

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, groundwater, surface water, 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 or surface water would not be complete, since neither is used as a drinking water source nor would either be used for drinking water or irrigation with the proposed project. In addition, the proposed project would not introduce dermal absorption pathways with respect to surface water contact, as it would not provide public access to the Gowanus Canal adjacent the site.

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, solid waste management practices that could attract vermin, and noise. 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.

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 2001 *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

As discussed in Chapter 18, “Air Quality,” the proposed project would not result in any increased vehicular traffic or emissions from stationary sources that would result in significant adverse air quality impacts. The proposed project’s Heating, Ventilation and Air Conditioning (HVAC) systems would use natural gas as a fuel source, and pollutant emissions would not result in any significant adverse impacts on sensitive receptors. Pollutant emissions from the proposed project’s mechanically ventilated parking garages would not result in emission levels that would result in significant adverse air quality impacts on the public. In addition, pollutant emissions from existing industrial sources in the area would not result in significant adverse impacts on the proposed project’s residents.

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

Construction

As described in Chapter 20, “Construction,” because fugitive dust is a common impact of construction, it is regulated under the New York City Air Pollution Control Code. During construction, all appropriate fugitive dust control measures would be implemented, including:

- Use of water to control dust in the construction operations and during the clearing and grading of land;
- Application of water to dirt paths, materials, stockpiles, and other surfaces that can generate airborne dust over extended period. Construction of temporary roads would be built with properly sized stone or concrete equivalent over filling material;
- Covering of open-body trucks transporting materials likely to generate airborne dust at all times when in motion; and
- Prompt removal of earth or other materials from paved streets where earth or other material has been deposited by trucking or earth-moving equipment, erosion by water, or other means.

In addition, mobile source emissions may result from the operation of construction equipment, trucks delivering materials and removing debris, workers’ private vehicles, or occasional disruptions in traffic near the construction site. While these increases are also temporary, localized increases in mobile source emissions can be minimized by following standard traffic maintenance requirements, such as:

- Construction requiring temporary street closings is performed during off-peak hours wherever possible;
- The existing number of traffic lanes is maintained to the maximum extent possible; and
- Idling of delivery trucks or other equipment is not permitted during unloading or other inactive times in accordance with local law.

Under both New York State and New York City Environmental Quality Review regulations, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. The project site is removed from publically accessible locations where people would be expected to be present for extended durations. The majority of the construction would not affect the public. Construction activities associated with the proposed project would not be expected to result in any significant adverse air quality impacts.

Hazardous Materials

As described in Chapter 11, “Hazardous Materials,” construction at the project site would entail demolition of the existing buildings on the project site followed by excavation for construction of new foundations.

All subsurface soil disturbance would be performed in accordance with a Remedial Action Plan (RAP)/Construction Health and Safety Plan (CHASP). The RAP would provide for the appropriate handling, stockpiling, testing, transportation and disposal of these materials in accordance with all applicable federal, state and local regulations. The CHASP would ensure that all such work is done in a manner protective of both human health and the environment. The

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RAP/CHASP was approved by the New York City Department of Environmental Protection (DEP) on January 29, 2009. Further, with respect to active spill numbers, the remediation would also be undertaken in consultation with DEC.

The RAP would specify that:

- Any encountered USTs (or drums or other containers) will be removed in accordance with New York State Department of Environmental Conservation (DEC) requirements including any necessary registration and spill reporting.
- Any impacted soils (which display petroleum odors and/or staining) that are encountered during the excavation/grading activities will be removed and properly disposed of in accordance with all DEC Regulations.
- If dewatering into storm/sewer drains will occur during the proposed construction, then a DEP Sewer Discharge Criteria should also be completed in any areas where dewatering is expected.
- Upon completion of construction activities, a Closure Report certified by a Professional Engineer or Registered Architect will be submitted to DEP. This report will demonstrate that all remediation activities have been implemented appropriately. At a minimum, the report will include a summary of post-excavation analytical results, soil removal activities, all transportation manifests, soil disposal/recycling certificates, proof of installation of a vapor barrier, and proof of importing clean fill/top soil at any landscaped or grass covered areas (uncapped) at the site.

The CHASP would include:

- Dust control measures such as: fine sprays of water, mist curtains or chemical foams within the excavation area; covering of stockpiled or staged soils; real-time air monitoring for particulates and VOCs.
- Worker training; routine oversight/emergency response procedures; personnel protection standards; and mandatory safety practices and procedures.

As part of the proposed redevelopment of the project site:

- Any areas not covered by buildings or pavement (e.g., unpaved areas in the proposed waterfront esplanade) would be covered with a minimum of two feet of imported clean fill imported from an approved facility/source. A demarcation barrier would be placed to identify the base of the clean fill cover and the top of the remaining fill material. The clean fill/top soil would be segregated at the source, have qualified environmental personnel collect representative samples at a frequency of one sample for every 250 cubic yards, analyzed the samples for Target Compound List (TCL) VOCs, SVOCs, pesticides/PCBs and TAL metals by a New York State Department of Health Environmental Laboratories Approval Program-certified laboratory, compare to TAGM 4046 Recommended Soil Clean-up Objectives, and receive DEP written approval to use the clean fill/top soil. The clean fill/top soil would not be comprised of any construction and demolition (C&D) debris.
- Excavated soils, which are temporarily stockpiled on-site, would be covered with polyethylene sheeting while disposal options are determined. Additional testing may be required by the disposal/recycling facility. If any petroleum-based impacted soils (which display petroleum odors and/or staining) are encountered during the excavation/grading activities, the impacted soils would be removed and properly disposed of in accordance with all DEC Regulations.

- To avoid the potential for vapor intrusion into the future buildings, a vapor barrier, such as Grace Preprufe® membrane, would be applied to the underside of all foundation slabs. Any penetrations would be sealed with a product such as Grace Bituthene® liquid membrane. The design of the vapor barrier system would be submitted to the DEP for review and approval.

These measures will be implemented in accordance with a DEP-approved Restrictive Declaration (a type of legal agreement/institutional control) for the project site (see Chapter 1, “Project Description.”). With these measures in place, significant adverse impacts related to hazardous materials would be avoided during and post construction.

Without the proposed project, the project site would continue in its current condition and uses, and there would be little or no potential for disturbance of the site’s hazardous materials, but, unlike conditions in the future with the proposed project (where remediation would be performed under health and safety plans), there would be little or no remediation of hazardous materials.

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 as the Brooklyn Queens Sole Source Aquifer. Parts of the Brooklyn Queens Sole Source Aquifer are contaminated. Consequently, this groundwater is not used as a source of either potable or non-potable water supply. As presented in Chapter 11, “Hazardous Materials,” groundwater is expected to be close to the ground surface, at depths of between 2 and 7 feet and generally flows towards the Gowanus Canal. Samples collected from the project site indicate that a variety of volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), pesticides, and metals are present in groundwater (see Chapter 11, “Hazardous Materials” for more information). 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, without limitation, consumption or irrigation. 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 20, “Construction,” 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 an ongoing prevention, inspection, and response program. Coordination would be maintained with appropriate public agencies. Only registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife.

POTENTIALLY SIGNIFICANT ADVERSE IMPACTS TO SENSITIVE RECEPTORS FROM NOISE OR ODORS

Noise

As discussed in Chapter 19, “Noise,” because the proposed buildings would be located in a Special Mixed Use District, a minimum of 35 dBA of attenuation would be required, as specified in Section 123-32 on the New York City Zoning Resolution. The proposed project’s building design includes the use of air conditioning (i.e., alternate means of ventilation) and well sealed double-glazed windows. These measures would provide the required 35 dBA or more of window/wall attenuation for all facades of the building. In addition, the building mechanical system (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations and to avoid producing levels that would result in any significant increase in ambient noise levels.

Based on the monitoring results (see Chapter 19, “Noise”), noise levels within the proposed publicly-accessible open space areas would be above the *CEQR Technical Manual* recommended noise exposure guideline of 55 dBA $L_{10(1)}$. One-hour L_{10} noise levels at open space areas adjacent to Carroll Street would be in the mid to low 60 dBA range, and one-hour L_{10} noise levels at open space areas adjacent to 2nd Street would be in the low 60 dBA range. These moderate noise levels would result principally from the noise generated by vehicular traffic on the adjacent streets. One-hour L_{10} noise levels at the open spaces would decrease as the distance from adjacent roadways increases.

Although noise levels within the proposed publicly-accessible open space areas would be above the 55 dBA $L_{10(1)}$ guideline noise level for open space areas, these noise levels would be comparable to noise levels in a number of New York City open space areas, including Hudson River Park, Riverside Park, Bryant Park, Fort Greene Park, and other urban open space areas. The 55 dBA $L_{10(1)}$ guideline is a worthwhile goal for outdoor areas. However, due to the level of activity in most New York City open spaces and parks, this relatively low noise level is often not achieved. There are no additional practical and feasible measures that could be implemented to reduce noise levels to below the 55 dBA $L_{10(1)}$ guideline within the new open space areas that would be created on-site as part of the proposed actions. Noise levels in the proposed projects’ new publicly-accessible open space areas, while exceeding the 55 dBA $L_{10(1)}$ CEQR guideline value, would not result in a significant noise impact.

As described in Chapter 20, “Construction,” the *CEQR Technical Manual* states that significant noise impacts due to construction would occur “only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time.” In general, this has been interpreted to mean that such impacts would occur only at sensitive receptors where high noise levels would occur for two years or longer.

While construction activities may result in increases in noise levels at some locations which exceed the CEQR impact criteria, and construction activities may produce noise levels at some locations that may be noisy and intrusive, the increases in noise levels which exceed the CEQR impact criteria would be for less than two years. Consequently, they would not be considered to be significant adverse noise impacts. In addition, no night work is expected, and any exceedences of the CEQR criteria at sensitive locations would occur during day. Therefore, no long-term, significant adverse noise impacts are expected from construction activities.

Odors

Due to the exposure of CSO sediment at low tide (between the Gowanus Pump Station and approximately Sackett Street), odors have been noted at the head of the Gowanus Canal.¹ This odorous material is located approximately 780 feet from the northern boundary of the project site. Based on the distance of these mounds to the proposed project, it is not expected that odors would result in significant adverse impacts to air quality. To the extent these odors are identified, they represent an aesthetic and not a public health issue.

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

As described in detail in Chapter 13, “Infrastructure,” the project site is located within the 100-year floodplain. Consistent with this policy, all buildings on the project site would comply with, both FEMA and New York City Building Code requirements regulating construction within flood hazard areas. This includes a first floor elevation of the proposed buildings at or greater than one foot above the flood elevation.

In order to ensure that project structures are not impacted by flooding, the elevation of the project site would be raised, including 1st Street and the proposed 0.7 acres of publicly-accessible waterfront open space adjacent to the Gowanus Canal. In addition, to reduce the potential for flood damage or impacts on residential structures, the lowest occupied floor elevation would be constructed above the 100-year base flood elevation (BFE) approximately 7.44 feet above Brooklyn Borough Datum (10 feet National Geodetic Vertical Datum of 1929) to comply with the requirements of the New York City Building Code (Appendix G) and FEMA requirements. In accordance with coastal zone construction guidelines, all residential units of the buildings would be constructed above the 100-year elevation and the parking, commercial, and community facility would be primarily above the 100-year elevation.

The proposed fill material to raise the site base grade would add less than 0.9 percent to the volume of the 100-year floodplain within the Gowanus Canal for the reach north of Hamilton Avenue. Moreover, in tidal flood conditions the flooding source would be due to water coming into the canal from Gowanus Bay and New York Harbor and is therefore subject to a much larger source of tidal flood waters, elevated by astronomic and meteorological forces (e.g., northeasters and hurricanes [FEMA 2007]), of which the project site’s floodplain is an insignificant part (see Figure 13-2b). The additional fill material at the site to raise building and street elevation is calculated to be about 8,200 cubic yards, or 0.9 percent of the total flood capacity volume of the Gowanus Canal reach of the coastal floodplain including only that portion north of the Hamilton Avenue Bridge. Thus, raising the elevation of the project site above the 100-year flood elevation would not exacerbate coastal flooding impacts off-site (i.e. in the vicinity of the project site).

¹ Gowanus Canal Waterbody/Watershed Facility Plan, DEP (Draft), September 2007

In addition, while the proposed publicly-accessible open space would provide locations from which pedestrians would be able to access canal views from the water's edge, the proposed project would not introduce any new access points to the waters of the Gowanus Canal (an existing access point currently used by the Gowanus Dredgers would remain at the end of 2nd Street). Therefore, the proposed project would not introduce a new exposure pathway (e.g., via dermal absorption) from contact with the surface waters of the Gowanus Canal.

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 impacts related to air quality, hazardous materials, solid waste management practices that could attract vermin, and noise. Local groundwater would not be used for any purpose, therefore there would not be an exposure pathway to groundwater with the proposed project. In addition, the proposed project would not introduce dermal absorption pathways with respect to surface water contact. The proposed project would not provide public access to the Gowanus Canal adjacent the site, and all residential units of the buildings would be constructed above the 100-year elevation. Also, raising the elevation of the project site above the 100-year flood elevation would not exacerbate coastal flooding impacts off-site (i.e., in the vicinity of the project site). Therefore, no further public health analysis is warranted and the proposed project would not result in significant adverse public health impacts.*