 West Farms Rd.	4B	61,664	128	4A, 4F (125)	< 30	Use AERMOD
3015S	17 18	1704 Boone Ave. 1708 Boone Ave.	4C	61651	83	4D, 4F (80)	< 30	Use AERMOD
3015S	29 31	1735 West Farms Rd. 1731 West Farms Rd.	4C	92,477	128	4E, 4F (125)	< 30	Use AERMOD

3015S	19	1720 Boone Ave.	4D	73,970	83	4C (80), 4E (125)	< 30	Use AERMOD
3015S	25 26	1745 West Farms Rd. 1743 West Farms Rd.	4E	92,296	128	4C (125)	< 30	Use AERMOD
3015S	34	1725 West Farms Rd.	4F	78,565	83	4B, 4C (80)	< 30	Use AERMOD
3015S	34	1725 West Farms Rd.	4F	52,510	128	4B, 4C (125)	< 30	Use AERMOD
3015N	50 56 110	1760 Boone Ave. Boone Ave. E. 174 St.	6A	71,573	83	6E, 6F, 6G	< 30	Use AERMOD
3015N	62 87 89	Boone Ave. 1817 West Farms Rd. 1815 West Farms Rd.	6B	56, 773	83	6C (80)	< 30	Use AERMOD
3015N	67 83 84 85	1820 Boone Ave. 1825 West Farms Rd. 1821 West Farms Rd. 1819 West Farms Rd.	6C	51,138	83	6B, 6D (800	< 30	Use AERMOD
3015N	81	1829 West Farms Rd.	6D	10,598	83	6C (80)	< 30	Use AERMOD
3015N	95	1783 West Farms Rd.	6E	56,060	128	6F (125)	< 30	Use AERMOD
3015N	96	1775 West Farms Rd.	6F	44,080	128	6E, 6G (125)	< 30	Use AERMOD
3015N	97	1763 West Farms Rd.	6G	72,082	128	6F (125)	< 30	Use AERMOD
3016	11 13 21	Rodman Place 1905 West Farms Rd. 1899 West Farms Rd.	8	202,319	153	9D (150)	70	Use AERMOD
3016	33 35	1916 Longfellow Ave. 1918 Longfellow Ave.	9A	42,599	153	9B, 9E (150)	< 30	Use AERMOD
3016	36 37	1920 Longfellow Ave. 1924 Longfellow Ave.	9B	46,281	153	9A, 9C (150)	< 30	Use AERMOD
3016	38 42	Longfellow Ave. 1962 Boston Rd.	9C 9C	318,582	153	9B, 9D (150)	< 30	Use AERMOD
3016	60 66	1927 West Farms Rd. 1923 West Farms Rd.	9D	196,308	153	9C, 9E (150)	< 30	Use AERMOD
3016	71	1295 Rodman Place	9E	38,549	153	9B, 9D (150)	< 30	Use AERMOD

Notes: Entries in bold are sites controlled by the applicant
**Does not include below-grade parking areas that would not be heated.*
Source: Sandstone Environmental Associates

Table N-17 shows the AERMOD results for 24-hour concentrations of SO_2. Most buildings would require (E) designations restricting their stack locations if fuel oil #2 is used. Several buildings would require an (E) designation restricting the fuel use to natural gas. This includes Building 3C on Site 2N and Building 2A on Site 2S as well as buildings on Sites 3B, 3C, and 4C on Boone Avenue, Site 4C on West Farms Road, and Sites 6C, 6E, 6F,6G, 9B, and 9E. The rooftops of these buildings are not large enough to accommodate the setbacks necessary to avoid potential impacts if they were to burn #2 fuel oil.

Table N-18 shows the results of the modeling for annual concentrations of NOx. Many of the buildings would require (E) designations restricting the location of the stack. However, the restrictions are not as severe as the ones required for #2 fuel oil. The required setbacks range from 20 to 30 feet.

Tables N-19 and N-20 show the results of AERMOD modeling for the combined emissions from clusters of buildings. The modeling examined the potential for these clusters to have an impact on other nearby buildings. The clusters included:

- Sites 3D and 3E on Sites 2S and 2N;
- Sites 5A through 5E on Sites 4A, 4B 4C, 4F, and 4D along Boone Avenue;
- Sites 6B through 6D on Sites 6E through 6G; and
- Sites 9C and 9D on Site 8 (Bldg. #5).

No potential air quality impacts were identified for the combined concentrations of the clusters, and no additional stack restrictions would be required for the clusters of buildings.

Table N-17: HVAC AERMOD Modeling for 24-Hour SO_2 (µg/m^3), Proposed Action

File Name	Source Building								Receptor Building and Height	SO2 Concentrations (ug/m3)			
	Block	Site	Sq. Ft.	Emission Rate (g/s)	mm BTU/hr	Stack Ht (ft)	Stack Dia-meter	Exit Velocity (m/s)		Back-ground	Maximum Modeled	Total	Restrictions (ft)
7A7B7SP	2998	7A	36,522	0.02070	0.9	73	0.5	3.9	7B (70)	123	215	338	
7B7A7SP	2998	7B	180,572	0.10230	4.5	73	0.5	3.9	7A (70)	123	201	324	80*
3A3B7SP	3009	3A	72,000	0.04080	1.8	73	0.5	3.9	3B (70)	123	225	348	70
3B3A7SP	3009	3B (4)	40,000	0.02270	1.0	73	0.5	3.9	3A(70)	123	214	337	Use natural gas
3B3C7SP	3009	3B (4)	40,000	0.02270	1.0	73	0.5	3.9	3C(70)	123	236	359	Use natural gas
3C3B7SP	3009	3C	13,500	0.00760	0.3	73	0.5	3.9	3B (70)	123	180	303	Use natural gas
3C3D7SP	3009	3C	13,500	0.00760	0.3	73	0.5	3.9	3D (70)	123	195	318	Use natural gas
3D3C7SP	3009	3D	49,500	0.02800	1.2	73	0.5	3.9	3C(70)	123	212	335	60
3D3E7SP	3009	3D	49,500	0.02800	1.2	73	0.5	3.9	3E (70)	123	216	339	60
3E3D7SP	3009	3E	45,000	0.02550	1.1	73	0.5	3.9	3D (70)	123	198	321	60
5A5B7SP	3010	5A	5,000	0.00280	0.1	73	0.5	3.9	5B (70)	123	37	160	
5B5A7SP	3010	5B	36,000	0.02040	0.9	73	0.5	3.9	5A (70)	123	155	278	
5B5C7SP	3010	5B	36,000	0.02040	0.9	73	0.5	3.9	5C (70)	123	196	319	40
5C5B7SP	3010	5C	63,090	0.03570	1.6	73	0.5	3.9	5B (70)	123	196	319	60
5C5D7SP	3010	5C	63,090	0.03570	1.6	73	0.5	3.9	5D (70)	123	210	333	60
5D5C7SP	3010	5D	53,910	0.03050	1.4	73	0.5	3.9	5C (70)	123	181	304	60
5D5E7SP	3010	5D	53,910	0.03050	1.4	73	0.5	3.9	5E (70)	123	179	302	60
5E5D7SP	3010	5E	37,000	0.02100	0.9	73	0.5	3.9	5D (70)	123	163	286	50
1A1B1SP	3013	1 (1a)	106,936	0.06060	2.7	125	0.5	3.9	(1b) (148)	123	240	363	20
B3C3ASP	3014 N	2N (3c)	77,270	0.04380	1.9	123	0.5	3.9	(3a) (151)	123	481		Use natural gas
2A2B1SP	3014 S	2S (2a)	129,916	0.07360	3.3	156	0.5	3.9	(2b) (149)	123	280		Use natural gas
4A4B8SP	3015 S	4A	60,168	0.03410	1.5	83	0.5	3.9	4B (80)	123	193	316	60*
4B4A8SP	3015 S	4B (80)	40,443	0.02290	1.0	83	0.5	3.9	4A(80)	123	191	314	60*

4B4F8SP	3015 S	4B (80)	40,443	0.02290	1.0	83	0.5	3.9	4F (80)	123	176	299	50*
4B4F1SP	3015 S	4B (125)	60,664	0.03440	1.5	128	0.5	3.9	4F (125)	123	203	326	60
4C4D8SP	3015S	4C (80)	61,651	0.03490	1.5	83	0.5	3.9	4D(80)	123			Use natural gas
4C4F8SP	3015S	4C (80)	61,651	0.03490	1.5	83	0.5	3.9	4F (80)	123			Use natural gas
4C4E1SP	3015S	4C (125)	92,477	0.05240	2.3	128	0.5	3.9	4E (125)	123			Use natural gas
4C4F1SP	3015S	4C (125)	92,477	0.05240	2.3	128	0.5	3.9	4F(125)	123			Use natural gas
4D4C8SP	3015S	4D	73,970	0.04190	1.9	83	0.5	3.9	4C(80)	123	209	332	80*
4D4E1SP	3015S	4D	73,970	0.04190	1.9	83	0.5	3.9	4E(125)	123	166	289	80
4E4C1SP	3015S	4E	92,296	0.05230	2.3	128	0.5	3.9	4C (125)	123	127	250	80
4F4B8SP	3015S	4F (80)	78,765	0.04460	2.0	83	0.5	3.9	4B (80)	123	219	342	80
4F4C8SP	3015S	4F (80)	78,765	0.04460	2.0	83	0.5	3.9	4C(80)	123	143	266	80
4F4B1SP	3015S	4F (125)	52,510	0.02980	1.3	128	0.5	3.9	4B(125)	123	98	221	30
4FRC1SP	3015S	4F (125)	52,510	0.02980	1.3	128	0.5	3.9	4C(125)	123	216	339	50
6A6G1SP	3015N	6A	71,573	0.04060	1.8	83	0.5	3.9	6G (125)	123	108	231	70
6B6C8SP	3015N	6B	56,773	0.03220	1.4	83	0.5	3.9	6C (80)	123	173	296	60
6C6B8SP	3015N	6C	51,138	0.02900	1.3	83	0.5	3.9	6B (80)	123			Use natural gas
6D6C8SP	3015N	6D	10,598	0.00600	0.3	83	0.5	3.9	6C (80)	123			Use natural gas
6D6C8SP	3015N	6D	10,598	0.00600	0.3	83	0.5	3.9	6C (80)	123	76	199	30
6E6F1SP	3015N	6E	56,060	0.03180	1.4	128	0.5	3.9	6F (125)	123			Use natural gas
6F6E1SP	3015N	6F	44,080	0.02500	1.1	128	0.5	3.9	6E(125)	123			Use natural gas
6F6G1SP	3015N	6F	44,080	0.02500	1.1	128	0.5	3.9	6G(125)	123			Use natural gas
6G6F1SP	3015N	6G	72,082	0.04080	1.8	128	0.5	3.9	6F (125)	123			Use natural gas
89D1SP	3016	5 (8)	202,319	0.11460	5.1	153	1.0	5.8	9D (150)	123	233	356	20
9A9B1SP	3016	9A	42,599	0.02410	1.1	153	0.5	3.9	9B (150)	123	211	334	50
9A9E1SP	3016	9A	42,599	0.02410	1.1	153	0.5	3.9	9E (150)	123	184	307	60
9B9A1SP	3016	9B	46,281	0.02620	1.2	153	0.5	3.9	9A(150)	123			Use natural gas
9B9C1SP	3016	9B	46,281	0.02620	1.2	153	0.5	3.9	9C(150)	123			Use natural gas

9C9B1SP	3016	9C	318,582	0.18050	8.0	153	1.0	5.8	9B (150)	123	232	355	140
9C9D1SP	3016	9C	318,582	0.18050	8.0	153	1.0	5.8	9D (150)	123	206	329	130
9D9C1SP	3016	6 (9D)	196,308	0.11120	4.9	153	0.5	3.9	9C (150)	123	222	345	110
9D9E1SP	3016	6 (9D)	196,308	0.11120	4.9	153	0.5	3.9	9E (150)	123	236	359	100
939A1SP	3016	9E	42,404	0.02400	1.1	153	0.5	3.9	9A(150)	123	297		Use natural gas
9E9D1SP	3016	9E	42,404	0.02400	1.1	153	0.5	3.9	9D(150)	123	356		Use natural gas

*Notes. * Would exceed NAAQS for cluster analysis.*
NAAQS for 24-hour SO_2 is 365 ug/m^3
Source: Sandstone Environmental Associates, Inc.

Table N-18: HVAC AERMOD Modeling for Annual NO_x (µg/m^3), Proposed Action

File Name	Source Building								Receptor Building and Height	NOx Concentrations (ug/m3)			
	Block	Site	Sq. Ft.	Emission Rate (g/s)	mm BTU/hr	Stack Ht (ft)	Stack Dia-meter	Exit Velocity (m/s)		Back-ground	Maximum Modeled	Total	Restrictions (ft)
7A7B7NP	2998	7A	36,522	0.002781	0.9	73	0.5	3.9	7B (70)	55	29.3	84.3	
7B7A7NP	2998	7B	180,572	0.013750	4.5	73	0.5	3.9	7A (70)	55	33.5	88.5	30
3A3B7NP	3009	3A	72,000	0.005483	1.8	73	0.5	3.9	3B (70)	55	29.3	84.3	
3B3A7NP	3009	3B (4)	40,000	0.003046	1.0	73	0.5	3.9	3A(70)	55	33.5	88.5	30
3B3C7NP	3009	3B (4)	40,000	0.003046	1.0	73	0.5	3.9	3C(70)	55	18.17	73.2	20
3C3B7NP	3009	3C	13,500	0.001028	0.3	73	0.5	3.9	3B (70)	55	20.63	75.6	
3C3D7NP	3009	3C	13,500	0.001028	0.3	73	0.5	3.9	3D (70)	55	18.46	73.5	
3D3C7NP	3009	3D	49,500	0.003769	1.2	73	0.5	3.9	3C(70)	55	23.07	78.1	20
3D3E7NP	3009	3D	49,500	0.003769	1.2	73	0.5	3.9	3E (70)	55	23.33	78.3	20
3E3D7NP	3009	3E	45,000	0.003427	1.1	73	0.5	3.9	3D (70)	55	20.98	76.0	20
5A5B7NP	3010	5A	5,000	0.000381	0.1	73	0.5	3.9	5B (70)	55	0.53	55.5	
5B5A7NP	3010	5B	36,000	0.002741	0.9	73	0.5	3.9	5A (70)	55	3.16	58.2	
5B5C7NP	3010	5B	36,000	0.002741	0.9	73	0.5	3.9	5C (70)	55	29.2	84.2	
5C5B7NP	3010	5C	63,090	0.001028	1.6	73	0.5	3.9	5B (70)	55	19.6	74.6	
5C5D7NP	3010	5C	63,090	0.001028	1.6	73	0.5	3.9	5D (70)	55	10.8	65.8	
5D5C7NP	3010	5D	53,910	0.004105	1.4	73	0.5	3.9	5C (70)	55	21.4	76.4	20
5D5E7NP	3010	5D	53,910	0.004105	1.4	73	0.5	3.9	5E (70)	55	18.2	73.2	20
5E5D7NP	3010	5E	37,000	0.002817	0.9	73	0.5	3.9	5D (70)	55	13.1	68.1	20
1A1B1NP	3013	1 (1a)	106,936	0.008143	2.7	125	0.5	3.9	(1b) (148)	55	3.99	59.0	
B3C3ANP	3014 N	2N (3c)	77,270	0.005884	1.9	123	0.5	3.9	(3a) (151)	55	36.05	91.1	20
2A2B1NP	3014 S	2S (2a)	129,916	0.009893	3.3	156	0.5	3.9	(2b) (149)	55	7.71	62.7	
4A4B8NP	3015 S	4A	60,168	0.004582	1.5	83	0.5	3.9	4B (80)	55	20.8	75.8	20
4B4A8NP	3015 S	4B (80)	40,443	0.003080	1.0	83	0.5	3.9	4A(80)	55	33.4	88.4	
4B4F8NP	3015 S	4B (80)	40,443	0.003080	1.0	83	0.5	3.9	4F (80)	55	14.1	69.1	20

4B4F1NP	3015 S	4B (125)	60,664	0.004619	1.5	128	0.5	3.9	4F (125)	55	25.7	80.7	20
4C4D8NP	3015S	4C (80)	61,651	0.004694	1.5	83	0.5	3.9	4D(80)	55	22.7	77.7	20
4C4F8NP	3015S	4C (80)	61,651	0.004694	1.5	83	0.5	3.9	4F (80)	55	20.8	75.8	20
4C4E1NP	3015S	4C (125)	92,477	0.004619	2.3	128	0.5	3.9	4E (125)	55	19.4	74.4	20
4C4F1NP	3015S	4C (125)	92,477	0.004619	2.3	128	0.5	3.9	4F(125)	55	42	97.0	
4D4C8NP	3015S	4D	73,970	0.005633	1.9	83	0.5	3.9	4C(80)	55	25	80.0	20
4D4E1NP	3015S	4D	73,970	0.005633	1.9	83	0.5	3.9	4E(125)	55	26.6	81.6	20
4E4C1NP	3015S	4E	92,296	0.007028	2.3	128	0.5	3.9	4C (125)	55	36	91.0	20
4F4B8NP	3015S	4F (80)	78,765	0.005998	2.0	83	0.5	3.9	4B (80)	55	29.9	84.9	20
4F4C8NP	3015S	4F (80)	78,765	0.005998	2.0	83	0.5	3.9	4C(80)	55	29.5	84.5	20
4F4B1NP	3015S	4F (125)	52,510	0.003998	1.3	128	0.5	3.9	4B(125)	55	29.7	84.7	
4FRC1NP	3015S	4F (125)	52,510	0.003998	1.3	128	0.5	3.9	4C(125)	55	19.6	74.6	20
6A6G1NP	3015N	6A	71,573	0.005450	1.8	83	0.5	3.9	6G (125)	55	24	79.0	20
6B6C8NP	3015N	6B	56,773	0.004323	1.4	83	0.5	3.9	6C (80)	55	19.5	74.5	20
6C6B8NP	3015N	6C	51,138	0.003894	1.3	83	0.5	3.9	6B (80)	55	43	98.0	
6C6D8NP	3015N	6C	51,138	0.003894	1.3	83	0.5	3.9	6D (80)	55	20.7	75.7	20
6D6C8NP	3015N	6D	10,598	0.000807	0.3	83	0.5	3.9	6C (80)	55	8.5	63.5	
6E6F1NP	3015N	6E	56,060	0.004269	1.4	128	0.5	3.9	6F (125)	55	33.9	88.9	
6F6E1NP	3015N	6F	44,080	0.003357	1.1	128	0.5	3.9	6E(125)	55	40.7	95.7	
6F6G1NP	3015N	6F	44,080	0.003357	1.1	128	0.5	3.9	6G(125)	55	40.7	95.7	
6G6F1NP	3015N	6G	72,082	0.005489	1.8	128	0.5	3.9	6F (125)	55	25.7	80.7	20
89D1NP	3016	5 (8)	202,319	0.015406	**5.1**	**153**	**1.0**	**5.8**	9D (150)	55	3.52	58.5	
9A9B1NP	3016	9A	42,599	0.003244	1.1	153	0.5	3.9	9B (150)	55	33.29	88.3	
9A9E1NP	3016	9A	42,599	0.003244	1.1	153	0.5	3.9	9E (150)	55	33.95	89.0	
9B9A1NP	3016	9B	46,281	0.003524	1.2	153	0.5	3.9	9A(150)	55	36.35	91.4	
9B9C1NP	3016	9B	46,281	0.003524	1.2	153	0.5	3.9	9C(150)	55	19.47	74.5	20
9C9B1NP	3016	9C	318,582	0.024259	**8.0**	**153**	**1.0**	**5.8**	9B (150)	55	43.93	98.9	30
9C9D1NP	3016	9C	318,582	0.024259	**8.0**	**153**	**1.0**	**5.8**	9D (150)	55	30.48	85.5	40

9D9C1NP	3016	6 (9D)	196,308	0.014948	4.9	153	0.5	3.9	9C (150)	55	37.22	92.2	30
9D9E1NP	3016	6 (9D)	196,308	0.014948	4.9	153	0.5	3.9	9E (150)	55	35.99	91.0	30
939A1NP	3016	9E	42,404	0.003229	1.1	153	0.5	3.9	9A(150)	55	14.14	69.1	20
9E9D1NP	3016	9E	42,404	0.003229	1.1	153	0.5	3.9	9D(150)	55	28.29	83.3	

Note. NAAQS for annual NO2 is 150 ug/m3.
Source: Sandstone Environmental Associates, Inc.

Table N-19: HVAC AERMOD Cluster Modeling for 24-Hour SO_2 (µg/m^3), Proposed Action

Name	Source Building							Receptor Building and Height	Back-ground	Maxi-mum	Total	Restrictions (ft)
	Site	Sq. Ft.	Emission Rate (g/s)	mm BTU/hr	Stack Ht (ft)	Stack Dia-meter	Exit Velocity (m/s)					
C32NSP	3D and 3E	94,500	0.053542	2.4	73	0.5	3.9	2S, 2N (74)	123	104	127	
C5A4ASP	5A-5E	195,000	0.110483	4.9	83	0.5	3.9	4A-D, F (125)	123	77.8	201	
6B6ESP	6B-D (80)	118,510	0.067145	3.0	83	0.5	3.9	6E-G (125)	123	22.5	146	
9A8SP	9C and D	514,890	0.291726	12.9	153	2	10.2	8 (150)	123	54	177	

Notes. NAAQS for 24-hour SO_2 is 365 ug/m^3

Source: Sandstone Environmental Associates, Inc.

Table N-20: HVAC AERMOD Cluster Modeling for Annual NO2 (µg/m^3), Proposed Action

Name	Source Building							Receptor Building and Height	Back-ground	Maxi-mum	Total	Restrictions (ft)
	Site	Sq. Ft.	Emission Rate (g/s)	mm BTU/hr	Stack Ht (ft)	Stack Dia-meter	Exit Velocity (m/s)					
C32NSP	3D and 3E	94,500	0.007196	2.4	73	0.5	3.9	2S, 2N (74)	55	2.0	57.0	
C5A4ASP	5A-5E	195,000	0.014848	4.9	83	0.5	3.9	4A-D, F (125)	55	0.935	55.9	
6B6ESP	6B-D (80)	118,510	0.009024	3.0	83	0.5	3.9	6E-G (125)	55	0.458	55.5	
9A8SP	9C and D	514,890	0.039207	12.9	153	2	10.2	8 (150)	55	0.56	55.6	

Source: Sandstone Environmental Associates, Inc.

Air Toxics and Odors

Field Survey

On March 27, 2009, a field survey was carried out to identify manufacturing uses that have the potential to impact projected development. This includes sources with potential non-criteria emissions that may not have or may require necessary air permits. Criteria for identifying such operations during the field survey included:

- industrial buildings with stacks, vents, or observed emissions;
- establishments with names indicative of operations that could require permitting;
- establishments with the potential to cause unpleasant odors.

No medical, chemical, or research laboratories were identified within 400 feet of the proposed rezoning boundaries. Industrial establishments identified during the field work were cross-referenced with information from other sources to obtain additional information about their activities.

No unpleasant odors were encountered during the field survey. The only establishment likely to generate significant odors is the Ferris, Stahl-Meyer Packing Corp., a meat packaging plant at 1560 Boone Avenue (Block 3014, Lot 15). This property is a projected development site controlled by the applicant, and it would be redeveloped under the Proposed Action. The site would be redeveloped during years 4 to 6 in construction Phase 3. However, the operation would vacate the site before redevelopment starts on nearby sites. Therefore, it would not be an odor source for the redeveloped lots in the future.

NYCDEP Permit Search

Based on field work and information obtained from NYC's Open Accessible Space Information System (OASIS), a list of lots with industrial uses within the rezoning area and within 400 feet of the rezoning area was compiled and sent to NYCDEP in order to identify facilities with permits for emissions from industrial sources.

No permits were found for several auto repair and painting establishments that were observed in the field. The 2010 *CEQR Technical Manual* indicates that a generic analysis is required for these types of existing facilities if they have no permits. However, these unpermitted facilities are located on lots projected for redevelopment. Thus, they do not require further analysis.

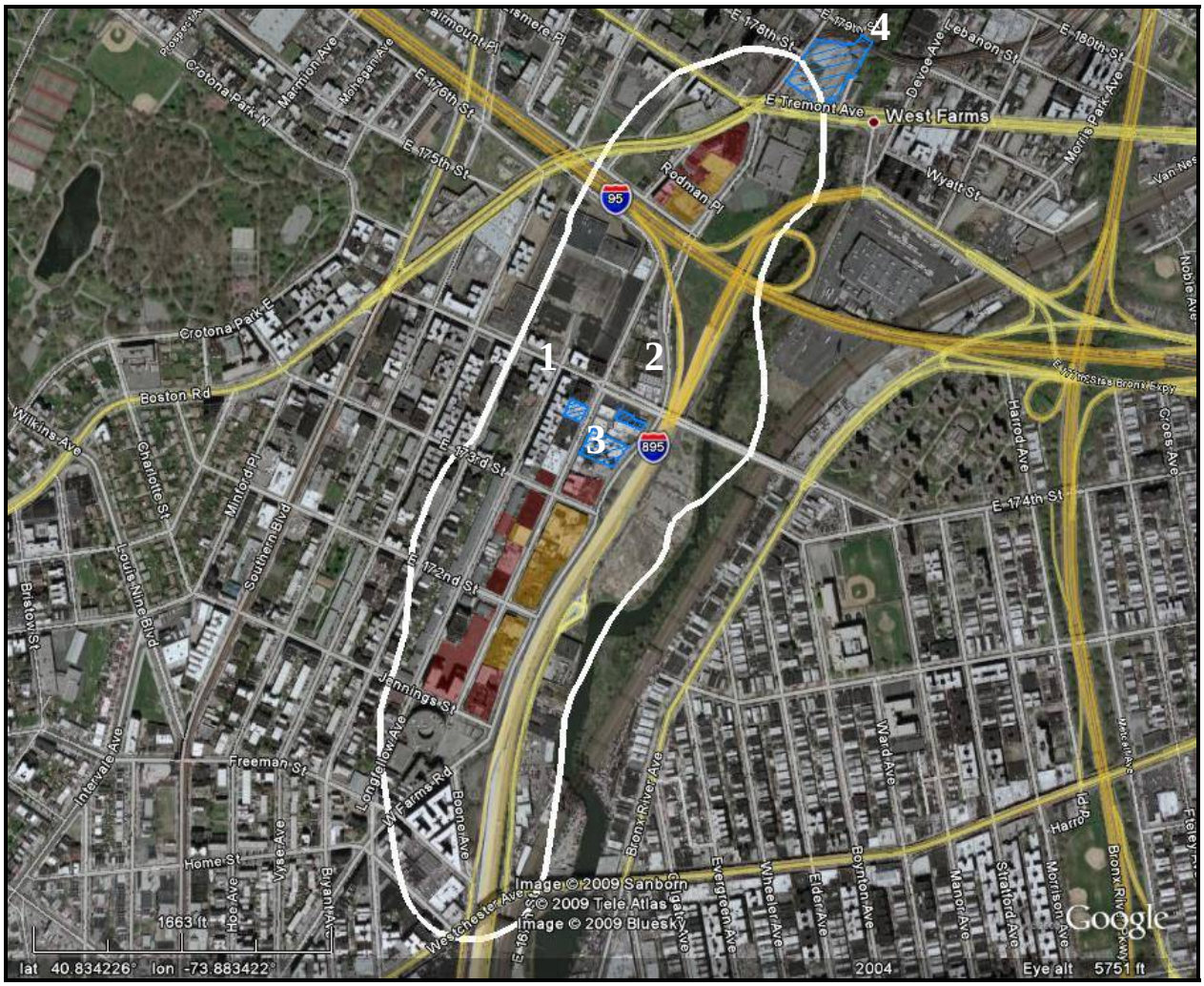
Four operating permits were found in the NYCDEP files. The blocks, lots and addresses of these sites are listed in Table N-21 and shown in Figure N-12. One site is north of the rezoning area. The other three are projected or potential development sites within the rezoning area. The four sites are discussed below.

TableN-21: Industrial Sites with Air Quality Permits

ID	Block	Lot	Address	Financial Code*	Permitted Use	Comments
1	3010	29	1701 Boone Ave.	G2	Woodworking	Projected development site not controlled by applicant
2	3015	26	1743 West Farms Rd.	F9	Paint Mixing and Retail	Potential development site
3	3015	34	1725 West Farms Rd.	E7	Painting with spray booth	Potential development site; permitted use no longer present
4	3139	1	2024 Boston Rd.	K9	Dry cleaning establishment	Outside of rezoning area; closed system does not vent to outside
**Legend: G2 – Garage, F9 – Misc. Factory, E7 – Self-Storage Warehouse, K9 – Misc. Store Building*						

Source: NYC OASIS.

Figure N-12: Sites with Operating Permits for Processes



Source: Google Earth, Sandstone Environmental Associates.

1. Block 3010, Lot 29, at 1701 Boone Avenue This is a projected development site. Therefore, it will be redeveloped in the future and does not require further analysis.

2. Block 3015, Lot 26 at 1743 West Farms Road is occupied by Champion Paint Manufacturing. A Sanborn map for 1950 shows that the Diamond Syrup Company occupied the front of this building, and a garage with a 550-gasoline tank was in the rear of the building. Diamond Syrup apparently vacated the site by 1993. Champion Paint mixes paint in two tanks that are 36 inches in diameter. Emissions are exhausted through a roof-mounted fan, about 20 feet above street level, with 2,500 cfm and a diameter of 16 inches. The exhaust is 70°F, and the exit velocity is 30 feet/second. It operates 200 days per year for 8 hours per day. No control devices are used. This site warrants further analysis.

3. Block 3015, Lot 34 at 1725 West Farms Road is the location of Secure Self-Storage, a mini storage facility for consumers. The permit refers to Wilray Metal Fabricators, which appears to have been located on the same lot as the commercial storage business. Between the 1890s and approximately 1950, the site was used as a two-family home. The home was converted to storage uses by 1950, and additional buildings were constructed at the rear of the lot. The current building covering the entire lot was constructed in 1963 and is shown as a factory on the 1977 through 2007 Sanborn maps. Further review of available property transaction records and recent Certificates of Occupancy indicate the fabricating business is no longer present on this Site. No additional analysis is warranted.

4. Block 3139, Lot 1 at 2024 Boston Road is the location of Boston Cleaners. It is on the ground floor of an existing commercial building. This dry cleaning establishment apparently uses a closed system and does not vent emissions to the outdoors. Therefore, it does not warrant further analysis.

The paint spray booth at 1743 West Farms Road operates 8 hours per day, 200 days per year. The stack exhaust is 20 feet above ground level and it located on the northeastern side of the roof. 1743 West Farms Road is Projected Development Site 4E. Lot 25, which is adjacent to it on the north, is also part of Projected Development Site 4E and is currently improved with a one-story warehouse building. Since both of these lots would be developed together, the spray booth emissions would not have an air quality impact on Lot 25. The next closest future development site is Lot 29 (1735 West Farms Road), an adjacent site on the south. Lot 29 is Projected Development Site 4C, which could be redeveloped with a seven-story residential building. The boundaries of Lot 29 are approximately 35 feet from the exhaust stack at 1743 West Farms Road. Therefore, an industrial source screen analysis was carried out to determine the potential for impacts.

Industrial Source Screen

Table N-22 shows the Industrial Source Screen results for non-criteria pollutants at 1743 West Farms Road, which is the only permitted facility warranting additional analysis. Based on Table N-22, emissions from propylene glycol would exceed the NYSDEC AGC standard. However, the projected concentration of 4.2 $\mu g/m^3$ would be lower than the concentration of 8.1 $\mu g/m^3$ that would be created by multiplying the AGC by 10. Therefore, as stated in the methodology section, it would not be considered an impact by NYCDEP, and no additional analysis is required for this source. Based on the analyses and available information, no impacts to future development sites are projected from air toxics.

Table N-22: Non-Criteria Pollutant Concentrations (µg/m^3) at 1743 West Farms Road Compared with NYSDEC Standards

Pollutant	CAS #	1-Hour Concentration	NYS SGCs	Annual Concentration	NYS AGCs
Propylene Glycol	06423-43-4	519	N/A	4.2	0.81
Texanol	25265-77-4	346	N/A	2.8	N/A

Source: Sandstone Environmental Associates, Inc

E Designations and Restrictive Declarations, Proposed Action

According to the NYC Building Code, rooftop stacks for HVAC should be at least 10 feet from the edge of the roof and/or from a building of similar or grater height. The HVAC air quality analysis in this section indicated that some stacks would have to be placed at a greater distance than 10 feet, and some buildings would be restricted to using natural gas in order to avoid a significant potential impact. The restrictions may not be directly related to building size. In some cases, relatively small buildings would be restricted to using natural gas because the lots are narrow and not of sufficient size to accommodate the necessary setbacks to avoid an impact. In others, the direction of the prevailing winds for a 24-hour or annual period resulted in higher concentrations for a building north of a stack (e.g.) than for a building south of a stack.

To prevent potential exceedances of the NAAQS, the Proposed Action would include the mapping of (E) designations (E-277) on non-applicant-controlled sites and the recording of restrictive declarations against applicant-controlled sites. As shown in Table N-23, restrictive declarations and (E) designations would specify stack setback distances, mandate the use of natural gas, or both.

Table N-23: Restrictive Declarations and (E) Designations for Proposed Action

Site	Block	Lot(s)	Minimum Set-Back or Fuel Use Requirements
7B	2998	104,113,124	Use natural gas with setback of 30 feet
3A	3009	25	70 feet for fuel oil #2 or use natural as
3B (4)	3009	33	Use natural gas with setback of 30 feet
3C	3009	37	Use natural gas
3D	3009	38	60 feet for fuel oil #2 or 20 feet for natural gas
3E	3009	44	60 feet for fuel oil #2 or 20 feet for natural gas
5B	3010	29	40 feet for fuel oil #2 or use natural gas
5C	3010	33	60 feet for fuel oil #2 or 20 feet for natural gas
5D	3010	40	60 feet for fuel oil #2 or 20 feet for natural gas
5E	3010	46	50 feet for fuel oil #2 or 20 feet for natural gas
1(1a)	3013	12, 46, 29	20 feet for fuel oil #2 or use natural gas
2N(3C)	3014N	15 (part)	Use natural gas with setback of 20 feet
2S(2A)	3014S	9 (part)	Use natural gas
4A	3015S	1	Use natural gas with setback of 20 feet

4B (Boone)	3015 S	3 (part), 5 (part)	Use natural gas with setback of 20 feet
4B (WFR)	3015S	3 (part), 5 (part)	Use natural gas with a setback of 20 feet
4C (Boone)	3015S	17, 18	Use natural gas with a setback of 20 feet
4C (WFR)	3015S	29, 31	Use natural gas with a setback of 20 feet
4D (Boone)	3015S	19	Use natural gas with a setback of 20 feet
4E	3015S	25, 26	80 feet for fuel oil #2 or 20 feet for natural gas
4F (Boone)	3015S	34 (part)	80 feet for fuel oil #2 or 20 feet for natural gas
4F (WFR)	3015S	34 (part)	50 feet for fuel oil #2 or 20 feet for natural gas
6A	3015N	50, 56, 110	70 feet for fuel oil #2 or 20 feet for natural gas
6B	3015N	62, 87, 89	60 feet for fuel oil #2 or 20 feet for natural gas
6C	3015N	67, 83, 84, 85	Use natural gas with setback of 20 feet
6D	3015N	81	Use natural gas
6E	3015N	95	Use natural gas
6F	3015N	96	Use natural gas
6G	3015N	97	Use natural gas with setback of 20 feet
5 (8)	3016	11, 13, 21	20 feet for fuel oil #2 or use natural gas
9A	3016	33, 35	Use natural gas
9B	3016	36. 37	Use natural as with setback of 20 feet
9C	3016	38, 42	140 feet for fuel oil #2 or 40 feet for natural gas
9D	3016	60, 66	110 feet for fuel oil #2 or 30 feet for natural gas
9E	3016	71	Use natural gas with setback of 20 feet

Source: Sandstone Environmental Associates, Inc.

The language for the (E) designations is specified below:

Block 2998, Lots 104, 113, and 124 (Parcel 7B): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 30 feet from the lot line facing E. 176th Street to avoid any potential significant adverse air quality impacts.

Block 3009, Lot 25 (Parcel 3A): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 70 feet from the lot line facing E. 172nd Street and 20 feet from the lot line facing Boone Avenue and 20 feet from the lot line fronting E. 173rd Street for fuel oil #2 or use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3009, Lot 37 (Parcel 3C): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3009, Lot 38 (Parcel 3D): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 60 feet from the lot line facing E. 172nd Street and 60 feet from the lot line facing E. 173rd Street for fuel oil #2 or at least 20 feet from the lot line facing E. 172nd Street and 20 feet from the lot line adjoining facing E. 173rd Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3009, Lot 44 (Parcel 3E): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 60 feet from the lot line facing E. 173rd Street for fuel oil #2 or at least 20 feet from the lot line facing E. 173rd Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3010, Lot 29 (Parcel 5B): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 40 feet from the lot line facing E.174th Street and 40 feet from the lot line facing E. 173rd Street for fuel oil #2 or use natural gas to avoid any potential significant adverse air quality impacts.

Block 3010, Lot 33 (Parcel 5C): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 60 feet from the lot line facing E. 174th Street and 60 feet from the lot line facing E. 173rd Street for fuel oil #2 or 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3010, Lot 40 (Parcel 5D): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 60 feet from the lot line facing E. 174th Street and 60 feet from the lot line facing E. 173rd Street for fuel oil #2 or 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3010, Lot 46 (Parcel 5E): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 50 feet from the lot line facing E. 174th Street for fuel oil #2 or 20 feet from the lot line facing E.174th Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3015S, Lot 1 (Parcel 4A): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 174th Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lots 3 (part) and 5 (part) (Parcel 4B fronting Boone Avenue): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lots 3 (part) and 5 (part) (Parcel 4B fronting West Farms Road): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lots 17 and 18 (Parcel 4C fronting Boone Avenue): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lots 29 and 31 (Parcel 4C fronting West Farms Road): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lot 19 (Parcel 4D): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing West Farms Road and 20 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3015S, Lots 25 and 26 (Parcel 4E): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 173rd Street and 20 feet from the lot line facing Boone Avenue to avoid any potential significant adverse air quality impacts.

Block 3015S, Lot 34 (part) (Parcel 4F fronting Boone Avenue): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 80 feet from the lot line facing E. 173rd Street and 80 feet from the lot line facing E. 174th Street for fuel oil #2 or at least 20 feet from the lot facing E. 173rd Street and 20 feet from the lot line facing E. 174th Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3015S, Lot 34 (part) (Parcel 4F fronting West Farms Road): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 80 feet from the lot line facing E. 173rd Street and 80 feet from the lot line facing E. 174th Street for fuel oil #2 or at least 20 feet from the lot line facing E. 173rd Street and 20 feet from the lot line facing E. .174th Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3015N, Lots 50, 56, and 110 (Parcel 6A): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 70 feet from the s lot line facing E. 174th Street and 70 feet from the lot line facing E. 176th Street and 20 feet from the lot line facing Boone Avenue for fuel oil #2 or at least 20 feet from the lot line facing E. 174th Street and 20 feet from the lot line facing E. 176th Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3015N, Lots 62, 87, 89 (Parcel 6B): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 60 feet from the lot line facing E. 176th Street fuel oil #2 or at least 20 feet from the lot line facing E. 176th Street for natural gas to avoid any potential significant adverse air quality impacts.

Block 3015N, Lots 67, 83, 84, and 85 (Parcel 6C): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20

feet from the lot line facing E. 176th Street and 20 feet from the lot line facing E. 174th Street to avoid any potential significant adverse air quality impacts.

Block 3015N, Lot 81 (Parcel 6D): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3015N, Lot 95 (Parcel 6E): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3015N, Lot 96 (Parcel 6F): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3015N, Lot 97 (Parcel 6G): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 176th Street and 20 feet from the lot line facing Boone Avenue to avoid any potential significant adverse air quality impacts.

Block 3016, Lots 33 and 35 (Parcel 9A): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3016, Lots 36 and 37 (Parcel 9B): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing E. 177th Street and 20 feet from the lot line facing Rodman Place to avoid any potential significant adverse air quality impacts.

Block 3016, Lots 38 and 42 (Parcel 9C): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 140 feet from the lot line facing Rodman Place for fuel oil #2 and 40 feet from the lot line facing Rodman Place for natural gas to avoid any potential significant adverse air quality impacts.

Block 3016, Lot 71 (Parcel 9E): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 20 feet from the lot line facing West Farms Road and 20 feet from the lot line facing Longfellow Avenue to avoid any potential significant adverse air quality impacts.

The language for restrictive declarations is specified below:

Block 3009, Lot 33 (Parcel 3B, Building 4): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 30 feet from the lot line facing E. 172nd Street and 30 feet from the lot line facing E. 173rd Street to avoid any potential significant adverse air quality impacts.

Block 3013, Lots 12, 46, and 29 (Parcel 1, Building 1a): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 20 feet from the lot line facing E.

172nd Street for fuel oil #2 or use for natural gas to avoid any potential significant adverse air quality impacts.

Block 3014N Lots 15 (part) (Parcel 2N, Building 3c): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3014S Lots 9 (part) (Parcel 2S, Building 2a): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3016, Lots 11, 13, and 21 (Parcel 5, Building 8): Any new residential and/or commercial development on the above-referenced properties must ensure that the heating, ventilating, and air conditioning stack(s) are located at least 20 feet from the lot line facing Rodman Place for fuel oil #2 or use natural gas as the type of fuel for space heating and hot water (HVAC) systems to avoid any potential significant adverse air quality impacts.

Block 3016, Lots 60 and 66 (Parcel 9D): Any new residential and/or commercial development on the above-referenced properties must use natural gas as the type of fuel for space heating and hot water (HVAC) systems and ensure that the HVAC stack(s) are located at least 30 feet from the lot line facing E. 177th Street and 30 feet from the lot line facing Longfellow Avenue to avoid any potential significant adverse air quality impacts.

I. HAZARDOUS MATERIALS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

Introduction

Proposed Action

Industco Holdings, LLC proposes that the City Planning Commission rezone 70 lots[1] on 11 physical blocks and 9 tax blocks in the Crotona Park East and West Farms areas of the Bronx. Currently, the affected area is zoned M1-1, R7-1 and R7-1/C2-4. It would be rezoned to residential districts (R6A, R7A, R7X and R8X) with selected C2-4 commercial overlays. After the proposed zoning map amendment and other actions have been adopted, redevelopment is expected to occur on a parcel-by-parcel basis for up to 60 of the 70 lots over a number of years. Ten of the lots would not be affected by the rezoning. The environmental impact statement (EIS) assesses the likely effects of changes that would occur by the analysis year of 2019.

Location

The blocks affected by the proposed action are contained within the boundaries of Longfellow Avenue to the west, West Farms Road to the east, Freeman Street to the south, and the intersection of Boston Road and West Farms Road to the north. Figure 1 shows the rezoning area.

Scope of and Purpose of Study

This document is a supplemental study to the EIS that addresses potential adverse impacts related to hazardous materials. Under the proposed rezoning action, new residential, community facility, and in some locations commercial uses would be allowed as-of-right, requiring no discretionary actions by the City prior to development. The proposed action would also include a set of zoning special permits granted for a General Large-Scale Development, with residential, day care, and commercial uses, on lots owned by the applicant. As a result, new residential and/or commercial uses would occur in areas that have been used historically for industrial or automotive uses, creating the potential for new occupants to be exposed to potentially hazardous materials that may exist in the soils and underlying groundwater. In addition, if hazardous materials are present at a site, excavation activities associated with site development may increase the pathways of exposure to subsurface contaminated materials for existing residents in the vicinity of the site. Therefore, a hazardous materials screening assessment was carried out to determine whether specific lots within the rezoning area warrant restrictive declarations or E designations for hazardous materials.

[1] One of the lots within the rezoning area is a mapped park. A park does not have a zoning designation. Thus, 69 lots would actually be rezoned.

Figure 1
Crotona Park East Rezoning Area

Source: Sandstone Environmental Associates, Inc.

Existing Conditions

Currently, the rezoning area consists of a mixture of residential, industrial, commercial, automotive, institutional, and recreational open space facilities.

Future Conditions without the Proposed Action

In the absence of the proposed action, the current development scale and mixture of land uses would remain, and no significant new development is anticipated with the exception of Block 3016, Lot 42, at the northern end of the rezoning area. Currently developed with commercial uses, it would be redeveloped with a mix of residential and commercial uses.

Future Conditions with the Proposed Action

The proposed action would include a zoning map amendment that would: 1) replace a manufacturing district with a residential district that would permit residential or community facility development, and 2) replace an existing residential district covering part of Block 3016 with a higher density residential district that would increase the amount of permitted residential and community facility floor area. Future conditions with the proposed action could involve building construction, additions and conversions. Although the reasonable worst case development scenario presented in the EIS projects that 49 of the 70 lots within the proposed rezoning area would likely be redeveloped by the 2019 analysis year, all but one of the 70 lots (the exception being Boone Playground, which is a mapped park) could potentially be redeveloped with residential or community facility floor area at some point in the future.

Principal Conclusions

Findings and Conclusions

The proposed action is not likely to introduce new activities or processes using hazardous materials that would increase the risk of human or environmental exposure. However, many sites within the rezoning area were identified as harboring known or potential contaminants that include a wide array of petroleum and non-petroleum based chemicals from current or former uses. Other sites may be contaminated due to their proximity to sites with historic uses that are indicative of potential contamination. Development within the rezoning area could therefore result in excavation activities that would create exposure pathways for subsurface contaminated materials.

Recommendations

Based on NYCDEP's review of available Phase I and Phase II site investigations, new Phase II Environmental Site Assessments are recommended for the 15 properties under the applicant's control. A restrictive declaration will be recorded against these properties, binding the applicant to perform any investigative or remedial activities required by NYCDEP, in accordance with protocols approved by the agency, and to the agency's satisfaction.

(E) designations are recommended for the 45 lots that are Projected and Potential Development sites not under the applicant's control. Although the hazardous materials assessment indicated potential for contamination at all parcels within the rezoning area, based on the history of the sites and surrounding areas, the City's rules do not permit the assignment of (E) designations on properties that are not identified in the RWCD as Projected or Potential Development sites. Therefore, no recommendations were made for the 10 lots that would not be affected by the Proposed Action.

The placement of (E) designations on 45 tax lots, and the recording of restrictive declarations against all of the 15 lots on which NYCDEP determines that additional investigation or remediation is required, would ensure that no significant impacts related to hazardous materials would occur as a result of the proposed action.

METHODOLOGY

Detailed Scope of Work

Purpose of Study

In accordance with Chapter 24, Section 4, Title 15, of the Rules of the City of New York, a preliminary screening assessment was carried out for all sites within the study area. The goal of the assessment was to determine whether the Proposed Action could lead to increased exposure of people or the environment to hazardous materials and whether the increased exposure would result in significant health impacts or environmental damage. If the potential for hazardous materials is identified on or adjacent to a rezoning lot, then, if it is part of the proposed project, the applicant would be required to complete environmental testing and any required remediation before redevelopment could begin, and a restrictive declaration would be recorded to ensure compliance with this requirement, or, if the lot is not under the applicant's control, an E designation would be placed on that lot indicating that future developers will be required to prepare a full Phase I Environmental Assessment and a Phase II investigation. Where a Phase I or Phase II study has been completed previously, the goal of the assessment is to summarize the previous work and determine whether any changes in the statuses of the lots have occurred since the completion of those previous studies.

Identification of Recognized Environmental Conditions

The American Society of Testing and Materials (ASTM) has published ASTM E 1527-05, which uses the term *recognized environmental conditions* (RECs) to identify the potential for hazardous materials. ASTM E 1527-05 defines recognized environmental conditions as:

> "the presence or likely presence, of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property."

The term includes hazardous substances or petroleum products even under conditions in compliance with laws. It is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

For the purposes of identifying a REC, a *material threat* is a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment (e.g., an above-ground storage tank containing a hazardous substance and that shows evidence of damage that could lead to tank failure).

An adjoining or adjacent property is one that shares a boundary with the subject property. A lot that is separated from the subject property by a roadway or public walkway is still termed an adjoining property, and a REC on an adjoining property can be a source of concern to a subject property.

Hazardous substances include, but are not limited to, heavy metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), methane, polychlorinated biphenyls (PCBs), pesticides, dioxins, and hazardous wastes (as defined under the Resource Conservation and Recovery Act (RCRA)). Petroleum products are generally not listed as a hazardous substance under RCRA, but are often included in hazardous materials assessments because they are a source of concern to real estate transactions.

Hazardous substances may be present at a site due to the following reasons:

1) They may be present in the soils, groundwater, or buildings and structures due to past or current activities. Manufacturing processes and commercial activities typically utilize them and thus require storage and handling of hazardous materials. Visual or historical documentation of the following conditions would be indicative of potential contamination with hazardous materials:

- Incinerators,
- Underground storage tanks (USTs) or above-ground storage tanks (ASTs),
- Active solid waste landfills,
- Permitted hazardous waste management facilities,
- Inactive hazardous waste facilities,
- Suspected hazardous waste sites,
- Hazardous substance spill locations,
- Areas known to contain fill material,
- Petroleum spill locations, and
- Any use identified in Appendix A of the *NYC CEQR Technical Manual Appendices,* which lists facilities, activities, and conditions that may be associated with hazardous materials. The list is included in this document as Appendix 2.

2) They may have been imported to a site as fill or grading material over the years. Elevated levels of hazardous materials in fill of unknown origin may be found even where the past and current activities on a site do not suggest these types of materials were used. This is especially true for properties that are adjacent to waterways where, historically, large amounts of fill material have been used as part of urban development.

3) They may migrate to the site from areas off-site in contaminated groundwater flow or through site soils from an up-gradient location. An example would be a nearby leaking underground storage tank.

4) They may be incorporated into the buildings and structures on site themselves; examples are lead in paints or asbestos in insulation, tiling, caulking, or roofing materials. Lead paint and asbestos are not included in the definition of hazardous substances under RCRA, and their potential presence in structures within the rezoning area will not be included in the preliminary screening analysis.

Method of Analysis

Information from historical sources and regulatory databases was reviewed to determine the potential for RECs due to petroleum and non-petroleum contaminants. Any rezoning lots on or adjacent to land uses listed in Appendix 2 were presumed to have RECs. A REC on the rezoning lot also was assumed if the past or present uses on other nearby lots were listed in Appendix 1. Once a REC has been identified on a

lot, an (E) designation can be assigned without reviewing additional sources of similar contamination. Therefore, the evaluation of individual lots may not include all available sources of potential contamination. The components of the preliminary screening are discussed below.

Sites and Surrounding Area Reconnaissance

Site reconnaissance was carried out during field trips on March 30, 2009, September 25, 2009, and September 26, 2009. It was limited to observations from sidewalks adjacent to the lots. Land uses within 400 feet of the rezoning area also were evaluated for uses that could be sources of RECs.

Historical Land Use

The review of historical information included Sanborn fire insurance maps between the years of 1896 and 2007; USGS maps for 1897, 1947, 1966, 1979, and 1995; and aerial photos for 1954, 1966, 1975, 1984, 1994, and 2006. Available certificates of occupancy (COs) also were reviewed.

Review of Previous Studies

Fifteen sites are under the applicant's control and have been the subject of Phase I Environmental Site Assessments and Phase II investigative studies. These were reviewed and summarized.

Regulatory Agency List Review

Federal and state hazardous materials databases, maintained by the United States Environmental Protection Agency (US EPA) and New York State Department of Environmental Conservation (NYSDEC) respectively, were reviewed to identify sites where storage, handling, emission, and/or spill cleanup of hazardous or toxic materials may have occurred. Search distances varied according to the requirements of ASTM Standard Practice for Environmental Assessments, E 1527-05. These distances were calculated from the edge of the rezoning area boundaries to provide sufficient search radii for all of the sites within the rezoning area.

Summary of Individual Blocks and Lots

The information is summarized to show current and historic conditions as well as findings for potential petroleum and non-petroleum contaminants on individual lots. Sites located within 400 feet of the proposed rezoning area are also addressed if they have a significant potential to affect soil and/or groundwater conditions on the lots within the rezoning area. Tables for the individual blocks show the potential for PC (petroleum contamination) or NPC (non-petroleum contamination) for the lots to be rezoned based on the findings for these and other nearby lots. For lots not proposed for rezoning, these categories were checked only if the suspect uses were on those lots, and not if they were on nearby lots. Entries under the UST/AST and Regulatory Listing columns may reflect past and present uses. Some USTs that were on a site in the past may predate the information in the regulatory database.

EXISTING AND HISTORIC CONDITIONS

Study Area

Crotona Park East, also known as East Morrisania, and West Farms are adjacent mixed-use neighborhoods located in the south-central Bronx, separated from one another by the Cross Bronx Expressway. They are developed with multi-unit apartment houses and townhouses, public housing projects, light-industrial facilities, auto-body shops, and garages. Vacant lots are also common.

The rezoning area is bounded by Longfellow Avenue to the west, West Farms Road to the east, Freeman Street to the south, and the intersection of Boston Road and West Farms Road to the north. The hazardous materials study area includes the proposed rezoning area plus an adjacent area extending approximately 400 feet from the rezoning boundaries. Two major highways, the Cross Bronx Expressway (Interstate 95) and the Sheridan Expressway (Interstate 895), occupy significant portions of the adjacent area.

Identification of Affected Properties

Table 1 shows the block and lot numbers, addresses, and existing land uses of the 70 lots to be rezoned, arranged by tax block. The table identifies each lot's likely future development status, as identified in the EIS:

- as part of the applicant's proposed development project,
- as a projected development site not under the applicant's control but on which redevelopment is also considered likely by the 2019 analysis year,
- as a potential development parcel where redevelopment might occur (although development by 2019 is not projected under the reasonable worst case development scenario presented in Chapter 1 of the EIS), or
- as a site that would be unaffected by the proposed action barring unforeseen circumstances (such as the destruction of the existing building on the lot by fire or other calamity).

To further help readers identify all lots, the table also presents the parcel numbers that the EIS has assigned to all of the applicant's parcels and to all other projected and potential development parcels.

Table 1
Tax Lots within the Rezoning Area

Block	Lot	Address	Current Land Use	Site Development Category				Parcel
				Proposed Project	Projected	Potential	Unaffected	
2998	92	East 176 St.	Vacant Lot				×	NA
2998	97	1829 Boone Ave.	Ware/Ind		x			7A
2998	104	1817 Boone Ave.	Ware/Ind		x			7B
2998	113	1801 Boone Ave.	Ware		x			7B
2998	124	1769 Boone Ave.	Ware		x			7B
2998	135	1007 E. 174th St.	Res				×	NA
3007	8	1434 Longfellow Ave.	School				×	NA
3009	25	1006 East 173 St.	Ware/Auto		×			3A
3009	**33**	**1559 Boone Ave.**	**Ware**	**x**				**3B**
3009	37	1549 Boone Ave.	Ware			×		3C
3009	38	1529 Boone Ave.	Ware		×			3D
3009	44	1015 East 172 St.	Ware		×			3E
3010	25	1016 E. 174th St.	Res				×	NA
3010	26	1711 Boone Ave.	Auto		×			5A
3010	29	1701 Boone Ave.	Ware		×			5B
3010	33	1695 Boone Ave.	Ware		×			5C
3010	40	1685 Boone Ave.	Ware		×			5D
3010	46	1661 Boone Ave.	Auto		×			5E
3012	100	1340 West Farms Rd.	Playground				×	NA
3013	1	1021 Boone Ave.	School				x	NA
3013	**12**	**1471 West Farms Rd.**	**Auto/Pkg**	**x**				**1**
3013	**29**	**1493 West Farms Rd.**	**Vacant Bldg**	**x**				**1**
3013	**31**	**1508 Boone Ave.**	**Ware**	**x**				**1**
3013	**35**	**1512 Boone Ave.**	**Ware**	**x**				**1**
3013	**37**	**East 172 St.**	**Vacant**	**x**				**1**
3013	**46**	**1481 West Farms Rd.**	**Vacant Bldg**	**x**				**1**
3014	**9**	**1544 Boone Ave.**	**Pkg**	**x**				**2B**
3014	**15**	**1560 Boone Ave.**	**Ware/Ind**	**x**				**2A**
3014	**45**	**1525 West Farms Rd.**	**Pkg**	**x**				**2B**
3015	1	1015 East 173 St.	Ware		×			4A
3015	3	1680 Boone Ave.	Ware		×			4B
3015	5	1717 West Farms Rd.	Ware		×			4B
3015	17	1704 Boone Ave.	Ware/Ind		×			4C
3015	18	1708 Boone Ave.	Open Stor		×			4C
3015	19	1720 Boone Ave.	Laundromat			×		4D
3015	25	1745 West Farms Rd.	Ware/Whol			×		4E
3015	26	1743 West Farms Rd.	Ware/Whol			×		4E
3015	29	1735 West Farms Rd.	Ware/Whol		×			4C
3015	31	1731 West Farms Rd.	Ware/Whol		×			4C
3015	34	1725 West Farms Rd.	Self Stor			×		4F
3015	49	1029 East 173 St.	Garage				×	NA
3015	50	1760 Boone Ave.	Vacant Lot		×			6A
3015	56	Boone Ave.	Vacant Lot		×			6A
3015	58	1787 Boone Ave.	Garage				×	NA
3015	62	Boone Ave.	Vacant Lot		×			6B
3015	67	1820 Boone Ave.	Auto		×			6C
3015	81	1829 West Farms Rd.	Res			×		6D
3015	83	1825 West Farms Rd.	Auto		×			6C
3015	84	1821 West Farms Rd.	Res		×			6C
3015	85	1819 West Farms Rd.	Auto		×			6C

3015	87	1817 West Farms Rd.	Ware/Ind		×			6B
3015	89	1815 West Farms Rd.	Res/Office		×			6B
3015	95	1783 West Farms Rd.	Auto		×			6E
3015	96	1775 West Farms Rd.	Ware/Ind			×		6F
3015	97	1763 West Farms Rd.	Ware/Ind		×			6G
3015	110	East 174 St.	OpenStor/Pkg		×			6A
3016	5	1898 Longfellow Ave.	Res				×	NA
3016	7	1900 Longfellow Ave.	Res				×	NA
3016	**11**	**Rodman Place**	**Open Stor**	**x**				**8**
3016	**13**	**1905 West Farms Rd.**	**Ware**	**x**				**8**
3016	**21**	**1899 West Farms Rd.**	**Ware**	x				8
3016	33	1916 Longfellow Ave.	Res			×		9A
3016	35	1918 Longfellow Ave.	Res			×		9A
3016	36	1920 Longfellow Ave.	Res			×		9B
3016	37	1924 Longfellow Ave.	Synagogue			×		9B
3016	38	Longfellow Ave.	Pkg		×			9C
3016	42	1962 Boston Rd.	Hotel, Vacant Bldg		×			9C
3016	**60**	**1927 West Farms Rd.**	**Open Stor**	**x**				**9D**
3016	**66**	**1923 West Farms Rd.**	**Open Stor**	**x**				**9D**
3016	71	1295 Rodman Place	Res		×			9E

Legend: Auto=Automotive, Ind=Industrial, Open Stor= Open Storage, Pkg=Parking Res=Residential, Self Stor= Self Storage facility, Ware=Warehouse, Whol= Wholesale
Note: Entries in bold type are under the control of the applicant.
Source: Stantec Consulting

Block 2998, Lots 92, 97, 104, 113, 124, and 135

Current. Block 2998 (Figure 2) is bounded by Vyse Avenue to the west, E. 176th Street to the north, Boone Avenue to the east, and E. 174th Street to the south. Most of it is occupied by the New Horizons Shopping Center. The remaining lots are developed with low-rise apartment buildings or unsigned warehouses or consist of vacant land. Because of the shopping center and accompanying parking lot, Longfellow Avenue and Bryant Avenue are discontinuous between E. 174th Street and the E. 176th Street service road to the Cross Bronx Expressway. The findings for Block 2998 are shown in Table 2 at the end of this discussion.

Historical. Sanborn maps for 2004 and earlier show that Longfellow Avenue was a continuous street between E. 174th Street and the E. 176th Street service road until the shopping center was built around 2004. Sanborn maps from this period also indicate that the area between the E. 176th Street service road and E. 174th Street contained several metal works facilities, including Sheet Metal Works on 1829 Boone Avenue and Universal Fabricators, Inc. (metal works) on 1827 Boone Avenue.

Figure 2
Block 2998

Legend: Red=projected development site, yellow=projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 92 is a vacant lot with overgrown vegetation, a low wall along the intersection of Boone Avenue and the E. 176th Street service road, and a billboard approximately 60 feet high. Prior to construction of the Cross Bronx Expressway in the 1950s, this lot extended farther north. Except for the billboard, no historical development occurred on the existing portion of this lot. Adjacent uses included a milk depot in 1950, which would have involved truck traffic and truck parking. Nearby historical uses also included a garage and a sheet metal works within 150 feet of the lot. These historical uses are associated with petroleum and non-petroleum contaminants.

Lot 97 at 1829-35 Boone Avenue, is improved with a one-story manufacturing building housing Zecca Mirror & Glass, Inc., Fabricators & Installers. It was constructed in 1931. In 1950, this was the site of a milk depot and a garage with a 550-gallon gasoline tank and pump for private use. A sheet metal works shop was adjacent to the lot for much of the past 60 years. Based on these historical uses, the site may contain petroleum and non-petroleum contaminants.

Lot 104 at 1817-27 Boone Avenue, is the site of a one-story brick building, constructed in 1931, that may be in use as a warehouse. It has no signage. The NYC Department of Finance classifies it as an F1 Factory/Industrial use. The Sanborn maps identified the building as a sheet metal works shop for approximately 60 years, through 2007. The 2008 Sanborn map identifies it as a factory. Therefore, the site may contain non-petroleum contaminants. The NYC Department of Buildings shows that two 275-gallon

oil storage tanks were replaced in 1996. Based on this information, and because it is adjacent to a former milk depot and garage that had a 550-gallon gasoline tank, the site also may contain petroleum contaminants.

Lot 113 at 1801-15 Boone Avenue, is the site of an unidentified one-story brick building, constructed in 1931, in use as a warehouse. In 1950, it was the site of Universal Fabricators and Metal Works. In the 1960s or 1970s, it became the Good-O Beverage Company, which was a distribution facility for bottled and canned beverages. Due to its historical use in metal works, the presence of a UST, and its proximity to a site with a fuel storage tank, the site may have petroleum and non-petroleum contamination.

Lot 124 at 1769 Boone Avenue, is an unidentified one-story brick building constructed around 1931 and in use as a warehouse. It is listed as an E1 warehouse use by the NYC Department of Finance. Sanborn maps have identified the use as wholesale hardware since 1977 or earlier. Lot 124 is listed in the regulatory database as having a UST, which indicates potential for petroleum contamination. An adjacent site that formerly housed a metal works could have caused non-petroleum contamination.

Lot 135 at 1007-1009 E. 174th Street, contains a six-story residential building built around 1924. No use prior to 1924 is identified. Although the history of the site does not indicate contamination with hazardous materials, it is within 150 feet of a site with a UST and sites with historical uses for sheet metal works. Therefore, the potential for both PC and NPC exists.

Other lots. Other lots on the block include the shopping center, small public parks, two vacant lots, and low-rise apartment buildings. Available information indicates that historically these lots mostly contained residential uses or were undeveloped.

Table 2
Summary of Past and Present Uses on Block 2998

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites							
92	East 176 St.	Vacant	Former garage and sheet metal works nearby			×	×
97	1829-35 Boone Ave.	Zecca Glass & Mirror	Current factory use; former site of gas tank; former adjacent sheet metal works			×	×
104	1817-27 Boone Ave.	Warehouse	Former sheet metal works; oil storage tanks			×	×
113	1801-15 Boone Ave.	Warehouse	Former sheet metal works; adjacent to site with oil storage tanks	UST		×	×
124	1769 Boone Ave.	Warehouse	UST; adjacent to former sheet metal works	UST		×	×
Unaffected Lots							
135	1007-009 E. 174th St. 1763-65 Boone Ave.	6-story residential	UST and former sheet metal works on sites within 150 ft.			×	×
Adjacent Lots on Same Block (not to be rezoned)							
2	1764 Vyse Ave.	Shopping Center	None Identified				
145	1003-05 E. 174th St.	5-story residential	None Identified				
Remaining Lots on Block (not to be rezoned)							
14	1796 Vyse Ave.	5-story residential	None Identified	AST			
18	1806 Vyse Ave.	5-story residential	None Identified	AST			
20	1828 Vyse Ave.	Vacant	None Identified				
29	1838 Vyse Ave.	6-story residential	None Identified	AST			
32	1848 Vyse Ave.	Vacant	None Identified				
145	1003 E. 174th St.	6-story residential	None Identified				
156	None	Public Park	None Identified				
166	985 E. 174th St.	6-story residential with 1st fl. retail	None Identified	AST			
170	None	Public park	None Identified				
Other Significant Uses within 400 feet							
Block 3015 on the east has history of auto body shops, Dept. of Sanitation garage, and iron works						×	×

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3007, Lot 8

Current. Block 3007, shown in Figure 3, is bounded by West Farms Road to the east, Jennings Street to the north, Longfellow Avenue to the west, and Freeman Street to the south. Intermediate School 84 and its adjacent staff parking lot occupy most of the block, but several residential lots are on the southeast portion of Block 3007.

Historical. Until the late 1960s, when I.S. 84 was constructed, Block 3007 had numerous small lots, most of which were residential. At that time, the northeast corner was separated from the rest of the lot by Boone Avenue, which passed through the lot between Jennings Street and West Farms Road. With the development of the school, that segment of Boone Avenue was demapped, and many small lots were consolidated into Lot 8.

Figure 3
Block 3007

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 8 at 1331-65 West Farms Road, is the site of I.S. 84, which was constructed in 1969. The address also includes 1000-1020 Jennings Street, 1420-1450 Longfellow Avenue, and 1331-1365 West Farms Avenue. The portion of Lot 8 proposed for rezoning was separated from the rest of the block by Boone Avenue until the 1960s; it now contains the school's staff parking lot. The 1950 Sanborn map shows it was the site of a gasoline station with three tanks, several auto repair establishments, and a large private parking garage. These establishments included the addresses for 1000-1020 Jennings Street, 1351-1365 West Farms Road, and 1432-1436 Boone Avenue. Both PC and NPC would be associated with these uses.

The remainder of Lot 8 is not proposed for rezoning. Historically, it was on the other side of Boone Avenue and laid out with numerous small lots by the early 1900s. A large cement block factory was located in the central part of the lot, at 1435 Boone Avenue, in 1915. The 1950 map also shows a sewing machine repair shop at 1439 Boone Avenue and a print shop at 1435 Boone Avenue. Both PC and NPC would be associated with print shop and sewing machine uses.

Other Lots. Lot 7 is an adjacent lot that was developed with a two-family residence around 1910. Lot 36, also an adjacent lot, is developed with a six-story apartment building with first-floor shops around 1927. Prior to 1927, the lot was vacant. The remaining lots on the block were developed between 1910 and 1928. They include a church and residential uses. Although 1410 Longfellow Avenue currently is vacant, its previous use appears to have been residential.

Table 3
Summary of Past and Present Uses on Block 3007

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
NA							
Unaffected Lots (to be rezoned)							
8	1331-1365 W. Farms Road. 1020 Jennings Ave.	I.S. 84 parking lot	Historical gas station, auto repair, and garage uses.	UST		×	×
Adjacent Lots on Same Block (not to be rezoned)							
7	1418 Longfellow Ave.	Residential	None identified				
8	1420-1450Longfellow Ave. 1000-1014 Jennings Ave.	I.S. 84, school parking lot	Historical print shop, cement works, and sewing machine repair	AST		×	×
36	1315-23 W. Farms Rd.	Residential/1st fl. stores	None identified		(1)		
Remaining Lots on Block (not to be rezoned)							
1	999 Freeman St. 1400 Longfellow Ave. 1301-05 W. Farms Rd.	Residential	None identified				
3	1410 Longfellow Ave.	Vacant	Non identified				
4	1412 Longfellow Ave.	Residential	None identified				
6	1414-16 Longfellow Ave.		None identified				
43	1313 W. Farms Rd.	Residential	None identified				
44	1311 W. Farms Rd.	Residential	None identified				
45	1309 W. Farms Rd.	Residential	None identified				
46	1307 W. Farms Rd.	Church/temple	None identified				
Other significant uses within 400 feet							
Blocks 3008, 3012, 3013 have history of automotive and industrial uses.						x	x

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3009, Lots 25, 33, 37, 38, and 44

Current. Block 3009, shown in Figure 4, is bounded by E. 173rd Street to the north, Boone Avenue to the east, E. 172nd Street to the south, and Longfellow Avenue to the west. The eastern lots fronting Boone

Avenue are zoned for industrial and manufacturing uses, while the lots situated on the western half of this block, along Longfellow Avenue, are residential properties.

Historical. Lots for residential use were laid out by 1915. By 1950, the current pattern of residential uses was present. The 1950 Sanborn map shows residences along Longfellow Avenue and garage, auto repair, and cabinet-making uses along Boone Avenue. Subsequent uses included metal can manufacturing. These uses are associated with both PC and NPC.

Figure 4
Block 3009

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 25. Lot 25 at 1006 E. 173rd Street, is improved with a 1-story building constructed around 1931. Its current use as an auto body and repair shop has been present since approximately 1998. Two 550-gallon gasoline USTs are on-site. In 1950 this building was a 140-car garage and repair center. It was subsequently converted to a warehouse until about 1996. On the 1998 through 2007 Sanborn maps, the lot is shown as an auto repair and warehousing facility. The 2008 Sanborn map shows it as a garage. PC and NPC would be associated with the present and historic uses.

Lot 33. Constructed around 1931, the 1-story building at 1551-59 Boone Avenue is a storage warehouse for an active meat processing facility located across the street at 1560 Boone Avenue. Based on field observations, this location appears to house packaging materials. In 1950, it was a business garage with a 550-gallon underground storage tank. The tank appears on Sanborn maps through 1979.

This property is controlled by the applicant. In 2008, AKRF prepared a Phase I ESA for this lot. The Phase I report noted that no closure documentation was available for the 550-gallon tank and recommended a Phase II investigation. AKRF's Phase II study, completed in 2008, carried out soil borings at three locations (SB-6, 7, and 8) and groundwater sampling at one location (GW-3). AKRF found trichloroethene, tetrachloroethene, and cis-1,2-dichlorethene in GW-3 at concentrations above the Class GA standards indicating "on-site solvent use or more likely area groundwater quality. Such concentrations of SVOCs and metals in groundwater "were typical of groundwater quality in NYC and not indicative of a release or spill." Low levels of SVOCs and metals were found in soil samples and were attributed to urban fill. AKRF found no evidence of petroleum-contaminated soils, but stated that such contamination may be present in areas not tested.

AKRF's recommendations, if redevelopment is planned, included testing of soil and other materials intended for offsite disposal in accordance with the intended receiving facilities as well as preparation of a construction health and safety plan (CHASP).

Lot 37 at 1549 Boone Avenue is the location of Coastal Restoration Group, Inc., a waterproofing contractor business. The building was constructed around 1931, and the Sanborn map for 1950 shows that an iron works use was formerly located in the building. For this reason, and because it is adjacent to a building that housed a 550-gallon gasoline tank, both PC and NPC could be present.

Lot 38 at 1529 Boone Avenue is currently the location of a warehouse, constructed in 1931, with no signage indicating the current tenant. The Sanborn map for 1950 shows the building on this lot contained a manufacturer of wood and metal cabinetry. A CO for 1955 indicates that it was a factory. It is adjacent to a lot that formerly had a 550-gallon gasoline tank. Based on these historical uses, both PC and NPC could be present.

Lot 44. The 1-story building at 1521-27 Boone Avenue was constructed in 1931. In 1950 it was a private taxi garage with two 550-gallon gasoline USTs. A CO for 1955 shows the building was altered for use as a factory, which is consistent with the 1977-2008 Sanborn maps showing that the building housed a metal can manufacturer. These historical uses could generate both PC and NPC.

Other lots. All other lots on Block 3009 are located along Longfellow Avenue and are zoned residential. They have two-story two-family houses with the exception of Lot 8, which is the location of a two-story synagogue. Although some lots have been developed or redeveloped within the past ten years, all previous uses were residential.

Table 4
Summary of Past and Present Uses on Block 3009

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Proposed Project and Projected and Potential Development Sites (to be rezoned)							
25	1006 E. 173rd St. 1563 Boone Ave.	Auto Body/ Mechanic Center	Auto repair, former garage	UST		×	×
33	1551-59 Boone Ave.	PRG Packing Corp. and Prime Food Distributors warehouse	Former 550-gallon gasoline tank; adjacent to auto repair and former iron works; former cabinet manufacturer within 100 feet. Phase II found SVOCs in soils and SVOCs and metals in groundwater	UST		×	×
37	1549 Boone Ave.	Coastal Restoration Group Inc. warehouse	Former iron works; adjacent to building with former 550-gallon gasoline tank; adjacent to former cabinet manufacturer.			×	×
38	1529 Boone Ave.	Warehouse	Former cabinet manufacturer; adjacent to lot with two 550-gallon USTs			×	×
44	1521-27 Boone Ave. 1015 E. 172nd St.	Warehouse	Former taxi garage with two 550-gallon USTs, former metal can manufacturer	UST		×	×
Unaffected Lots (to be rezoned)							
NA							
Adjacent Lots on Same Block (not to be rezoned)							
1-7	1524-36 Longfellow Ave. 1001 E. 172nd St.	2-story residential	None Identified				
8	1538 Longfellow Ave.	Synagogue	None Identified				
9-13	1540-46 Longfellow Ave	2-story residential	None identified				
113-123	1548-1580 Longfellow Ave.	2-story residential	None Identified				
Remaining Lots on Block							
NA							
Other Significant uses within 400 feet							
Block 3013, Block 3014, Block 3010, Block 3015 and Block 3018 have a history of auto-oriented and industrial uses.						×	×

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3010, Lots 25, 26, 29, 33, 40, and 46

Current. Block 3010 is bounded by E. 174th Street to the north, Boone Avenue to the east, E. 173rd Street to the south, and Longfellow Avenue to the west. Land uses along Longfellow Avenue are residential while the land uses along Boone Avenue are industrial and auto-oriented. The lot numbers are shown in Figure 5.

Figure 5
Block 3010

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Historical. The block was developed in the 1920s and has a history of garage and manufacturing uses along Boone Avenue, but the land uses along Longfellow Avenue have been residential.

Lot 25. Lot 25 at 1016 E. 174th Street is improved with a 5-story residential building constructed around 1924. No non-residential uses were identified for this lot. However, adjacent uses included auto repair and factory uses, which could be sources of PC and NPC.

Lot 26. Lot 26 at 1711 Boone Avenue contains a one-story commercial structure that is occupied by the Boone Auto Body and Fender Repair Shop. According to information available on the NYC Open Accessible Space Information System, it was built in 1924. This information conflicts with the 1950 Sanborn map, which shows the lot as vacant. The 1977 Sanborn map shows an auto repair facility operating on a portion of this lot. A second building was added in the 1980s, and it also became an auto repair facility. In 1997, a 275-gallon AST for oil was installed. The presence of the tank and the site's use as an automotive repair facility is a potential source of contamination for both petroleum and non-petroleum compounds.

Lot 29. Lot 29, at 1701 Boone Avenue is improved with a one-story structure built in 1931. The NYC Department of Finance currently classifies this structure as a garage/gas station. However, the windows have been bricked over, and it appears to be in use as a warehouse. A 1950 Sanborn map shows the

building was a garage with two 550-gallon gasoline tanks. It appears as a manufacturing use on Sanborn maps after 1950, and a CO shows the building was a factory in 1956. From 1994 through 2007 the Sanborn maps show it was owned by Imperial Damper & Louver. That firm's address currently is 4228-38 Park Avenue in the Bronx, and the current occupancy of the building is unknown. Based on the gasoline tanks and factory uses, it may be contaminated with PC and NPC.

Lot 33. 1695 Boone Avenue is the location of a one-story building, built in 1931, currently used as a warehouse. The 1950 Sanborn map shows this building as a private garage, owned by R.C.A. Service Co., Inc., with two gasoline tanks near the southern corner. According to the Sanborn maps, the lot was occupied by Windor Security Systems from 1977 through 1986. Subsequent Sanborns simply show it as a manufacturing use. Based on the former gasoline tanks and unidentified manufacturing uses, the site may have both PC and NPC.

Lot 40 at 1685 Boone Avenue has a one-story building that was constructed around 1950. This building is currently a warehouse. On the 1950 Sanborn map, it is listed as a garage, and it had two gasoline tanks near the northern corner. COs for 1959 and 1961 show the use as a factory. No specific use for the building is shown on Sanborn maps for 1977 and later. Based on the former uses, it may have both PC and NPC.

Lot 46.at 1661 Boone Avenue is improved with a two-story building constructed in 1931. Currently, it houses a General Mechanic/N.Y.S. Inspection auto repair facility. The 1950 Sanborn Map shows this was the location of Finkel Umbrella Frame Company, Inc., which manufactured outdoor products. By 1998 the building had been converted to auto repair uses. The site's former uses are a potential source of contamination with both PC and NPC.

Other lots. All other lots located on Block 3010 are zoned residential excluding Lot 23, which is the site of a church. All the residential lots are either five-story or six-story apartment buildings, except that the residences on Lots 1 and 2 are two-family dwellings constructed in 1996 on lots formerly used for parking. The uses on Lots 4, 12, and 17 are six-story apartment buildings constructed in 1928 and 1929. Lot 21 contains a 5-story apartment building constructed in 1915. Lot 23 contains a church constructed in 1915. No industrial or auto-oriented uses were found for these lots.

Table 5
Summary of Past and Present Uses on Block 3010

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
26	1711 Boone Ave.	Boone Auto Body	Auto repair	AST		×	×
29	1701-09 Boone Ave.	Warehouse	Former gasoline tanks, former factory, adjacent to auto repair	UST		×	×
33	1695 Boone Ave.	1-story manufacturing	Former gasoline tanks; unidentified manufacturing use	UST		×	×
40	1685 Boone Ave.	Warehouse	Former gasoline tanks; former factory; adjacent to auto repair	UST		×	×
46	1661 Boone Ave 1011 E. 173rd St..	General Mechanic/NYS Inspection	Auto body / inspection center; former manufacturing use			×	×
Unaffected Lots (to be rezoned)							
25	1016 E. 174th St.	5-story residential	Adjacent to auto repair and former factory uses			×	×
Adjacent Lots on Same Block (not to be rezoned)							
1, 2	1660-64 Longfellow Ave.	2-story residential	None identified				
4	1670 Longfellow Ave.	6-story residential	None identified				
12	1690 Longfellow Ave.	6-story residential	None Identified				
17	1700 Longfellow Ave.	6-story residential	None Identified				
21	1712 Longfellow Ave.	5-story residential	None identified				
23	1012-14 E. 174th St..	Church/synagogue	None identified				
Remaining Lots on Block (not to be rezoned)							
NA							
Other Significant Uses within 400 feet							
Block 3015 south, Block 2998, and Block 3009 are associated with auto repair and industrial uses.						×	×

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3012, Lot 100

Current. Block 3012 is a triangular-shaped property bounded by West Farms Road on the north, Boone Avenue on the west, and an exit ramp from the Sheridan Expressway (I-895) on the east (see Figure 6). Lot 100, which is the only lot on the block, is the Boone Playground.

Historical. The block was laid out with development lots in 1901. At that time, it was larger and bordered on the east by Edgewater Road. The construction of the Arthur V. Sheridan Expressway (I-895) between 1958 and 1962 resulted in the realignment of Edgewater Road towards the east and the loss of the eastern part of Block 3012.

Figure 6
Block 3012

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 100, the only block on the lot, is the Daniel Boone Playground. The northern half is a paved playground, and the southern half is a grassy area with benches. By 1915, the northern half of Lot 100 was developed with single family homes, and the southern portion of the lot had a group of buildings identified as manufacturing of poles, ladders, and portable buildings. The Olin J. Stephens coal and lumber yard across the street included a 250-gallon underground gasoline tank as well as a garage for repairs.

By 1950, the northern tip of the lot was developed with a gasoline station with three 550-gallon buried gasoline tanks, while the southern half of Lot 100 had two large warehouses –- one for wine, the other furniture –- and a contractor's garage. The coal yard across the street had been replaced by a manufacturer of concrete slabs, a filling station with three gasoline tanks, and an auto repair shop.

Lot 100 was reduced in size and cleared of development during construction of I-895. The Daniel Boone Playground opened in 1963. The building across the street housing a concrete slab manufacturer also was diminished in size and evolved into its present use as an auto parts warehouse and yard. The auto repair shop across the street remains, but the filling station has become a used car lot. The presence of auto-oriented and industrial uses on or adjacent to Lot 100 could be a source of PC and NPC on the site.

Other lots. No other lots are on the block. Block 3006 on the other side of Boone Avenue has a history of residential uses. The portion of Block 3007 that is adjacent on the north has a history of filling station and auto repair uses.

Table 6
Summary of Past and Present Uses on Block 3012

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
NA							
Unaffected Lots (to be rezoned)							
100	1340 W. Farms Rd. 1328-58 Boone Avenue	Daniel Boone Playground	Former gas station and manufacturing uses; nearby auto repair, former filling station, coal yard, and manufacturing uses	UST		×	×
Adjacent Lots on Same Block (not to be rezoned)							
N/A							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
Block 3007 and Block 3017 have a history of auto-oriented and industrial uses.						×	×

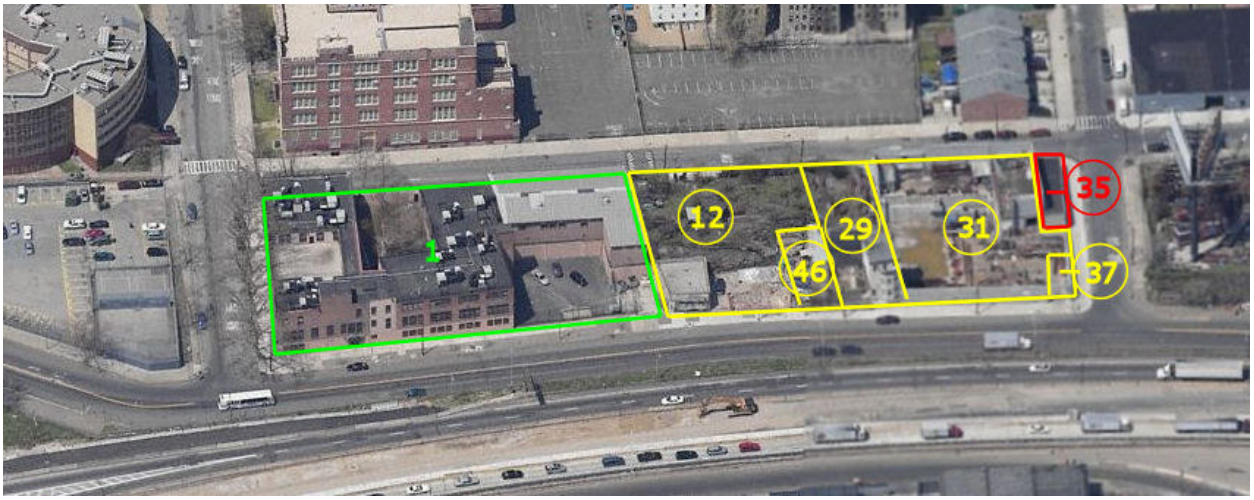
UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3013, Lots 1, 12, 29, 31, 35, 37 and 46

Current. Block 3013 is bounded by E. 172nd Street to the north, West Farms Road to the east, Jennings Street to the south, and Boone Avenue to the west. It includes Lots 1, 12, 29, 31, 35, 37, and 46, as shown in Figure 7. These lots house a school, auto-oriented uses, warehousing, and vacant residential uses. The Arthur V. Sheridan Expressway and Edgewater Road also lie east of the block.

Historical. Originally, this block was larger. The construction of Interstate 895 in the 1950s and 1960s resulted in a realignment of West Farms Road and removal of the northeastern corner of the block for development of the roadway right-of-way. Uses on this block that may have contributed to contamination with hazardous materials include auto repair centers and an auto junk yard. Historical uses on Block 3017/3018 on the other side of the Interstate 895 have included a Union Railway power house and coal yard (1896-1901), a Union Railway garage and store and a building materials yard (1915), paint shop and bus repair buildings (1950), and an iron works (1977 to present).

Figure 7
Block 3013



Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 1, at 1021 Jennings Street, contains three buildings that house the Fannie Lou Hamer Freedom High School. Originally, the site was developed in 1924 with a building labeled Altro Work Shops, a sheltered workshop where workers sewed uniforms. Two more buildings were added by 1977. Altro remained until the mid-1980s, after which the site's use is unidentified until 1985, when the buildings were converted into the high school. Land uses on the other side of West Farms Road included a manufacturer of plastic castings in 1950, which was subsequently replaced by a welding and boiler repair establishment. Because Lot 1 is adjacent to an automotive repair facility, as well as two former gas stations, it may have been contaminated with PC and NPC.

Lot 12, 1471 West Farms Road, currently is the site for an auto junk yard along with an auto/electrical repair center. The one-story building was built in 1964. Sanborn maps indicate that a gas station was present until 2002. The site's historical uses as a gas station and automotive repair facility are a potential source of contamination with both petroleum and non-petroleum compounds.

This property is controlled by the applicant. A Phase I ESA was prepared by Impact Environmental on January 25, 2007. The Phase I report noted a closed UST spill in 2003, stains indicative of disposal of chemicals via the bathroom plumbing, and a lack of documentation for the former filling station use. In the event of site redevelopment, the firm recommended ground-penetrating radar to determine whether underground structures were present as well as a limited subsurface investigation to determine whether contaminants from previous uses were present.

Suspect friable asbestos was observed in the building. Impact Environmental recommended a full asbestos survey, disposal and abatement of asbestos according to applicable rules and regulations, and an Operations and Maintenance (O&M) Plan to manage remaining asbestos containing materials.

In addition, debris on the site should be removed and disposed of according to NYS solid waste regulations (6NYCRR Part 360). The heavy disposal of fluorescent bulbs on the site also was noted. Impact Environmental recommended that the bulbs be disposed of in accordance with applicable rules and regulations.

On February 1, 2007, Impact Environmental prepared a Phase II ESA. Analysis of data from ground-penetrating radar did not indicate the presence of underground storage tanks. Fifteen soil probes were carried out. Samples from one location showed hydrocarbons present above ambient levels as well as concentrations of several target volatile organic compounds above the NYSDEC TAGM (Technical and Administrative Guidance Memorandum) Recommended Soil Cleanup Objectives. Samples from two other locations showed concentrations of semi-volatile organics above the NYSDEC TAGMs. Concentrations of heavy metals above the NYSDEC TAGMS were identified in samples from several other locations.

Impact Environmental concluded that the property at 1471 West Farms Road had been impacted by former on-site activities. The 2003 UST spill was remediated sufficiently to protect against human exposure issues and a "no further action" letter was issued in 2003. Elevated concentrations of soil contaminants associated with gasoline were not sufficient to pose an exposure threat and did not warrant immediate remediation or notification to NYSDEC. However, the impacted soil is a regulated waste in New York, and Impact Environmental noted that it would have to be excavated, handled, transported, and disposed of in accordance with a Waste Material Handling Plan.

Lot 29 is 1493 West Farms Road. A three-story residential building with attached one- and two-story residences, constructed in 1901, appears to be vacant. Although the lot's use has been residential since 1901, it is adjacent to a former iron works site, and it is 100 feet from auto repair uses and a former gasoline station. Therefore, it could be contaminated with both PC and NPC.

This property is controlled by the applicant. A Phase I ESA was prepared by Impact Environmental on January 25, 2007. The Phase I report noted suspect friable asbestos in the building and recommended: 1) that the materials be disposed of in accordance with applicable rules and regulations, 2) that an O&M Plan be implemented to manage remaining asbestos containing materials, and 3) that damaged areas be properly abated. In addition, debris on the site should be removed and disposed of according to NYS solid regulations (6NYCRR Part 360).

Lot 31. The address of this lot is 1508 Boone Avenue, although the lot also covers 1506 Boone Avenue and 1499 and 1501 West Farms Road. In 1901, this large lot was developed with unidentified two-story buildings, several residences, and a moulding mill. By 1927, the lumber mill had become the Listco Iron Works, and it was known as the West Farms Iron Works in 1940. The iron works expanded to cover most of the remaining lot after construction of Interstate 895 in the late 1950s and early 1960s. In the 1990s, the iron works facility was demolished, and the northwestern corner of the lot became an auto repair establishment. Sanborn maps through 2007 continue to show auto repair uses on the site. According to the

applicant, this site is used for tow truck parking for the tow pound on Block 3014, Lot 9. The site's current and previous uses are a source of concern for both petroleum and non-petroleum compounds.

This lot is controlled by the applicant. Impact Environmental prepared a Phase I ESA for this lot on January 25, 2007 and identified the use as steel manufacturing. Impact Environmental found evidence of chemical staining on the ground surfaces, heavy chemical storage, poor housekeeping practices with regard to on-site containers of unidentified chemicals, and two drains in the location of the former auto body shop. A subsurface investigation was recommended. The Phase II investigation, completed February 1, 2007, found inorganic metal analytes in the subsurface soils at concentrations above regional background levels. However, they appeared to be typical of urban fill and not a result of on-site operations. The recommendation was that impacted soil be removed and disposed of in accordance with a Waste Material Handling Plan.

Lot 35 is 1512 Boone Avenue, a small lot on the northwestern corner of the block. The lot was vacant until 1954, when the current brick commercial building was constructed. The field survey revealed that the structure is a small one-story warehouse included as part of the tow truck uses on Lot 31 immediately adjacent to the south and east. Based on the site's historic uses and the prior auto repair uses on Lot 31, it may contain PCs and NPCs.

This lot is controlled by the applicant. RND Services, Inc. prepared a Phase I ESA for this lot in March 2010. RND found that the building was used as a store in 1954, an eating and drinking establishment with a fuel oil storage tank in 1967, and a metal finishing, polishing, and clean shop in 1974. Although it has not been used for two years, the building still houses the machinists and steel fabricating equipment. The presence of the equipment and other materials interfered with a full inspection of the interior. An additional attached brick storage building contains various types of steel, building materials, and wood. RND reviewed the regulatory data bases and found an entry for a leaking underground storage tank that had not been closed. It was 0.35 miles from the lot at an equal or higher elevation, indicating the possibility of contaminant plume migration.

RND's recommendations included re-inspection of the floor to identify the presence of USTs after the debris and machinery has been removed from the building,, proper disposal of any fluorescent fixtures with ballasts containing PCBs, a survey for asbestos containing material on the roof, and testing for lead paint and lead pipes.

Lot 37. This lot, which is on the northeastern corner of the block, does not have an address and is part of the property used for tow truck parking on Lot 31. Currently, it is enclosed within a 20-foot high concrete wall that encloses much of Lot 31. Historical Sanborn maps show the lot as undeveloped from 1891 through 2007. However, aerial photos on the Internet indicate that it is paved and used for parking. Because it is used for truck parking, and may have been associated with the historical auto repair uses on Lot 31, PCs and NPCs are a source of concern.

This lot is controlled by the applicant. Impact Environmental prepared a Phase I report on January 25, 2007 and a Phase II report on February 1, 2007. The site is included with the discussion of Lot 31 (1508 Boone Avenue). Based on these reports, the site may have soil contaminants typical of urban fill. Impact

Environmental recommended that the soil should be removed and disposed of in accordance with a Waste Material Handling Plan.

Lot 46. 1481 West Farms Road is currently improved with a two-story vacant residential building. Sanborn maps show that this lot has been in residential use since 1896 or earlier, although the current structure was built around 1910. Since it is adjacent to a former iron works, it may be contaminated with PCs and NPCs.

This lot is controlled by the applicant. Impact Environmental prepared a Phase I report on January 25, 2007 and a Phase II report on February 1, 2007. Based on these reports, the site may have soil contaminants typical of urban fill. Impact Environmental recommended that the soil should be removed and disposed of in accordance with a Waste Material Handling Plan.

Other lots. There are no other lots on this block.

Table 7
Summary of Past and Present Uses on Block 3013

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
1	1021 Jennings St. 1452 Boone Ave. 1401 W. Farms Rd.	High school	Adjacent to auto repair and two former gasoline stations			×	×
12	1471 W. Farms Rd.	Auto Junk Yard	Automotive repair; former gas station; Phase II found gasoline compounds in soil	UST	(1)	×	
29	1493 West Farms Rd.	3-story residential (vacant)	Adjacent to former iron works; former gas station and auto uses within 100 ft.			×	×
31	1508 Boone Ave. 1501 W. Farms Rd.	Salvage yard	Auto repair; Phase II found inorganics typical of urban fill			×	×
35	1512 Boone Ave.	Salvage yard	Auto repair		(1)	×	×
37	E. 172nd St.	Salvage yard	Auto repair			×	×
46	1481 W. Farms Rd.	2-story residential (vacant)	Adjacent to former iron works			×	×
Unaffected Lots (to be rezoned)							
NA							
Adjacent Lots on Same Block (not to be rezoned)							
NA							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
Block 3007 and Block 3017 have a history of auto-oriented and industrial uses.							

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3014, Lots 9, 15, and 45

Current. Block 3014 is bounded by E. 173rd Street, Boone Avenue, E. 172nd Street, and West Farms Road on the north, west, south, and east sides respectively. Figure 8 shows the block and lots. Current uses on the block include an auto storage/tow pound and a meat packing warehouse.

Historical. The block was sparsely developed with residences in 1896. Between 1915 and 1950, the residences were replaced by industrial uses on the northern half and vacant land used primarily for parking on the southern half. Originally, the block was larger, but the realignment of West Farms Road for the construction of Interstate 895 resulted in the loss of much of the eastern portion of the block. Historical land uses on the block include auto-oriented and manufacturing uses.

Figure 8
Block 3014

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 9 at 1544 Boone Avenue is currently the site of J&S Recovery and Storage Corp., a tow pound lot. Sanborn maps from 1950 show a 50-car garage with a 550 gallon gasoline UST. In 1986 the garage building was razed and a warehouse was constructed. The UST appears to have been removed as well. Subsequent Sanborn maps show the lot as outdoor parking space with no buildings, but portions of the warehouse building remain. Potential contaminants from the former garage and auto-oriented uses, as well as manufacturing uses on adjacent lots, may include both PCs and NPCs.

This property is controlled by the applicant. Impact Environmental prepared a Phase I ESA on June 12, 2006. The Phase I report noted nine fill/vent pipes next to the foundation of the old warehouse and the lack of documentation for the gasoline USTs and recommended ground penetrating radar to determine if USTs were still present. A subsurface investigation also was recommended. The Phase II investigation found gasoline compounds in the soil near the former warehouse in the northwestern portion of the site and in the area to the east and southeast of the USTs. USTs had been abandoned on-site. Impact Environmental recommended that the findings be reported to NYSDEC as a spill and that additional investigation and remediation activities be carried out. Other areas of the site were found to have heavy metals above the NYSDEC TAGMs and inorganic metal analytes above background levels. Both were typical of urban fill and these soils should be excavated and disposed of in accordance with a Waste Material Handling Plan.

Lot 15, 1560 Boone Avenue, is currently the site of Ferris, Stahl-Meyer Packing Corp., a meat packaging facility. Developed with residential uses prior to 1896, it became the site of both Plymouth Rock Provision Factory and Ace Ice Cream Cabinet Co., a metal and wood cabinet manufacturer, around 1950. An enamel spray room and an enamel oven were present. By 1977, Plymouth Rock had expanded and taken over most of the block, including the former cabinet company. The presence of a smoke house and cold room indicates that Plymouth was a meat processing facility. These current and former uses could be a source of PC and NPC.

This property is controlled by the applicant. AKRF prepared a Phase I ESA and Phase II Subsurface Investigation in May 2008. The Phase I ESA found that a 10,000-gallon AST of No. 4 oil in the basement had been associated with several spills. Following a tank failure in 2003, it was removed and the impacted area was remediated. A groundwater monitoring program had been implemented for about one year, the spill incident was closed in July 2005, and NYSDEC issued a decision of No Further Action. A temporary 1,000-gallon tank of No. 2 oil in the basement boiler room showed staining around the tank and hoses, and a floor drain in this room also showed evidence of staining. The existence of open spill incidents at the nearby NYC DOS garage was a source of concern, as was the proximity of the Adhesive Products Corporation at 1660 Boone Avenue. In addition, a former manufactured gas plant had been located 600 feet to the east. Damaged suspect asbestos material was also observed. A subsurface investigation was recommended.

The Phase II investigation found one soil sample that was elevated for SVOCs, but that this was likely due to urban fill. Groundwater sampling at various locations identified elevated levels of gasoline contaminants, three solvents, SVOCs, and metals, all of which were most likely indicative of area groundwater quality. AKRF noted that other contamination could be present at locations not sampled. The firm recommended that all soil and other materials intended for off-site disposal should be tested and disposed of in accordance with federal, state, and local requirements, and that a Construction Health and Safety Plan be prepared prior to soil disturbance.

Lot 45 does not have an address. It is a small wedge in Lot 9's frontage on West Farms Road. The lot is vacant and contains a rocky formation and shrubbery. Due to its topography, this lot was never developed. It appears to be a vestige of a former lot that was taken when West Farms Road was realigned during the construction of Interstate 895. Since the lot is virtually part of Lot 9, any potential groundwater contamination on Lot 9 would also apply to Lot 45. Therefore, it may be associated with PCs and NPCs.

Table 8
Summary of Past and Present Uses on Block 3014

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
9	1544 Boone Ave.	J&S Recovery & Storage tow pound	Former garage; adjacent to mfg. uses; Phase II found USTs, petroleum compounds, and heavy metals	UST		×	×
15	1552-62 Boone Ave. 1565-71 W. Farms Rd. 1010-30 E. 173rd St.	Meat processing	Meat processing; former cabinet mfg.; adjacent auto repair uses; Phase II found contaminants typical of urban fill and area groundwater			×	×
45	None Listed	Vacant	Adjacent to lot with former garage			×	×
Unaffected Lots (to be rezoned)							
NA							
Adjacent Lots on Same Block (not to be rezoned)							
NA							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
NA							

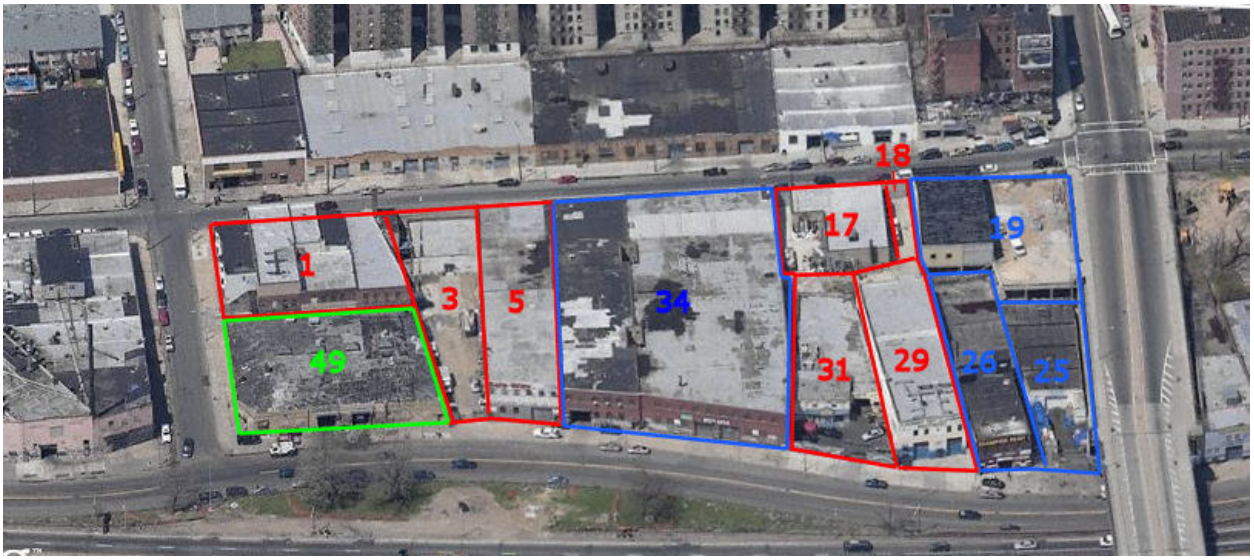
UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3015 (south), Lots 1, 3, 5, 17-19, 25, 26, 29, 31, 34, and 49

Current. Block 3015 is bisected by E. 174th Street which runs from east to west, creating two physical blocks. Boone Avenue forms the western boundary, E. 173rd Street is the southern boundary, West Farms Road is the eastern boundary, and the Cross Bronx Expressway (Interstate 95) is the northern border of the tax block, and E. 174th Street is the northern boundary of the southern physical block. The southern and northern halves of the block are discussed separately. Figure 9 shows the southern portion. Significant land uses on the southern block include an NYC Department of Sanitation garage, auto repair shops, a paint manufacturer, and a laundromat.

Historical. The majority of this block has been used for factory, auto servicing, and manufacturing purposes. It was developed between 1915 and 1950. Originally, East 174th Street ended at Boone Avenue. Between 1896 and 1901, it was extended to West Farms Road, thereby dividing Block 3015 into northern and southern sections.

Figure 9
Block 3015 (south)



Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 1, on the southwestern corner of the block, is known as 1015 E. 173rd Street and 1660 Boone Avenue. Current uses include a two-story office building and an unsigned warehouse. Sanborn maps from 1950 show that this was the location of Adhesive Products Corp., a manufacturer of adhesive coatings and related products. Rubber cement was located in drums in the plant. In 1994 the lot was converted into a warehouse. Potential contamination from rubber cement and other by-products from adhesive manufacturing is a concern for PC and NPC. A chemical spill incident of toluene on 6/9/1992 was closed on 3/21/2001 following tank removal and remediation. Several other tanks of chemicals and leaded gasoline were removed or closed in-place. Their former presence could be a source of PC and NPC.

Lot 3. The one-story building at 1680 Boone Avenue was built in 1947. It appears to be a warehouse with a parking area that is accessible from West Farms Road. On the 1950 Sanborn maps, the building was used for mixing rubber cement. It was most likely associated with Adhesive Products Corp., as this use disappeared along with the company that inhabited the neighboring lot (Lot 1) around the same time. Potential contamination from rubber cement and other by-products from adhesive manufacturing, as well as the presence of chemical and gasoline USTs at adjacent Lots 1 and 49, are a source of concern for PC and NPC.

Lot 5 is 1717 West Farms Road. Currently, a two-story building runs the length of the lot from Boone Avenue to West Farms Road. Although the Sanborn maps show the building as office and warehouse uses, the portion of this building facing West Farms Road has signage indicating that its occupant is Muffler City Plus. The building was constructed in 1953. In 1950, several unidentified storage buildings

were on the lot. Its proximity to the rubber cement manufacturing on Lot 3 and to the gasoline UST on Lot 49 are a source of concern for PC and NPC.

Lot 17 at 1704 Boone Avenue is currently a one-story warehouse. Although the NYC Open Accessible Space Information system indicates the building was constructed in 1911, this conflicts with a Sanborn map showing the lot as vacant in 1950. A CO for the building indicates it was constructed as a factory in 1958 and had spray booths. The site's proximity to automotive repair and former gas stations uses on Lots 18 and 19, and its former use as a factory, indicate potential for contamination with both petroleum and non-petroleum compounds.

Lot 18 at 1708 Boone Avenue is a narrow vacant lot used as a driveway for vehicles accessing the rear of the building on Lot 29. Sanborn maps for 1950 show this lot was part of a larger lot that was improved with a one-story building. Its current use has been present since approximately 1962. Surrounded by the historical automotive uses on Lots 17, 19, and 29, Lot 18 could have been contaminated with both PC and NPC.

Lot 19 at 1720 Boone Avenue has been the site of a laundromat since about 2004. Sanborn maps for 1915 show a residential building on the property. Around 1958, the site was developed as a Getty gas station that also provided minor auto repairs. In 2003, the site and building were redeveloped for the current use. Potential contaminants from auto-oriented uses on Lot 19 and adjacent Lots 25, 26, and 29 may include both PC and NPC.

Lot 25 at 1745 West Farms Road is occupied by Trevil, a laundry equipment and supplies establishment. A metal gate structure at the front of the lot also shows signage for Mega Windows and Doors. Sanborn maps show a two-story building in 1896 that was replaced by a three-story building in 1901 after E. 174th Street bisected the block. By 1950, the building had been replaced by a junk yard with a storage facility and auto repair uses. In 1954, these uses were replaced with a large garage erected adjacent to the gas station on Lot 19 at the corner of W. 174th Street and Boone Avenue. In addition to vehicular storage, the CO for the garage permitted minor automotive repairs associated with the building on the adjoining lot. The 2005 Sanborn map shows that the garage was owned by the Diamond Syrup Company despite the fact that the syrup company had apparently vacated the factory next door. The site's former use as an automotive repair facility in the past, as well as its location adjacent to a former gas station, is a potential source of contamination with both petroleum and non-petroleum compounds.

Lot 26 at 1743 West Farms Road is occupied by Champion Paint Manufacturing. A two-story home erected in the 1800s was replaced by a two-story commercial building around 1931. A Sanborn map for 1950 shows that the Diamond Syrup Company occupied the front of this building, and a garage with a 550-gasoline tank was in the rear of the building. Diamond Syrup apparently vacated the site by 1993 (but was shown as the owner of an adjacent garage on subsequent Sanborn maps through 2007). The gasoline tank and manufacturing uses indicate the lot could be contaminated with both PC and NPC.

Lot 29 at 1735 West Farms Road is the site of Ace Windows and Doors, a retailer. A residential use in the 1890s was replaced by an iron works around 1915. Sanborn maps indicate that in 1977 the building was being used as a warehouse. In 1979 the warehouse was the site of an auto repair facility. By 1993 the auto repair use was replaced with commercial offices within the warehouse. Internet sources also show

DASO Cleaning and Restoration (aka East Coast Fire and Water Restoration), located at this address. However, the site visit in 2009 indicated that the second floor of the building was available for rent, so DASO is no longer present. The site's past uses as an iron works and an automotive repair facility are potential sources of contamination with both petroleum and non-petroleum compounds.

Lot 31. The building at 1731-33 West Farms Road is the location of ASN Laundry Corp, a commercial laundry machine parts retailer. A two- and three-story building was constructed in the front of the lot in the1800s. The 1950 Sanborn map shows that a large marble shop had been constructed at the rear of the lot. The original building in the front was demolished in the 1950s or 1960s. Between 1986 and 1989 the marble shop building was converted to a machinery shop. Maps from 1998 through 2007 show the site being used as simply a commercial use. This lot's former use as a machine shop and its proximity to current and past factory and auto repair uses on Lots 17, 29, 34 indicate potential contamination with PC and NPC.

Lot 34 at 1725 West Farms Road is the location of Secure Self-Storage, a mini storage facility for consumers. Between the 1890s and approximately 1950, the site was used for a two-family home. The home was converted to storage uses by 1950, and additional buildings were constructed at the rear of the lot. The current building covering the entire lot was constructed in 1963 and is shown as a factory on the 1977 through 2007 Sanborn maps. Because the building formerly housed a factory use and is adjacent to auto repair and former factory and machine shop uses on Lots 5, 17 and 31, it may be contaminated with PC and NPC.

Lot 49 at 1029 173rd Street is the location of an NYC Department of Sanitation garage and warehouse. Several unidentified buildings were on the site in the 1890s. The current building was constructed in the 1920s and is shown on the 1950 Sanborn map as a garage and repair facility, with a vehicle capacity of 120 cars and a 1,000 gallon gasoline tank buried beneath the lot. Building renovation in 1964 may indicate the site's acquisition by NYC. Based on the gasoline tank and vehicular repair uses, as well as its proximity to the chemical and gasoline tanks on Lots 1 and 3, it may be contaminated with PC and NPC.

Other lots. There are no other lots on this physical block.

Table 9
Summary of Past and Present Uses on Block 3015 (south)

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
1	1015-21 E. 173rd St. 1660 Boone Ave.	Warehouse	Former adhesives manufacturing; former chemical and gasoline USTs	UST	(1)	×	×
3	1680 Boone Ave.	Warehouse	Former adhesives manufacturing, adjacent to lot with chemical and gasoline USTs			×	×
5	1717 W. Farms Rd.	Muffler City Auto Repair	Auto repair; former factory			x	x
17	1704 Boone Ave.	Warehouse	Adjacent to rubber cement manufacturing; close to garage with 1,000-gallon UST			×	×
18	1708 Boone Ave.	Open storage and driveway	Adjacent to auto repair uses and a former factory			x	x
19	1712 -20 Boone Ave. 1020-26 E. 174th St.	Laundromat	Former gas station and auto repair; adjacent to auto repair uses	UST		x	x
25	1745 W. Farms Rd.	Warehouse/wholesale	Former garage and auto repair; adjacent to former gas station			x	x
26	1743 W. Farms Rd.	Paint manufacturer.	Paint manufacturer, former gasoline tank	UST		x	x
29	1735 W. Farms Rd.	Warehouse/wholesale	Former iron works and auto repair			x	x
31	1731-33 W. Farms Rd.	Warehouse/wholesale	Former machine shop, adjacent to former auto repair, factory, and iron works uses			x	x
34	1725 W. Farms Rd.	Self storage	Former factory; adjacent to muffler repair and former machine shop			x	x
Unaffected Lots (to be rezoned)							
49	1661-1715 W. Farms Rd. 1029 E. 173rd St.	NYC Dept. of Sanitation Garage	Gasoline tank; adjacent to Lots 1 and 3, which had chemical and gasoline tanks	AST		x	x
Adjacent Lots on Same Block (not to be rezoned)							
NA							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
NA	Bronx Land Trust	ROW					

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3015 (north), Lots 50, 56, 58, 62, 67, 81, 83-85, 87, 89, 95-97, and 110

Current. This physical block constitutes the northern half of Block 3015. Boone Avenue lies to the west, E. 174th Street runs to the south, West Farm Road runs along the eastern boundary, and the Cross-Bronx Expressway (I-95) exists at the tapered northern end of the block. Significant land uses include automotive repair facilities, industrial/warehouse storage, idle construction yards, small offices, and multi-unit residences.

Historical. This portion of Block 3015 was developed with residential uses by 1896. As mentioned previously, East 174th Street ended at Boone Avenue until the late 1890s, when it was extended to West Farms Road, thereby dividing the block into a northern and southern half. Between 1915 and 1950, many of the lots were converted to industrial uses.

Figure 10
Block 3015 (north)

Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 50. This parcel at 1760 Boone Avenue appears to have been incorporated into Lot 110, which is the adjacent lot to the east. Sanborn maps from 1896 through 2007 show the lot as undeveloped. Currently, it appears to be used for storage of equipment and construction vehicles, as indicated in the Lot 110 summary. Due to its location, it is subject to the same potential for contamination with PC and NPC as Lot 110.

Lot 56. This lot on Boone Avenue appears to have been merged with Lot 95, which neighbors this parcel to the east. Sanborn maps from 1896 through 2007 show the lot as undeveloped. The NYC OASIS website shows it as a parking land use. Available aerial photos indicate that equipment is stored on the lot. Its association with Lot 95 may have subjected the site to potential contamination with PC and NPC.

Lot 58. This lot at 1787 Boone Avenue extends the width of Block 3015 from Boone Avenue to West Farms Road. This lot was developed with a residence until the construction of the current two-story building in 1929. Sanborn maps from 1950 through 2007 indicate that this is an NYC Dept. of Sanitation garage. Two 550 gallon gas tanks are buried beneath the lot. Based on the gasoline tanks and garage use, the site may have PCs and NPCs.

Lot 62. This lot on Boone Avenue is shown as a parking use on the NYC OASIS website. However available aerial photos show it to be overgrown with vegetation. Historically, the lot shows up as undeveloped on Sanborn maps through 2007. Currently, the lot may be joined with Lot 87, which is an auto junk yard. For this reason, and because it is adjacent to the NYCDOS garage on Lot 58, it may have been affected by PC and NPC.

Lot 67. The one-story building at 1820 Boone Avenue is a garage constructed in 1931. Current use at the lot appears to be FR Tire Import. The site is adjacent to former auto repair and filling station uses on Lot 85, which would indicate the potential for PC and NPC.

Lot 81 at 1829 West Farms Road is currently developed as a two-story residence constructed in 1930. Because West Farms Road is much lower than Boone Avenue at this location, the backyard space is about 20 feet below Boone Avenue. Its proximity to auto repair uses on Lot 83 are indicative to PC and NPC.

Lot 83 at 1825 West Farms Road is improved with a one-story building that covers the lot from Boone Avenue to West Farms Road. A three-story dwelling was present in 1901 and 1915, but the lot was vacant in 1950. The 1977 Sanborn map shows the lot was used for trailer parking. A one-story auto repair shop was present on the 1978 to 2007 Sanborn maps. Available aerial photos and field work indicate that the original building was expanded to cover the entire lot. This apparently occurred in the 1990s when the NYC Department of Buildings issued the owner numerous violations for construction without a permit. At present, the Boone Avenue frontage is a one-story garage structure occupied by Angi Auto Repairs. The West Farms Road frontage shows a one-story garage that appears to have a second-story residential use added to it. The lot's past and present uses for auto repair are a potential source of PC and NPC.

Lot 84 at 1821 West Farms Road was improved with a residential building in 1896. The current building, a three-story two-family residence, was constructed in 1930. However, Sanborn maps from 1950 through 2007 show it as an office and showroom. Because it is flanked by auto repair uses on Lots 83 and 85, it may have been contaminated with PC and NPC.

Lot 85 is 1819 West Farms Road. In 1931, it was developed with an auto repair business on the Boone Avenue frontage and an auto repair and gasoline station on the West Farms Road frontage. The gas station no longer appears on the 1977 Sanborn map but the auto repair uses are still present on the 2007 map. In 2002, the NYC Department of Buildings issued a Letter of No Objection for a refrigeration repair shop. The frontage on West Farms Road looks as if it has been renovated to garage and office space, and

internet directory sources indicate that Delgado Limousine Service operates at this address. At the rear of the building is a concrete wall nearly three stories high that separates it from the Boone Avenue frontage. The Boone Avenue frontage is a galvanized steel fence with a double gate. Available aerial photos indicate this section of the property has a canopy in one corner made of galvanized steel and that the area may be used for storage of vehicles and parts. The lot's former uses for auto repair, refrigeration repair, and a gasoline station are indicative of potential PC and NPC contamination.

Lot 87 at 1817 West Farms Road is improved with a one-story structure constructed near the front of the lot. Although the NYC OASIS website indicates that a one-story building was constructed in 1995, it does not appear on the Sanborn maps. Historically, the lot was vacant until 1950 or later. The 1977 Sanborn map shows it was used for trailer parking and service on the West Farms Road side and an auto junk yard at the back of the lot near Boone Avenue. A steep slope separates the West Farms road and Boon Avenue portions of the lot. The trailer parking area is vacant on the 1978 Sanborn map but the junk yard use shows up on Sanborn maps through 2007. Field observations in September 2009, coupled with available aerial photos, suggest the junk yard is still active and hidden by a galvanized steel fence along Boone Avenue. The front portion of the site along West Farms Road appears to be a salvage operation or contractor's yard. On November 23, 2009 the NYC Department of Buildings issued a permit to construct a new two-story building that would cover 34% of the lot and be used for business purposes as offices accessory to the contractor's yard. The lot's former uses and its location next to auto repair and gas station uses on Lot 85 indicate it could be affected by PC and NPC.

Lot 89 at 1815 West Farms Road has been the site of a two-story residence since at least 1915. Site visits show that this is the location of a two-story house. An auto repair shop in an accessory building at the rear of the lot has been in operation since at least 1950. This use, coupled with its location next to the NYCDOS garage and a lot formerly used for auto repair and gas station, indicate it could have been affected by PC and NPC.

Lot 95 is 1783 West Farms Road. It was vacant until 1950 or later. A one-story building used for repair of auto springs, welding and supplies, was constructed around 1954. It appears on Sanborn maps through 2007. The current tenant appears to be an auto diagnostics facility. The historical use, and its proximity to the NYCDOS garage and a lot formerly used for an iron works facility, could have resulted in contamination with PC and NPC.

Lot 96. This lot is 1775 West Farms Road. The Dykes Lumber Company is currently located here. The lot was residential in 1901 and was redeveloped with an iron works around 1931. The iron works use is present on the recent 2007 Sanborn maps. Its historical use, coupled with the adjacent factory and auto repair uses on Lots 95 and 97, could have resulted in PC and NPC.

Lot 97 at 1763 West Farms Road contains a two-story factory building housing a fabricator and erectors business. Residentially developed in 1901, the lot was redeveloped as the Northeastern Iron Works Facility by 1950. A 1983 CO indicates auto repair occurred on the first floor, but a CO for 1990 shows factory uses again. The lot's historical uses and proximity to another facility used as an iron works could have resulted in contamination with PC and NPC.

Lot 110. This lot on E. 174th Street does not have a listed address. Sanborn maps from 1891 through 2007 show the lot as historically vacant. A 2009 field survey revealed the presence of construction vehicles. Available aerial photos suggest it is used for equipment storage associated with Lot 97. Because it is adjacent to lots used for auto repair and iron works facilities, it may be contaminated with PC and NPC.

Other lots. No other lots exist on this physical half of Block 3015. As Figure 10 shows, there is a parcel of vacant land to the immediate north of the tax block, extending to the interchange between the Sheridan and Cross Bronx Expressways, which is within the proposed rezoning area. It is a mapped but unimproved park. It is neither a tax lot nor a potential development site.

Table 10
Summary of Past and Present Uses on Block 3015 (North)

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
50	1760 Boone Ave.	Vacant lot	Adjacent to former iron works and auto repair uses			x	x
56	Boone Ave.	Vacant lot	Adjacent to auto repair and former iron works			x	x
62	1787-1813 Boone Ave.	Vacant	Adjacent to junk yard and NYCDOS garage			x	x
67	1820 Boone Ave.	Garage	Adjacent former gas station and auto repair on Lot 85			x	x
81	1829 W. Farms Rd.	Residential	Adjacent to auto repair			x	x
83	1823-25 W. Farms Rd.	Auto repair	Auto repair			×	×
84	1821 W. Farms Rd.	Residential	Adjacent to auto repair			x	x
85	1819 W. Farms Rd.	Automotive	Former auto repair and gas station			×	×
87	1817 W. Farms Rd.	Warehouse/ industrial	Adjacent to former auto repair and gas station			x	x
89	1815 W. Farms Rd.	Residential/office	Auto repair; adjacent to former auto repair and gas station			x	x
95	1783 W. Farms Rd.	Automotive	Auto repair; former iron works; adjacent to factory and auto repair uses			×	×
96	1775-77 W. Farms Rd.	Warehouse/ industrial	Former iron works; adjacent to factory and former iron works			x	x
97	1759-63 W. Farms Rd.	Warehouse/ industrial	Former factory, auto repair, and iron works			x	x
110	E. 174th St.	Open storage/parking	Adjacent to factory, auto repair, and former iron works			x	x
Unaffected Lots							
58	1787 Boone Ave.	Garage	Garage, gasoline tanks	UST		x	x
Adjacent Lots on Same Block (to be rezoned)							
NA							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
	Bronx Land Trust	Bronx Expressway ROW					

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database

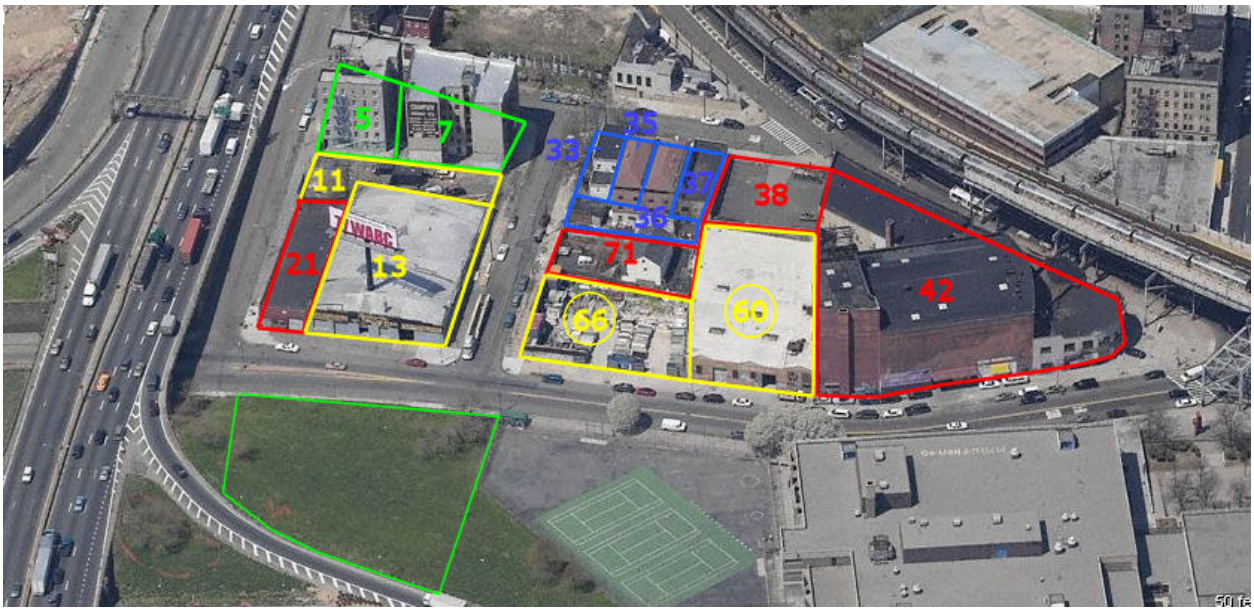
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Block 3016, Lots 5, 7, 11, 13, 21, 33, 35-38, 42, 60, 66, and 71

Current. Shown in Figure 11, Block 3016 is composed of two physical blocks bisected by Rodman Place. The southern half of Block 3016 is bounded by West Farms Road to the east, the Cross Bronx Expressway Westbound Service Road to the south, Longfellow Avenue to the west, and Rodman Place along the northern side. The northern half of the block is bordered by West Farms Road to the east, Rodman Place to the south, Longfellow Avenue and Boston Road along the western side, and West Farms Square to the north.

Historical. Lots on the block were laid out by 1896. Except for a wagon factory on Lot 42, most were residential or agricultural through 1915. By 1950, they had been replaced with auto repair businesses and entertainment venues.

Figure 11
Block 3016



Legend: Red=projected development site, yellow= projected development site owned by applicant, blue=potential development site, green=unaffected site within rezoning area.
Source: Sandstone Environmental Associates, Inc.

Lot 5 is at 1898 Longfellow Avenue. In 1896, it had two residential dwellings. Around 1916, it was redeveloped with a five-story walk-up apartment building that is still present. An above-ground fuel tank is present. Due to the age of the building and historical presence of a fuel tank, as well as its proximity to

Lot 13, which has two 550-gallon gasoline tanks, the ground beneath the site may have evidence of contamination with PC. Low levels of NPC may be present due to urban fill.

Lot 7 is 1900 Longfellow Avenue. Like Lot 5, this lot was residentially developed before 1896 and was redeveloped around 1916 with a five-story walk-up apartment building. Currently this lot is occupied by the five-story residential apartment building, with no substantial changes since 1916. The lot's proximity to the former garage and repair use on nearby Lot 13, which has two 550-gallon gasoline tanks, may have resulted in contamination with PC. Low levels of NPC may be present due to urban fill.

Lot 11. Lot 11 on Rodman Place has no listed address on record. It has frontage on Rodman Place and spans the rear of Lots 5, 7, 13, and 21. The NYC Department of Finance classifies the property as G7 (unlicensed parking lot). A small structure, constructed around 1993, is present in the middle of the lot between Rodman Place and E. 176th Street, but it does not appear on the Sanborn maps. The presence of this structure, which appears to be a shed, was verified by field observations in 2009. The 1915 Sanborn map shows a two-story residence on E. 176th Street, while the back portion of the lot was a part of the International Nurseries, Inc. Plant Garden, which also occupied Lot 13. By 1950, Lot 11 was vacant. Its historical use as a plant nursery, as well as its location adjacent to the former garage on Lot 13, and the former dry-cleaning use on Lot 21, may be a source of PC and NPC contamination.

This site is under the control of the applicant. RND prepared a Phase I ESA in October 2007 for Lots 11, 13, and 21. Under the summary for Lot 11, RND stated that a "makeshift automobile repair garage" had been added to the rear of Lot 13, and that several empty 55-gallon drums were stored behind Lot 21. The Phase I report recommended that the vacant lot (Lot 11) be cleaned up. RND also referred to a limited subsurface investigation carried out by Vertex Engineering Services, which did not identify any "compounds of concern", which indicated that past uses had not negatively impacted the property.

Because the Vertex report and the contaminants it included were not available for review, and because the shed/garage may have been used recently for auto repair, potential contamination of this lot with PC and NPC cannot be ruled out. In addition, the underlying soils may have elevated levels of contaminants consistent with urban fill in the area.

Lot 13 is 1905 West Farms Road, which has a one-story structure built around 1923. The 1915 Sanborn map shows that Lot 13 was the location of the International Nurseries, Inc. Plant Garden. By 1950, a garage and repair use had replaced the plant garden, and two 550 gallon gasoline tanks were buried on-site. In 1989, the lot was converted into a manufacturing warehouse. The current use appears to be the Atlantic Rolling Steel Door Corp., a manufacturer of rolling steel doors and grilles. Due to the former nursery and auto repair uses and the presence of USTs, this site is a source of concern for PCs and NPCs.

This lot is under the control of the applicant. RND prepared a Phase I ESA in October 2007 for Lots 11, 13, and 21. RND found no exterior indications of the two USTs associated with the former garage use. Observations of the interior found motor oil, paint containers, gas cylinders and 55-gallon drums of material used in the preparation of steel doors (presumably in spray booths). A previous Phase I ESA carried out by Housemaster of America in 1994 identified the property as E&W Beverage Corp.

RND referenced a limited subsurface investigation prepared by Vertex Engineering Services in 2000. Vertex conducted a GPR survey on the northeast side of the building, but did not identify evidence of USTs. Vertex could not conduct a GPR survey inside the building due to the large amount of material stored there. Vertex also took soil samples eleven feet below grade and did not identify any compounds of concern indicating that past property uses had created a "negative environmental impact." No groundwater was encountered at that depth. RND recommended further investigation to determine whether the two USTs were still present inside or beneath the building, an asbestos survey for the roof, and lead paint testing. The firm did not recommend additional subsurface testing.

Subsequent GPR surveys carried out by RND in 2008 failed to find the two USTs that had been shown on the Sanborn maps. Based on this information, they probably are not present.

With regard to the current study, because the Vertex report and the contaminants it included were not available for review, potential contamination of this lot with PC and NPC cannot be ruled out. In addition, the underlying soils may have elevated levels of contaminants consistent with urban fill in the area.

Lot 21 at 1899 West Farms Road is improved with a one-story structure. In 1915, a two-story residential dwelling was present on the site. The lot subsequently became vacant, although a CO for 1930 indicates it was used for auto parking. The current structure was built as a factory in 1952. A Sanborn map for 1977 shows it as a dry cleaning establishment, probably the Clean Bright Process Co., and this use continues through the 2007 maps (although the NYC Department of Finance classifies the building as a garage/gas station). Field observations in 2009 indicate the dry cleaning business has vacated the premises. This historical use and its location next to Lot 13 are sources of concern for PCs and NPCs.

This lot is under the control of the applicant. RND prepared a Phase I ESA in October 2007 for Lots 11, 13, and 21. Field observations by RND indicated it was used as a warehouse for an office supply company. Fill and vent pipes indicative of a UST were observed along the interior west wall of the building. However, the firm was unable to determine whether the tank had been removed. The interior of the building displayed containers of motor oil, cleaners, and a 55-gallon drum of petroleum distillates. A floor drain was observed near a slop sink, but no oil sheen or visible staining was observed in the drain.

RND recommended additional investigations of the vent and fill pipes observed on the property to determine whether a UST was present, an asbestos investigation for the roof, and lead paint testing. No subsurface investigation was recommended at that time because a limited subsurface investigation by Vertex Engineering in 2000 had obtained soil samples four feet below grade and found no significant compounds of concern.

In 2008, RND removed a 3,000-gallon UST from the property. It was about 92 feet from the southeast corner of the building and five feet from the building wall. The tank contained 475 gallons of an oil/water mixture that was pumped out and disposed of. Soil contamination was found and reported to NYSDEC as a spill. Remediation included removal of 159 tons of petroleum affected soil down to bedrock in affected areas. NYSDEC closed the spill on 7/16/08.

With regard to the current study, because the Vertex report and the contaminants it included were not available for review, and because the property was previously used by a drycleaners, potential

contamination of this lot with other PC and NPC compounds cannot be ruled out. In addition, the remaining underlying soils may have elevated levels of contaminants consistent with urban fill in the area.

Lot 33 at 1916 Longfellow Avenue is improved with a two-story single-family residence that has been present since the 1800s. Due to its presence in an industrial neighborhood with uses that have included auto repair, garage, factory, and dry cleaning establishments, it should be tested for PC and NPC prior to excavation and redevelopment.

Lot 35 at 1918 Longfellow Avenue is improved with a three-story, three-unit residential building constructed in 2001. Prior to this, the site had been developed with a single-family residence since the early 1900s.

Lot 36 is a T-shaped lot with narrow frontage on both Longfellow Avenue and Rodman Place. Sanborn maps show the lot as vacant from 1915 through 2002. In 2001, a three-story, three-unit residential building was constructed on the Longfellow Avenue frontage. Due to the recent construction, no contamination with PC or NPC is currently anticipated on this portion of the site. However, the strip of land that borders Lots 60 and 71, which have been associated with auto repair uses, may have been affected by PC and NPC.

Lot 37 is 1924 Longfellow Avenue. Sanborn maps for 1896 and 1901 show an unidentified two-story building on this lot. It was vacant in 1950 and then redeveloped with a one-story building by 1977. The current tenant, a synagogue (Kol Sh'Aireit B'Nai Yisrael) appears to have been present since 1996. The lot may have been affected by PC and NPC due to its proximity to Lots 60 and 71, which have been associated with auto repair uses.

Lot 38 on Longfellow Avenue does not have an address. The 1896 and 1901 Sanborn maps show that a portion of the lot contained a dwelling, but the lot was vacant by 1915. It remained vacant until 1994, when it was converted into a parking lot. Currently, it is used as a parking lot for the adjacent Howard Johnson Hotel on Boston Road. Its proximity to the former manufacturing and auto repair uses on Lots 42 and 60 may have resulted in contamination with PC and NPC.

Lot 42 at 1962 Boston Road has historically been divided into smaller independent uses due to its size and currently is occupied by three different buildings. Along Boston Road are a two-story Howard Johnson hotel and a closed-down restaurant and bar. On the West Farms Road frontage, the remaining building appears to be a vacant commercial building. The vacant building on West Farms Road has faded signage indicating that it was once a warehouse. Sanborn maps from 1896 and 1901 show the lot with residential uses and a group of buildings that manufactured carriages and wagons. In 1950, the entire lot was transformed into a shopping and entertainment complex. Boston Road had stores on the first floor and a dance palace on the second floor. West Farms Road had a large theater. In 1977 the second floor of the building fronting Boston Road was converted to a school. Although the stage and dressing rooms remained on West Farms Road, most of the theater became a motor freight station until 1998, when it was used for commercial and warehouse uses. Part of the building was converted to auto repair in 2005. The motor freight and auto repair uses would be a source of concern for PC and NPC on this lot.

Lot 60 at 1927 West Farms Road is Fordham Marble Co., Inc., a marble, granite and slate manufacturer. Part of this lot was occupied by a poultry market in 1915. The existing one-story building with a small partial second story that covers much of the lot was constructed in 1929. It is shown as an auto service and repair shop with two gasoline tanks on the 1950 Sanborn map. By 1977, the poultry market had disappeared and the building was used for contractors' equipment and service, as well as a repair shop. A CO for 1979 shows it as a marble cutting operation although Sanborn maps continued to show it as contractors' equipment and service. In 2001, the Sanborn maps began showing the building as a warehouse and repair shop with a contractor's yard on the side. The building's former use for auto repair and as a service station with gasoline tanks indicate it could have been contaminated with PC and NPC.

This lot is under the control of the applicant, and RND prepared a Phase I ESA in November 2007. A vent pipe indicative of a petroleum tank was observed on an exterior wall. This led to an AST and an abandoned boiler in the cellar of the building. The building was heated with forced gas heat from overhead heaters. RND also noted that the building is connected via a party wall to an adjacent property on the north that appeared vacant. (This would be Lot 42). Propane gas cylinders were observed on the property. A drainage system inside the building collected cooling water from the cutting process and channeled it to a holding tank in the cellar. The holding tank was vacuumed out periodically, and the accumulated sludge was shoveled out. The waste was not considered hazardous. No sheens or unusual odors were observed around the drains. RND's recommendations included removal of the AST, evaluation of any exposed soil beneath the tank, an asbestos survey for the roof, and testing for lead paint.

Several additional studies were carried out. Blue Sky Design visited the site on 11/12/07 to perform a visual structural inspection of the property. Among their observations were the presence of the diamond plate covered concrete trenches that drained the cutting operations to a settling/holding tank connected to the city's sewer system. The drainage system was required to remove stone dust and prevent its release into the sewer system. Mueser Rutledge Consulting Engineers prepared a desktop geotechnical survey in January 2007, but it does not contain information directly relevant to the likely presence of hazardous materials. RND carried out an asbestos survey and found asbestos containing material in the cellar. Since the fuel tank and boiler could not be removed until the asbestos had been abated, the remediation was presumably carried out prior to the tank's removal in 2008. A 1,000-gallon tank was removed from the property by Unitech Services Group in May 2008.

With regard to the current study, no documentation of subsurface investigations was available for review. Therefore, elevated levels of PC and NPC due to the former auto repair use and the probable presence of urban fill typical of the area may be present.

Lot 66 is 1923 West Farms Road. This lot is a storage yard for Fordham Marble Co., Inc. which is located next door (Lot 60). The first development on the lot appears to have been a lumber storage warehouse in 1949. By 1985 the building housing the lumber storage had been razed, and the remaining property on Lot 66 was incorporated into the contractor's yard. This lot's proximity to the former auto repair and service station use on Lot 60 is a source of concern for PC and NPC.

This lot was apparently included in RND's Phase I ESA for 1931 West Farms Road. At that time, it was used for outdoor storage of marble slabs. The Phase I report did not include any other specific

observations or recommendations for the site. Therefore, potential contamination from neighboring uses would still be a source of concern.

Lot 71 is occupied by a 2.5-story residential building at 1293 and 1295 Rodman Place at the rear of the lot. It was originally constructed as two adjacent residential buildings and appears as early as the 1896 Sanborn map. The 1950 Sanborn map shows a garage at the front of 1295 Rodman place. It is shown as an auto repair facility in 1980. Although it is still visible on the 2007 Sanborn map, it was not present during the 2009 field survey. The lot's former auto repair use and its proximity to auto repair and gas station use on Lot 60 are a source of concern for PC and NPC.

Other lots. No other lots exist on this block. As Figure 11 shows, the proposed rezoning area includes a piece of undeveloped land on the other side of West Farms Road from Block 3016, adjacent to an on-ramp to the Cross Bronx Expressway. It is part of the highway right-of-way. It is neither a tax lot nor a potential development site.

Table 11
Summary of Past and Present Uses on Block 3016

Lot	Address	Current Development	Findings	UST/ AST	Regulatory Listing (1) (2) (3)	PC	NPC
Projected and Potential Development Sites (to be rezoned)							
11	Rodman Place	Open Storage	Former nursery, adjacent to site with gasoline tanks and former drycleaners			x	x
13	1903-05 West Farms Rd.	Warehouse	Gasoline tanks, former nursery use	UST		×	×
21	1899 West Farms Rd.	Warehouse	Former factory and drycleaning use		(1)	x	x
33	1916 Longfellow Ave.	Residential	Located in industrial neighborhood			x	x
35	1918 Longfellow Ave.	Residential	None found due to recent excavation and construction				
36	1920 Longfellow Ave.	Residential	Adjacent to lot with former auto repair use			x	x
37	1924 Longfellow Ave.	Synagogue	Adjacent to lots with historical auto repair uses			x	x
38	Longfellow Ave.	Parking	Adjacent to lots with historical auto repair and factory uses			x	x
42	1900-62 Boston Rd. 1941-63 West Farms Rd.	Hotel, Vacant Bldg	Former auto repair, former trucking use			x	x
60	1927-33 West Farms Rd.	Open Storage	Former auto repair and gas station	AST		x	x
66	1923 West Farms Rd.	Open Storage	Adjacent to former auto repair and gas station			x	x
71	1293-95 Rodman Place	Residential	Former auto repair			x	x
Unaffected Lots							
5	1898 Longfellow Ave.	Residential	Fuel tank present; close to Lot 13, which has gasoline tanks	AST		x	x
7	1900 Longfellow Ave 1000 Rodman Place.	Residential	Close to Lot 13, which has gasoline tanks.			x	x
Adjacent Lots on Same Block							
NA							
Remaining Lots on Block							
NA							
Other Significant Uses within 400 feet							
	Bronx Land Trust	Bronx Expressway ROW	Historical miscellaneous industrial uses			x	x

UST/AST=Underground Storage Tank/Aboveground Storage Tank
PC=Potential Petroleum-Based Contamination
NPC=Potential Non-Petroleum-Based Contamination
(1) New York Spills Database
(2) Resource Conservation and Recovery Information System-Small Quantity Generator of Hazardous Waste
(3) Leaking Storage Tank Incidents Report

Land Uses within 400 Feet of the Study Area

Land uses within 400 feet of the rezoning area also have been developed with a mixture of rail, manufacturing, warehousing, garage, and residential uses. The lots with historical uses or incidents that potentially may have contributed to contamination of soils or groundwater are dispersed throughout the 400-foot area. They are sufficiently close to the lots in the rezoning area to be a source of concern for potential contamination, and their presence was additional reason for the recommendations in this report.

FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION

In the absence of the proposed action, the current development scale and mixture of land uses would remain throughout most of the study area, and no significant new development is anticipated with the exception of Block 3016, Lot 42 at the northern end of the rezoning area. Currently, it is developed with a 15,000 sf hotel and vacant commercial and industrial buildings with a total area of 40,390 sf. Anticipated development without the proposed action would include 134,000 sf of residential space and 39,000 sf of commercial space.

FUTURE CONDITIONS WITH THE PROPOSED ACTION

Impact Potential

The proposed zoning map amendment would replace a manufacturing district with a residential district and would replace an existing residential district covering part of Block 3016 with a higher density residential district. Future conditions with the proposed action could involve building construction, additions and conversions. Although the reasonable worst case development scenario presented in the EIS projects that 49 of the 70 lots within the proposed rezoning area would likely be redeveloped by the 2019 analysis year, all but one of the 70 lots (the exception being Boone Playground, which is a mapped park) could potentially be redeveloped with residential or community facility uses at some point in the future.

This assessment has concluded that all 45 tax lots that would potentially be affected by the proposed action, but which are not under the applicant's control, have potential for hazardous materials contamination due to historic uses on the sites or other lots of the same block. The lots are listed in Table 12, along with the identified potential for contamination (with petroleum or non-petroleum contaminants or both). The basis for the identification was given in the discussion sections for each of the blocks.

Phase I Environmental Site Assessments were performed for the 15 lots under the applicant's control, and Phase II investigations, a ground penetrating radar survey, or other subsequent studies were conducted on most of them. In most cases, recommendations for removal of fuel storage tanks or contaminated soils were subsequently carried out. Much of the remaining contamination includes lead paint or asbestos concerns as well as soil contamination typical of urban fill. However, the Phase I and Phase II studies are two to four years old. In addition, as discussed above in the sections for the various blocks, some of the Phase I ESAs relied on prior limited subsurface investigations that were not available for review. NYCDEP has reviewed the Phase I and Phase II reports for these sites and determined that additional Phase II investigations are required prior to on-site soil disturbance.

Table 12
Recommendations for Projected and Potential Development Sites

Parcel ID	Block	Lot	Address	Identified Potential for Contamination		Recommendation
				Petroleum	Non-Petroleum	
-	2998	92	East 176 St. (Vacant Lot)	×	×	(3)
7A	2998	97	1829-35 Boone Ave.	×	×	(1)
7B	2998	104	1817-27 Boone Ave.	×	×	(1)
7B	2998	113	1801-15 Boone Ave.	×	×	(1)
7B	2998	124	1769 Boone Ave.	×	×	(1)
-	2998	135	1007 E. 174th St.	x	x	(3)
-	3007	8	1331-1365 W. Farms Rd. 1020 Jennings Ave.	×	×	(3)
3A	3009	25	1006 E. 173rd St.	×	×	(1)
3B	3009	33	1551-59 Boone Ave.	×	×	(2)
3C	3009	37	1549 Boone Ave.	×	×	(1)
3D	3009	38	1529 Boone Ave.	×	×	(1)
3E	3009	44	1521-27 Boone Ave. 1015 E. 172nd St.	×	×	(1)
-	3010	25	1016 E. 174th Street	x	x	(3)
5A	3010	26	1711 Boone Ave.	×	×	(1)
5B	3010	29	1701-09 Boone Ave.	×	×	(1)
5C	3010	33	1695 Boone Ave.	×	×	(1)
5D	3010	40	1685 Boone Ave.	×	×	(1)
5E	3010	46	1661 Boone Ave 1011 E. 173rd St..	×	×	(1)
-	3012	100	1340 West Farms Rd.	x	x	(3)
-	3013	1	1021 Jennings St. 1452 Boone Ave. 1401 W. Farms Rd.	×	×	(3)
1	3013	12	1471 West Farms Rd.	×	×	(2)
1	3013	29	1493 West Farms Rd.	×	×	(2)
1	3013	31	1508 Boone Ave.	×	×	(2)
1	3013	35	1512 Boone Ave.	×	×	(2)
1	3013	37	E. 172nd St.	×	×	(2)
1	3013	46	1481 West Farms Rd.	×	×	(2)
2B	3014	9	1544 Boone Ave.	×	×	(2)
2A	3014	15	1552-62 Boone Ave. 1565-71 W. Farms Rd. 1010-30 E. 173rd St.	×	×	(2)
2B	3014	45	None Listed			(2)
4A	3015	1	1015 E. 173rd St.		×	(1)
4B	3015	3	1680 Boone Ave.		×	(1)
4B	3015	5	1717 W. Farms Rd.			(1)
4C	3015	17	1704 Boone Ave.	×	×	(1)
4C	3015	18	1708 Boone Ave.			(1)
4D	3015	19	1720 Boone Ave.			(1)
4E	3015	25	1745 W. Farms Rd.			(1)
4E	3015	26	1743 W. Farms Rd.			(1)
4C	3015	29	1735 W. Farms Rd.			(1)
4C	3015	31	1731 W. Farms Rd.			(1)
4F	3015	34	1725 W. Farms Rd.			(1)
-	3015	49	1029 E. 173rd St.	x	x	(3)

6A	3015	50	1760 Boone Ave.			(1)
6A	3015	56	Boone Ave.			(1)
-	3015	58	1787 Boone Ave.	x	x	(3)
6B	3015	62	1787 Boone Ave.			(1)
6C	3015	67	Boone Ave.			(1)
6D	3015	81	1829 W. Farms Rd.			(1)
6C	3015	83	1825 W. Farms Rd.	×	×	(1)
6C	3015	84	1821 W. Farms Rd.			(1)
6C	3015	85	1819 W. Farms Rd.	×	×	(1)
6B	3015	87	1817 W. Farms Rd.			(1)
6B	3015	89	1815 W. Farms Rd.			(1)
6E	3015	95	1783 W. Farms Rd.	×	×	(1)
6F	3015	96	1775 W. Farms Rd.			(1)
6G	3015	97	1763 W. Farms Rd.			(1)
6A	3015	110	E. 174th St.			(1)
-	3016	5	1898 Longfellow Ave.	x	x	(3)
-	3016	7	1900 Longfellow Ave.	x	x	(3)
8	3016	11	Rodman Place			(2)
8	3016	13	1905 West Farms Rd.			(2)
8	3016	21	1899 West Farms Rd.			(2)
9A	3016	33	1916 Longfellow Ave.			(1)
9A	3016	35	1918 Longfellow Ave.	x	x	(1)
9B	3016	36	1920 Longfellow Ave.			(1)
9B	3016	37	1924 Longfellow Ave.			(1)
9C	3016	38	Longfellow Ave.			(1)
9C	3016	42	1962 Boston Rd.			(1)
9D	3016	60	1927 West Farms Rd.			(2)
9D	3016	66	1923 West Farms Rd.			(2)
9E	3016	71	1295 Rodman Place			(1)

(1) E designation requiring a Phase I, and a Phase II, investigation prior to development
(2) Restrictive declaration requiring a Phase II investigation before development
(3) Lot unaffected by proposed rezoning cannot receive (E) designation because it is not included in the RWCDS.

E Designations

Pursuant to Section 11-15 of the NYC Zoning Resolution, the proposed zoning map amendment should include (E) designations for hazardous materials for the 45 lots not under the applicant's control that have been identified as projected or potential development sites. The lots are as follows:

Block 2998, Lots 97, 104, 113, and 124

Block 3009, Lots 25, 37, 38, and 44

Block 3010, Lots 26, 29, 33, 44, and 46

Block 3015, Lots 1, 3, 5, 17, 18, 19, 25, 26, 29, 31, 34, 50, 56, 62, 67, 81, 83, 84, 85, 87, 89, 95, 96, 97, and 110

Block 3016, Lots 33, 35, 36, 37, 38, 42, and 71

The text of the (E) designation is as follows:

> **Prior to redevelopment, the property owner must conduct a Phase I Environmental Site Assessment (Phase I) in accordance with the American society of Testing Materials (ASTM) E 1527-05, a soil and groundwater testing protocol, and remediation where appropriate, to the satisfaction of NYCDEP before issuance of construction-related NYCDOB permits. The (E) designation also requires mandatory construction-related health and safety plans, which also must be approved by NYCDEP.**

Before any lot restricted by the (E) designation could be redeveloped or converted to a new use, a Phase I ESA and a Phase II investigation must be undertaken by the fee owner(s) of the lot. The Phase II investigation will be based on a testing protocol approved by NYCDEP. NYCDEP will then review the Phase II report to determine whether further testing or remediation is necessary. If NYCDEP determines that no remediation activities are necessary, a written notice will be released to that effect. If NYCDEP determines that remediation is necessary, the fee owner(s) of the lot restricted by the (E) designation must submit a proposed remediation plan to NYCDEP for its review and approval. Once approval has been obtained, and the work completed, the fee owner(s) of the lot restricted by the (E) designation must provide proof to NYCDEP that the work has been completed in a satisfactory fashion. After NYCDEP determines that remediation has been completed to its satisfaction, the agency would issue a Notice of Satisfaction. All investigative activities and required remediation must be completed prior to the issuance of construction-related Department of Buildings permits. The action of placing the (E) designations on the zoning map would eliminate the potential for significant adverse impacts from the proposed action, and would ensure that appropriate testing and remediation, if needed, would be undertaken.

Review and Approval Procedures for the Proposed Project

For those properties owned or otherwise controlled by the applicant or the applicant's subsidiaries – Block 3009, Lot 33; Block 3013, Lots 12, 29, 31, 35, 37, and 46; Block 3014, Lots 9, 15, and 45; Block 3016, Lots 11, 13, 21, 60, and 66 – a Phase II Environmental site assessment (Phase II) will be required to adequately identify/characterize the surface and subsurface soils of the above subject parcels prior to on-site soil disturbance; and, if hazardous materials are found as the result of the Phase II, to perform any necessary remediation of the subject properties.

a. A Phase II Investigative Protocol/Workplan summarizing the proposed drilling and soil/groundwater sampling activities will be required to be submitted to NYCDEP for review and approval. The Workplan is to include blueprints and/or site plans displaying the current surface grade and subgrade elevations and a site map depicting the proposed soil boring locations. Soil and ground water samples are to be collected and analyzed by a NYS Department of Health Environmental laboratory Approval Program certified (NYSDOH ELAP-CERTIFIED) laboratory for the presence of Volatile Organic Compounds (VOCs) by U.S. EPA Method 8360, Semi-Volatile Organic Compounds 9SVOCs) by Method 8370, Pesticides/Polychlorinated Biphenyl (Pesticides/PCBs) by Method 8081/8082 and Target Analyte List (TAL) metals (filtered and unfiltered for groundwater).
b. An investigative Health and safety Plan (HASP) is also to be submitted to DEP for review and approval.

c. If hazardous materials are found as the result of the Phase II, the applicant is to perform any necessary remediation of the subject properties. Prior to undertaking any remediation measures, the applicant will be required to prepare and submit a Remedial Action Plan, including a sampling protocol and a health and safety plan, for NYCDEP approval. Remediation measures would be undertaken pursuant to the approved remediation plan.
d. The applicant will be restricted from submitting any permit applications to the NYC Department of buildings (DOB) that would allow for soil disturbance on the subject property until such time that DEP provides the necessary written notice to DOB.
e. The above is to be stipulated as part of a restrictive declaration on the subject properties and be binding upon the properties' successors and assigns.

SUMMARY AND CONCLUSIONS

This assessment included the evaluation of all lots within the proposed rezoning area. On-site impacts to soil and/or groundwater from contamination by hazardous materials may have occurred due to the historical manufacturing and commercial nature of the developments identified within these areas. Although it was not possible to identify all specific past and present tenants within the study area, identified operations that may have contributed to the non-petroleum based hazardous materials contamination in this area include, but are not limited to auto repair, sheet metal works, paint shops, dry cleaners, and iron works. Identified facilities that may have contributed to petroleum based hazardous materials contamination included but are not limited to above-ground and underground fuel tanks, auto repair facilities, and gas stations.

The type of potential hazardous contamination identified in the vicinity of the projected and potential development sites was shown in the summary of uses for each block and in Table 12. All lots not under the applicant's control except for those lots not affected by the proposed rezoning are recommended for (E) designations that will require a Phase I and a Phase II ESA and, if necessary, remediation. The lots under the applicant's control are recommended for a restrictive declaration requiring Phase II investigations, and, if necessary remediation.. The placement of (E) designations on 45 tax lots, and the restrictive declarations on 15 tax lots, would ensure that no significant impacts related to hazardous materials would occur as a result of the proposed action.

APPENDIX 1 CONTAMINATION TYPICAL OF SOME INDUSTRIAL USES

Auto repair facilities. Auto body repairs often require the use of cutting and welding equipment, cleaners, compressed gas, solvents, paints, epoxies, and polymers. In addition, automotive fluids may leak from damaged vehicles stored on the property. Soils and groundwater on these sites typically are tested for the presence of volatile and semi-volatile organics, pesticides, PCBs, and heavy metals.

Chemical laboratories. Process-specific chemical production facilities manufacture, formulate or repackage a wide range of chemicals that can include the formulation and synthesis of acids, bases, oxidizers, polymers, plastics, surfactants, cleaning solvents, dyes, soaps, and waxes. Due the diversity of the individual processes, specific waste streams are highly varied. However, the facilities typically handle large volumes of chemicals using above and below ground storage tanks, transfer equipment, process lines and piping, and storage areas for raw and finished materials. Asbestos may also be present. Soils and groundwater typically are tested for asbestos, cyanide, heavy metals, volatile and semi-volatile organics, pesticides, PCBs, and pH.

Gas stations: Gas stations have underground storage tanks containing old gasoline products, as well as the lines used to transfer the fuels to the pumps, that may erode over time and leak. If the station also provided automotive service, it also may have residues from various lubricants, waste oils, oil sludges, degreasers, cleaners, fuel additives, tires and/or rubber sealing agents, automotive batteries (lead and acids) and compressed gas cylinders of acetylene. On-site dumping was common prior to RCRA legislation. Soils and groundwater typically are tested for the presence of diesel range organics (DRO), gasoline range organics (GRO), and heavy metals. DRO and GRO include petroleum compounds.

Iron Works. An iron works may be associated with numerous chemical substances associated with the blast furnace, coke-production, and metal refining and finishing. They may include heavy metals, inorganic and organic compounds, acids and alkalis, and asbestos.

Paint manufacturing. Paint manufacturers may use a wide variety of materials, depending on the specific product being manufactured. Materials used on-site may include surfactants, chemical dryers, polymers, organic compounds, heavy metals, epoxies, solvents, mild corrosives, polyurethanes, herbicides and fungicides. Soils and groundwater typically are tested for the presence of volatile and semi-volatile organic compounds, herbicides and fungicides, and a variety of heavy metals.

Print shops. Print shops use a wide variety of materials depending on the method of printing, and large quantities of materials may be stored on-site. Common materials include solvents, inks, and cleaning materials (which may be corrosive). Waste materials usually are generated during machine cleaning, spills, or leaks. Soils and groundwater typically are tested for the presence of volatile and semi-volatile organics, pesticides, PCBs, and heavy metals. A pH analysis may also be carried out.

Rail yards. Rail yards include engine maintenance buildings, fueling areas, above- and below-ground fuel tanks, track and switching areas, and track maintenance/material storage yards. Numerous solvents, paints, coatings, PCB oils, creosote compounds, and degreasers were commonly used and stored in maintenance and storage areas. Track and switching areas may have diesel range organics and oil-contaminated surface soils and rail ballast due to the constant use and repetitive minor leakage of engines

and rail cars. Soils and groundwater typically are tested for the presence of DRO, volatile and semi-volatile organic compounds, pesticides, PCBs, and heavy metals. Chemical spills and leaks from loading and unloading tanker and freight cars are also sources of historic contamination; thus, virtually any type of chemical could be present at a former rail yard.

Scrap metal. Scrap metal operations may include car parts, structural steel, electrical equipment, tanks and vats, and commercial salvage operations. Heavy metals contamination is a primary source of concern at a scrap metal site, although waste piles of non-metallic materials also may be present. These non-metallic materials, which were formerly associated with the scrap metal parts, may include asbestos, foam padding, and insulating materials. PCBs from electrical equipment may be present. Potential contaminants include volatile and semi-volatile organic compounds, pesticides, PCBs, and heavy metals.

Sheet metal works. Sheet metal workers use shears, brakes, rollers, and lockforming machines. Materials used on site include sodium and hydrogen cyanide, metallic salts, hydrochloric acid, sulfuric acid, chromic acid, boric acid, cadmium-based solder, manganese alloys, chromium alloys, paint wastes, heavy metals (especially welding dust), metal marking dyes, plating wastes, oils, and solvents. Potential contaminants in soil and groundwater may include volatile and semi-volatile organic compounds, and heavy metals. A pH analysis may also be carried out.

APPENDIX 2 FACILITIES, ACTIVITIES OR CONDITIONS REQUIRING ASSESSMENT

1. A facility, on or adjacent to the site, which generates (including small quantity generator), stores, treats or disposes of hazardous waste, as defined by USEPA under the RCRA Law and/or NYS DEC.

2. A facility which manufactures, produces, prepares, compounds, processes uses, repackages or disposes of hazardous chemicals, as defined under the NYC Community Right-to-Know Law (1988).

3. A facility, on or adjacent to the site, which is included on the following list:

- Adhesives and sealants manufacture
- Advertising displays manufacture
- Agricultural machinery manufacture (including repairs)
- Aluminum manufacture or aluminum products manufacture
- Aircraft manufacture (including parts)
- Airports Appliance (electrical) manufacture
- Art goods manufacture
- Asphalt or asphalt products manufacture
- Athletic equipment manufacture
- Automobile and other laundries
- Automobile manufacture
- Automobile rental establishments
- Automobile wrecking establishments
- Automobile service stations
- Battery manufacture
- Bicycle manufacture
- Blacksmith shops
- Blueprinting establishments
- Boat repair
- Boat fuel sales
- Boat storage
- Business machine manufacture
- Camera manufacture
- Canvas or canvas products manufacture
- Carpet
- Cleaning establishments
- Carpet manufacture
- Cement manufacture
- Ceramic products manufacture
- Charcoal manufacture
- Chemical compounding or packaging
- Chemical manufacture
- Cleaning or cleaning and dyeing establishments
- Clock manufacture
- Clothing manufacture
- Coal products manufacture
- Coal sales or storage
- Coke products manufacture
- Coil coating
- College, university, trade school laboratories
- Construction machinery manufacture
- Copper forming or copper products manufacture
- Cosmetics or toile tries manufacture
- Dental instruments manufacture
- Dental laboratories
- Disinfectant manufacture
- Drafting instruments manufacture
- Dry cleaning establishments
- Dumps
- Electric power or steam generating plants
- Electric power substations
- Electric and electronic components manufacture
- Electric appliance manufacture
- Electric supplies manufacture
- Electroplating
- Electrotyping or sterotyping
- Engraving or photo-engraving
- Exterminators
- Explosives manufacture
- Felt products manufacture
- Felt products bulk processing, washing or curing
- Fertilizer manufacture

- Filling stations
- Film manufacture
- Fire stations
- Foundries ferrous or non-ferrous
- Fuel sales
- Fungicides manufacture
- Fur tanning, curing, Finishing or dyeing
- Furniture manufacture
- Garbage incineration, storage or reduction
- Gas manufacture, storage
- Gasoline service stations
- Generating plants, electric or steam
- Glass manufacture
- Glue manufacture
- Golf courses
- Graphite or graphite products manufacture
- Gum and wood chemicals manufacture or processing
- Hair products manufacture
- Hardware manufacture
- Heliports
- Incineration or garbage reduction
- Ink or ink ribbon manufacture
- Insecticides manufacture,
- Inorganic chemicals manufacture
- Iron and *steel* manufacture
- Jewelry manufacture
- Junk yards
- Laboratories , medical, dental, research, experimental
- Leather tanning, curing, finishing or dyeing
- Leather products manufacture
- Linoleum manufacture
- Luggage manufacture
- Lumber processing
- Machine shops including tool, die, or pattern making
- Machine tools manufacture
- Machinery manufacture or repair
- Mechanical products manufacture
- Medical appliance manufacture
- Medical instruments manufacture
- Medical laboratories
- Metals manufacture including alloys or foil
- Metal casting or foundry products
- Metal finishing, plating, grinding, polishing, cleaning,
- rust-proofing, heat treatment
- Metal ores reduction or refining
- Metal products treatment or processing
- Metal reduction, refining, smelting or alloying
- Metal treatment or processing
- Mining machinery manufacture
- Mirror silvering shops
- Motor cycle manufacture
- Motor freight stations
- Musical instrument manufacture
- Newspaper publishing
- Non-ferrous metals manufacture
- Office equipment or machinery repair shops
- Oil, public utility stations for metering or regulating oil sales
- Oil storage
- Optical equipment manufacture
- Organic chemicals manufacture
- Orthopedic appliance manufacture
- Ore mining
- Paint and ink manufacture
- Paper and pulp mills Paper products manufacture
- Pesticides manufacture
- Petroleum or petroleum products refining
- Petroleum o r petroleum products storage and handling
- Pharmaceutical products manufacture or preparation
- Photographic equipment and supplies manufacture
- Plastics and synthetic products manufacture and processing
- Plastics raw manufacture
- Plumbing equipment manufacture
- Porcelain enameling
- Precision instruments manufacture
- Printing and publishing

- Pumping stations, sewage
- Radioactive waste disposal services
- Railroad equipment manufacture
- Railroad rights-of-way, substations
- Railroad freight terminals, yards or appurtenances
- Refrigerating plants
- Rubber processing or manufacture
- Rubber products manufacture
- Sewage disposal plants, pumping stations
- Ship or boat building repair yards
- Shipping waterfront
- Shoes manufacture
- Sign painting shops
- Silver plating shops
- Silverware manufacture, plate or sterling
- Slag piles
- Soap and detergent manufacture
- Soldering shops
- Solvent extraction
- Steam electric power plants
- S tee1 products manufacture
- Tar products manufacture
- Textiles bleaching, products manufacture or dyeing
- Textile mills
- Thermometer manufacture or assembly
- Tile manufacture
- Timber products manufacture
- Tool or hardware manufacture
- Toys manufacture
- Trailer manufacture
- Transit substations
- Truck manufacture
- Trucking terminals or motor freight stations
- Turpentine manufacture
- Varnish manufacture
- Vehicles manufacture
- Venetian blind manufacture
- Welding shops
- Wood distillation

2.P NOISE

INTRODUCTION

The purpose of a noise assessment under CEQR is to determine whether an action would (1) raise noise levels significantly at existing or anticipated sensitive noise receptors (such as residences or schools) or (2) introduce new sensitive uses (such as residential buildings or schools) at locations subject to unacceptably high ambient noise levels.

The assessment is concerned with both mobile and stationary noise sources. Mobile sources are those that move in relation to a noise-sensitive receptor. They include automobiles, buses, trucks, aircraft, and trains. Stationary sources of noise do not move in relation to a noise-sensitive receptor. Typical stationary noise sources of concern include machinery or mechanical equipment associated with industrial and manufacturing operations; building heating, ventilating, and air conditioning (HVAC) systems; speakers for public address and concert systems; playground noise; and spectators at concerts or sporting events. An action could raise noise levels either by introducing new stationary noise sources (such as outdoor playgrounds or rooftop air conditioning compressors) or by increasing mobile source noise (generally by generating additional traffic). Similarly, an action could introduce new residences or other sensitive receptors that would be subject to noise from either stationary or mobile sources.

The Proposed Action would replace generally low intensity light industrial and automotive uses, and vacant formerly industrial space, in buildings of mostly one and two stories with seven- to fifteen-story residential buildings, some of which would have ground floor commercial or community facility space. Under the reasonable worst-case development scenario (RWCDS) described in Chapter 1, Project Description, the anticipated development would add 2,635 housing units, 93,000 square feet of commercial space, a child care center, and an outdoor children's playground. It would do so in an area of 11 blocks, parts of which would be in close proximity to two arterial highways (the Cross Bronx Expressway and the Sheridan Expressway) and an elevated subway trestle. The Proposed Action would thus add both stationary noise sources (the playground and the HVAC systems of the new apartment buildings) and mobile noise sources (increased vehicular traffic) and would introduce noise-sensitive uses in an area with prominent mobile source noise generators.

Between the Draft and Final EIS, a number of additional activities were undertaken to provide further clarification to this chapter. These activities included:

1. A supplemental noise monitoring program for the LSGD sites,
2. The inclusion of HUD guidelines and L_{dn} noise levels,
3. The inclusion of more specific noise level calculations associated with the proposed new playground on Site 2S,
4. The calculation of required noise attenuation by floor level and facades for the LSGD sites, and
5. The recalculation of mobile source noise levels due to refinements in the traffic data.

Discussions of these items have been inserted into the text below. To improve readability, notations have been made where this text is inserted, rather than black-lining the entire text.

PRINCIPAL CONCLUSIONS

Mobile Sources

A screening analysis based on action-generated increases in traffic showed no potential for noise increases of 3.0 dBA or more to the L_{eq} or L_{10}, relative to future no-action conditions, at any of the studied intersections. Because

redevelopment of industrial sites under the RWCDS would reduce the number of truck trips, the Proposed Action would result in slightly lower noise levels at many locations and a significant lowering of noise levels, by 3.1 dBA, at the intersection of Boone Avenue and East 173rd Street.

The northernmost block of the proposed rezoning area is adjacent to an elevated subway trestle above Boston Road. Because of this, the noise levels at Projected Development Site 9C and Potential Development Sites 9A and 9B would be in the Clearly Unacceptable category of the NYCDEP Noise Exposure Guidelines. The highest noise levels, up to an L_{10} of 86.1 dBA, are based on monitored noise levels at ground level and are partially due to the reverberation of rail noise on the elevated metal structure. Under guidelines in the *CEQR Technical Manual,* the development of new residential units at locations subject to these Clearly Unacceptable noise levels would ordinarily constitute a significant adverse impact because indoor noise levels could exceed the maximum acceptable level of 45 dBA. However, the Proposed Action would include the mapping of (E) designations on Sites 9A (Block 3016, Lots 33 and 35), 9B (Block 3016, Lots 36 and 37), and 9C (Block 3016, Lots 38 and 42) that would require (1) specified levels of window/wall noise attenuation and (2) air conditioning or other alternative means of ventilation so that residents can maintain a closed window condition at all times of the year. The specified attenuation levels would be at least 42 dBA on the affected lower floors of the buildings. That level of exterior-to-interior noise attenuation would ensure that indoor noise levels would be below 45 dBA, avoiding the potential significant adverse noise impact. A lesser noise attenuation requirement may be appropriate for floors above the second floor because noise levels above the elevated rail structure may be substantially lower. Since these buildings are not controlled by the applicant, any refinements to the required attenuation for the upper floors would be the responsibility of the developer.

Other projected and potential development sites would be subject to noise levels in the marginally unacceptable categories because of highway and other traffic noise. If an action would introduce noise-sensitive uses at a location where the noise levels would exceed the marginally acceptable levels, the *CEQR Technical Manual* specifies that a significant impact would occur unless the building design provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. Except at Sites 9A, 9B, and 9C, attenuation levels of from 28 to 33 dBA would be required to ensure acceptable indoor noise levels at sites where traffic noise is the only significant noise source. Additional noise monitoring and analysis were carried out between Draft and Final to refine the projected noise levels at the LSGD sites.

The Proposed Action would include the mapping of (E) designations for non-applicant-controlled projected and potential development sites and the recording of restrictive declarations for Proposed Project sites. The provisions of both the (E) designations and the restrictive declarations would mandate the required attenuation rating levels to ensure that interior noise levels would be at 45 dBA or less for residential uses and 50 dBA or less for commercial uses. Where the projected L_{10} noise levels would be 70 dBA or more, the (E) designation and restrictive declaration provisions also would require alternate means of ventilation to permit a closed-window condition during warm weather. Although the projected noise levels would be high enough to result in significant adverse noise impacts, the potential impacts would be avoided through the mapping of (E) designations and recording of restrictive declarations that would mandate the requisite noise attenuation levels and, where necessary, require alternate means of ventilation.

Stationary Sources

No existing stationary sources of noise were identified during field observations. Stationary sources of noise under the Proposed Action would include HVAC units on the rooftops of buildings. No impacts from new stationary sources are anticipated due to the distances from buildings of similar height and the design of the units.

The Proposed Project would include both an outdoor children's playground (a new stationary noise source) and wings of a residential building (new sensitive noise receptors) along the southern part of the Boone Avenue frontage between East 172nd and 173rd Streets, on Site 2S. One building wing would

directly abut the playground's northern edge. For ground floor windows facing the playground, the total L_{10} would be 78.5 dBA, which would be in the Marginally Unacceptable IV category, requiring window/wall noise attenuation of 35 dBA. A façade of another wing would be about 15 feet from the playground's southern edge. For ground floor windows facing the playground, the total L_{10} would be 78.5 dBA, which would be in the Marginally Unacceptable IV category, requiring window/wall noise attenuation of 35 dBA.

Under guidelines in the *CEQR Technical Manual,* these increases would constitute potential significant adverse impacts to the residential windows that would face the playground. However, the restrictive declaration associated with the LSGD would require window/wall noise attenuation of at least 35 dBA on the affected lower floors of the two building wings. A lesser noise attenuation requirement would be appropriate for floors above the second floor as both traffic noise and playground noise decrease with distance. Additional analysis was carried out between the Draft and Final EIS to determine the appropriate noise attenuation levels for the higher floors. The restrictive declaration provisions to ensure that interior noise levels remain at 45 dBA or less for residential uses would avoid the potential significant adverse noise impacts.

NOISE FUNDAMENTALS

Noise is measured in sound pressure level (SPL), which is converted to a decibel scale. The decibel is a relative measure of the sound level pressure with respect to a standardized reference quantity. Decibels on the A-weighted scale are termed "dBA." The A-weighted scale is used for evaluating the effects of noise in the environment because it most closely approximates the response of the human ear. On this scale, the threshold of discomfort is 120 dB, and the threshold of pain is about 140. Table P-1 shows the range of noise levels for a variety of indoor and outdoor noise levels.

Because the scale is logarithmic, a relative increase of 10 decibels represents a sound pressure level that is 10 times higher. However, humans do not perceive a 10 dBA increase as 10 times or louder; they perceive it as twice as loud. The following is typical of human response to relative changes in noise level:

- 3 dBA change is the threshold of change detectable by the human ear;
- 5 dBA change is readily noticeable; and
- 10 dBA increase is perceived as a doubling of noise level.

The sound pressure level that humans experience typically varies from moment to moment. Therefore, a variety of descriptors are used to evaluate environmental noise levels over time. Some typical descriptors are defined below:

- L_{eq} is the continuous equivalent sound level. The sound energy from the fluctuating sound pressure levels is averaged over time to create a single number to describe the mean energy or intensity level. High noise levels during a monitoring period will have greater effect on the L_{eq} than low noise levels. The L_{eq} has an advantage over other descriptors because L_{eq} values from different noise sources can be added and subtracted to determine cumulative noise levels.
- L_{max} is the highest SPL measured during a given period of time. It is useful in evaluating L_{eq}s for time periods that have an especially wide range of noise levels.
- L_{10} is the SPL exceeded 10% of the time. Similar descriptors are the L_{50}, L_{01}, and L_{90}.
- L_{dn} is the day-night equivalent sound level. It is similar to a 24-hour L_{eq}, but with 10 dBA added to SPL measurements between 10 pm and 7 am to reflect the greater intrusiveness of noise experienced during these hours. L_{dn} is also termed DNL.

Table P-1: Sound Pressure Level and Loudness of Typical Noises in Indoor and Outdoor Environments

Noise Level (dBA)	Subjective Impression	Typical Sources		Relative Loudness (Human Response)
		Outdoor	Indoor	
120-130	Uncomfortably Loud	Air raid siren at 50 feet (threshold of pain)	Oxygen torch	32 times as loud
110-120	Uncomfortably Loud	Turbo-fan aircraft at take-off power at 200 feet	Riveting machine Rock band	16 times as loud
100-110	Uncomfortably Loud	Jackhammer at 3 feet		8 times as loud
90-100	Very Loud	Gas lawn mower at 3 feet Subway train at 30 feet Train whistle at crossing Wood chipper shredding trees Chain saw cutting trees at 10 feet	Newspaper press	4 times as loud
80-90	Very Loud	Passing freight train at 30 feet Steamroller at 30 feet Leaf blower at 5 feet Power lawn mower at 5 feet	Food blender Milling machine Garbage disposal Crowd noise at sports event	2 times as loud
70-80	Moderately Loud	NJ Turnpike at 50 feet Truck idling at 30 feet Traffic in downtown urban area	Loud stereo Vacuum cleaner Food blender	Reference loudness (70 dBA)
60-70	Moderately Loud	Residential air conditioner at 100 feet Gas lawn mower at 100 feet Waves breaking on beach at 65 feet	Cash register Dishwasher Theater lobby Normal speech at 3 feet	2 as loud
50-60	Quiet	Large transformers at 100 feet Traffic in suburban area	Living room with TV on Classroom Business office Dehumidifier Normal speech at 10 feet	1/4 as loud
40-50	Quiet	Bird calls, Trees rustling, Crickets, Water flowing in brook	Folding clothes Using computer	1/8 as loud
30-40	Very quiet		Walking on carpet Clock ticking in adjacent room	1/16 as loud
20-30	Very quiet		Bedroom at night	1/32 as loud
10-20	Extremely quiet		Broadcast and recording studio	
0-10	Threshold of hearing			

Sources: Noise Assessment Guidelines Technical Background, by Theodore J. Schultz, Bolt Beranek and Newman, Inc., prepared for the US Department of Housing and Urban Development, Office of Research and Technology, Washington, D.C., undated; Sandstone Environmental Associates, Inc.; Highway Noise Fundamentals, prepared by the Federal Highway Administration, US Department of Transportation, September 1980; Handbook of Environmental Acoustics, by James P. Cowan, Van Nostrand Reinhold, 1994.

For mobile source noise from vehicular traffic, passenger car equivalents (PCEs) are the number of autos that would generate the same noise level as the observed vehicular mix of autos, medium trucks, and heavy trucks. PCEs are useful for comparing the effects of traffic noise on different roadways or for different future scenarios. The *CEQR Technical Manual* uses the following formulas for converting motor vehicles into PCEs:

- auto and light trucks = 1 passenger car
- medium trucks = 13 passenger cars
- heavy trucks = 47 passenger cars
- buses = 18 passenger cars

METHODOLOGY

The methodology used for the analyses in this chapter is based on guidance in the *CEQR Technical Manual*, as revised in 2010.

Noise Monitoring

Noise levels were monitored according to the *NYC CEQR Technical Manual* ANSI Standard S1.13-1971 (R1976) using a Brüel & Kjær Sound Level Meter Type 2250, an ANSI Type I instrument. It was mounted on a tripod at a height of 5 feet above the ground, and it was calibrated before and after use. A wind screen was used during all sound measurements except for calibration. No measurements were taken during periods of precipitation or winds of 12 mph or more.

Noise monitoring was carried out at multiple locations and time periods to determine the noise levels in the rezoning area. Eight monitoring locations were chosen to evaluate the potential increases in noise level associated with increased traffic. Traffic noise levels were monitored for 20 minutes during the peak AM (8:00-9:00 a.m.), Midday (12:00-1:00 p.m.), and PM (5:00-6:00 p.m.) periods. Traffic classification counts were taken concurrently with the sound measurements.

Modeling of Future Noise Levels

To project future no-action condition noise levels at the monitoring locations, proportional modeling techniques, as described in the *CEQR Technical Manual*, were used to determine anticipated incremental changes in noise levels resulting from the expected increases in traffic volumes. This technique was also used to project the differences in noise levels between the future no-action and action conditions that would result from the changes in traffic volumes caused by the proposed project's anticipated trip generation. The change in future noise levels is calculated using the following equation:

$$FNL = ENL + 10 \times \log_{10} (FPCE/EPCE),$$

where:

FNL = Future Noise Level

ENL = Existing Noise Level

FPCE = Future PCEs

EPCE = Existing PCEs

Because sound levels use a logarithmic scale, this model proportions logarithmically with traffic change ratios. For example, at a location where traffic is the dominant noise source, if the existing traffic volume on a street is 100 PCEs and the future traffic volume would increase to 150 PCEs, the noise level would increase by 1.8 dBA. If the future traffic would instead double to 200 PCEs, the noise level would increase by 3.0 dBA.

Impact Determination and Noise Standards and Guidelines

In 1983, the New York City Department of Environmental Protection (NYCDEP) adopted the City Environmental Protection Order-City Environmental Quality Review (CEQR) noise standards for exterior noise levels. These Noise Exposure Guidelines are the basis for classifying noise exposure into four categories based on the L_{10}: Acceptable, Marginally Acceptable, Marginally Unacceptable, and Clearly Unacceptable, as shown in Table P-2.

Table P-2: Noise Exposure Guidelines for Use in City Environmental Impact Review[1]

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		Ldn ≤ 60 dBA		Ldn ≤ 60 dBA		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	L10≤ 55dBA		$55<L_{10}\leq 70$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	

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 nursing 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).

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

For sensitive receptors introduced by the Proposed Action, With-Action noise levels in dB(A) $L_{10(1)}$ are compared to the values contained in the Noise Exposure Guidelines. If these noise levels would exceed the marginally acceptable levels, a significant impact would occur unless the building design provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. These values are shown in Table P-3.

Table P-3: Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				**Clearly Unacceptable**
Noise level with Proposed Action	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation[A]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	$36 + (L_{10} - 80)^B$ dBA

Note: [A]The above composite window/wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dBA less in each category. All the above categories require a closed window situation and hence alternate means of ventilation.

[B]Required attenuation values increase by 1 dBA increments for L_{10} values greater than 80 dBA.

Source: New York City Department of Environmental Protection.

For noise increases caused by action-induced traffic, or for stationary noise sources introduced by the Proposed Action, if the No-Action levels are less than 60 dB(A) $L_{eq(1)}$ and the analysis period is not at nighttime, an increase of 5 dB(A) $L_{eq(1)}$ or more in the future with the project would be considered a significant impact. In order for the 5 dB(A) threshold to be valid, the resultant With-Action condition noise level would have to be equal to or less than 65 dB(A). If the No-Action noise level is equal to or greater than 62 dB(A) $L_{eq(1)}$, or if the analysis period is a nighttime analysis period, the incremental significant impact threshold would be 3 dB(A) $L_{eq(1)}$. If the No-Action noise level is 61dB(A) $L_{eq(1)}$, the maximum incremental increase would be 4 dB(A), since an increase higher than this would result in a noise level higher than the 65 dB(A) $L_{eq(1)}$ threshold and be considered significant.

The following section is entirely new to the FEIS. Based on EPA reports, the Department of Housing and Urban Development published regulations establishing standards for HUD-assisted projects in 1979. HUD categorized noise levels for proposed residential development as acceptable, normally unacceptable, and unacceptable, as shown in Table P-4. HUD assistance for construction of new noise sensitive uses is generally prohibited for projects with unacceptable noise exposures and is discouraged for projects with normally unacceptable noise exposure. The assumption is that standard construction provides an average of 20 dBA of attenuation from exterior noise levels. For an exterior L_{dn} of 65 dBA or below, this amount of attenuation would be sufficient to meet an interior L_{dn} level of 45 dBA. HUD-financed buildings constructed in Normally Unacceptable or Unacceptable areas must provide sufficient sound attenuation, as specified by HUD, to reduce interior noise levels to an L_{dn} of 45 dBA.

Table P-4: HUD Acceptability Standards for Noise

Category	Noise Level (L_{dn})
Acceptable	$\leq$ 65 dBA
Normally Unacceptable	>65 dBA $\leq$ 75 dBA
Unacceptable	> 75 dBA

Source: U.S. Department of Housing and Urban Development, March 1985

The Noise Guidebook, published by HUD in 1985, states that sites in the vicinity of federally funded highways are subject to the noise analysis procedures of the Federal Highway Administration (FHWA). To convert the FHWA analyses to relevant HUD criteria, the Guidebook recommended the following rules of thumb:

- $L_{dn} \approx$ the peak-hour L_{eq}, or
- $L_{dn} \approx$ the peak-hour L_{10} - 3 decibels

These formulas assume that off-peak noise levels are lower than peak noise levels and that nighttime noise levels are lower than daytime noise levels. In addition, heavy trucks must not exceed 10% of the 24-hour traffic volume, and traffic flow between 10 pm and 7 am must not exceed 15% of the average daily traffic flow. Another rule of thumb used in analyzing environmental noise levels is that nighttime noise levels are approximately 10 dBA lower than daytime noise levels.

EXISTING CONDITIONS

Traffic Intersections

Noise monitoring was conducted at the following eight intersection locations, which are shown in Figure P-1:

- (T-1) on the southeast corner of Boone Avenue and E. 174th Street;
- (T-2) the southwest corner of W. Farms Road and E. 174th Street;
- (T-3) the southeast corner of Boone Avenue and E. 173rd Street;
- (T-4) the southwest corner of W. Farms Road and E. 173rd Street;
- (T-5) the southeast corner of Boone Avenue and 172nd Street;
- (T-6) the southwest corner of W. Farms Road and 172nd Street;

- (T-7) the northwest corner of Boone Avenue and E. 176th Street-Service Road, and
- (T-8) the southeast corner of Rodman Place and West Farms Road

Figure P-1: Traffic Noise Monitoring Locations

★ = Traffic Noise Monitoring Locations.

Table P-5 shows the Existing noise levels monitored during peak commuter traffic periods for the traffic intersection, rail and highway locations. The L_{10} noise levels for the traffic intersections range from 67.3 dBA at Boone Avenue and E. 173rd Street to 76.5 dBA at West Farms Road and E. 174th Street. Traffic noise levels at the intersections range from Acceptable to Marginally Unacceptable III.

Table P-5: Monitored Noise Levels (dBA)

ID	Site	Period	L_{eq}	L_{10}	L_{01}	L_{90}	CEQR Noise Category
T-1	Boone Ave. & E. 174th St.	AM	71.0	73.4	80.7	65.3	Marginally Unacceptable II
T-1		MD	74.9	72.4	82.6	61.7	
T-1		PM	70.9	73.1	80.7	63.1	
T-2	W. Farms Rd. & E. 174th St.	AM	72.7	74.9	78.3	67.7	Marginally Unacceptable III
T-2		MD	72.9	74.8	82.2	67.5	
T-2		PM	74.4	76.5	83.4	67.6	
T-3	Boone Ave. & E. 173rd St.	AM	69.5	71.2	80.1	63.0	Marginally Unacceptable I
T-3		MD	66.1	67.3	75.6	62.3	
T-3		PM	67.2	68.9	77.7	61.7	
T-4	W. Farms Rd. & E. 173rd St.	AM	75.5	75.3	82.1	69.4	Marginally Unacceptable III
T-4		MD	73.4	76.1	81.4	68.4	
T-4		PM	72.4	74.5	80.3	62.3	
T-5	Boone Ave. & E. 172nd St.	AM	72.3	74.0	83.4	65.0	Marginally Unacceptable II
T-5		MD	68.6	70.8	78.8	62.2	
T-5		PM	68.5	69.2	80.3	62.3	
T-6	W. Farms Rd. & E. 172nd St.	AM	74.4	76.2	80.4	71.0	Marginally Unacceptable III
T-6		MD	74.4	75.9	83.8	68.7	
T-6		PM	73.0	74.5	82.1	67.4	
T-7	Boone Ave. & E. 176th St. Service Rd	AM	69.9	72.1	78.4	65.0	Marginally Unacceptable I
T-7		MD	70.6	71.4	78.3	67.0	
T-7		PM	66.8	69.4	74.1	62.8	
T-8	W. Farms Rd & Rodman Pl.	AM	68.4	71.6	76.3	61.5	Marginally Unacceptable I
T-8		MD	68.6	71.6	76.9	63.2	
T-8		PM	65.4	68.7	71.3	54.9	
R-1	W. Farms Rd. / Boston Rd.	AM	81.1	86.1	90.7	69.0	Clearly Unacceptable
R-1		MD	80.4	84.6	89.7	68.8	
R-1		PM	81.2	85.8	90.3	68.8	
R-2	Boone Ave. / Whitlock Ave.	AM	70.4	73.3	77.7	65.6	Marginally Unacceptable
R-2		MD	71.0	73.7	80.0	65.0	

R-2		PM	70.8	74.4	77.6	65.7	II
R-3	W. Farms Sq. / E. Tremont Ave. station northbound platform	AM	76.1	78.1	88.0	67.3	Marginally Unacceptable IV
R-3		MD	76.1	78.7	87.7	66.9	
R-3		PM	74.3	78.0	85.4	63.8	
H-1	Longfellow Ave. / Cr. Bronx Expresway.	AM	76.1	78.0	81.6	73.2	Marginally Unacceptable III
H-1		MD	74.8	75.7	84.9	69.3	
H-1		PM	69.2	71.9	75.2	64.6	
H-2	West Farms Rd. / Cr. Bronx Expressway.	AM	70.7	73.1	76.7	67.1	Marginally Unacceptable II
H-2		MD	70.7	73.2	76.7	66.8	
H-2		PM	69.3	72.1	75.3	62.7	

Source: Sandstone Environmental Associates, Inc..

Highways

Figure P-2 illustrates the noise monitoring locations (H-1, H-2) for elevated highway noise on the Cross Bronx Expressway (Interstate 95) northern service road and Longfellow Avenue as well as at West Farms Road. Noise from the elevated highways was monitored for 20-minute periods during the weekday traffic peak periods. Noise levels at the highway sites are in the Marginally Unacceptable IV category for location H-1 and the Marginally Unacceptable II category for location H-2.

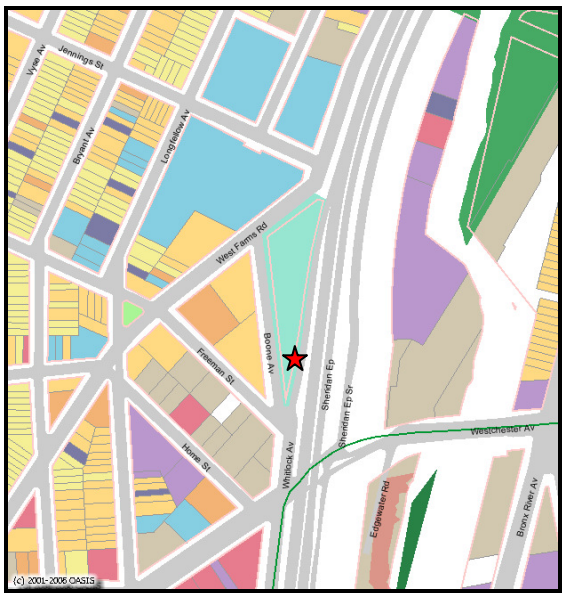
Figure P-2: Rail and Elevated Highway Noise Monitoring Locations (Northern End of the Proposed Rezoning Area)

Rail

For rail noise, three locations (R-1, R-2 and R-3) were chosen at the northern and southern ends of the rezoning area to establish existing noise levels from the elevated IRT White Plains Road line and the IRT

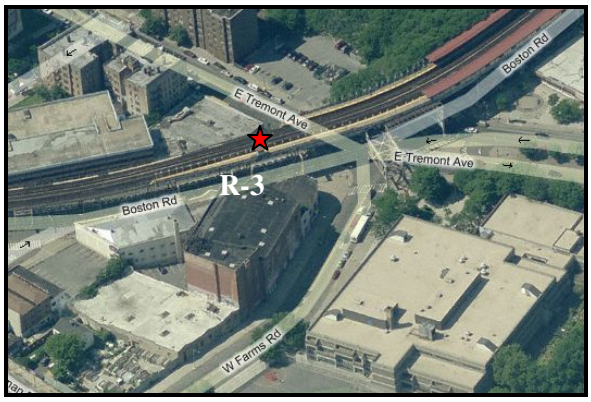
Pelham Line, respectively. Figures P-3 and P-4 show these locations. Location R-3 is at the south end of the northbound platform on the IRT White Plains Road line. Rail noise at each of the three locations was monitored for one hour during the following peak periods: AM (8:00-9:00 a.m.), Midday (12:00-1:00 p.m.), and PM (5:00-6:00 p.m.). As was shown in Table P-4, rail noise is in the Marginally Unacceptable I category for location R-2 at the southern end of the rezoning area. At monitoring locations R-1 and R-3 at the northern point of the rezoning area, the noise levels were in the Marginally Unacceptable III and IV categories.

Figure P-3: Rail Noise Monitoring Locations (Southern End of Rezoning Area)



= Noise Monitoring Locations

Figure P-4: Elevated Rail Noise at West Farms Sq. and E. Tremont Ave. subway platform



Source: Bing Maps

FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION

In the absence of the Proposed Action, the current development scale and mixture of land uses would remain, and no significant new development is anticipated with the exception of Block 3016, Lot 42, at the northern end of the rezoning area. Currently developed with industrial and commercial uses, it would be redeveloped with residential and commercial uses.

Traffic volumes for the Future without the Proposed Action were used with the observed vehicular mixes to project future PCEs. The PCEs were then used with the proportionality equation to project future traffic noise levels at all intersections. Table P-6 shows the projected noise levels for intersection traffic, highway locations, and the rail sites. In comparison to Existing Conditions, noise levels would increase by 0.1 to 0.4 dBA. At the H-1 highway noise monitoring location, the growth in highway traffic would result in a negligible increase in noise levels. Rail noise dominates locations R-1 through R-3, and these noise levels would be substantially similar to those for Existing Conditions.

Table P-6: Intersection, Rail, and Highway Noise (dBA), No Action Conditions

ID	Site	Period	No Build L_{eq}	No Build L_{10}	CEQR Noise Exposure Category
T-1	Boone Ave. & E. 174th St.	AM	71.1	73.5	Marginally Unacceptable II
		MD	75.1	72.6	
		PM	71.1	73.3	
T-2	W. Farms Rd. & E. 174th St.	AM	72.8	75.0	Marginally Unacceptable III
		MD	73.1	75.0	
		PM	74.5	76.6	
T-3	Boone Ave. & E. 173rd St.	AM	69.6	71.3	Marginally Unacceptable I
		MD	66.4	67.6	
		PM	67.4	69.1	
T-4	W. Farms Rd. & E. 173rd St.	AM	75.6	75.4	Marginally Unacceptable III
		MD	73.5	76.2	
		PM	72.5	74.6	
T-5	Boone Ave. & E. 172nd St.	AM	72.3	74.0	Marginally Unacceptable II
		MD	68.7	70.9	
		PM	68.6	69.3	
T-6	W. Farms Rd. & E. 172nd St.	AM	74.5	76.3	Marginally Unacceptable III
		MD	74.5	76.0	
		PM	73.1	74.6	
T-7	Boone Ave. & E. 176th St. Service Rd	AM	70.0	72.2	Marginally Unacceptable I
		MD	70.7	71.5	
		PM	67.0	69.6	
T-8	W. Farms Rd & Rodman Pl	AM	68.5	71.7	Marginally Unacceptable I
		MD	68.8	71.8	
		PM	65.5	68.8	
R-1	W. Farms Rd. / Boston Rd.	AM	81.1	86.1	Clearly Unacceptable
		MID	80.4	84.6	
		PM	81.2	85.8	

R-2	Boone Ave. / Whitlock Ave.	AM MID PM	70.4 71.0 70.8	73.3 73.7 74.4	Marginally Unacceptable II
R-3	W. Farms Sq. / E. Tremont Ave. station northbound platform	AM MD PM	76.1 76.1 74.3	78.1 78.7 78.0	Marginally Unacceptable IV
H-1	Longfellow Ave. / Cr. Bronx Expwy.	AM MID PM	76.2 74.9 69.3	78.1 75.8 72.0	Marginally Unacceptable IV
H-2	West Farms Rd. / Cr. Bronx Expwy	AM MID PM	70.8 70.8 69.4	73.2 73.3 72.2	Marginally Unacceptable II

Source: Sandstone Environmental Associates, Inc.

Note: The values in this table have been adjusted to address rounding errors.

FUTURE CONDITIONS WITH THE PROPOSED ACTION

Intersection and Highway Noise

The action-generated traffic increments at all 20 intersections studied for traffic purposes were evaluated for potential noise impacts. Table P-7 shows the traffic volumes for No Action and Action Conditions at these intersections. If the net increase in passenger vehicles would cause intersection volumes to double, it could cause a noise level increase of 3 dBA, depending on the proportions of trucks and buses in the vehicular mix for No Action and With Action Conditions. In that case, a more detailed analysis based on vehicular mix and the calculation of PCEs would be carried out. For the Proposed Action, all net increases in volume are due to passenger cars because redevelopment of industrial sites would reduce the volume of trucks. As shown in Table P-7, the growth increments do not cause volumes to double at any intersection. Therefore, the addition of the project-generated autos to a No Action volume composed of a mixture of autos, trucks, and buses would not cause PCEs to double, and all potential noise level increases would be below 3 dBA.

Table P-7: Mobile Source Noise Screen, 2022 Traffic Volumes

Intersection List	No Action			Action			Incremental Change		
	AM	MD	PM	AM	MD	PM	AM	MD	PM
East Tremont Ave at East 177th St.	2,520	2,176	2,740	2,785	2,274	2,838	265	98	98
West Farms Road at Boston Rd, East Tremont Ave, Dawson Rd	2,160	1,809	2,421	2,441	1,931	2,569	281	122	148
West Farms Road at Rodman Place	533	327	483	760	423	595	227	96	112
E. 177th St. @ E. 177th St.	3,212	2,685	2,593	3,471	2,780	2,684	259	95	91
West Farms Road at Cross Bronx Expressway North Service Rd	533	342	498	731	395	569	198	53	71
Bronx River Ave at East 174th St.	1,671	1,304	1,865	1,645	1,342	1,988	(26)	38	123
Boone Ave at East 174th St.	1,255	952	1,340	1,250	994	1,488	(5)	42	148
Longfellow Ave at East 174th St.	904	903	1,313	882	918	1,372	(22)	15	59
West Farms Road at East 173rd St.	586	378	550	803	431	667	217	53	117
Boone Ave at East 173rd St.	476	246	326	526	265	426	50	19	100
Longfellow Ave at East 173rd St.	350	326	397	341	341	456	(9)	15	59
West Farms Road at East 172nd St.	560	374	513	666	430	667	106	56	154
Boone Ave at East 172nd St.	373	165	210	382	172	253	9	7	43
West Farms Road at Jennings St.	443	296	430	639	428	664	196	132	234
West Farms Road at Boone Ave	550	367	528	567	402	654	17	35	126
Boone Ave at Freeman St., Sheridan Expressway Ramp	1,113	955	787	1,115	967	841	2	12	54
Westchester Ave at Boone St., Home St.	2,829	2,258	2,204	2,823	2,281	2,306	(6)	23	102
West Farms Road at Home St., Longfellow Ave	613	479	682	610	512	806	(3)	33	124
West Farms Road at Freeman St.	493	347	519	497	380	643	4	33	124
Westchester Ave. at Sheridan Expressway Ramp/Edgewater Rd.	2,145	1,760	2,094	2,150	1,773	2,144	5	13	50

A more detailed analysis was carried out for the locations where noise levels were monitored. At these locations, future noise from traffic was projected using the proportionality equation described under Methodology. Table P-8 shows the changes in noise levels at the monitored sites. In most cases, they are negative due to the reduction in truck traffic. The increases in noise level that are projected are small and would be imperceptible. As the table shows, all of the intersection and highway noise monitoring locations would be in the Marginally Unacceptable categories. Of the three sites monitored for rail noise, two would be in the Marginally Unacceptable category and one would be in the Clearly Unacceptable category.

Table P-8: Noise Levels (dBA), Future Conditions with the Proposed Action

ID	Site	Period	No Action		Proposed Action		Increment	Noise Exposure CEQR Guidelines Category	L_{dn}
			L_{eq}	L_{10}	L_{eq}	L_{10}			
T-1	Boone Ave. & E. 174th St.	AM	71.1	73.5	70.9	73.3	-0.2	Marginally Unacceptable II	70.9
		MID	75.1	72.6	75.0	72.5	-0.1		75.0
		PM	71.1	73.3	71.2	73.4	0.0		71.2
T-2	W. Farms Rd. & E. 174th St.	AM	72.8	75.0	72.7	74.9	-0.1	Marginally Unacceptable III	72.7
		MID	73.1	75.0	73.1	75.0	0.0		73.1
		PM	74.5	76.6	74.7	76.8	0.1		74.7
T-3	Boone Ave. & E. 173rd St.	AM	69.6	71.3	69.1	70.8	-0.5	Marginally Unacceptable I	69.1
		MID	66.4	67.6	63.2	64.4	-3.1		63.2
		PM	67.4	69.1	67.3	69.0	-0.1		67.3
T-4	W. Farms Rd. & E. 173rd St.	AM	75.6	75.4	75.7	75.5	0.1	Marginally Unacceptable II	75.7
		MID	73.5	76.2	73.2	75.9	-0.4		73.2
		PM	72.5	74.6	72.2	74.3	-0.3		72.2
T-5	Boone Ave. & E. 172nd St.	AM	72.3	74.0	72.2	73.9	-0.2	Marginally Unacceptable II	72.2
		MID	68.7	70.9	68.5	70.7	-0.2		68.5
		PM	68.6	69.3	68.4	69.1	-02		68.4
T-6	W. Farms Rd. & E. 172nd St.	AM	74.5	76.3	74.5	76.3	0.1	Marginally Unacceptable III	74.5
		MID	74.5	76.0	74.4	75.9	-0.2		74.4
		PM	73.1	74.6	73.2	74.7	0.1		73.2
T-7	Boone Ave. & E. 176th St. Service Rd	AM	70.0	72.2	70.0	72.2	0.0	Marginally Unacceptable I	70.0
		MID	70.7	71.5	70.6	71.4	-0.1		70.6
		PM	67.0	69.6	66.4	69.0	-0.6		66.4
T-8	W. Farms Rd & Rodman Pl.	AM	68.5	71.7	68.7	71.9	0.2	Marginally Unacceptable I	68.9
		MID	68.8	71.8	68.7	71.7	-0.1		68.7
		PM	65.5	68.8	65.3	68.6	-0.2		65.6
R-1	W. Farms Rd. / Boston Rd.	AM	81.1	86.1	81.1	86.1	0.0	**Clearly Unacceptable**	83.1
		MID	80.4	84.6	80.4	84.6	0.0		81.6
		PM	81.2	85.8	81.2	85.8	0.0		82.8
R-2	Boone Ave. / Whitlock Ave.	AM	70.4	73.3	70.4	73.3	0.0	Marginally Unacceptable II	70.4
		MID	71.0	73.7	71.0	73.7	0.0		71.0
		PM	70.8	74.4	70.8	74.4	0.0		71.4
R-3	W. Farms Sq. / E. Tremont Ave. station NB platform	AM	76.1	78.1	76.1	78.1	0.0	Marginally Unacceptable IV	76.1
		MD	76.1	78.7	76.1	78.7	0.0		76.1
		PM	74.3	78.0	74.3	78.0	0.0		75.0
H-1	Longfellow Ave. /	AM	76.2	78.1	76.3	78.2	0.1	Marginally	76.3

	Cr. Bronx Expwy.	MID	74.9	75.8	74.9	75.8	0.0	Unacceptable IV	74.9
		PM	69.3	72.0	69.3	72.0	0.0		69.3
H-2	West Farms Rd. / Cr. Bronx Expwy	AM	70.8	73.2	70.9	73.3	0.1	Marginally Unacceptable II	70.9
		MID	70.8	73.3	70.8	73.3	0.0		70.8
		PM	69.4	72.2	69.4	72.2	0.0		69.4

Source: Sandstone Environmental Associates, Inc.

Note: The values in this table have been adjusted to address rounding errors.

Table P-8 also shows the Noise Exposure Guidelines categories into which the anticipated noise levels at these locations would fall in the future with the Proposed Action, because of their proximity to projected and potential development sites. As the table shows, all of the intersection and highway noise monitoring locations, as well as two of the rail monitoring locations, would be in the Marginally Unacceptable categories. One of the rail monitoring locations would be in the Clearly Unacceptable category. The implications for the nearby projected and potential development sites are addressed later in this chapter, under Required Attenuation. The noise levels at the rail noise monitoring locations are discussed in the next section.

In reference to the results in Table P-8, the L_{dn} column is used to determine the appropriate HUD category at each location. Below is a listing of the given category each observation site falls under, based upon the highest L_{dn} noted over the three peak periods.

- T-1: Normally Unacceptable
- T-2: Normally Unacceptable
- T-3: Normally Unacceptable
- T-4: **Unacceptable**
- T-5: Normally Unacceptable
- T-6: Normally Unacceptable
- T-7: Normally Unacceptable
- T-8: Normally Unacceptable
- R-1: **Unacceptable**
- R-2: Normally Unacceptable
- R-3:**Unacceptable**
- H-1: **Unacceptable**
- H-2: Normally Unacceptable

Rail Noise

As was shown in Table P-8, rail noise would be the same under the Proposed Action as under No Action Conditions. At noise monitoring location R-1 (and thus at Projected Development Site 9C and Potential Development Sites 9A and 9B), the noise levels would be in the Clearly Unacceptable category of the NYCDEP Noise Exposure Guidelines and Unacceptable under HUD noise guidelines, except for R-2, which received a Normally Unacceptable rating. The highest noise levels, up to an L_{10} of 86.1 dBA, are based on monitored noise levels at ground level and are partially due to the reverberation of rail noise on the elevated metal structure. Under guidelines in the *CEQR Technical Manual,* the development of new residential units at locations subject to these Clearly Unacceptable noise levels would constitute a significant adverse impact unless the building design provides a composite building attenuation sufficient to reduce these levels to indoor noise levels that would not exceed the maximum acceptable level of 45 dBA. However, the Proposed Action would include the mapping of (E) designations on Sites 9A (Block 3016, Lots 33 and 35), 9B (Block 3016, Lots 36 and 37), and 9C (Block 3016, Lots 38 and 42) that would require (1) specified levels of window/wall noise attenuation and (2) air conditioning or other alternative means of ventilation so that residents can maintain a closed window condition at all times of the year. The specified attenuation levels for windows would be at least 42 dBA on the affected lower floors of the buildings. That level of exterior-to-interior noise attenuation would ensure that indoor noise levels would

be below 45 dBA, avoiding the potential significant adverse noise impact. A lesser noise attenuation requirement may be appropriate for floors above the second floor because noise levels above the elevated rail structure may be substantially lower when comparing this location with the nearby subway platform readings. Since these buildings are not controlled by the applicant, any refinements to the required window attenuation for the upper floors are the responsibility of the developer. Additional monitoring at street level and building rooftops and noise analysis will be carried out between the Draft and Final EIS to determine the noise levels at higher elevations in the projected buildings.

Playground Noise

The Proposed Project would include both an outdoor children's playground (a new stationary noise source) and wings of a residential building (new sensitive noise receptors) along the southern part of the Boone Avenue frontage between East 172nd and 173rd Streets, on Site 2S. The playground would abut the southern facade of Building 2B, and it would be about 15 feet from the northern facade of Building 2A. (See Figure P-5 below.)

According to the *CEQR Technical Manual*, $L_{eq(1)}$ noise levels would be 75 dBA at the boundary of the playground, 73 dBA 15 feet from the boundary, and 70 dBA 30 feet from the boundary. Beyond 30 feet, the noise level would attenuate at a rate of 4.5 dBA per distance doubling. Based on noise calculations at supplemental monitoring location B, traffic noise levels along this segment of Boone Avenue would be highest during the peak Midday period.

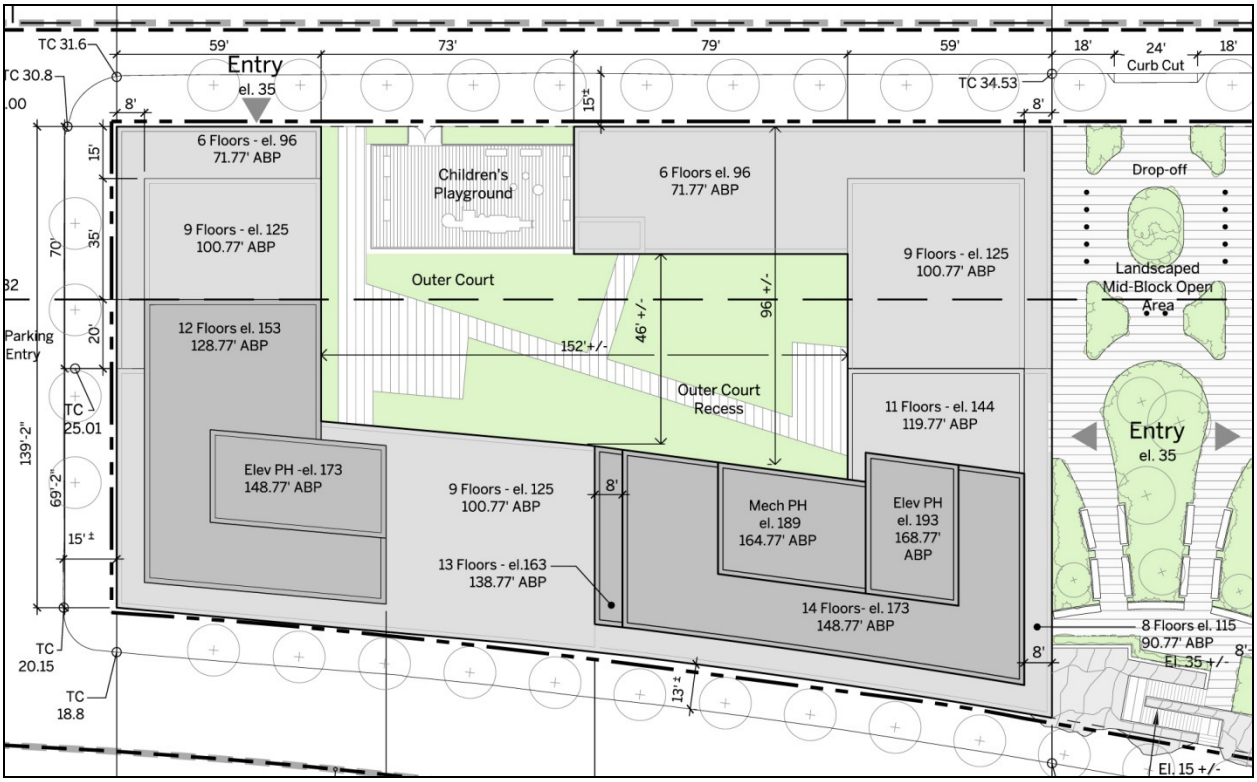
The L_{eq} noise levels from traffic would be 69.0 dBA for No Action conditions and 68.6 dBA at ground level with the Proposed Action. For ground floor windows in Building 2B facing the playground, the addition of 75.0 dBA from the playground, when added to the peak Midday noise level, would result in a total L_{eq} of 75.9 dBA and an L_{10} of 78.5 dBA, which would be in the Marginally Unacceptable IV category, requiring window/wall noise attenuation of 35 dBA. For ground floor windows in Building 2a facing the playground, the total L_{eq} would be 75.9 dBA and the L_{10} would be 78.5 dBA, which would be in the Marginally Unacceptable IV category, requiring window/wall noise attenuation of 35 dBA.

The following section has been redrafted to reflect the more refined playground noise calculations.

The CEQR noise rating and subsequent noise attenuation required for the windows on each floor of Building 2a and Building 2b is discussed under Required Noise Attenuation and shown in Table P-10.

Under guidelines in the *CEQR Technical Manual,* for noise increases caused by stationary noise sources introduced by the Proposed Action, if the No-Action levels would be at least 62 dBA L_{eq}, an increase of 3 dBA or more would constitute a significant impact. For sensitive receptors introduced by the Proposed Action, if the With-Action noise levels would exceed the marginally acceptable levels in the Noise Exposure Guidelines (that is, if the L_{10} would exceed 70 dBA), a significant impact would occur unless the building design provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. The restrictive declaration provisions would ensure that interior noise levels remain at 45 dBA or less for residential uses and 50 dBA for commercial uses would avoid the potential significant adverse noise impact.

Figure P-5: Playground Location at Parcel 2 South



Note: This graphic is new to the FEIS.

HVAC Noise

It is assumed that the building mechanical system (i.e., rooftop HVAC and mechanical systems) would be designed to meet all applicable noise regulations (i.e., Subchapters 5, §24-227 of the New York City Noise Control Code, the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels.

Supplemental Noise Monitoring for Window/Wall Attenuation

Note that this section is entirely new to the FEIS.

Between the DEIS and FEIS, supplemental noise measurements were carried out at locations directly adjacent to land parcels designated under the DEIS as the Large Scale General Development area (LSGD). The purpose of the additional measurements was to establish more finely the necessary minimum attenuation required for street-facing facades located on Parcel 1, Parcel 2N, and Parcel 2S of the project area.

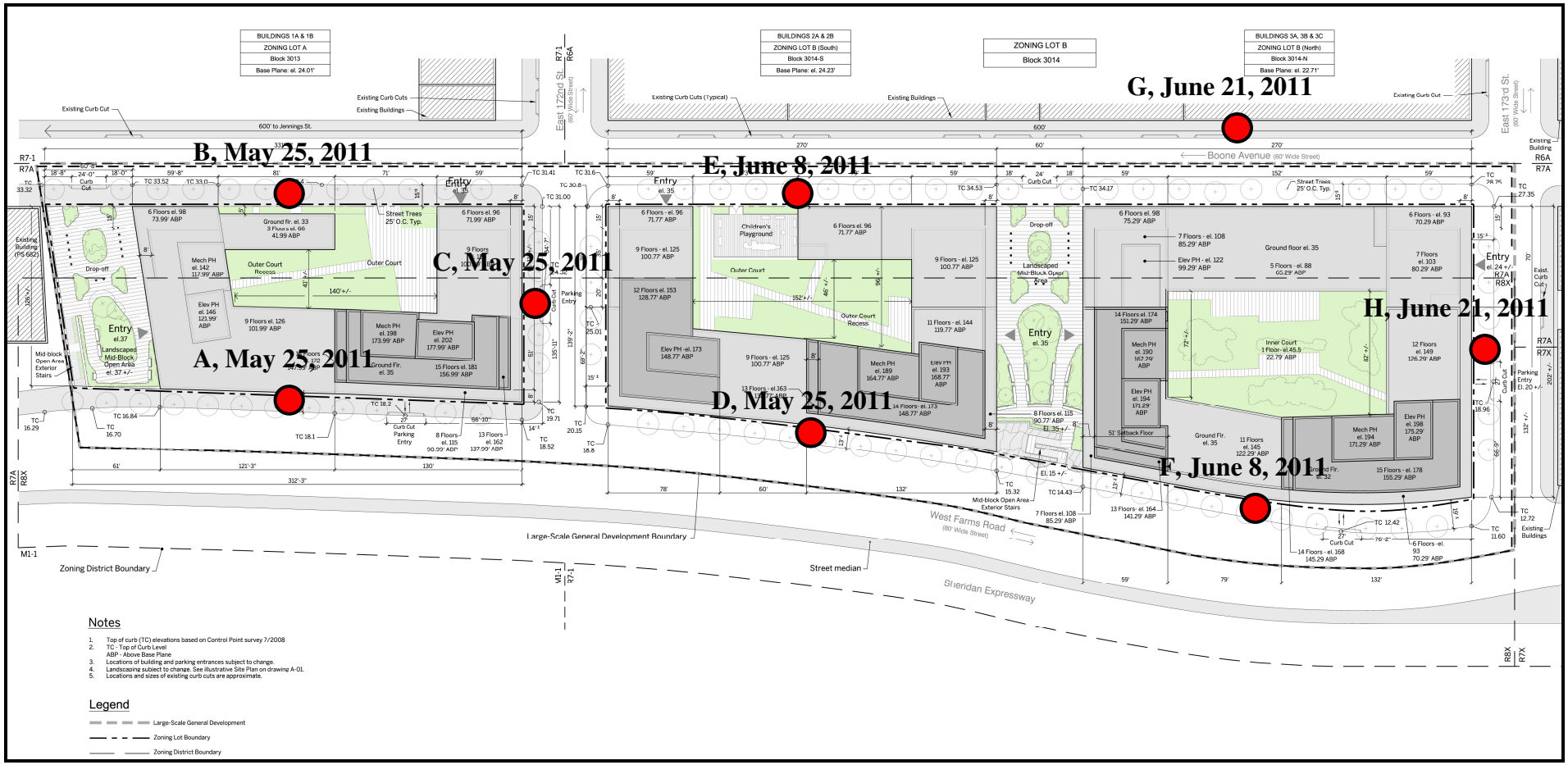
To refine the attenuation required for the facades in the LGSD development, measured mid-block noise monitoring sites are listed below. Figure P-6 graphically shows the locations of the sites in relation to the proposed action's buildings and to each other.

A. 170 feet south along West Farms Road from the intersection of E. 172nd Street on the western sidewalk (Building 1a eastern and southern façades);
B. 170 feet south along Boone Avenue from the intersection of E. 172nd Street on the eastern sidewalk (Building 1a western façade);

C. E. 172nd Street, midblock between Boone Avenue and West Farms Road on the southern sidewalk (Building 1b northern façade and Building 2a southern façade);
D. 140 feet north along West Farms Road from the intersection of E. 172nd Street and West Farms Road on the western sidewalk (Buildings 2a & 2b eastern façades);
E. 140 feet north along Boone Avenue from the intersection of E. 172nd Street and Boone Avenue on the eastern sidewalk (Buildings 2a & 2b western façades);
F. 130 feet south along West Farms Road from the intersection of E. 173rd Street and West Farms Road on the western sidewalk (Buildings 3a & 3b eastern façades);
G. 130 feet south along Boone Avenue from the intersection of E. 173rd Street and Boone Avenue on the western sidewalk (near Building 3c western façade);
H. E. 173rd Street, midblock between Boone Avenue and West Farms Road on the southern sidewalk (Building 3b northern façade).

Measurements were conducted during the peak AM (8:00-9:00 a.m.), Midday (12:00-1:00 p.m.), and PM (5:00-6:00 p.m.) periods, coinciding with typical rush-hour automobile traffic patterns. The supplemental noise monitoring was carried out in May and June of 2011. Figure P-6 shows the sites and Table P-9 shows the monitored noise levels as well as projections for 2022 No Action and Action Conditions.

Figure P-6
Noise Monitoring Locations and Measurement Dates, Large Scale General Development Area



Source: Sandstone Environmental Associates, Inc.

● = *Noise Monitoring Locations.*

Table P-9
Noise Levels at Supplemental Sites

ID	Site Intersection	Period	Existing		No Action		Action	
			L_{eq}	L_{10}	L_{eq}	L_{10}	L_{eq}	L_{10}
A	West Farms Road (bet. E. 172nd St & Jennings St)	AM.	74.4	76.9	77.2	79.7	77.1	79.6
		Midday	73.2	75.6	74.5	76.9	74.3	76.7
		PM	73.9	76.0	74.7	76.8	74.9	77.0
B	Boone Avenue (bet. E. 172nd St & Jennings St)	AM.	62.6	64.1	68.7	70.2	68.7	70.2
		Midday	62.9	65.0	61.1	63.2	61.1	63.2
		PM	64.3	65.4	67.4	68.5	67.4	68.5
C	E. 172nd St (bet. West Farms Rd & Boone Ave)	AM.	70.7	72.0	75.9	77.2	75.8	77.1
		Midday	69.4	71.5	70.6	72.7	69.8	71.9
		PM	69.7	69.9	68.7	68.9	68.1	68.3
D	West Farms Road (bet. E. 173rd St & E. 172nd St, S side)	AM.	76.4	78.7	75.6	77.9	76.3	78.6
		Midday	75.7	78.0	75.3	77.6	75.4	77.7
		PM	76.0	78.2	74.4	76.6	74.5	76.7
E	Boone Avenue (bet. E. 173rd St & E. 172nd St, S side)	AM.	64.9	66.3	63.0	64.4	62.4	63.8
		Midday	67.1	64.5	63.9	61.3	63.5	60.9
		PM	62.7	63.5	59.8	60.6	59.1	59.9
F	West Farms Road (bet. E. 173rd St & E. 172nd St, N side)	AM.	75.1	77.5	73.8	76.2	74.4	76.8
		Midday	74.8	77.3	73.8	76.3	73.9	76.4
		PM	74.0	76.2	72.8	75.0	73.0	75.2
G	Boone Avenue (bet. E. 173rd St & E. 172nd St, N side)	AM.	66.4	69.0	64.6	67.2	63.7	66.3
		Midday	73.0	75.6	69.0	71.6	68.6	71.2
		PM	67.6	67.8	64.4	64.6	63.7	63.9
H	E. 173rd St (bet. West Farms Rd & Boone Ave)	AM.	65.3	66.7	67.5	68.9	66.3	67.7
		Midday	65.4	67.1	64.6	66.3	58.5	60.2
		PM	66.5	68.6	67.1	69.2	66.3	68.4

Source: Sandstone Environmental Associates.

Required Noise Attenuation

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade is composed of the wall, glazing, and any vents or louvers for HVAC systems in various ratios of area. To avoid significant adverse noise impacts, all new buildings to be located on projected or potential development sites would need to provide composite Outdoor-Indoor Transmission Class (OITC) ratings greater than or equal to the attenuation requirements listed in Table 6 in Appendix 6. 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.

Projected noise levels for the exteriors of buildings at projected and potential development sites were projected for future No Action conditions. The observed noise levels and traffic volumes were adjusted using the proportionality equation in conjunction with traffic volumes with the Proposed Action. Tables P-10 and P-11 indicates the requisite levels of window/wall attenuation given the development sites' locations and future noise projections. Tables P-10 and P-11 refer to locations by development site number and, for the Proposed Project, by building number. These are shown in Figures P-7 through P-12.

Where the required window/wall attenuation is above 40 dBA, special design features may be necessary that go beyond the normal double-glazed window and central air conditioning. These may include specially designed windows (e.g., windows with small sizes, windows with air gaps, windows with thicker glazing, etc.) and additional building insulation.

The Proposed Action would include the mapping of (E) designations (E-277) for non-applicant-controlled projected and potential development sites and the recording of restrictive declarations for Proposed Project sites. The provisions of both the (E) designations and the restrictive declarations would mandate the required attenuation levels to ensure that interior noise levels would be at 45 dBA or less for residential uses and 50 dBA or less for commercial uses. Where the projected L_{10} noise levels would be 70 dBA or more, the (E) designation and restrictive declaration provisions also would require alternate means of ventilation to permit a closed-window condition during warm weather.

There are four levels of required noise attenuation. Depending on the ambient noise levels they would require attenuation of 28, 31, 33, 35, or 42 dBA of window/wall attenuation. For applicant-controlled sites requiring 28 dBA of attenuation, the text for the restrictive declarations is as follows.

> "To ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 28 dBA window/wall attenuation on all facades to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning."

The non-applicant projected and potential development sites where the 28 dBA level of noise attenuation would be required are shown in Table P-11.

For sites requiring 31 dBA of attenuation, the text for the restrictive declarations is as follows:

> "To ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on all facades to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning."

The non-applicant projected and potential development sites where the 31 dBA level of noise attenuation would be required are shown in Table P-11.

For sites requiring 33 dBA of attenuation, the text for the restrictive declarations is as follows:

> "To ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all facades to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning."

The non-applicant projected and potential development sites where the 33 dBA level of noise attenuation would be required are shown in Table P-11.

For sites requiring 35 dBA of attenuation, the text for the restrictive declarations is as follows:

> "To ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 35 dBA window/wall attenuation on all facades to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning."

The non-applicant projected and potential development sites where the 35 dBA level of noise attenuation would be required are shown in Table P-11.

For sites requiring 42 dBA of attenuation, the text for the (E) designations is as follows:

> "To ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 42 dBA window/wall attenuation on all facades to maintain an interior noise level of 45 dBA. To achieve 40 dBA of building attenuation, special design features that go beyond the normal double-glazed windows are necessary and may include using specially designed windows (i.e., windows with small sizes, windows with air gaps, windows with thicker glazing, etc.), and additional building attenuation. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning."

The projected and potential development sites where the 42 dBA level of noise attenuation would be required are shown in Table P-10. They are based on the assumption that each floor would be occupied by sensitive receptors such as residences, schools, a daycare center, etc. Some first-floor uses may, instead, be occupied by commercial uses. In these cases, the required attenuation shown in the tables would be adjusted to achieve an interior L_{10} noise level of 50 dBA instead of 45 dBA.

With the attenuation measures specified above, the Proposed Action would not result in any significant adverse noise impacts and would meet CEQR guidelines.

Table P-10: Required Attenuation Values for Projected and Potential Development Sites (Applicant-Controlled)

Site/Building	Block	Lot(s)	Maximum Noise Level at Nearest Monitoring Site		CEQR Categories	Required Attenuation (dBA)
			L_{eq} (dBA)	L_{10} (dBA)		
1 (1A)	3013	12, 46, 29				
Facing north			68.7 (B)	70.2 (B)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 2nd Fl., 25 all other floors
Facing south			68.7 (B)	70.2 (B)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 2nd Fl., 25 all other floors
Facing east			77.1 (A)	79.6 (A)	Marginally Unacceptable IV, Marginally Unacceptable III, Marginally Unacceptable II	35 1st Fl. to 4th Fl., 33 5th-8th Fl., 31 9th Fl.
Facing west			68.7 (B)	70.2 (B)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 2nd Fl., 25 all other floors
1 (1B)	3013	31,35, 37				
Facing north			75.8 (C)	77.1 (C)	Marginally Unacceptable III, Marginally Unacceptable II, Marginally Unacceptable I	33 1st Fl. to 4th Fl., 31 5th Fl. to 8th Fl., 28 all other floors
Facing south			68.7 (B)	70.2 (B)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 3rd Fl., 25 all other floors
Facing east			77.1 (A)	79.6 (A)	Marginally Unacceptable IV, Marginally Unacceptable III, Marginally Unacceptable II, Marginally Unacceptable I	35 1st Fl. to 4th Fl., 33 5th Fl. to 7th Fl., 31 8th Fl. to 14th Fl., 28 15th Fl.
Facing west			72.3 (T5)	74.0 (T5)	Marginally Unacceptable II, Marginally Unacceptable I, Acceptable	31 1st Fl. to 4th Fl., 5th Fl. to 8th Fl., 25 all other floors
2S (2A)	3014S	9 (part)				
Facing north			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
Facing south			75.8 (C)	77.1 (C)	Marginally Unacceptable III, Marginally Unacceptable II	33 1st Fl. to 6th Fl., 31 all other floors
Facing east			76.3 (D)	78.6 (D)	Marginally Unacceptable IV, Marginally Unacceptable III, Marginally Unacceptable II	35 1st Fl. to 4th Fl., 33 5th Fl. to 8th Fl., 31 all other floors
Facing west			68.6 (G)	71.2 (G)	Marginally Unacceptable (I), Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
Facing playground			75.9 (G)*	78.5 (G)*	Acceptable, Marginally Unacceptable I, Marginally Unacceptable II, Marginally Unacceptable III, Marginally Unacceptable IV	35 1st floor, 33 2nd and 3rd floor, 31 4th floor, 28 all other floors
2S (2B)	3014S	9 (part), 45				
Facing north			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
Facing south			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 6th Fl., 25 all other floors

Facing east			76.3 (D)	78.6 (D)	Marginally Unacceptable IV, Marginally Unacceptable III, Marginally Unacceptable II	35 1st Fl. to 4th Fl., 33 5th Fl. to 8th Fl., 31 all other floors
Facing west			68.6 (G)	71.2 (G)	Marginally Unacceptable (I), Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
Facing playground			75.9 (G)*	78.5 (G)*	Marginally Unacceptable I, Marginally Unacceptable II, Marginally Unacceptable III, Marginally Unacceptable IV	35 1st and 2nd floors, 33 3rd floor, 28 4th through 6th floors, 25 all other floors
2N (3A)	3014N	15 (part)				
Facing north			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 5th Fl., 25 all other floors
Facing south			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 5th Fl., 25 all other floors
Facing east			74.4 (F)	76.8 (F)	Marginally Unacceptable III, Marginally Unacceptable II, Marginally Unacceptable I	33 1st Fl. to 4th Fl., 31 5th Fl. to 10th Fl., 28 all other floors
Facing west			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 5th Fl., 25 all other floors
2N (3B)	3014N	15 (part)				
Facing north			73.2 (T4)	75.9 (T4)	Marginally Unacceptable II, Marginally Unacceptable I	31 1st Fl. to 9th Fl., 28 all other floors
Facing south			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
Facing east			74.4 (F)	76.8 (F)	Marginally Unacceptable III, Marginally Unacceptable II, Marginally Unacceptable I	33 1st Fl. to 4th Fl., 31 5th Fl. to 11th Fl., 28 all other floors
Facing west			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 6th Fl., 25 all other floors
2N (3C)	3014N	15 (part)	75.9 (T4)	75.9 (T4)	Marginally Unacceptable III	31
Facing north			69.2 (T3)	70.9 (T3)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 3rd Fl., 25 all other floors
Facing south			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 4th Fl., 25 all other floors
Facing east			74.4 (F)	76.8 (F)	Marginally Unacceptable III, Marginally Unacceptable II	33 1st Fl. to 3rd Fl., 31 all other floors
Facing west			68.6 (G)	71.2 (G)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 4th Fl., 25 all other floors
3B (4)	3009	33	69.2 (T3)	70.9 (T3)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 5th Fl., 25 all other floors
8 (5)	3016	11, 13, 21	68.7 (T8), 76.3 (H1)	71.9 (T8), 78.2 (H1)	Marginally Unacceptable I, IV	31 North, 35 all others
9D	3016	60, 66	68.7 (T8)	71.9 (T8)	Marginally Unacceptable I, Acceptable	28 1st Fl. to 7th Fl., 25 all other floors

** Includes addition of playground noise levels*

Source: Sandstone Environmental Associates.

Note: This table has been completely revised based on the supplemental noise monitoring program and the refined playground noise calculations.

Table P-11: Required Attenuation Values for Projected and Potential Development Sites (Non-applicant-Controlled)

Site/Building	Block	Lot	Maximum Noise Level at Nearest Monitoring Site		CEQR Categories	Required Attenuation (dBA)
			L_{eq} (dBA)	L_{10} (dBA)		
7A	2998	97	70.0 (T7)	72.3 (T7)	Marginally Unacceptable I	28
7B	2998	104, 113, 124	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
3A	3009	25	69.1 (T3)	70.9 (T3)	Marginally Unacceptable I	28
3C	3009	37	72.2 (T5)	73.9 (T5)	Marginally Unacceptable II	31
3D	3009	38	72.2 (T5)	73.9 (T5)	Marginally Unacceptable II	31
3E	3009	44	72.2 (T5)	73.9 (T5)	Marginally Unacceptable II	31
5A	3010	26	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
5B	3010	29	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
5C	3010	33	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
5D	3010	40	69.0 (T3)	70.9 (T3)	Marginally Unacceptable I	28
5E	3010	46	73.2 (T4)	75.9 (T4)	Marginally Unacceptable II	31
4A	3015S	1	73.2 (T4)	75.9 (T4)	Marginally Unacceptable II	31
4B	3015S	3, 5	73.2 (T4)	75.9 (T4)	Marginally Unacceptable II	31
4C	3015S	17, 18	73.2 (T4)	75.9 (T4)	Marginally Unacceptable II	31
4D	3015S	19	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
4E	3015S	25, 26	74.7 (T2)	76.8 (T2)	Marginally Unacceptable III	33
4F	3015S	34	74.7 (T2)	76.8 (T2)	Marginally Unacceptable III	33
6A	3015N	50,56, 110	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
6B	3015N	62, 87, 89	71.2 (T1)	73.4 (T1)	Marginally Unacceptable II	31
6C	3015N	67, 83, 84, 85	70.0 (T7)	72.3 (T7)	Marginally Unacceptable I	28
6D	3015N	81	70.0 (T7)	72.3 (T7)	Marginally Unacceptable I	28
6E	3015N	95	74.7 (T2)	76.8 (T2)	Marginally Unacceptable III	33
6F	3015N	96	74.7 (T2)	76.8 (T2)	Marginally Unacceptable III	33
6G	3015N	97	74.7 (T2)	76.8 (T2)	Marginally Unacceptable III	33
9A	3016	33, 35	81.1 (R1)	86.1 (R1)	Clearly Unacceptable	42
9B	3016	36, 37	811 (R1)	86.1 (R1)	Clearly Unacceptable	42
9C	3016	38, 42	81.1 (R1)	86.1 (R1)	Clearly Unacceptable	42
9E	3016	71	68.7 (T8)	71.9 (T8)	Marginally Unacceptable I	28

Note: Commercial uses would require 5 dBA less of attenuation

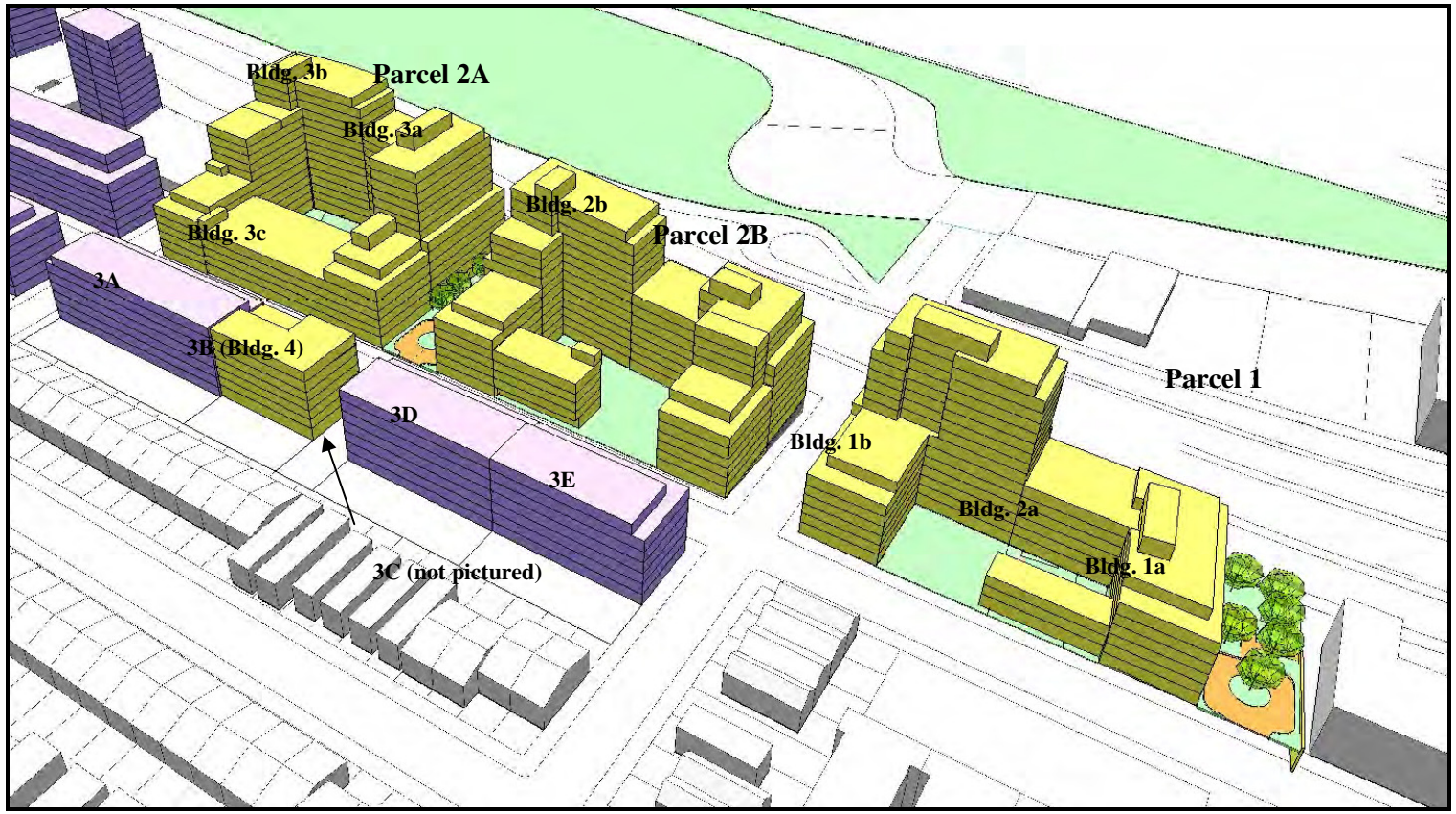
Source: Sandstone Environmental Associates.

Note: This table has been completely revised based on refined noise calculations conducted between the Draft and Final EIS.

Figure P-6: Blocks 3013, 3014, & 3009

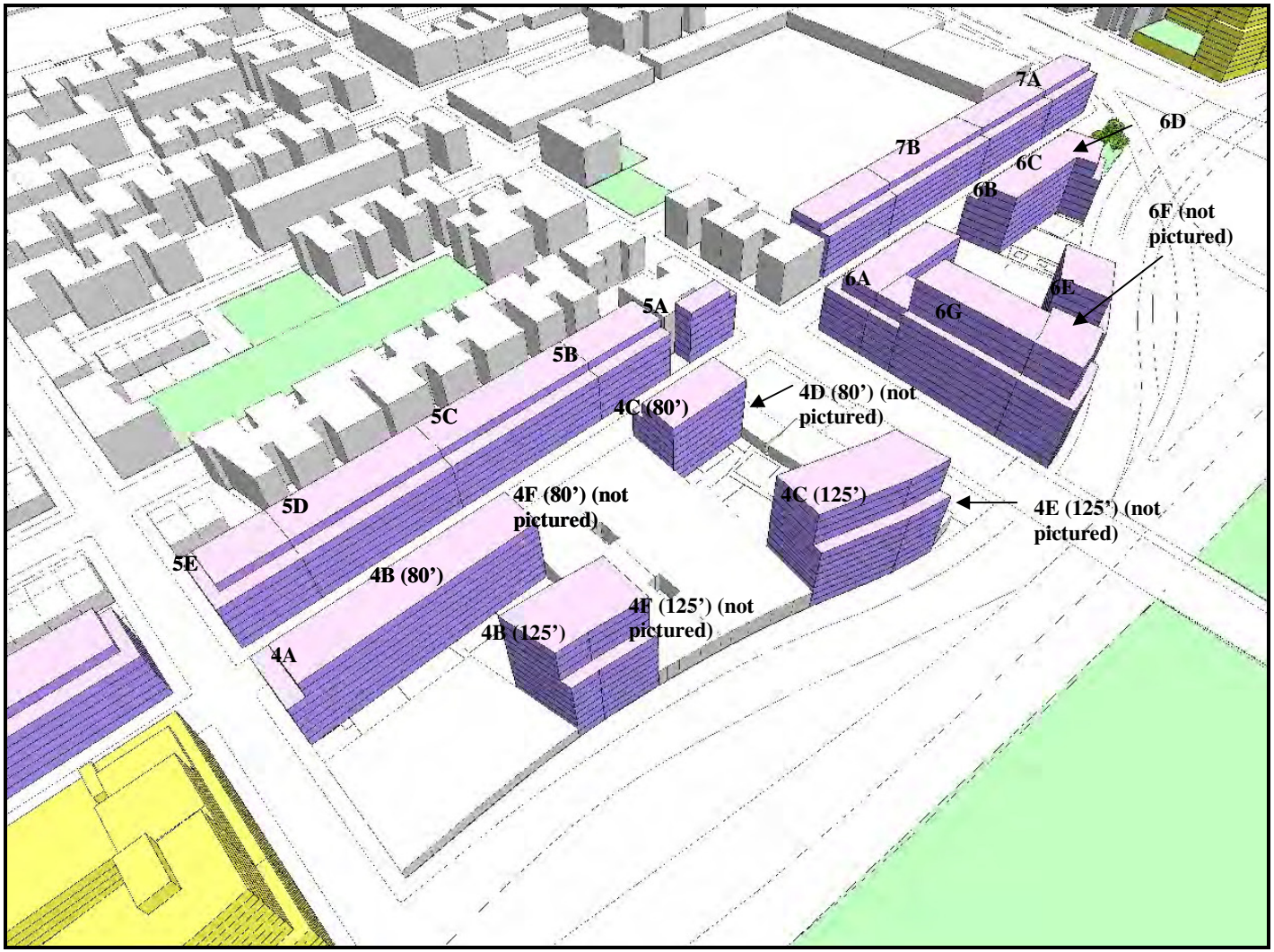
*Source: Dattner Archit*ects. Parcel 2A=2N; Parcel 2B=2S

Figure P-7: Blocks 3013, 3014, & 3009



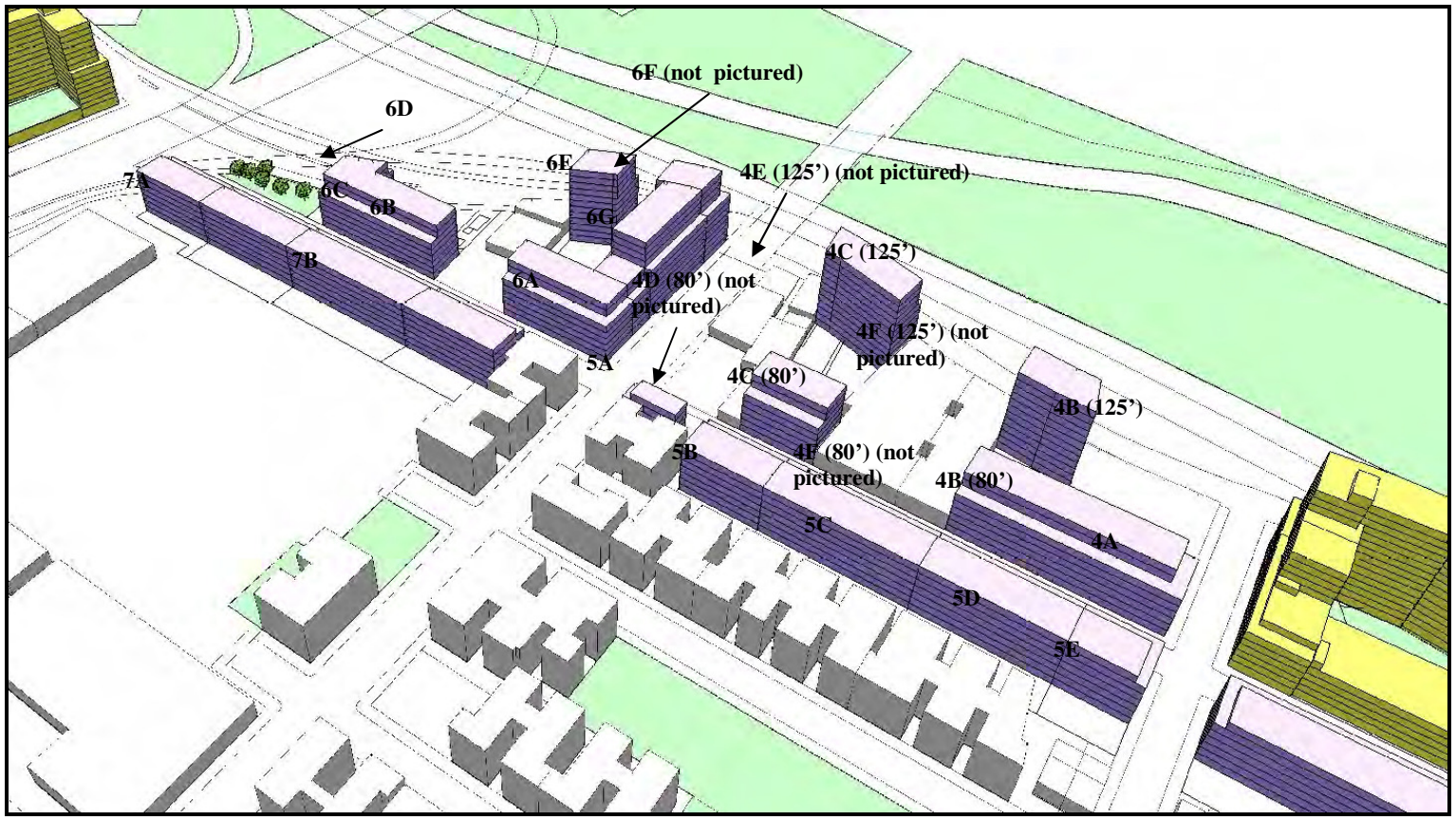
*Source: Dattner Archi*tects. Parcel 2A=2N; Parcel 2B=2S

Figure P-8: Blocks 3015, 3010 & 2998



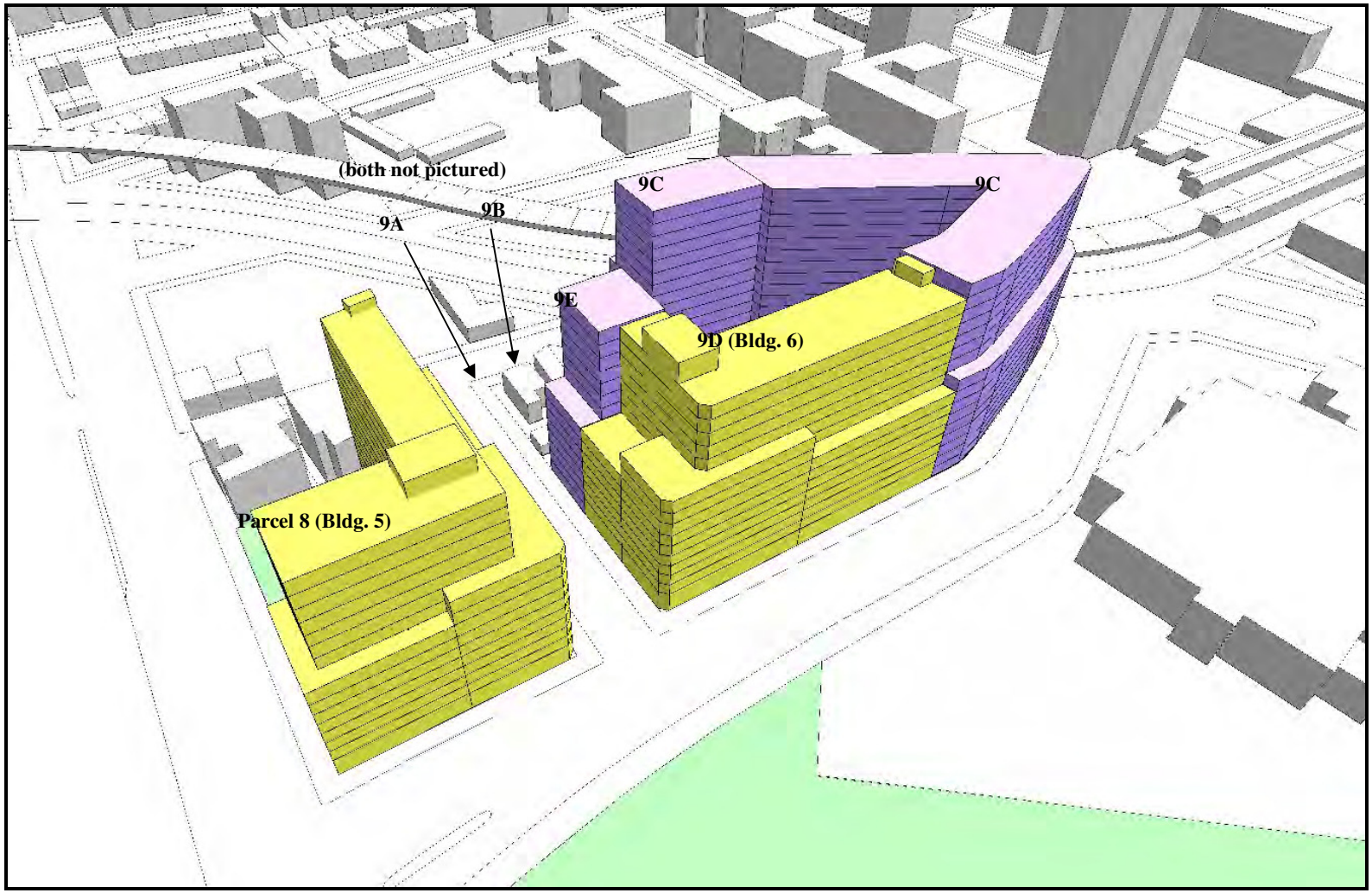
*Source: Dattner Archit*ects.

Figure P-9: Blocks 3015, 3010 & 2998



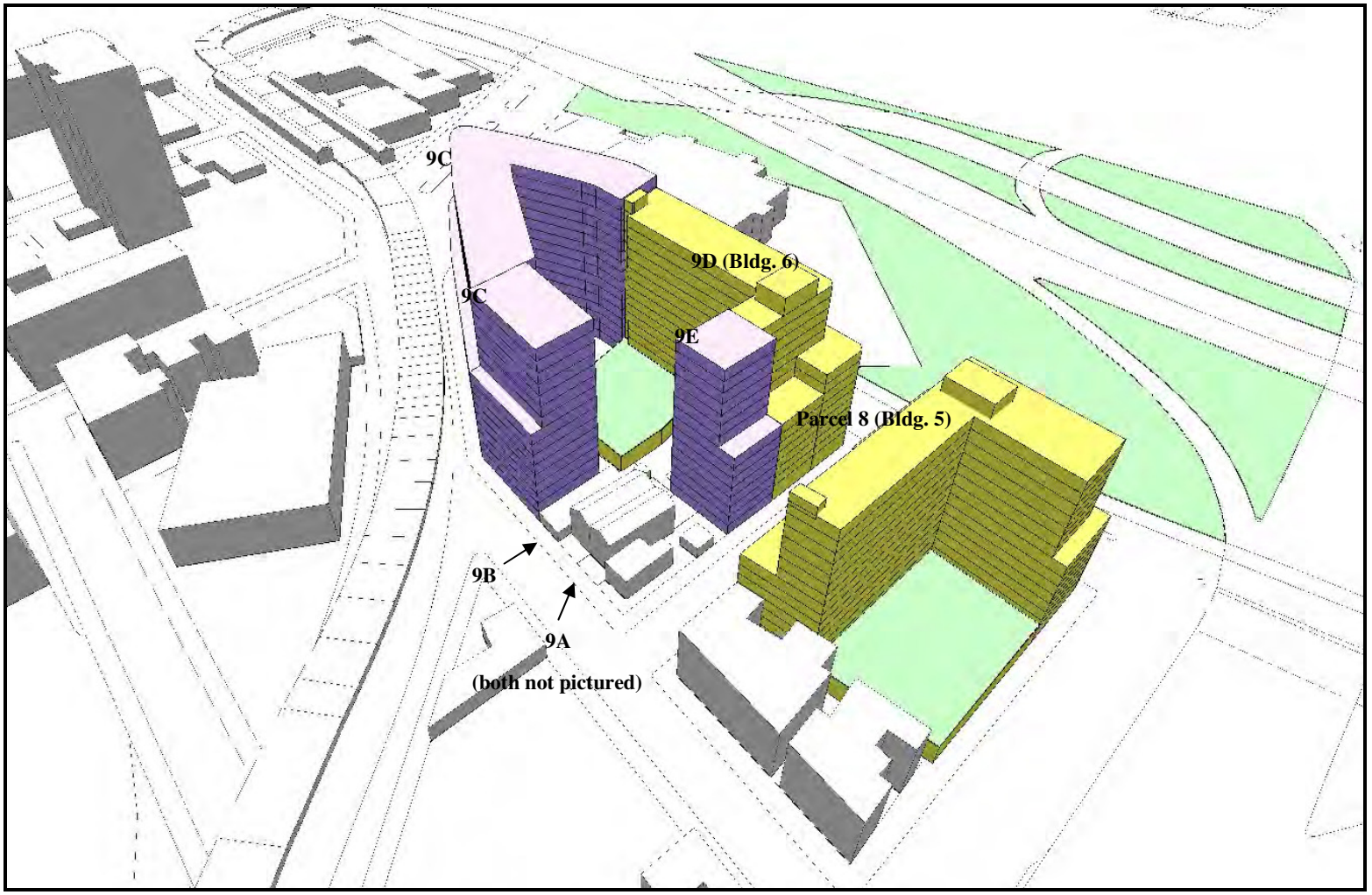
Source: Dattner Architects.

Figure P-10: Block 3016



*Source: Dattner Archit*ects.

Figure P-11: Block 3016



*Source: Dattner Archi*tects