Chapter 22: Public Health

A. INTRODUCTION

Based on the *New York City Environmental Quality Review (CEQR) Technical Manual* and its coverage of public health issues, an environmental impact statement (EIS) should address public health as it pertains to "the activities that society undertakes to create and maintain conditions in which people can be healthy." Thus, the *CEQR Technical Manual* broadly defines public health and an EIS should therefore address the range of potential issues that could be raised by a proposed action or project. The focus of this chapter is an examination of the potential for adverse impacts on public health from the proposed project, from the perspective of human exposure to ambient air, noise, groundwater, sediment, and soil conditions at the project site.

An assessment of potential public health concerns must consider whether there is a route of exposure to pollutants (i.e., the pollutants have a method of transmission to the human body). Typically, exposure is accomplished by one of three principal pathways: 1) inhalation, 2) ingestion, 3) or dermal absorption. The likelihood or prevalence of these exposure pathways is strongly dependent upon the physical and chemical properties of the contaminants in question as well as the environmental attributes (i.e. soil/fill types, hydrogeologic conditions and other factors). For example, inhalation of air and dust in an affected area represents a complete exposure pathway for contaminants. Exposure pathways to groundwater would not be complete, since it is not used as a drinking water source nor would it be used for irrigation with the proposed project.

PRINCIPAL CONCLUSIONS

As per CEQR guidelines, a screening-level assessment was conducted to determine whether a public health analysis is warranted. The assessment determined that the proposed project would not result in significant adverse impacts related to air quality, hazardous materials, groundwater, and solid waste management practices that could attract vermin. While the proposed project would result in significant adverse impacts related to noise as defined by CEQR thresholds, the absolute noise levels would not be of a magnitude that would result in significant adverse health effects. In addition, based on the technical analyses presented in earlier chapters of this EIS, the proposed project would not result in exceedances of adopted federal, State, or local standards. The proposed project is not proposing any other actions that would result in significant public health concerns. Therefore, no further public health analysis is warranted and the proposed project would not result in significant adverse public health impacts.

B. METHODOLOGY

CEQR GUIDELINES

As stated above, according to the *CEQR Technical Manual*, an EIS public health assessment needs to examine a range of potential issues that are project specific. For the proposed project,

this would be related to the potential for public health impacts on future residents and open space users that would be introduced to the site. For determining whether a public health assessment is appropriate, the *CEQR Technical Manual* lists the following as public health concerns for which a public health assessment may be warranted:

- Increased vehicular traffic or emissions from stationary sources resulting in significant adverse air quality impacts;
- Increased exposure to heavy metals (e.g., lead) and other contaminants in soil/dust resulting in significant adverse impacts;
- The presence of contamination from historic spills or releases of substances that might have affected or might affect groundwater to be used as a source of drinking water;
- Solid waste management practices that could attract vermin and result in an increase in pest populations (e.g., rats, mice, cockroaches, and mosquitoes);
- Potentially significant adverse impacts to sensitive receptors from noise or odors;
- Vapor infiltration from contaminants within a building or underlying soil (e.g., contamination originating from gasoline stations or dry cleaners) that may result in significant adverse hazardous materials or air quality impacts;
- Actions for which the potential impact(s) result in an exceedance of accepted federal, State, or local standards; or
- Other actions that might not exceed the preceding thresholds but might, nonetheless, result in significant public health concerns.

SCREENING ASSESSMENT

As per CEQR guidelines, a screening-level assessment was conducted to address each of the above-listed public health concerns to determine whether a public health analysis is warranted. The following presents each of the listed public health concerns as they relate to the conclusions of the various technical analyses presented in earlier chapters of this EIS.

INCREASED VEHICULAR TRAFFIC OR EMISSIONS FROM STATIONARY SOURCES RESULTING IN SIGNIFICANT ADVERSE AIR QUALITY IMPACTS

During Construction

As presented in Chapter 21, "Construction," with the implementation of the proposed emissions control program, the on-site emissions levels during construction are expected to be very low when compared with typical construction activity. With control measures in place, construction activities associated with the proposed project are not expected to cause new exceedances of National Ambient Air Quality Standards (NAAQS) for any pollutant, and would not significantly increase concentrations of particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$) at any location.[1] This has been shown by fully quantified analyses done for larger projects with higher emission profiles. The emissions during the highest quarter were compared with data from other emission profiles generated by other projects that have had construction air emissions analyzed. These projects included Final Environmental Impact Statements (FEISs) for the 1) Proposed Manhattanville in West Harlem Rezoning and

[1] A micron (μm) is one millionth of a meter, which is approximately 1/100 the width of a human hair.

Academic Mixed-Use Development, 2) Atlantic Yards Arena and Redevelopment Project, and 3) First Avenue Properties Development. The highest air emissions in the Domino Sugar Rezoning analysis were found to be lower than for the fully quantified analyses. It was determined that these other projects would not cause significant adverse air quality impacts from construction activities. Therefore, construction activities for the proposed project would not result in any significant adverse air quality impacts.

During Project Operations

The potential for impacts on air quality during the operation of the proposed project was examined in detail and is described in Chapter 19, "Air Quality and Greenhouse Gas Emissions."

The analyses concluded that the proposed project would not result in any significant adverse air quality impacts on sensitive uses in the surrounding community, and the proposed project would not be adversely affected by new or existing sources of air emissions in the project area.

Concentrations of carbon monoxide (CO) and particulate matter less than 10 microns in diameter (PM_{10}) due to project-generated traffic at intersections near the proposed project site (the primary study area) and along main corridors outside the primary study area (the secondary study area) would not result in any violations of NAAQS. It was also determined that CO impacts would not exceed CEQR *de minimis* criteria. Incremental increases in fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) would not contravene the City's current interim guidance criteria. Impacts due to the proposed project's parking facilities were found to result in no significant adverse air quality impacts.

Analysis of the emissions and dispersion of nitrogen oxides (NO_x), CO and PM_{10} from the proposed project's HVAC sources indicates that such emissions would not result in violations of NAAQS. Emissions of $PM_{2.5}$ were analyzed in accordance with the City's current $PM_{2.5}$ interim guidance criteria, which determined that the maximum incremental increases in $PM_{2.5}$ concentrations from stationary sources would be below the significant impact thresholds. To ensure the avoidance of impacts, limitations on annual fuel usage and minimum stack heights would be included in the Restrictive Declaration for the proposed project.

Analysis of the emissions and dispersion of NO_x, CO and PM_{10} from the existing NYPA North 1st Street facility's stationary source indicate that such emissions would not result in the violations of NAAQS. Emissions of $PM_{2.5}$ were analyzed in accordance with the City's current $PM_{2.5}$ interim guidance criteria, which determined that the maximum incremental concentrations of $PM_{2.5}$ from this source on the proposed project would be below the annual significant impact criterion of 0.3 micrograms per cubic meter ($\mu g/m^3$), as well as the 24-hour average interim guidance criterion of 5 $\mu g/m^3$.[1] Maximum 24-hour average $PM_{2.5}$ incremental concentrations from the NYPA facility were predicted to exceed the City's interim guidance criterion of 2 $\mu g/m^3$ at a limited number of locations on elevated receptors on Sites A and B; however, consistent with the City's application of this criteria, based on the magnitude, and the limited frequency and extent of these occurrences, no significant adverse air quality impact is predicted due to emissions of $PM_{2.5}$. To ensure the avoidance of any potential significant adverse impacts, limitations on the placement of operable windows and air intakes would be included in the Restrictive Declaration for the proposed project.

[1] One $\mu g/m^3$ is one one-millionth of a gram in one cubic meter.

Nearby existing sources from manufacturing or processing facilities were analyzed for their potential impacts on the proposed project. The results of the industrial source analysis demonstrated that there would be no significant adverse air quality impacts on the proposed project.

INCREASED EXPOSURE TO HEAVY METALS (E.G., LEAD) AND OTHER CONTAMINANTS IN SOIL/DUST RESULTING IN SIGNIFICANT ADVERSE IMPACTS

As discussed in Chapter 12, "Hazardous Materials," based on the environmental studies conducted at the project site, it has been concluded that there would be no anticipated significant adverse impacts associated with the proposed project with respect to hazardous materials.

Hazardous materials would be appropriately addressed prior to or during the demolition of the on-site buildings, including abatement of identified asbestos-containing materials, which would be removed prior to demolition.

Site investigation activities did reveal the presence of semi-volatile organic compounds and metals in the site subsurface associated with historic fill material, but the presence of these compounds does not pose a significant adverse impact to human health or the environment.

Pursuant to the Restrictive Declaration to be recorded against the property, development activities, including any remediation, will be conducted in accordance with the DEP-approved Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) under the oversight of DEP and/or the New York City Mayor's Office of Environmental Remediation (NYCOER). This would avoid any significant adverse impacts to construction workers, the surrounding community, and future site occupants. The RAP and CHASP would outline procedures for removal of any storage tanks and management of excavated soil during the construction activities, and requirements for vapor controls and a site cap to prevent future exposure to future occupants of the project site.

Therefore, the proposed project would not result in significant adverse impacts with respect to hazardous materials during or after construction.

THE PRESENCE OF CONTAMINATION FROM HISTORIC SPILLS OR RELEASES OF SUBSTANCES THAT MIGHT HAVE AFFECTED OR MIGHT AFFECT GROUNDWATER TO BE USED AS A SOURCE OF DRINKING WATER

The project site is within the area designated for the Brooklyn Queens Sole Source Aquifer. However, groundwater is not used as a potable water supply in this part of Brooklyn and non-potable use is limited. Potable water in Brooklyn is provided by New York City's public water supply, which comprises a system of upstate reservoirs. During subsurface investigations conducted within the project site, groundwater was encountered between 6 and 24 feet below grade and is anticipated to flow west toward the East River. Subsurface investigations conducted in 2005 encountered groundwater at elevations of 2 to 4 feet above mean sea level (MSL), with the lower elevations occurring near the East River. No significant levels of contaminants were detected in a groundwater sample collected within the project site. Only one VOC (trichloroethylene) and two SVOCs (Bis(2-chloroethylhexyl)phthalate and Di-n-Butyl Phthalate) were detected in groundwater samples collected within the project site. Their concentrations were below the NYSDEC Class GA Ambient Water Quality Standards (drinking water standards).

As described in Chapter 12, "Hazardous Materials," laboratory analysis of additional groundwater samples collected during additional sampling in November 2008 detected Methyl

ethyl ketone (MEK) at a concentration that exceeded the NYSDEC Class GA Ambient Water Quality Standards at a sampling location located near the northern end of the project site. Cis 1,2-dichloroethylene (DCE), tetrachloroethene (PCE) and trichloroethene (TCE) were detected at concentrations that exceeded the Class GA standard at a sampling location located at a parking lot upgradiant of the industrial complex. The absence of these VOCs in soil in the vicinity of the wells, and their location indicate these compounds may be attributable to regional groundwater quality, i.e., affected by past industrial/manufacturing operations in the area.

The SVOCs 4-methylphenol, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl) phthalate, chrysene, and ideno(1,2,3-cd)pyrene were detected at concentrations exceeding their respective Class GA standard in groundwater samples collected from three sampling locations. These compounds were detected in the fill materials, and small amounts of fill material can become entrained in the samples, which are not filtered, when agitated by the sampling process. Detected SVOCs may also be attributable to general groundwater quality in the area, which has a history of manufacturing. The SVOC compounds and concentrations detected in groundwater at SB-7 were consistent with the site-wide groundwater quality indicating that the detections are associated with fill material and/or general groundwater quality in the area.

Thirteen metals were detected at concentrations above Class GA standards in the total (unfiltered) groundwater samples. In the filtered samples (dissolved metals analysis), only iron, magnesium, manganese, and sodium were detected above their respective Class GA standards. These results indicate that most of the detections in the total metals analyses are likely due to suspended sediments in the samples. Since the site is in an area that may be tidally influenced, the magnesium, manganese and sodium detected above Class GA standards in the dissolved metals analyses (filtered samples) are likely attributable to the presence of brackish water. The remaining dissolved metals detected were below the Class GA standards and are typical of groundwater quality in New York City.

The proposed project would not create any new pathway conditions that would result in any increased human exposure to groundwater at the site. In addition, local groundwater will not be used for any purpose including consumption. Thus, there would not be an exposure pathway to groundwater with the proposed project and no public health impacts would be expected.

SOLID WASTE MANAGEMENT PRACTICES THAT COULD ATTRACT VERMIN AND RESULT IN AN INCREASE IN PEST POPULATIONS (E.G., RATS, MICE, COCKROACHES, AND MOSQUITOES)

The proposed project would not engage in any solid waste management practices that could attract vermin and result in an increase in pest populations. As discussed in Chapter 21, "Construction Impacts," construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractor would carry out a maintenance program. Coordination would be maintained with appropriate public agencies. Only U.S. EPA - and NYSDEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to humans, domestic animals, and non-target wildlife.

POTENTIALLY SIGNIFICANT ADVERSE IMPACTS TO SENSITIVE RECEPTORS FROM NOISE OR ODORS

Noise

As described in Chapter 20, "Noise," in terms of CEQR, a significant noise impact occurs when there is an increase in the one-hour equivalent noise level ($L_{eq(1)}$) of between 3 and 5 dBA, depending upon the noise level without the proposed action. In terms of public health, significance is not determined based upon the incremental change in noise level, but is based principally upon the magnitude of the noise level and duration of exposure.

During Construction

As described in Chapter 21, "Construction Impacts," construction of the proposed project would implement measures to control noise sources (i.e., reducing noise levels at the source or during most sensitive time periods) and noise pathways (e.g., placement of equipment, implementation of barriers between equipment and sensitive receptors). A screening analysis showed that with these measures, and based on the number and type of pieces of construction equipment in use during a worst-case time period, construction activities would result in increased noise levels at receptor locations within this area that would exceed the CEQR impact criteria (i.e., increase by more than 3 dBA comparing the noise levels due to construction activities with existing noise levels). These exceedances of the CEQR impact criteria may occur for two or more consecutive years, resulting in significant noise impacts at sensitive locations (i.e., residential buildings) within this area. However, the magnitude of these noise levels would be expected to be in the high-60-to-mid-70 dBA ($L_{eq(1)}$) range at the sensitive noise receptor locations adjacent to the project site. Existing $L_{eq(1)}$ noise levels at sensitive receptor locations in the area bounded by the East River, North 1st Street, Berry Street and South 5th Street during the hours of construction range from approximately 60 to 70 dBA. These predicted noise levels would be of limited duration within the day, and the predicted overall changes in noise levels would not be large enough to significantly affect public health. While construction activities would produce noise levels of a magnitude that at times are annoying and intrusive, and would be considered undesirable, construction activities would only occur for a limited number of hours per day, and for a limited number of days during the entire construction period at any location. Based upon the limited durations of these noise levels at any location, the noise produced by construction activities would not result in a significant adverse public health impact.

Also, many of these receptors have double glazed windows and some form of air conditioning (window units, through-wall, or Packaged Terminal Air Conditioners), which would provide substantial attenuation of the incident construction noise and result in acceptable interior noise levels according to CEQR criteria during most times of day. Between the draft and final EIS, a more detailed construction noise analysis will be performed in order to quantify the magnitude of the noise level increases at the nearby sensitive receptors and determine the practicability and feasibility of additional control measures to reduce or eliminate the significant adverse noise impacts.

During Project Operations

As presented in Chapter 20, "Noise," the traffic generated by the proposed project would be expected to produce significant increases in noise levels on South 3rd Street between Kent and Wythe Avenues and on South 4th Street between Kent and Wythe Avenues. The increased noise levels at these locations would constitute significant adverse impacts due to the projected increased traffic using South 3rd and South 4th Streets to enter and exit the project site. There

are residential as well as industrial and manufacturing uses at both of these locations. However, the noise levels at these locations in the future with the proposed project would be in the low 70s of dBA, which would be typical of areas near highly trafficked roadways in New York City. While the magnitude of the noise levels would be above the levels that are desirable from a public health perspective, they are not of a magnitude that would result in significant adverse health effects, and they would not constitute a significant public health impact.

Odors

The proposed project would not result in any sources of odors.

ACTIONS FOR WHICH THE POTENTIAL IMPACT(S) RESULT IN AN EXCEEDANCE OF ACCEPTED FEDERAL, STATE, OR LOCAL STANDARDS

The proposed project would not result in an exceedance of accepted federal, State, or local standards.

OTHER ACTIONS THAT MIGHT NOT EXCEED THE PRECEDING THRESHOLDS BUT MIGHT, NONETHELESS, RESULT IN SIGNIFICANT PUBLIC HEALTH CONCERNS

The proposed project would not result in any other actions that might result in significant public health concerns.

C. SCREENING ASSESSMENT CONCLUSIONS

As per CEQR guidelines, the screening-level assessment above was conducted to determine whether a public health analysis is warranted. The assessment determined that the proposed project would not result in significant adverse public health impacts related to air quality, hazardous materials, and solid waste management practices that could attract vermin. While the proposed project would result in signifcant adverse impacts related to noise as defined by CEQR, the absolute noise levels would not be of a magnitude that would result in significant adverse health effects. In addition, based on the technical analyses presented in earlier chapters of this EIS, the proposed project would not result in an exceedance of accepted federal, State, or local standards. The proposed project is not proposing any other actions that would result in significant public health concerns.

Therefore, no further public health analysis is warranted and the proposed project would not result in significant adverse public health impacts. ✷