Chapter 11: Air Quality

A. INTRODUCTION

This chapter examines the potential effects of the proposed Lenox Hill Hospital (LHH) Redevelopment project (the Proposed Project) on air quality in the study area.

As described in Chapter 1, "Project Description," Lenox Hill Hospital (the Applicant) is requesting a series of discretionary actions from the City Planning Commission (CPC) to facilitate the enlargement and modernization of the existing LHH on Block 1411, Lots 1 and 113 (Projected Development Site 1), bounded by Park and Lexington Avenues and East 76th and East 77th Streets in Manhattan. The Proposed Project would include a new building fronting on Lexington Avenue as well as additions and modifications to portions of the existing hospital complex on Projected Development Site 1 and connections between the new hospital building and the renovated buildings. Two building envelopes are proposed, each of which would accommodate the Proposed Project's program. Envelope 1 would include a new approximately 771,000-gross-square-foot (gsf) building on Lexington Avenue and 56,000 gsf of additions to the existing hospital. Envelope 2 would include a new approximately 867,000-gsf building and 8,000 gsf of additions to the existing hospital. With the existing buildings to remain, the overall gross floor area of the Proposed Project on Projected Development Site 1 would be approximately 1.4 million gsf with either envelope. The program, project population (staff, patients, visitors), site access, zoning actions, and construction duration would be the same for both Envelope 1 and Envelope 2.

This Environmental Impact Statement (EIS) also considers the as-of-right development of a building with hospital support functions at 111-115 East 77th Street between Lexington and Park Avenues (Block 1412, Lots 9, 10, and 11) (Projected Development Site 1a) as part of the Proposed Project. It would be connected to Projected Development Site 1 by a utility tunnel under East 77th Street. In addition, the Applicant proposes to provide improvements to the 77th Street subway station of the Lexington Avenue (No. 6) line, providing Americans with Disabilities Act (ADA) access to the downtown platform and improving sidewalk conditions in the immediate area.

Although no significant adverse traffic impacts associated ~~e~~with the Proposed Project are anticipated, potential air quality effects were evaluated.

No fossil-fuel-fired heating and hot water equipment would be utilized for space heating, process, or domestic hot water needs for the Proposed Project, with the possible exception of kitchen uses. Therefore, an analysis of the potential use of this equipment was performed for the hospital kitchen uses only.

The Proposed Project would not introduce new laboratory chemicals or affect the types and quantities of materials used in the existing laboratories. Therefore, no analysis of such chemicals or materials was performed. However, an analysis was performed to examine the effects on the Proposed Project from nearby existing laboratories in the event of a chemical spill.

PRINCIPAL CONCLUSIONS

The maximum hourly incremental increase in vehicle traffic from the Proposed Project would not exceed the 2021 *City Environmental Quality Review (CEQR) Technical Manual* carbon monoxide (CO) screening threshold of 170 peak hour trips at nearby intersections in the study area, nor would it exceed the particulate matter (PM) emissions screening threshold discussed in Chapter 17, Sections 210 and 311, of the *CEQR Technical Manual*. Therefore, a quantified assessment of mobile source emissions is not warranted for the Proposed Project with either Envelope 1 or Envelope 2, and no potential significant adverse air quality impacts from mobile sources associated with the Proposed Project would occur.

Restrictions for the use of electrically and/or utility steam-powered heating, ventilation, and air conditioning systems are in place for the Projected Development Sites. The analysis of potential gas-fired kitchen equipment associated with the Proposed Project with either Envelope 1 or Envelope 2 determined that no significant adverse air quality impacts would occur. An (E) Designation (E-777) would be applied to ensure that the Proposed Project would not result in any significant adverse air quality impacts.

A review of manufacturing and process emission sources within a 400-foot study area, and major and large sources of emissions within 1,000 feet of the Projected Development Sites, was performed. No existing or potential sources of industrial emissions were identified, and no large or major sources of emissions were identified. Therefore, no analysis of the potential impacts of these emissions was required, and no potential significant adverse air quality impacts from these emission sources would occur on the Proposed Project.

An analysis of nearby existing laboratory exhaust systems determined that there would be no significant adverse air quality impacts on the Proposed Project in the event of a chemical spill in a laboratory.

B. POLLUTANTS FOR ANALYSIS

Air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of CO are predominantly influenced by mobile source emissions. PM, volatile organic compounds (VOCs), and nitrogen oxides (nitric oxide [NO] and nitrogen dioxide [NO_2], collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and some sources utilizing non-road diesel such as large international marine engines. On-road diesel vehicles currently contribute very little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs. Ambient concentrations of CO, PM, NO_2, SO_2, ozone, and lead are regulated by the United States Environmental Protection Agency (EPA) under the Clean Air Act (CAA), and are referred to as criteria pollutants; emissions of VOCs, NO_x, and other precursors to criteria pollutants from certain source categories are also regulated by EPA.

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. CO concentrations can diminish rapidly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be analyzed on a local (microscale) basis.

The projected number of project-generated vehicle trips is not expected to exceed the *CEQR Technical Manual* CO analysis screening threshold of 170 trips at an intersection. Therefore, no analysis of CO emissions at any intersection is required.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions.

The Proposed Project would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted. An analysis of Proposed Project-related emissions of these pollutants from mobile sources was therefore not warranted.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary sources. (NO_x emissions from fuel combustion are mostly in the form of NO at the source.) An assessment of NO_2 emissions from the Proposed Project's potential gas-fired kitchen equipment was conducted.

LEAD

Airborne lead emissions are currently associated principally with industrial sources. Lead in gasoline has been banned under the CAA and would not be emitted from any other component of the Proposed Project. Therefore, an analysis of this pollutant was not warranted.

RESPIRABLE PARTICULATE MATTER—PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include: the condensed and reacted forms of naturally occurring VOCs; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions and from forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating),

chemical and manufacturing processes, all types of construction, agricultural activities, and wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic, and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$) and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}, which includes $PM_{2.5}$). $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source) or from precursor gases reacting in the atmosphere to form secondary PM.

Gasoline-powered and diesel-powered vehicles, especially heavy-duty trucks and buses operating on diesel fuel, are a significant source of respirable PM, most of which is $PM_{2.5}$; PM concentrations may, consequently, be locally elevated near roadways.

An assessment of PM emissions from the Proposed Project's potential gas-fired kitchen systems was conducted, following the *CEQR Technical Manual* and EPA guidance.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). SO_2 is also of concern as a precursor to $PM_{2.5}$ and is regulated as a $PM_{2.5}$ precursor under the New Source Review permitting program for large sources. Due to the federal restrictions on the sulfur content in diesel fuel for on-road and non-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore analysis of SO_2 from mobile sources was not warranted.

Natural gas-fired kitchen equipment would potentially be used as part of the Proposed Project. However, the sulfur content of natural gas is negligible; therefore, no analysis was undertaken to estimate the future levels of SO_2 with the Proposed Project.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established[1] for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary standards are generally either the same as the secondary standards or more restrictive. The NAAQS are presented in **Table 11-1**. The NAAQS for 3-hour SO_2 has also been adopted as the ambient air quality standard for New York State, but is defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended particles, settleable

[1] EPA. National Ambient Air Quality Standards. 40 Code of Federal Regulations (CFR) Part 50.

particles, 24-hour and annual SO_2 (which correspond to federal standards that have since been revoked or replaced), and for the noncriteria pollutants fluoride and hydrogen sulfide.

Effective December 2015, EPA lowered the 2008 ozone NAAQS from 0.075 parts per million (ppm) to 0.070 ppm. EPA issued final area designations for the revised standard on April 30, 2018. EPA also revised the NAAQS for $PM_{2.5}$, effective May 6, 2024. The revision included lowering the level of the annual $PM_{2.5}$ primary standard from the current level of 12 micrograms per cubic meter ($\mu g/m^3$) to 9 $\mu g/m^3$ while retaining the levels of the 24-hour primary and secondary standard at 35 $\mu g/m^3$. In addition, the PM_{10} 24-hour average primary and secondary standard was retained.

Federal ambient air quality standards do not exist for noncriteria pollutants; however, as previously mentioned, the New York State Department of Environmental Conservation (DEC) has issued standards for two noncriteria compounds. DEC has also developed a guidance document [2], which contains a compilation of annual and short term (1-hour) guideline concentrations for numerous other noncriteria compounds. The DEC thresholds represent ambient levels that are considered safe for public exposure.

[2] DEC. DAR-1: Guidelines for the Evaluation and Control of Ambient Air Contaminants Under Part 212. February 2021.

Table 11-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m³	ppm	µg/m³
Carbon Monoxide (CO)				
8-Hour Average	9(1)	10,000	None	
1-Hour Average	35(1)	40,000		
Lead				
Rolling 3-Month Average	NA	0.15	NA	0.15
Nitrogen Dioxide (NO_2)				
1-Hour Average(2)	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average(3)	0.070	140	0.070	140
Respirable Particulate Matter (PM_{10})				
24-Hour Average(7)	NA	150	NA	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean(4)	NA	9 (8)	NA	15
24-Hour Average(5)	NA	35	NA	35
Sulfur Dioxide (SO_2)				
1-Hour Average(6)	0.075	196	NA	NA
Maximum 3-Hour Average (1)	NA	NA	0.50	1,300

Notes: ppm – parts per million (unit of measure for gases only)
µg/m³ – micrograms per cubic meter (unit of measure for gases and particles, including lead)
NA – not applicable
All annual periods refer to the calendar year.
Standards are defined in ppm. Approximate equivalent concentrations in µg/m³ are presented.
(1) Not to be exceeded more than once a year.
(2) 3-year average of the annual 98th percentile daily maximum 1-hour average concentration.
(3) 3-year average of the annual fourth highest daily maximum 8-hour average concentration.
(4) 3-year average of annual mean.
(5) Not to be exceeded by the annual 98th percentile when averaged over 3 years.
(6) 3-year average of the annual 99th percentile daily maximum 1-hour average concentration.
(7) Not to be exceeded more than once a year on average over 3 years.
(8) EPA has lowered the NAAQS from 12 µg/m³, effective May 6, 2024.
Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment.

In 2002, EPA re-designated New York City (NYC) as in attainment for CO. Under the resulting maintenance plans, New York is committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period. The second CO maintenance plan for the region was approved by EPA on May 30, 2014.

Manhattan had been designated as a moderate NAA for PM_{10}. EPA clarified on July 29, 2015 that the designation only applied to the revoked annual standard.

The five NYC counties and Nassau, Suffolk, Rockland, Westchester, and Orange Counties have been designated as a $PM_{2.5}$ NAA (New York Portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT NAA) since 2004 under the CAA due to exceedance of the 1997 annual average standard, and were also designated as non-attainment with the 2006 24-hour $PM_{2.5}$ NAAQS since November 2009. The area was redesignated as in attainment for the 1997 standard effective April 18, 2014, and is now under a maintenance plan. Effective March 2013, EPA lowered the $PM_{2.5}$ annual average primary standard to 12 $\mu g/m^3$. EPA then designated the area as in attainment for the 12 $\mu g/m^3$ NAAQS effective April 15, 2015.

As described above, EPA has revised the $PM_{2.5}$ standard. $PM_{2.5}$ attainment designations under the new standard are expected to be effective by May 2026. For areas designated as non-attainment, $PM_{2.5}$ SIPs would be due by December 2027 and would be designed to meet the $PM_{2.5}$ standard by 2032, although this may be extended in some cases.

Effective June 15, 2004, EPA designated Nassau, Rockland, Suffolk, Westchester, and the five NYC counties (NY portion of the New York–Northern New Jersey–Long Island, NY-NJ-CT, NAA) as a moderate NAA for the 1997 8-hour average ozone standard. In March 2008, EPA strengthened the 8-hour ozone standard, but certain requirements remain in areas that were either non-attainment or maintenance areas for the 1997 ozone standard ('anti-backsliding'). EPA designated the same NAA as a marginal NAA for the 2008 ozone NAAQS, effective July 20, 2012, with subsequent reclassifications to "moderate" and "serious" non-attainment since compliance with the NAAQS was not achieved by the required attainment date. On November 29, 2021, DEC presented a demonstration that the New York Metro Area (NYMA) did not meet the July 20, 2021 attainment deadline, and it therefore requested that EPA reclassify the NYMA to "severe" non-attainment. EPA reclassified the NYMA from a "serious" to "severe" NAA, effective November 7, 2022, which imposed a new attainment deadline of July 20, 2027 (based on 2018–2020 monitored data). Separately, on April 30, 2018, EPA designated the same area as a moderate NAA for the revised 2015 ozone standard.

NYC is currently in attainment of the annual average NO_2 standard. EPA has designated the entire state of New York as "unclassifiable/attainment" of the 1-hour NO_2 standard effective February 29, 2012.

EPA established a 1-hour SO_2 standard, replacing the former 24-hour and annual standards, effective August 23, 2010. EPA has designated the entire state of New York as in attainment for this standard, with the exception of a portion of St. Lawrence County as "nonattainment."

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its

magnitude, and the number of people affected.[3] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table 11-1**) would be deemed to have a potential significant adverse impact.

In addition, to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations would not be significantly increased in NAAs, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

CO DE MINIMIS CRITERIA

NYC has developed *de minimis* criteria to assess the significance of the increase in CO concentrations that would result from the impact of proposed projects or actions on mobile sources, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in NYC are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Action condition 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Action condition) concentrations and the 8-hour standard, when No Action condition concentrations are below 8 ppm.

$PM_{2.5}$ DE MINIMIS CRITERIA

In addition, the *de minimis* criteria used to determine the potential for significant adverse $PM_{2.5}$ impacts under CEQR are as follows:

- Predicted increase of more than half the difference between the background concentration and the 24-hour standard;
- Annual average $PM_{2.5}$ concentration increments that are predicted to be 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 locating neighborhood scale monitoring stations); or
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Actions under CEQR predicted to increase $PM_{2.5}$ concentrations by more than the above *de minimis* criteria will be considered to have a potential significant adverse impact.

[3] New York City. *CEQR Technical Manual*. Chapter 1, Section 222. November 2020; and SEQRA Regulations. 6 New York Codes, Rules, and Regulations (NYCRR) § 617.7

D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

MOBILE SOURCE ANALYSIS

INTERSECTION SCREENING

For $PM_{2.5}$, the screening threshold is based on the number of heavy-duty diesel vehicle (HDDV) equivalents.

The thresholds referenced in Section 201 of the *CEQR Technical Manual* are as follows:

- 12 or more HDDV for paved roads with average daily traffic fewer than 5,000 vehicles;
- 19 or more HDDV for collector roads;
- 23 or more HDDV for principal and minor arterials; or
- 23 or more HDDV for expressways and limited access roads.

The worksheet referenced in the *CEQR Technical Manual* calculates the number of project-generated vehicles based on vehicle classification and roadway classification information. For the $PM_{2.5}$ screening, all trucks that would be generated by the Proposed Project are classified using one or more of the HDDV vehicle categories, while other vehicles (autos, taxis) are classified as light duty gas trucks (specifically LDGT1). Roadway classifications are determined based on New York City Department of Transportation (DOT) Functional Classification Maps[4] and With Action condition traffic volumes.

STATIONARY SOURCE ANALYSIS

HEATING AND HOT WATER SYSTEMS

LHH currently utilizes steam from Con Edison to provide heating and hot water services, with the exception of kitchen equipment, which utilizes natural gas. The Proposed Project is currently anticipated to utilize electric-powered equipment (air source heat pumps) to provide heating to the proposed hospital, while cooling would be provided using cooling towers and water-cooled chillers. Con Edison steam is currently anticipated to provide heating for the Proposed Project in the event of a loss of utility power. Cooling for the building systems would be provided via cooling towers and water-cooled chillers. Con Edison steam is also currently used for medical sterilization at LHH. The central sterilization area would be relocated to the new hospital building as part of the Proposed Project, and it is anticipated that it would utilize Con Edison steam, as it does currently. Distillate oil-fired boilers may be installed to be used as a back-up in the event of an interruption of electrical and utility steam services The boilers would be used periodically for very limited periods of time for testing outside of an actual emergency. Therefore, no analysis of this equipment was performed.

EMERGENCY GENERATORS

LHH currently operates two oil-fired engine generators, which are used to provide power in the event of a loss of utility electric power. One or more new oil-fired engine generators would be installed for the Proposed Project. The generators would be used infrequently, and only for very

[4] Functional Class Viewer: https://gis.dot.ny.gov/html5viewer/?viewer=FC

limited periods of time for testing outside of an actual emergency. Therefore, no analysis of this equipment was performed.

POTENTIAL KITCHEN EQUIPMENT

The Proposed Project may include natural gas-fired ovens and grills for kitchen uses (hot water supplied to the proposed kitchen would be provided by Con Edison steam as it is currently, or by electric-powered equipment). Therefore, the stationary analysis was performed to evaluate potential air quality associated with the Proposed Project's kitchens systems only.

Since design information on the potential gas-fired kitchen equipment for the Proposed Project is not available, current kitchen equipment was surveyed. Gas-fired kitchen equipment currently in use at LHH consist of four ranges for cooking and grilling, some of which also include gas-fired ovens. Based on specifications provided, the equipment capacities are as follows:

- One Gas Convection Oven – total capacity of 106 thousand British Thermal Units (MBTU) per hour (MBTU/hr)
- Two Gas Ranges – total capacity of 390 MBTU/hr and 243 MBtu/hr
- One Gas Range/Grill – total estimated capacity of 307 MBTU/hr

The overall capacity of the above equipment, assuming all fixtures will be in use simultaneously, is 1,046 MBTU/hr. If the fixtures are not used concurrently, the instantaneous gas load would be less.

Dispersion Model

The analysis was performed using the American Meteorological Society (AMS)/ EPA Regulatory Model (AERMOD) dispersion model. The AERMOD analysis of potential impacts from exhaust stacks was performed assuming stack tip downwash, urban dispersion and surface roughness length, with and without building downwash, and elimination of calms. The AERMOD model also incorporates the algorithms from the Plume Rise Model Enhancements (PRIME) model, which is designed to predict impacts in the "cavity region" (i.e., the area around a structure which, under certain conditions, may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). The Building Profile Input Program (BPIP) for the PRIME model (BPIPRM) was used to determine the projected building dimensions modeling with the building downwash algorithm enabled. The modeling of downwash from sources accounts for all obstructions within a radius equal to five obstruction heights of the stack.

Emission Estimates and Stack Parameters

Since the specific kitchen system design for the Proposed Project is not available at this time, the air quality analysis was conservatively performed and assumes that the gas-fired equipment would have the same total capacity as the equipment currently in use at LHH.

Emissions factors were obtained from the EPA *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources*. $PM_{2.5}$ emissions included both the filterable and condensable fractions.

Short-term emissions were based on existing equipment design capacities, to be conservative. Annual emissions were determined by assuming that all equipment would operate at full capacity during the reported kitchen operating hours, which are 13 hours per day, seven days per week.

Based on preliminary design information, it was assumed that kitchen equipment exhausts would be vented along with other kitchen exhausts to a single location, with a total exhaust flowrate of 20,000 cubic feet per minute (cfm). The kitchen exhaust temperature would likely be 100°F to 150°F; however, a conservative exhaust temperature of 70°F was used. The exhaust would most likely be vented horizontally through a louver located at the 5th floor level, which is the minimum elevation to which it would be vented. The exhaust stack was modeled as a horizontal discharge at various locations along the 5th floor façade.

The emission rates and exhaust stack parameters used in the modeling analysis are presented in **Table 11-2**.

Table 11-2
Potential Kitchen Equipment
Exhaust Stack Parameters and Emission Rates

Stack Parameter	Value
No. of Modeled Stacks	1
Stack Height (feet)	60
Stack Diameter (feet)[1]	8.4
Exhaust Velocity (feet/second) [2]	6.06
Exhaust Temperature (degrees Fahrenheit)	70
Emissions (g/s)	
NO_2 (1-hour average)	0.013
NO_2 (Annual average)	0.007
$PM_{2.5}$ (24-hour average)	0.0010
$PM_{2.5}$ (Annual average)	0.0005

Notes:
[1] Equivalent circular diameter based on a louver discharge area of 55 square feet provided by the project design team; exhausts horizontally.
[2] Calculated based on the louver area and an estimated total kitchen flow rate of 20,000 cfm provided by the project design team.

Receptor Placement

Receptors (locations at which concentrations are projected) generally include operable windows in residential or other buildings, air intakes, and publicly accessible open space locations, as applicable. Discrete receptors were modeled along proposed building façades at regular intervals above and below the 5th floor level to represent potential intake vent locations, to be conservative. Additional receptors were placed at the mechanical floors for the proposed new building on Projected Development Site 1. Adjacent LHH buildings and off-site buildings were also modeled, as well as ground level locations at a pedestrian height of six feet.

Background Concentrations

To estimate the maximum expected pollutant concentration at a given location (receptor), the predicted impacts must be added to a background value that accounts for existing pollutant concentrations from other sources that are not directly accounted for in the model (see **Table 11-3**). To develop background levels, concentrations measured at the most representative ambient monitoring station operated by DEC over a three-year period (2017–2019) were used (consistent with DEC guidance). The 2020 and 2021 data were not used due to uncertainties in the representativeness of background concentrations for these years due to the effects of COVID-19.

Table 11-3
Background Pollutant Concentrations for Stationary Source Analysis

Pollutant	Average Period	Location	Concentration (µg/m³)	NAAQS (µg/m³)
NO_2	Annual[1]	IS 52, Bronx	32.8	100
	1-hour[2]		110.6	188
$PM_{2.5}$	24-hour	JHS 45, Manhattan	18.3	35
	Annual		7.6	12

Notes:
[1] Annual average NO_2 background concentration is based on the three-year highest value from 2017–2019.
[2] The one-hour NO_2 background concentration is based on the maximum 98th percentile one-hour NO_2 concentration averaged over three years of data, from 2017–2019.
Source: New York State Air Quality Report Ambient Air Monitoring System, DEC, 2017–2019.

The $PM_{2.5}$ 24-hour average background concentration of 18.3 µg/m³ (based on the 2017 to 2019 average of 98th percentile concentrations measured at the JHS 45 monitoring station) was used to establish the *de minimis* value for the 24-hour increment, consistent with the guidance provided in the *CEQR Technical Manual.*

LABORATORY EXHAUSTS

Existing Laboratories

The *CEQR Technical Manual* requires an assessment of potential air quality impacts associated with proposed uses near existing medical, chemical, or research laboratories. Consequently, existing LHH facilities with laboratories were surveyed. A study area of 400 feet around the new hospital building was used, based on guidance provided by the New York City Department of City Planning (DCP).

Of the nearby facilities within 400 feet of the new hospital building, two LHH operations equipped with direct venting fume hoods were identified: the Pathology Laboratory and the Immuno-Histo Chemistry Laboratory. The Pathology Laboratory has six grossing stations that are directly exhausted to the 14th floor roof of the Uris Building through a single stack. The Immuno-Histo Chemistry Laboratory has a fume hood which vents above the 13th floor roof of the Wollman Building. No off-site laboratories were identified within the 400-foot study area.

The LHH systems are designed to ensure the safety of the staff and the surrounding community in the event of an accidental chemical spill in the laboratories. The existing laboratories provide support for basic hospital functions (e.g., clinical studies) and are typical of hospitals that provide similar services. No research-related activities take place in the LHH laboratories. An analysis of the potential air quality effects of these laboratories on the Proposed Project was performed.

Laboratory Fume Hood Exhausts

The LHH laboratories in which hazardous chemicals are used are equipped with fume hoods. Fume hoods are workstation enclosures that are maintained under negative pressure and continuously vented to the outside when work is taking place. Their function is to protect staff from potentially harmful fumes. By providing a continuous exhaust from laboratory rooms, they also prevent any fumes released within the laboratory from escaping into other areas of the building, or through windows to the outside.

Table 11-4 summarizes the exhaust parameters used in the analysis. The exhaust location, flowrate, and diameter were provided by LHH.

Table 11-4
Stack Parameters for LHH Laboratory Exhausts

Parameter	Pathology Lab	Immuno-Histo Chemistry Lab
No. of Stacks	1	1
Stack Height (feet)	188.5	185
Stack Diameter (feet)	2.2	2.3(1)
Exhaust Flow Rate (actual cfm)	2,858	830
Exhaust Temperature (°F)	70	70

Note:
[1] Equivalent diameter, exhausts horizontally through a louver.
Source:
Stack parameters provided by LHH.

Chemicals for Analysis

An inventory of chemicals which are used in the LHH laboratories was examined. Three chemicals were identified for analysis. The hazardous chemicals selected are presented in **Table 11-5**. The vapor pressure shown for each chemical is a measure of its volatility—its tendency to evaporate, or to form vapors, which is a critical parameter in determining potential impacts from chemical spills. Exposure standards are safety- and health-based standards indicative of the chemical's toxicity—substances with higher toxicity have lower exposure standards. These include the United States Occupational Safety and Health Administration's (OSHA's) permissible exposure limit (PEL), and the National Institute for Occupational Safety and Health (NIOSH) and/or OSHA's short-term exposure limit (STEL), ceiling, and immediately dangerous to life or health (IDLH) values.

Table 11-5
Selected Hazardous Materials in the Existing LHH Laboratories

CAS #	Chemical	Vapor Pressure (mm Hg)	PEL (ppm)	STEL (ppm)	IDLH (ppm)	Ceiling (ppm)
50-00-0	Formalin	1.0	0.75	2.0	20.0	0.10
64-17-5	Ethanol	44.0	1,000	*	-	*
01330-20-7	Xylene	9.0	100	150	-	*

Notes:
PEL – Permissible Exposure Limit; Time Weighted Average (TWA) for up to a 10-hour workday during a 40-hour workweek.
STEL – Short-Term Exposure Limit is a 15-minute TWA exposure that should not be exceeded at any time during a workday.
IDLH – Immediately Dangerous to Life or Health.
Ceiling – Level set by NIOSH or OSHA not to be exceeded in any working exposure.
mm Hg – millimeters or mercury, a unit of pressure.
ppm – parts per million.
* – No STEL or Ceiling values published. The listed OSHA PEL will be applied (TWA for up to a 10-hour workday during a 40-hour workweek.)
Where a hyphen (-) appears there is no recommended corresponding guideline value.

Estimates of Worst-Case Emission Rates

The dispersion of hazardous chemicals from a chemical spill within the LHH laboratories was analyzed to assess the potential for exposure of the Proposed Project to hazardous fumes in the event of a release. Evaporation rates for volatile hazardous chemicals used in the LHH laboratories

were estimated using the model developed by the Shell Development Company.[5] The Shell model, which was developed specifically to assess air quality impacts from chemical spills, calculates evaporation rates based on physical properties of the material, temperature, and rate of air flow over the spill surface. Room temperature conditions (70° F) and an air-flow rate of 0.5 meters/second were assumed for calculating evaporation rates.

The analysis conservatively assumes that a full container of each chemical would be spilled in a fume hood. For an assumed spill area of approximately 1.1 square meters, the emission rates were determined using the evaporation rates. For modeling purposes, the emission rates shown in **Table 11-6** are calculated for a 15-minute time period. The vapors from the spill are drawn into the fume hood exhaust system and released into the atmosphere via the LHH exhaust fans.

Table 11-6
Chemicals for Laboratory Spill Analysis

Chemical	Spill Quantity (liters)	Evaporation Rate (gram/meter^2-sec)	Emission Rate(1) (gram/sec)
Pathology Laboratory – Uris Building			
Formalin	0.003	0.0032	0.0035
Immuno-Histo Chemistry Laboratory – Wollman Building			
Ethanol	0.217	0.1704	0.1900
Xylene	0.071	0.0612	0.0682

Note:
(1) Average emission rate

Dispersion Modeling

The analysis was performed using the latest version of EPA's AERSCREEN model (Version 21112). The AERSCREEN model projects worst-case 1-hour average concentrations downwind from a point, area, or volume source; longer-period averages are estimated by multiplying the 1-hour results by persistence factors established by EPA or provided in the *CEQR Technical Manual*. AERSCREEN generates application-specific worst-case meteorology using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo, Bowen ratio, and surface roughness length.[6]

The model incorporates the PRIME downwash algorithm, which is designed to predict concentrations in the "cavity region" (i.e., the area around a structure which, under certain conditions, may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). AERSCREEN uses the BPIPRM to provide a detailed analysis of downwash influences on a direction-specific basis. AERSCREEN also incorporates AERMOD's complex terrain algorithms and utilizes the AERMAP terrain processor to account for the actual terrain in the vicinity of the source on a direction-specific basis.

[5] Fleischer, M.T., An Evaporation/Air Dispersion Model for Chemical Spills on Land, Shell Development Company, December 1980.

[6] Albedo is the fraction of the total incident solar radiation reflected by the ground surface. The Bowen ratio is the ratio of the sensible heat flux to the latent (evaporative) heat flux. The surface roughness length is related to the height of obstacles to the wind flow and represents the height at which the mean horizontal wind speed is zero based on a logarithmic profile.

The AERSCREEN model was run both with and without the influence of building downwash, using urban diffusion coefficients that are based on a review of land-use maps of the area. Other model options were selected based on EPA guidance.

Concentrations were evaluated on the Proposed Project, including locations along the façades and roof of the building, intake vents, and otherwise accessible locations. Multiple elevations were analyzed at spaced intervals on the Proposed Project.

The power law relationship was used to convert the calculated 1-hour average maximum concentrations to short-term 15-minute averages. The 15-minute average concentrations were then compared to the STELs or to the ceiling levels for the chemicals examined.

Proposed Laboratories

The Proposed Project would not require construction of new wet laboratories, and the types and quantities of materials that are used in the existing hospital would not be affected. As part of the Proposed Project, relocation or consolidation of some hospital laboratories would be required to facilitate construction of Projected Development Site 1. However, none of the existing laboratories that would be potentially relocated are currently equipped with a fume hood exhaust that directly vents to the atmosphere. Therefore, no significant adverse air quality impacts would occur from the Proposed Project's laboratories.

INDUSTRIAL SOURCES

The potential impacts of existing industrial operations on pollutant concentrations at the Projected Development Sites were evaluated. Potential industrial air pollutant emission sources within 400 feet of the Projected Development Sites were surveyed for inclusion in the analysis, as recommended in the *CEQR Technical Manual*.

Land use maps were reviewed to identify potential sources of emissions from manufacturing/industrial operations. A search of federal- and state-permitted facilities within the study area was conducted using the DEC Title V and State Facility Permit websites. The New York City Department of Environmental Protection's (DEP's) online permit database was also searched to identify any permitted industrial uses in the study area.[7]

ADDITIONAL SOURCES

The *CEQR Technical Manual* requires an analysis of projects that may result in a significant adverse impact due to certain types of new uses located near a "large" or "major" emissions source. Major sources are defined as those located at facilities that have a Title V or Prevention of Significant Deterioration air permit, while large sources are defined as those located at facilities that require a State Facility Permit. To assess the potential effects of these existing sources on the Proposed Project, a review of existing permitted facilities was conducted. Sources of information reviewed included the DEC Title V and State Facility Permit websites and DEP permit data.

[7] DEP. *NYC DEP CATS Information.* https://a826-web01.nyc.gov/dep.boilerinformationext. New York City Open Data https://data.cityofnewyork.us/Environment/CATS-Permits/f4rp-2kvy.

E. EXISTING CONDITIONS

The most recent concentrations of all criteria pollutants at DEC air quality monitoring stations nearest to the Project Area are presented in **Table 11-7**. As shown, the recently monitored levels did not exceed the NAAQS. For most pollutants, the concentrations presented in **Table 11-7** are based on measurements from several years of recent monitoring data and represent a conservative estimate of the highest background concentrations for future conditions. There were no monitored violations of NAAQS at these monitoring sites in 2023, with the exception of ozone.

Table 11-7
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	CCNY	ppm	1-hour	1.55	35
			8-hour	1.2	9
SO_2	IS 52[(1)]	µg/m^3	1-hour	9.5	196
PM_{10}	IS 52	µg/m^3	24-hour	33	150
$PM_{2.5}$	IS 45[(2,3)]	µg/m^3	Annual	7.1	~~12~~9
			24-hour	22.3	35
NO_2	IS 52[(4)]	µg/m^3	Annual	29.2	100
			1-hour	101.8	188
Lead	IS 52[(5)]	µg/m^3	3-month	0.0049	0.15
Ozone	CCNY[(6)]	ppm	8-hour	0.071	0.070

Notes:
[(1)] The 1-hour value is based on a three-year average of the 99th percentile of daily maximum 1-hour average concentrations.
[(2)] Annual value is based on a three-year average of annual concentrations.
[(3)] The 24-hour value is based on the three-year average of the 98th percentile of 24-hour average concentrations.
[(4)] The 1-hour value is based on a three-year average of the 98th percentile of daily maximum 1-hour average concentrations.
[(5)] Based on the highest quarterly average concentration measured during the three-year period.
[(6)] Based on the three-year average of the 4th highest daily maximum 8-hour average concentrations.
Source: DEC, New York State Ambient Air Quality Data, 2021 to 2023.

F. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the No Action condition, the main hospital complex on Projected Development Site 1 will remain in its current form, with most ambulatory uses relocating to other facilities (including Projected Development Site 1a), and other activities relocating to an LHH facility currently being developed as an as-of-right building on Third Avenue between East 76th and East 77th Streets. These relocations will make approximately 13,500 square feet within the existing hospital available to convert a limited number of double-bedded rooms to single-bedded rooms without any effect on the total number of beds, and will allow for reconfiguration of certain suboptimal spaces.

Incremental trips would decrease between existing and No Action conditions as shown in Chapter 10, "Transportation," Table 10-5, "Incremental Trip Generation Summary."~~Traffic around the Project Site is not expected to increase between existing and No Action conditions.~~ Energy for heating, process steam, and hot water needs for LHH is currently supplied by the Con Edison steam system (except for the LHH kitchen, which uses natural gas). Accordingly, emissions from heating and hot water systems are expected to be approximately the same under the No Action

condition, since the same Con Edison utilities will continue to be used. No changes to existing laboratory spaces are anticipated.

G. THE FUTURE WITH THE PROPOSED PROJECT

MOBILE SOURCES

As shown in Chapter 10, "Transportation," the incremental increase in trips generated by the Proposed Project would be 43, 17, and 43 vehicle trips during the weekday AM, midday, and PM peak hours, respectively. Therefore, a detailed traffic analysis is not required.

Projected vehicle trips generated by the Proposed Project would not exceed the CO threshold of 170 vehicles in a peak hour at any intersection. The maximum hourly traffic incremental increase from the Proposed Project would likewise not exceed the PM emission screening thresholds discussed in Chapter 17, Sections 210 and 311, of the *CEQR Technical Manual*. The number of project-generated trips would not result in significant changes in vehicle speeds on roadways in the study area. Furthermore, not all vehicle trips would be assigned to the Project Site, since there is no on-site visitor or staff parking (since the pedestrian analysis auto trips are assigned to off-site parking garages within a ¼-mile study area, as discussed in the Chapter 10). Therefore, the number of project-generated vehicles would not result in a significant adverse air quality impact relative to $PM_{2.5}$.

Therefore, no mobile source intersection analysis of CO or PM emissions is required, and the Proposed Project with either Envelope 1 or Envelope 2 would not have a significant impact on air quality from mobile sources at any intersection.

STATIONARY SOURCES

HEATING AND HOT WATER SYSTEMS

No fossil-fuel-fired heating and hot water equipment would be utilized for space heating process or domestic hot water needs in the Future with the Proposed Project. Emergency generators would be used infrequently, and only for very limited periods of time for testing outside of an actual emergency; therefore, no analysis of this equipment is necessary.

To ensure that there is no potential for significant adverse air quality impacts from the Proposed Project's heating and hot water system emissions, certain restrictions would be required through an Air Quality (E) Designation (E-777) that would be placed on the Projected Development Sites.

Projected Development Sites 1 and 1a

Any new community facility development on the above-referenced properties must utilize only electrically and/or utility steam-powered heating, ventilation, and air conditioning systems.

POTENTIAL KITCHEN EQUIPMENT

Although pollutant emissions from potential kitchen equipment would be the same with both Envelope 1 and Envelope 2, the reduced building height in Envelope 2 could affect dispersion of these emissions. Therefore, analyses were prepared for both Envelope 1 and Envelope 2, as summarized below.

Envelope 1

The results of the AERMOD analysis for NO_2 and $PM_{2.5}$ are presented in **Table 11-8a** for the modeled locations. As shown in the table, there are no predicted violations of the NO_2 1-hour and annual NAAQS with Envelope 1. In addition, the maximum predicted incremental increase in concentrations of $PM_{2.5}$ with Envelope 1 are not predicted to exceed the *CEQR de minimis* criteria.

Table 11-8a
Maximum Modeled Pollutant Concentrations from Potential Kitchen Exhausts (µg/m³)—Envelope 1

Pollutant	Averaging Period	Maximum Concentration	Background	Total Concentration	Criterion
NO_2	1-hour	-- [1]	N/A	186.1	188[2]
	Annual	3.12	32.8	36.0	100[2]
$PM_{2.5}$	24-hour	4.96	N/A	4.96	8.4[3]
	Annual	0.22	N/A	0.22	0.3[4]
	Annual – Neighborhood	0.0007	N/A	0.0007	0.1[5]

Notes:
N/A – Not Applicable
[1] The 1-hour NO_2 modeled concentration represents the maximum of the total 98th percentile 1-hour NO_2 concentration predicted at any receptor using seasonal-hourly background concentrations, therefore, the maximum concentration from the modeled sources is not presented.
[2] NAAQS.
[3] $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m³.
[4] $PM_{2.5}$ *de minimis* criteria—annual (discrete receptor).
[5] $PM_{2.5}$ *de minimis* criteria-neighborhood scale.

Based on the analysis presented, the Proposed Project's potential kitchen equipment with Envelope 1 would not result in any significant adverse air quality impacts.

Envelope 2

As with Envelope 1, the exhausts for any potential natural gas-fired kitchen with Envelope 2 would be vented horizontally through a louver located at the 5th floor level. The exhaust stack was modeled as a horizontal discharge at various locations along the 5th floor façade, and the analysis was run using the same assumptions described above for Envelope 1. The analysis was run with and without building downwash conditions.

The results of the AERMOD analysis for NO_2 and $PM_{2.5}$ for Envelope 2 are presented in **Table 11-8b** for the modeled locations. As shown in the table, there are no predicted violations of the NO_2 1-hour and annual NAAQS with Envelope 2. The maximum predicted incremental increase in concentrations of $PM_{2.5}$ with Envelope 2 are not predicted to exceed the *CEQR de minimis* criteria.

Table 11-8b
Maximum Modeled Pollutant Concentrations
from Potential Kitchen Exhausts-Envelope 2 (µg/m^3)—Envelope 2

Pollutant	Averaging Period	Maximum Concentration	Background	Total Concentration	Criterion
NO_2	1-hour	--[1]	N/A	186.1	188[2]
	Annual	3.12	32.8	36.0	100[2]
$PM_{2.5}$	24-hour	4.96	N/A	4.96	8.4[3]
	Annual	0.22	N/A	0.22	0.3[4]
	Annual – Neighborhood	0.0007	N/A	0.0007	0.1[5]

Notes:
N/A – Not Applicable
[1] The 1-hour NO_2 modeled concentration represents the maximum of the total 98th percentile 1-hour NO_2 concentration predicted at any receptor using seasonal-hourly background concentrations, therefore, the maximum concentration from the modeled sources is not presented.
[2] NAAQS.
[3] $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.
[4] $PM_{2.5}$ *de minimis* criteria—annual (discrete receptor).
[5] $PM_{2.5}$ *de minimis* criteria-neighborhood scale.

As with Envelope 1, Envelope 2 would not result in any significant adverse air quality impacts.

To ensure that there is no potential for significant adverse air quality impacts from potential kitchen equipment for the Proposed Project with either Envelope 1 or Envelope 2, certain restrictions would be required through an Air Quality (E) Designation (E-777) that would be placed on Projected Development Site1.

Projected Development Site 1

Any new community facility development on the above-referenced property must utilize natural gas for any fossil fuel-fired cooking equipment and ensure that any exhaust(s) is located at the 5th Floor Mechanical Level along the eastern façade facing Lexington Avenue or the northern façade facing East 77th Street, and must be located at least 65 feet away horizontally and at least 15 feet away vertically from any air intake locations to avoid any potential significant adverse air quality impacts.

LABORATORY EXHAUSTS

Existing Laboratories

Envelope 1

The results of the analysis of potential emissions from the existing LHH laboratory exhaust systems on the Proposed Project with Envelope 1 are shown in **Table 11-9a**. As shown in the table, the maximum predicted concentrations at elevated receptors downwind of the fume hood exhausts were determined to be below the STEL/OSHA levels. The results of the analysis demonstrate that there would be no significant adverse impacts from the existing LHH laboratory exhaust systems on the Proposed Project with Envelope 1.

Table 11-9a
Maximum Predicted Concentrations from Existing LHH Laboratories
Envelope 1 (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Formalin	0.10	0.092
Ethanol	1,000.0	3.78
Xylene	100.0	0.59

Envelope 2

With Envelope 2, the new building would extend west and would be taller than the existing LHH buildings where laboratory operations equipped with direct venting fume hoods were identified. The results of the analysis of potential emissions from the existing LHH laboratory exhaust systems on Envelope 2 are shown in **Table 11-9b**. As shown in the table, the maximum predicted concentrations at elevated receptors downwind of the fume hood exhausts with Envelope 2 were determined to be below the STEL/OSHA levels.

Table 11-9b
Maximum Predicted Concentrations from Existing LHH Laboratories
Envelope 2 (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Formalin	0.10	0.092
Ethanol	1,000.0	17.71
Xylene	100.0	2.76

The analysis of nearby existing laboratory exhaust systems determined that there would be no significant adverse air quality impacts on the Proposed Project with Envelope 2 in the event of a chemical spill in an existing laboratory.

Proposed Laboratories

Potential air quality impacts with the Proposed Project with either Envelope 1 or Envelope 2 would be similar to existing conditions. The Proposed Project would not introduce new laboratory chemicals or affect the types and quantities of materials used in the existing laboratories, and as previously discussed, no laboratories that would be relocated are currently equipped with fume hoods that directly vent to the atmosphere. Therefore, no stationary source analysis of the Proposed Project was performed, and no significant adverse air quality impacts associated with stationary sources of emissions from the Proposed Project would occur.

INDUSTRIAL SOURCES

No currently permitted manufacturing or processing activities were identified within the 400-foot study area around the Projected Development Sites, and no other sources of emissions associated with industrial uses were identified in the land use survey. Therefore, no analysis of industrial sources of emissions on the Proposed Project is required, and no potential for significant impacts on the Proposed Project is anticipated from industrial sources of emissions.

ADDITIONAL SOURCES

No facilities with a State Facility or Title V Permit within the 1,000-foot study area around the Projected Development Sites were identified. Therefore, no analysis of the potential impacts of

large or major sources of emissions on the Proposed Project was required, and no potential significant adverse air quality impacts would occur. ✷