A. INTRODUCTION

The potential for air quality impacts from the Proposed Project is examined in this chapter. Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at a development site, such as emissions from on-site fuel combustion for heating and hot water systems. Indirect impacts are caused by off-site emissions associated with a project such as emissions from nearby existing stationary sources or by emissions from on-road vehicle trips generated by a proposed project or other changes to future traffic conditions due to a project.

As described in detail in Chapter 1, "Project Description," the Proposed Project includes the adaptive reuse of the vacant, approximately 588,765-gross-square-foot (gsf) Armory to provide up to approximately 735,800 gsf of new uses, including a mix of community facility and cultural space, light manufacturing space, commercial office space, a 17,000-person capacity live event venue, and other entertainment uses, along with parking and loading docks. The National Guard Site would be redeveloped with a new residential building (up to approximately 494,500 gsf) containing 500 new permanently affordable dwelling units (DUs) and approximately 14,400 gsf of ground floor retail, replacing a one-story garage and a two-story office building. The Proposed Project would include a total of up to approximately 1,230,300 gsf of development at the Project Site.

The maximum projected hourly incremental traffic volumes generated associated with the Proposed Actions would exceed the 2021 *City Environmental Quality Review (CEQR) Technical Manual* carbon monoxide (CO) screening threshold of 170 peak-hour vehicle trips at a number of intersections in the study area, as well as the particulate matter (PM) emission screening threshold discussed in Chapter 17, Sections 210 and 311, of the *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from traffic generated by the Proposed Project was performed for CO and PM.

A total of approximately 328 parking spaces would be provided on the Project Site (approximately 248 public parking spaces on the Armory Site and approximately 80 accessory parking spaces on the National Guard Site); new loading docks would be provided in the Armory's cellar level. Therefore, an analysis was conducted to evaluate potential future pollutant concentrations in the vicinity of the ventilation outlets with the proposed parking garage.

Electric-powered equipment would be utilized for heating and hot water needs for all of the proposed buildings under the With Actions scenario, and therefore, a stationary source analysis of the Proposed Project's heating and hot water systems is not required.

The Project Site is located near commercial districts; therefore, potential effects of stationary source emissions from existing nearby industrial facilities on the Project Site were assessed. Potential effects from potential light industrial sources associated with the Proposed Actions were analyzed. In addition, a review was performed to identify any large or major sources in the study area and to assess their potential impacts on the Project Site.

PRINCIPAL CONCLUSIONS

The mobile source analyses determined that concentrations of CO due to project-generated traffic at intersections would not result in any violations of National Ambient Air Quality Standards (NAAQS), and further, CO concentrations were predicted to be below CEQR *de minimis* criteria. For $PM_{2.5}$, the results showed that for With Action conditions, the daily (24-hour) $PM_{2.5}$ increments are predicted to be below the *de minimis* criteria. ~~However, the maximum annual incremental $PM_{2.5}$ concentration is predicted to potentially exceed the annual *de minimis* criterion at the analyzed intersection locations in the With Action condition.~~

Between the Draft and Final EIS, additional review and evaluation ~~will be~~was performed ~~which is expected to determine~~d ~~that the identified impacts related to mobile source annual average $PM_{2.5}$ increments will be~~were ~~avoided~~. For annual average $PM_{2.5}$, a more refined microscale analysis ~~will be~~was performed, which incorporate~~s~~d all of the traffic peak periods and account~~s~~ed for the relative frequency of events that would take place. ~~If required, additional modeling of $PM_{2.5}$ concentrations (Grid Analysis) will be performed using more refined or comprehensive analysis procedures to determine the magnitude and extent of neighborhood-scale $PM_{2.5}$ impacts from mobile sources. It is anticipated that this will~~These refinements reduced $PM_{2.5}$ concentrations below the annual *de minimis* criterion threshold. Therefore, no significant adverse air quality impacts are predicted due to project-generated traffic at the analyzed intersections.

The parking facilities to be developed with the Proposed Project were analyzed for potential air quality effects. The analysis found that these parking facilities would not be expected to 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 Project Site, 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.

Based on the assumptions in the analysis, measures would be needed to avoid the potential for significant adverse impacts on air quality. The impact avoidance measures would be provided as part of the Proposed Project and required through a Lease Agreement between NYCEDC and the Applicant. The analysis of the potential light industrial sources associated with the Proposed Project determined that certain use group categories had the potential to result in a significant adverse air quality impact at receptor locations due to emissions from one or more air toxic compounds. To ensure that there are no potential significant adverse impacts of identified air toxic compounds on existing or proposed sensitive locations, certain restrictions would be required as part of the Proposed Project. The Applicant/lessee will not apply for or accept an industrial air permit until it has demonstrated to the satisfaction of the New York City Department of Environmental Protection (DEP) that the proposed industrial use will not have significant impacts, and developer/lessee shall require the same of all occupants proposing an industrial process by including this condition in all subleases, licenses, or other authorizations.

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 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 U.S. 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.

For the Proposed Actions, CO was included explicitly in the mobile source analysis. The Proposed Actions would result in an increase in vehicle trips greater than the *CEQR Technical Manual* screening threshold of 170 trips at certain intersections. Therefore, a mobile source analysis was conducted to evaluate future CO concentrations with and without the Proposed Actions. In addition, potential effects of CO from the Proposed Project's parking facility were analyzed.

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 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 consist of approximately 90 percent NO and 10 percent NO_2 at the source.) With the promulgation of the 1-hour average standard for NO_2, local sources such as vehicular emissions may be of greater concern. However, any increase in NO_2 associated with the Proposed Actions would be relatively small, due to the relatively small increases in the overall number of vehicles at intersections in the study area. This increase would not be expected to significantly affect levels of NO_2 experienced near roadways. Furthermore, the monitored NO_2 concentrations at both near-road and rooftop monitoring sites (including monitored NO_2 concentrations at near road locations are well below the 1-hour NO_2 NAAQS of 188 $\mu g/m^3$. Therefore, it is unlikely that the incremental congestion from the Proposed Actions at local intersection locations would result in an exceedance of the NO_2 NAAQS.

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, as well as 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. Since the traffic generated by the Proposed Actions would exceed the PM emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*, a quantified assessment of emissions from traffic generated by the Proposed Actions was performed for PM.

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.

NONCRITERIA POLLUTANTS

In addition to the criteria pollutants discussed above, noncriteria pollutants may be of concern. Noncriteria pollutants are emitted by a wide range of man-made and naturally occurring sources. These pollutants are sometimes referred to as hazardous air pollutants (HAP) and, when emitted from mobile sources, as Mobile Source Air Toxics (MSATs). Emissions of noncriteria pollutants from industries are regulated by EPA.

Federal ambient air quality standards do not exist for noncriteria pollutants; however, the New York State Department of Environmental Conservation (NYSDEC) has issued standards for certain noncriteria compounds, including beryllium, gaseous fluorides, and hydrogen sulfide. NYSDEC has also developed guideline concentrations for numerous noncriteria pollutants. The NYSDEC guidance document DAR-1[1] contains a compilation of annual and short-term (1-hour) guideline concentrations for these compounds.

The NYSDEC guidance thresholds represent ambient levels that are considered safe for public exposure. EPA has also developed guidelines for assessing exposure to noncriteria pollutants. These exposure guidelines are used in health risk assessments to determine the potential effects to the public.

The Armory is assumed to include light industrial uses in the With Action condition, and therefore the potential effects of such uses on existing and proposed developments were evaluated.

[1] NYSDEC. DAR-1 (Air Guide-1) AGC/SGC Tables, February 2021.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary NAAQS have been established[2] 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 14-1**. In addition, New York State has adopted 3-hour and 24-hour SO_2 ambient air quality standards for New York State, defined on a running 12-month basis. New York State also has standards for total suspended particles, settleable particles and 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 ppm to 0.070 ppm. EPA issued final area designations for the revised standard on April 30, 2018. EPA has revised the NAAQS for $PM_{2.5}$, effective March 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 $\mu g/m^3$ and retaining the level of the 24-hr 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, NYSDEC has issued standards for two noncriteria compounds. NYSDEC has also developed a guidance document DAR-1[3] (February 2021), which contains a compilation of annual and short-term (1-hour) guideline concentrations for numerous other noncriteria compounds. The NYSDEC thresholds represent ambient levels that are considered safe for public exposure.

[2] EPA. National Ambient Air Quality Standards. 40 CFR Part 50.

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

Table 14-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	PPM	**µg/m^3**	**PPM**	**µg/m^3**
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	NA	15
24-Hour Average(5)	NA	35	NA	35
Sulfur Dioxide (SO_2)				
1-Hour Average(6)	0.075	196	NA	NA
Annual Average(41)	NA	NA	0.010	26

Notes: ppm – parts per million (unit of measure for gases only)
µg/m^3 – micrograms per cubic meter (unit of measure for gases and particles, including lead)
NA – not applicable
All annual periods refer to calendar year.
Standards are defined in ppm. Approximately equivalent concentrations in µg/m^3 are presented.
(1) Not to be exceeded more than once a year.
(2) 3-year average of the annual 98th percentile daily maximum 1-hr average concentration.
(3) 3-year average of the annual fourth highest daily maximum 8-hr 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-hr average concentration.
(7) Not to be exceeded more than once a year on average over 3 years.
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 as in attainment for the 1-hour and 8-hour CO NAAQS.

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 New York City counties and Nassau, Suffolk, Rockland, Westchester, and Orange Counties had 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 nonattainment with the 2006 24-hour $PM_{2.5}$ NAAQS since November 2009. The area was redesignated as in attainment for that standard effective April 18, 2014 and is now under a limited maintenance plan for the 2024 to 2034 period. EPA lowered the annual average primary standard to 12 µg/m^3 effective March 2013. EPA designated the area as in attainment for the 12 µg/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 November 2027 and would be designed to meet the $PM_{2.5}$ standard by 2032, although this may be extended in some cases. On February 7, 2025, NYSDEC made an initial recommendation that all of New York State be designated attainment for the 2024 PM2.5 Annual and 24-hour NAAQS.

Effective June 15, 2004, EPA designated Nassau, Rockland, Suffolk, Westchester, and the five New York City counties (NY portion of the New York–Northern New Jersey–Long Island, NY-NJ-CT, NAA) as moderate non-attainment areas for the 1997 8-hour average ozone standard. In March 2008 EPA strengthened the 8-hour ozone standards, but certain requirements remain in areas that were either nonattainment 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” nonattainment since compliance with the NAAQS was not achieved by the required attainment dates. On November 29, 2021, NYSDEC presented a demonstration that the New York Metro Area (NYMA) was not projected to meet the July 20, 2021 attainment deadline and therefore requested that EPA reclassify the NYMA to “severe” nonattainment. EPA reclassified the NYMA from “serious” to “severe” NAA, effective November 7, 2022, which imposed a new attainment deadline of July 20, 2027 (based on 2018–2020 monitored data). On April 30, 2018, EPA designated the same area as a moderate NAA for the revised 2015 ozone standard. On June 4, 2024, NYSDEC requested the reclassification of the NYMA from “moderate” to “serious” nonattainment” for the 2015 ozone NAAQS. EPA is currently reviewing revisions to New York’s SIP plan.

New York City 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 has 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 which was designated 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.[4] 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 14-1**) 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 non-attainment areas, 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

New York City 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 New York City 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 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) concentrations and the 8-hour standard, when No Action concentrations are below 8 ppm.

$PM_{2.5}$ DE MINIMIS CRITERIA

In addition, New York City uses *de minimis* criteria 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 μg/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 μg/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.

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[4] New York City. *CEQR Technical Manual*. Chapter 1, Section 222. November 2020; and SEQR Regulations. 6 NYCRR § 617.7

The above *de minimis* criteria have been used to evaluate the significance of predicted impacts of the Proposed Actions on $PM_{2.5}$ concentrations.

NON-CRITERIA POLLUTANT THRESHOLDS

Non-criteria, or toxic, air pollutants include a multitude of pollutants of ranging toxicity. No federal ambient air quality standards have been promulgated for toxic air pollutants. However, EPA and NYSDEC have issued guidelines that establish acceptable ambient levels for these pollutants based on human exposure.

The NYSDEC DAR-1 guidance document presents guideline concentrations in micrograms per cubic meter for the one-hour and annual average time periods for various air toxic compounds. These values (of DAR-1 February 2021) are provided in **Table 14-2**. The compounds listed are those emitted by potential sources of air toxics associated with the Proposed Project's light industrial uses.

Table 14-2
Industrial Source Analysis
Relevant NYSDEC Air Guideline Concentrations

Pollutant	CAS Number	SGC (µg/m^3)	AGC (µg/m^3)
Formaldehyde	00050-00-0	30	0.06
Glycerin	00056-81-5	----	240
Cyanides	00057-12-5	380	3.5
Aniline	00062-53-3	----	0.63
Ethanol	00064-17-5	----	45000
Acetic acid	00064-19-7	3700	60
Methanol	00067-56-1	33000	4000
Isopropyl alcohol	00067-63-0	98000	7000
Acetone	00067-64-1	180000	30000
Butyl alcohol, n-	00071-36-3	----	1500
Methyl chloroform	00071-55-6	9000	5000
Methane	00074-82-8	----	1600
Hydrogen cyanide	00074-90-8	340	0.8
Acetonitrile	00075-05-8	----	60
Dichloromethane	00075-09-2	14000	46
Isophorone	00078-59-1	2800	----
Isobutyl alcohol	00078-83-1	----	360
Methyl ethyl ketone	00078-93-3	13000	5000
Dibutyl phalate	00084-74-2	----	12
Butyl benzyl phthala	00085-68-7	----	0.42
Biphenyl	00092-52-4	----	3.1
Dichlorobenzine, ortho	00095-50-1	30000	200
Ethyl benzene	00100-41-4	----	1000
Styrene	00100-42-5	17000	1000
Benzyl alcohol	00100-51-6	1300	350
1,4-dichlorobenzene(p)	00106-46-7	----	0.091
Ethylene glycol	00107-21-1	1000	400
Propylene glycol methyl et	00107-98-2	36850	2000
Vinyl acetate	00108-05-4	5300	200
Methyl isobutyl ketone	00108-10-1	31000	3000
Isopropyl acetate	00108-21-4	62700	995
Toluene	00108-88-3	37000	5000
Cyclohexone	00108-94-1	20000	190
Methyl cellosolve	00109-86-4	93	20

Table 14-2
Industrial Source Analysis
Relevant NYSDEC Air Guideline Concentrations

Pollutant	CAS Number	SGC (µg/m³)	AGC (µg/m³)
Isobutyl acetate	00110-19-0	71300	565
Hexane	00110-54-3	----	700
Glycol monoethylether	00110-80-5	370	200
Cyclohexane	00110-82-7	----	6000
Cellosolve acetate	00111-15-9	140	64
Ethylenglycolmonbuty	00111-76-2	4700	1600
Butoxyethyl acetate	00112-07-2	----	310
Butyl carbitol	00112-34-5	370	200
Propylene	00115-07-1	----	3000
Dioctyl phthalate	00117-81-7	----	0.42
Trichcloro benzene	00120-82-1	3700	35
Hydroquinone	00123-31-9	----	2.4
Diacetone alcohol	00123-42-2	----	570
Butyl acetate	00123-86-4	71300	565
Carbon dioxide	00124-38-9	----	21000
Tetrachloroethylene	00127-18-4	300	3.8
Monoethanolamine	00141-43-5	1500	18
Ethyl acetate	00141-78-6	----	3400
N-heptane	00142-82-5	210000	3900
Sodium cyanide	00143-33-9	380	3.5
Potassium cyanide	00151-50-8	380	3.5
Copper cyanide	00544-92-3	380	3.5
Zinc stearate	00557-05-1	----	7.1
Amyl acetate, n-	00628-63-7	53000	630
Carbon monoxide	00630-08-0	40000	----
Cadmium oxide	01306-19-0	----	0.00027
Iron oxide	01309-37-1	----	12
Lead oxide	01309-60-0	----	0.044
Sodium hydroxide	01310-73-2	200	----
Nickel oxide	01313-99-1	0.2	0.0053
Zinc oxide	01314-13-2	380	4.8
Arsenic trioxide	01327-53-3	----	0.0003
Xylene,m,o&p mixt.	01330-20-7	22000	100
Kaolin (clay)	01332-58-7	----	4.8
Carbon black	01333-86-4	----	7
Lead oxide	01335-25-7	----	0.044
Ethyleneglycol monopropyl ether	02807-30-9	370	200
Lead stearate	07428-48-0	----	0.09
Lead	07439-92-1	----	0.038
Tin	07440-31-5	20	0.24
Antimony	07440-36-0	----	1.2
Cadmium	07440-43-9	----	0.00024
Zinc	07440-66-6	----	45
Sulfur dioxide	07446-09-5	196	80
Hydrogen chloride	07647-01-0	2100	20
Phosphoric acid	07664-38-2	300	10
Hydrogen fluoride	07664-39-3	5.6	0.071
Ammonia	07664-41-7	2400	500
Sulfuric acid	07664-93-9	120	1
Nitric acid	07697-37-2	86	12.3

Table 14-2
Industrial Source Analysis
Relevant NYSDEC Air Guideline Concentrations

Pollutant	CAS Number	SGC (µg/m^3)	AGC (µg/m^3)
Barium sulfate	07727-43-7	----	12
Lead chromate	07758-97-6	0.05	0.00013
Chlorine	07782-50-5	116	0.2
Naphtha	08030-30-6	----	900
Ligroine	08032-32-4	----	900
Nitrogen oxide	10102-43-9	----	74
Nitrogen dioxide	10102-44-0	188	100
Titanium dioxide	13463-67-7	----	24
Talc	14807-96-6	----	4.8
Dipropylene glycol methyl ether	34590-94-8	91000	1400
Distillate heavy parafinic	64742-65-0	----	3200
Naphtha light aliphatic	64742-89-8	----	3200
Naphtha light aromatic	64742-95-6	----	100
Particulates	NY075-00-0	150	----
Sources: NYSDEC, DAR-1 AGC/SGC Tables, February 2021			

D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

MOBILE SOURCES

Since the publication of the Draft EIS the following updates have been made to the air quality mobile source analysis:

- The intersection at West Kingsbridge Road and Webb Avenue, which is within 1,000 feet of the analyzed intersection at West Kingsbridge Road and Reservoir Avenue, was included in the updated analysis for the West Kingsbridge Road and Reservoir Avenue intersection;
- Additional traffic peak periods were analyzed; and
- The $PM_{2.5}$ annual analysis was updated to run two separate traffic scenarios (non-event and event).

In addition, vehicle emissions modeling was updated to reflect newer NYSDEC vehicle registration data.

INTERSECTION ANALYSIS

The prediction of vehicle-generated emissions and their dispersion in an urban environment incorporates meteorological phenomena, traffic conditions, and physical configuration. Air pollutant dispersion models mathematically simulate how traffic, meteorology, and physical configuration combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to describe an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and since it is necessary to predict the reasonable worst-case condition, it is important to note that most dispersion analyses predict conservatively high concentrations of pollutants, particularly under adverse meteorological conditions.

The mobile source analyses for the Proposed Project employ models approved by EPA that have been used for evaluating air quality impacts of projects in New York City, other parts of New York State, and throughout the country. The modeling approach includes a series of conservative assumptions relating to meteorology, traffic, and background concentration levels resulting in a conservatively high estimate of expected pollutant concentrations that could ensue from the Proposed Project.

Vehicle Emissions

Engine Emissions

Vehicular CO and PM engine emission factors were computed using the EPA mobile source emissions model, Motor Vehicle Emission Simulator (MOVES5).[5] This emissions model is capable of calculating engine, ~~break~~ brake wear, and tire wear emission factors for various vehicle types, based on the fuel type (e.g., gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway type and grade, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOVES incorporate the most current guidance available from NYSDEC.

Vehicle classification data were based on field data. Appropriate credits were used to accurately reflect the inspection and maintenance program.[6] County-specific hourly temperature and relative humidity data obtained from NYSDEC were used.

Road Dust

$PM_{2.5}$ emission rates were determined with fugitive road dust to account for their impacts in local microscale analyses. However, fugitive road dust was not included in the neighborhood scale $PM_{2.5}$ microscale analyses, since DEP considers it to have an insignificant contribution on that scale. Road dust emission factors were calculated according to the latest procedure delineated by EPA[7] and the *CEQR Technical Manual*.

Traffic Data

Traffic data for the intersection analysis were derived from existing traffic counts, projected future growth in traffic, and other information developed as part of the traffic analysis for the Proposed Project (see Chapter 13, “Transportation”). Traffic data for the future without the project (the No Action condition) and the With Action condition were employed in the respective air quality modeling condition. The peak periods used consisted of the weekday AM, midday, PM and weekend non-event peak periods and weekday evening and weekend evening event periods. To account for the different traffic conditions occurring during events and non-event days, two scenarios were modeled. The non-event peak periods were modeled separately (referred to as the non-event

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[5] EPA. Motor Vehicle Emission Simulator (MOVES): User Guide for MOVES2014a. EPA420B15095. November 2015. Overview of EPA’s Motor Vehicle Emission Simulator (MOVES5). November 2024, EPA-420-R-24-011.

[6] The inspection and maintenance programs require inspections of automobiles and light trucks to determine if pollutant emissions from each vehicle exhaust system are lower than emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State.

[7] EPA. *Compilations of Air Pollutant Emission Factors AP-42*. Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1. NC. http://www.epa.gov/ttn/chief/ap42. January 2011.

scenario), while for the event scenario, the event peak periods were modeled, supplemented with the non-event peak periods to simulate conditions during other periods of the day.

The peak periods were used as a baseline for determining off-peak volumes for weekday and weekends. Off-peak traffic volumes in the No Action condition were determined by adjusting the peak period volumes by the 24-hour distributions of actual vehicle counts collected at appropriate locations, and off-peak increments from the With Action condition were estimated based on the parking demand as a result of the Proposed Project. For modeling of annual average $PM_{2.5}$ concentrations, it was assumed that a~~n~~ maximum capacity event occurs two ~~each~~ days per week, which is ~~very~~ conservative because ~~maximum capacity~~these events would occur ~~much~~ less frequently, on average. Event and non-event scenarios were each modeled separately ~~for~~to obtain the annual average $PM_{2.5}$ concentrations, and then the weighted average of the concentrations from each of the two scenarios were calculated based on 104 events per year and the remaining non-event days per year, respectively.

Dispersion Model for Microscale Analyses

The CO and PM concentrations due to vehicular emissions adjacent to the analysis sites were predicted using the American Meteorological Society/Environmental Protection Agency Regulated Model (AERMOD) Version 24142.[8] AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of terrain interactions. AERMOD is a recommended model for transportation air quality analyses, and EPA mandated its use for transportation conformity purposes after a three-year transition period.[9] Following EPA guidelines, the analysis was performed using a line source representation of emission sources in order to simulate traffic-related air pollutant dispersion.[10] In addition, the weighted average release height and initial vertical source parameters were calculated for each modeled roadway. Hourly traffic volumes and associated emission factors were used to estimate hourly emission rates from each modeled roadway segment and predict traffic-related air pollutant concentrations at receptor locations.

Meteorology

In general, the transport and concentration of pollutants from vehicular sources are influenced by three principal meteorological factors: wind direction, wind speed, and atmospheric stability. Wind direction influences the direction in which pollutants are dispersed, and atmospheric stability accounts for the effects of vertical mixing in the

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[8] EPA. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. Office of Air Quality Planning and Standards. EPA-454/B-24-007, November 2024.

[9] EPA. Revisions to the Guideline on Air Quality Models: Final rule. Federal Register, Vol. 82, No. 10, January 2017.

[10] EPA. *Project-Level Conformity and Hot-Spot Analyses*, available at: https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses#pmguidance

atmosphere. These factors, therefore, influence the concentration at a particular prediction location (receptor).

The AERMOD model includes the modeling of hourly concentrations based on hourly traffic data and five years of monitored hourly meteorological data. The data consists of surface data collected at LaGuardia Airport and upper air data collected at Brookhaven, New York for the period 2017–2021. This data is the more most recent five-year set available from NYSDEC. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These data are processed using the EPA AERMET program to develop data in a format which can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data were available were classified using categories defined in digital United States Geological Survey (USGS) maps. The meteorological dataset processed with the AERMET Version 21112 processor, provided by NYSDEC, was used for the analysis.[11]

Analysis Year

The microscale analyses were performed for the 2032 analysis year, the year by which the Proposed Project is anticipated to be completed. The analysis was performed for both the No Action condition and the With Action condition.

Background Concentrations

Background concentrations are those pollutant concentrations originating from distant sources that are not directly included in the modeling analysis, which directly accounts for vehicular emissions on the streets within 1,000 feet and in the line of sight of an analysis site. Background concentrations must be added to modeling results to obtain total pollutant concentrations at an analysis site.

The background concentrations for the nearest monitored location are presented in **Table 14-3**. PM and CO concentrations are based on three recent years of monitored data (2021-20232022-2024) consistent with the statistical format of the NAAQS. These values were used as the background concentrations for the mobile source analysis.

[11] NYSDEC staff previously communicated in an email to AKRF that the met data provided by NYSDEC and processed with earlier versions is acceptable for use with later AERMOD versions. NYSDEC does not have immediate plans to update the met data using AERMET Version 24142.

Table 14-3
Maximum Background Pollutant Concentrations for Mobile Source Analysis

Pollutant	Average Period	Location	Concentration	NAAQS
CO	1-hour	Botanical Garden, Bronx	2	35 ppm (1)
	8-hour		1.6	9 ppm
$PM_{2.5}$	24-hour	Botanical Garden, Bronx	21.420.3	35 μg/m^3 (2)
	Annual		7.57.3	9 μg/m^3 (3)

Notes:
(1) CO concentrations represent the maximum second-highest monitored concentrations from the three recent years of data.
(2) $PM_{2.5}$ 24-hour-average concentration represents the average of the 98th percentile day from three recent years of data.
(3) EPA has lowered the NAAQS from 12 μg/m^3, effective March 6, 2024.
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2021-20232022-2024.

Analysis Sites

Intersections in the study area were reviewed for microscale analysis. Of those intersections were determined to exceed the CO and/or $PM_{2.5}$ screening thresholds based on the *CEQR Technical Manual* guidance, two were selected for microscale analysis: (1) West Kingsbridge Road and Reservoir Avenue; and (2) West 195th Street and Reservoir Avenue. These intersections were selected because they are projected to have the highest peak hour project-generated incremental traffic volumes for the event and non-event peak periods. The intersections of West Kingsbridge Road and Reservoir Avenue have the highest number of project-generated heavy-duty truck trips while the intersection of West 195th Street and Reservoir Avenue has the highest number of project-generated trips. The potential impacts from CO was analyzed at West 195th Street and Reservoir Avenue and $PM_{2.5}$ emissions were analyzed at each of the sites.

The intersection at West Kingsbridge Road and Webb Avenue, which is within 1,000 feet of the analyzed intersection at West Kingsbridge Road and Reservoir Avenue, was included in the updated analysis of that intersection using all applicable traffic data described above.

Receptor Placement

Multiple receptors (i.e., precise locations at which concentrations are evaluated) were modeled at the selected sites. Receptors were placed along the approach and departure links and roadway segments at regularly spaced intervals. Ground-level receptors were placed at sidewalk or roadside locations near intersections with continuous public access, at a pedestrian height of 1.8 meters. Receptors in the analysis models for predicting annual average neighborhood-scale $PM_{2.5}$ concentrations were placed at a distance of 15 meters, from the nearest moving lane at each analysis location, based on the *CEQR Technical Manual* procedure for neighborhood-scale corridor $PM_{2.5}$ modeling.

PARKING ANALYSIS

Approximately 248 public parking spaces and new loading docks would be provided in the Armory's cellar level. Vehicular access to the parking garage and loading docks would be provided by two new entrances on West 195th Street; a dedicated loading dock for the live event venue would be accessed from an entrance on Reservoir Avenue. There would be approximately 80 parking spaces in a cellar-level parking garage below the residential building that would be accessed from a new approximately 22-foot-wide curb cut on West 195th Street approximately 150 feet east of Reservoir Avenue. Analyses were conducted for the two parking garages to assess the potential effects on air quality.

Emissions from vehicles using the proposed parking facilities could potentially affect levels of CO and PM concentrations in the immediate vicinity of the ventilation outlets. Therefore, an analysis of CO and PM emissions was performed for the Proposed Project's parking facilities. The emissions from the garage outlet vents and their dispersion were analyzed using the methodology defined in the *CEQR Technical Manual*. Maximum CO concentrations were determined for the time periods when overall garage usage would be the greatest, considering the hours when the greatest number of vehicles would exit each facility. PM increments were determined for peak daily (24-hour) use. The number of vehicles entering and exiting the garage were derived from the trip generation analysis described in Chapter 13, "Transportation."

Emissions from vehicles entering, parking, and exiting the garages were determined using the EPA MOVES5 mobile source emission model as described in detail above for the analysis of emissions at intersections. For all arriving and departing vehicles, an average speed of five miles per hour was conservatively assumed for travel within the parking garage. In addition, all departing vehicles were assumed to idle for 60 seconds before proceeding to the exit. Although the project is still in the preliminary stage of design and details on the ventilation systems have not yet been defined, the concentrations within the systems were conservatively calculated assuming a minimum ventilation rate, based on New York City Building Code requirements of one cubic foot per minute of fresh air per gross square foot of garage area.

To determine pollutant concentrations for the parking garages, the outlet vents were analyzed as a "virtual point source" using the methodology in EPA's *Workbook of Atmospheric Dispersion Estimates, AP-26*. This methodology estimates concentrations at various distances from an outlet vent by assuming that the concentration at the vent represents the emission rate divided by the fresh air ventilation rate and determining the appropriate initial horizontal and vertical dispersion coefficients at the vent faces.

Based on design information, the vent location for the garage for the Armory was modeled from a louver located along the north side of the garage at a height of approximately 100 feet above grade and directly south of the proposed residential building; therefore, a building receptor was placed on the proposed residential building on the façade facing the garage, at a distance of approximately 60 feet from the vent. The vent location for the garage of the residential building was modeled on the highest roof of the 15-story portion of the building, at a height of approximately 150 feet. Since the design of the proposed residential building is not complete, for analysis purposes a rooftop receptor was conservatively assumed at a distance of 10 feet from the vent. The parking garage exhausts would be in different locations and at different heights; therefore, any cumulative air quality effects of the parking garages' exhausts at sensitive receptor locations would be negligible.

A persistence factor of 0.70 was used to convert the maximum 1-hour average CO concentrations to 8–hour averages, per *CEQR Technical Manual* guidance, and factors of 0.6 and 0.1 to convert maximum 1-hour $PM_{2.5}$ concentrations to 24-hour and annual averages, respectively, per EPA guidance,[12] accounting for meteorological variability over the longer averaging periods. To determine compliance with the NAAQS, CO concentrations were determined for the maximum 8-hour average period.

Background concentrations were added to the modeling results to obtain the total ambient levels.

STATIONARY SOURCES

HEATING AND HOT WATER SYSTEMS

On December 15, 2021, the New York City Council passed a bill that would effectively ban the installation of most new natural gas and other fossil fuel-fired systems in buildings in New York City (Local Law 154 of 2021). The ban would be enforced by the New York City Department of Buildings, and for buildings greater than six stories, is based on the submission of construction documents after July 1, 2027. Electric-powered equipment would be utilized for heating and hot water needs for all of the proposed buildings under the With Action scenario. Therefore, an analysis of heating and hot water systems is not required.

EMERGENCY GENERATORS

One or more diesel-powered generators would be installed to provide power in the event of a loss of utility electric power at the Armory. The proposed residential building may also include a diesel -powered generator. The generator(s) would be used for testing infrequently, no more than once per week, and typically for 30 to 60 minutes, and would therefore be only operated for very limited periods of time for testing outside of an actual emergency. Therefore, no analysis of this equipment was performed.

INDUSTRIAL SOURCES

Potential Impacts from Existing Uses

Businesses with potential manufacturing or process emission sources within 400 feet of the Project Site were surveyed for inclusion in the air quality impact analyses, as recommended in the *CEQR Technical Manual*. Existing land uses were reviewed to identify potential sources of emissions from manufacturing/industrial operations. A search of federal, state, and city permit data within the study area was conducted using the DEP Clean Air Tracking System (CATS) database[13] and the NYSDEC Info Locator.[14] A field survey was conducted on April 7, 2025 to identify businesses within 400 feet of the Project Site that have the potential for emitting air pollutants. No current permitted activities were identified within the study area, and no other sources of emissions were identified in the land use survey. The permit search did not identify any existing or expired permits for manufacturing or processing activities. Therefore, no potential for significant adverse air quality impacts on the Proposed Project are anticipated from industrial sources of emissions.

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[12] EPA. *AERSCREEN User's Guide*. EPA-454/B-21-005. April 2021.

[13] DEP. *Clean Air Tracking System database*. https://a826-web01.nyc.gov/DEP.BoilerInformationExt. Accessed April 2024.

[14] NYSDEC. https://gisservices.dec.ny.gov/gis/dil/ Accessed April 2024.

Analysis of Potential Impacts from Future Uses

The Armory would be adaptively reused and reprogrammed with approximately 736,800 gsf of new uses, including approximately 87,800 gsf of light manufacturing space. Therefore, potential impacts from pollutant emissions from manufacturing that would be ~~co-~~located in close proximity to ~~within the same building with~~ sensitive receptors~~, and of manufacturing uses on nearby sensitive receptors~~ in ~~other~~ existing and proposed buildings were evaluated.

Uses

Air emissions were analyzed from potential manufacturing uses that would be permitted and reasonably could locate in the proposed development, to assess their potential impacts on the potential sensitive uses in the district as well as in the surrounding areas. Potential light industrial uses that would be allowed under the Proposed Actions were reviewed to identify use categories that might foreseeably locate within the Project Area. A comprehensive summary of emission sources with DEP permits was reviewed, based on a survey that was previously performed.[15] Of the identified use groups, those that had the greatest number of occurrences in air permits were selected. A summary of the selected light industrial use categories is presented in **Table 14-4**. Note that other use categories not represented in **Table 14-4** that would be permitted under the proposed mixed-use district potentially could have pollutant emissions; however, it is assumed that such emissions would generally be of a lesser magnitude than the analyzed use groups.

Table 14-4
Potential Light Industrial Uses

Use Group	Use Category	North American Industry Classification System (NAICS) Code
Use Group VI	Educational Services ~~Repair and Maintenance~~	611~~811~~
Use Group VIII	Art Galleries	4599
Use Group X	Beverage and Tobacco Product Manufacturing	312
	Textile & Textile Product Mills	314
		315
	Apparel Manufacturing	315
	Leather and Allied Product Manufacturing	316
	Wood Product Manufacturing	321
	Printing and Related Support Activities	323
	Chemical Manufacturing	325
	Nonmetallic Mineral Product Manufacturing	327
	Machinery Manufacturing ~~Computer and Electronic Product Manufacturing~~	333~~334~~
	Furniture and Related Product Manufacturing	337
	Miscellaneous Manufacturing	339

[15] Gowanus Neighborhood Rezoning Final Environmental Impact Statement, September 2021.

Emissions Profile

To estimate emissions from light industrial uses that are considered foreseeable in the proposed development, a detailed review of permitted emissions was performed. DEP air permit records were reviewed and permitted facilities representing uses considered as foreseeable in the proposed development were identified. From these permits, processes that were considered consistent with the use group (i.e., not atypical of the use group itself) were included in the emissions profile. Pollutants listed in air permits associated with these facilities were included in the analysis. After compiling and sorting the emission data for each use group, the 95th percentile value was determined. This value has been accepted by DEP to be reasonably conservative for estimating air toxic emissions from industrial uses within the Proposed Project. This is also considered conservative as many permitted operations are for older manufacturing operations and therefore may not be reflective of current manufacturing methods that would be anticipated as part of the Proposed Project. Therefore, the 95th percentile emission rate from among the identified permits for each analyzed use category was calculated for each pollutant to represent potential air toxics emissions.

In addition, the analysis accounted for facilities that have multiple permits. For these facilities, the emission sources from the permitted emission sources were assumed to be co-located, and for processes that have the same pollutant, potential air quality impacts was determined on an additive (cumulative) basis by facility.

A summary of emissions profiles developed for the industrial source analysis is presented in **Table 14-5**. The table presents a summary of air toxics emissions for processes in the identified uses ~~categories~~, using the 95th percentile emission rate for each pollutant for each use reported in DEP air permits for each air toxic. A complete summary of the emission values used in the analysis for each of the analyzed use groups is presented in **Appendix E**.

Table 14-5
Industrial Source Analysis Emissions Profile

Pollutant	Maximum Modeled Emissions	
	(lb/hr)	(lb/yr)
Formaldehyde	0.0046	7.36
Glycerin	0.0153	29.165
Cyanides	0.004	3.6
Aniline	0.001	0.03
Ethanol	9.092	29,387.20
Acetic acid	0.168	336
Methanol	0.39	1,487.90
Isopropyl alcohol	5.672	14,400.00
Acetone	1.3014	1,855.00
Butyl alcohol, n-	2.16	3,987.50
Methyl chloroform	0.25	586.1
Methane	0.404	19
Hydrogen cyanide	0.126	1.375
Acetonitrile	1.363	2.998
Dichloromethane	1.6602	1,447.05
Isophorone	0.126	262.1
Isobutyl alcohol	6.048	8,726.40
Methyl ethyl ketone	5.2742	3,168.95

Table 14-5
Industrial Source Analysis Emissions Profile

Pollutant	Maximum Modeled Emissions	
	(lb/hr)	(lb/yr)
Dibutyl phalate	0.02205	52
Butyl benzyl phthala	0.01335	10
Biphenyl	0.055	110
Dichlorobenzine, ortho	0.03	60.5
Ethyl benzene	0.105	84
Styrene	3	3,750.00
Benzyl alcohol	0.064	51.68
1,4-dichlorobenzene(p)	0.028	55
Ethylene glycol	0.1132	239.2
Propylene glycol methyl et	0.0731	504.56195
Vinyl acetate	0.001	6
Methyl isobutyl ketone	2.1	3,360.00
Isopropyl acetate	5.76	11,120.40
Toluene	10.764	17,098.80
Cyclohexone	2.816	5,406.00
Methyl cellosolve	0.003	1.1
Isobutyl acetate	1.9305	1,584.00
Hexane	1.9862	1,021.60
Glycol monoethylether	0.0544	103
Cyclohexane	0.707	1,470.50
Cellosolve acetate	0.07225	22.02
Ethylenglycolmonbuty	0.64845	736
Butoxyethyl acetate	0.006	4.72
Butyl carbitol	0.1775	350.575
Propylene	0.4	890
Dioctyl phthalate	0.3165	397.2
Trichcloro benzene	0.165	330
Hydroquinone	0.073	407.68
Diacetone alcohol	0.004	2.88
Butyl acetate	3	2,000.00
Carbon dioxide	142.2	62,568.00
Tetrachloroethylene	1.179	2,152.76
Monoethanolamine	0.4	2
Ethyl acetate	10.435	2,746.50
N-heptane	2.306	7,509.60
Sodium cyanide	0.00335	2.45
Potassium cyanide	0.001	1.6
Copper cyanide	0.001	2
Zinc stearate	0.001	1.2
Amyl acetate, n-	0.011	81.705
Carbon monoxide	1.392	1,690.80
Cadmium oxide	0.042	0.127
Iron oxide	0.022	26.4
Lead oxide	0.001	0.004
Sodium hydroxide	0.2018	4
Nickel oxide	0.001	0.8
Zinc oxide	0.1	152.096
Xylene,m,o&p mixt.	3.4935	4,650.00
Kaolin (clay)	0.008	58.118

Table 14-5
Industrial Source Analysis Emissions Profile

Pollutant	Maximum Modeled Emissions	
	(lb/hr)	(lb/yr)
Carbon black	0.0044	34.1108
Lead oxide	0.01	3.045
Ethyleneglycol monopropyl ether	0.1755	769.17
Lead stearate	0.001	0.6
Lead	0.001	1.785
Tin	0.001	1.8089
Antimony	0.001	1.9026
Zinc	0.01	6.6
Sulfur dioxide	0.32575	721.55
Hydrogen chloride	0.3329	200.4
Phosphoric acid	0.0019	4.076
Hydrogen fluoride	0.001	0.5
Ammonia	3.827	6,123.20
Sulfuric acid	0.004	33.455
Nitric acid	0.2236	148.2
Barium sulfate	0.005	5
Chlorine	0.001	0.4
Naphtha	2.5761	2,424.85
Ligroine	15.501	4,052.20
Nitrogen oxide	0.48	998
Nitrogen dioxide	0.1703	968.565
Titanium dioxide	0.021	152.97
Talc	0.008	57.412
Dipropylene glycol methyl ether	0.028	7
Distillate heavy parafinic	0.001	0.8
Naphtha light aliphatic	3.74075	7,472.23
Naphtha light aromatic	0.64	1,280.00
Particulates	3.352	8,007.60

~~Table 14-5~~
~~Industrial Source Analysis Emissions Profile~~

~~Pollutant~~	~~Maximum Modeled Emissions~~	
	~~(lb/hr)~~	~~(lb/yr)~~
~~Formaldehyde~~	~~0.307~~	~~246.0~~
~~Glycerin~~	~~0.015~~	~~29.2~~
~~Cyanides~~	~~0.004~~	~~3.6~~
~~Aniline~~	~~0.001~~	~~0.0~~
~~Ethanol~~	~~9.092~~	~~29,387.2~~
~~Acetic acid~~	~~0.168~~	~~336.0~~
~~Methanol~~	~~0.390~~	~~1,487.9~~
~~Isopropyl alcohol~~	~~5.672~~	~~14,400.0~~
~~Acetone~~	~~1.286~~	~~1,820.0~~
~~Butyl alcohol, n-~~	~~2.160~~	~~3,987.5~~
~~Methyl chloroform~~	~~0.250~~	~~586.1~~
~~Methane~~	~~0.404~~	~~19.0~~
~~Hydrogen cyanide~~	~~0.126~~	~~1.4~~
~~Acetonitrile~~	~~1.363~~	~~3.0~~
~~Dichloromethane~~	~~1.660~~	~~1,447.1~~

Table 14-5
Industrial Source Analysis Emissions Profile

Pollutant	Maximum Modeled Emissions	
	(lb/hr)	(lb/yr)
Isophorone	0.126	262.1
Isobutyl alcohol	5.832	9,331.2
Methyl ethyl ketone	5.274	3,169.0
Dibutyl phalate	0.022	52.0
Butyl benzyl phthala	0.013	10.0
Biphenyl	0.055	110.0
Dichlorobenzine, ortho	0.030	60.5
Ethyl benzene	0.105	85.5
Styrene	3.000	3,750.0
Benzyl alcohol	0.064	51.7
1,4-dichlorobenzene(p)	0.028	55.0
Ethylene glycol	0.113	239.2
Propylene glycol methyl et	0.073	504.6
Vinyl acetate	0.001	6.0
Methyl isobutyl ketone	2.100	3,360.0
Isopropyl acetate	5.265	10,012.8
Toluene	10.764	17,098.8
Cyclohexone	2.816	5,406.0
Methyl cellosolve	0.003	1.1
Isobutyl acetate	1.931	1,584.0
Hexane	1.986	1,021.6
Glycol monoethylether	0.054	103.0
Cyclohexane	0.707	1,470.5
Cellosolve acetate	1.220	1,864.2
Ethylenglycolmonbuty	0.648	736.0
Butoxyethyl acetate	0.006	4.7
Butyl carbitol	0.178	350.6
Propylene	0.400	890.0
Dioctyl phthalate	0.422	396.8
Trichcloro benzene	0.165	330.0
Hydroquinone	0.073	407.7
Diacetone alcohol	0.004	2.9
Butyl acetate	3.192	2,633.6
Carbon dioxide	142.200	62,568.0
Tetrachloroethylene	11.250	20,250.0
Monoethanolamine	0.400	2.0
Ethyl acetate	10.435	2,746.5
N-heptane	2.306	7,509.6
Sodium cyanide	0.003	2.5
Potassium cyanide	0.001	1.6
Copper cyanide	0.001	2.0
Zinc stearate	0.001	1.2
Amyl acetate, n-	0.011	81.7
Carbon monoxide	1.392	1,690.8
Cadmium oxide	0.042	0.1
Iron oxide	0.022	26.4
Lead oxide	0.001	0.0
Sodium hydroxide	0.202	4.0
Nickel oxide	0.001	0.8
Zinc oxide	0.100	152.1

Table 14-5
Industrial Source Analysis Emissions Profile

Pollutant	Maximum Modeled Emissions (lb/hr)	Maximum Modeled Emissions (lb/yr)
Arsenic trioxide	0.001	9.0
Xylene,m,o&p mixt.	3.494	4,500.0
Kaolin (clay)	0.008	58.1
Carbon black	0.004	34.1
Lead oxide	0.010	3.0
Ethyleneglycol monopropyl ether	0.176	769.2
Lead stearate	0.001	0.6
Lead	0.001	1.8
Tin	0.001	1.8
Antimony	0.001	1.9
Cadmium	0.001	2.0
Zinc	0.010	6.6
Sulfur dioxide	0.489	721.6
Hydrogen chloride	0.333	200.4
Phosphoric acid	0.002	4.1
Hydrogen fluoride	0.001	0.5
Ammonia	3.827	6,123.2
Sulfuric acid	3.200	33.5
Nitric acid	0.224	148.2
Barium sulfate	0.005	5.0
Lead chromate	0.002	0.3
Chlorine	0.001	0.4
Naphtha	2.452	3,357.0
Ligroine	15.501	4,052.2
Nitrogen oxide	0.480	998.0
Nitrogen dioxide	0.170	968.6
Titanium dioxide	0.021	153.0
Talc	0.008	57.4
Dipropylene glycol methyl ether	0.028	7.0
Distillate heavy parafinic	0.001	0.8
Naphtha light aliphatic	3.741	7,472.2
Naphtha light aromatic	0.640	1,280.0
Particulates	10.615	9,548.0

Dispersion Analysis

Maximum potential pollutant concentrations from the proposed sources, at various distances from the source, were analyzed using the refined AERMOD dispersion model, using a unitary emission rate of 1 gram per second (g/s) to determine potential air toxics concentrations for each potential light industrial use that may locate at the Armory Site. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of terrain interactions.

The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analyses of potential impacts from exhaust stacks were made assuming stack tip downwash, urban dispersion and surface roughness length, and elimination of calms. AERMOD can be run with and without building downwash (the downwash option accounts for the effects on plume dispersion created by the structure the stack is located on, and other nearby structures). Since the industrial source exhaust stack would be located on the Armory building that would not undergo substantial exterior changes,[16] the analysis was performed using the AERMOD model with the downwash option only.

Concentrations were predicted at existing and proposed sensitive receptor locations that include existing residences, the KIPP Inquire Elementary School to the east, publicly accessible sidewalks, ~~and~~ the proposed open space, and new residences within the proposed new residential buildings on the National Guard Site north of the Armory building.

The industrial source vent would be located on the roof of the Armory building and approximately ~~160~~157 feet from the closest sensitive receptor (the proposed new residences to the north.) Exhaust parameters were developed based on default dispersion parameters (exhaust velocity, stack diameter, etc.) from the *CEQR Technical Manual*.

Receptors were placed at various façades and elevations of nearby buildings, and at ground level locations.

The results were used to predict the worst-case potential air toxics concentrations. The unitary results (µg/m^3 per g/s) were then scaled by the emission rates from the light industrial source emissions profile (see **Table 14-5**). The results were compared with the SGC and AGC values reported in the NYSDEC's DAR-1 Tables guidance document to determine the potential for significant impacts.[17] For each source location modeled, pollutants that were modeled to exceed AGCs and/or SGCs are summarized, along with the affected receptors. ~~Maximum potential pollutant concentrations from the proposed sources, at various distances from the source, were estimated based on the reference values found in Table 17-3 of the *CEQR Technical Manual*. The database provides screening factors for estimating maximum concentrations based on emissions levels at the source derived from generic AERMOD dispersion modeling for the New York City area. Impact distances selected for the proposed light industrial uses based on the minimum distance between the potential vent location on the north façade of the Armory, and the nearest receptor of a similar or greater height, which is on the proposed residential building on the Project Site (approximately 60 feet).~~

~~The results were used to predict the worst-case potential air toxics concentrations. The unitary results (µg/m^3 per g/s) for each development were scaled by the median emission rates from the emissions profile.~~

[16] Alterations to the Armory building would be limited to façade repair/cleaning, replacement windows and roofing, new and altered door openings, and rooftop solar panels and skylights.

[17] NYSDEC, DAR-1 Guidelines for the Evaluation and Control of Ambient Air Contaminants Under Part 212; Appendix A, Toxicity Classification and Guideline Development Methodology for AGC/SGC, February 2021.

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 Project Site, a review of NYSDEC Title V and State Facility Air permits was performed to identify any federal or state-permitted facilities. Existing large and major sources of emissions (i.e., sources having a Title V or State Facility Air Permit) within 1,000 feet of the Project Site were surveyed.

No facilities with a State Facility, Title V, or PSD Permit within the 1,000-foot study area around the Project Site were identified. Therefore, no analysis of the potential impacts of large or major sources of emissions on the Proposed Project was required.

E. EXISTING CONDITIONS

The representative criteria pollutant concentrations measured in recent years at NYSDEC air quality monitoring stations nearest to the Project Site are presented in **Table 14-6**. The values presented are consistent with the form of the NAAQS. As shown in the table, the recently monitored levels did not exceed the NAAQS (including the recently revised NAAQS for annual $PM_{2.5}$), with the exception of the 8-hour ozone NAAQS. It should be noted that these values are somewhat different from the background concentrations used in the stationary source and mobile source analyses, since these are the most recent reported monitored values, rather than more conservative values used for dispersion modeling. The concentrations presented in **Table 14-6** provide a comparison of the air quality in the project area with the NAAQS, while background concentrations are obtained from several years of monitoring data and represent a conservative estimate of the highest concentrations for future ambient conditions.

F. THE FUTURE WITHOUT THE PROPOSED ACTIONS

MOBILE SOURCES

CO concentrations in the 2032 No Action condition were determined using the methodology previously described. **Table 14-7** shows future maximum predicted 8-hour CO concentrations, including background concentrations, at the analysis intersections in the No Action condition. The values shown are the highest predicted concentrations for the receptor locations for any of the time periods analyzed.

$PM_{2.5}$ concentrations for the No Action condition are not presented, since impacts are assessed on an incremental basis.

Table 14-6
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	Botanical Garden, Bronx	ppm	1-hour	~~1.80~~1.77	35
			8-hour	~~1.3~~1.5	9
SO_2	Botanical Garden, Bronx[1]	µg/m^3	1-hour	~~8.9~~9.8	196
PM_{10}	IS 52, Bronx[9]	µg/m^3	24-hour	~~33~~37	150
$PM_{2.5}$	Botanical Garden, Bronx[2,3]	µg/m^3	Annual	~~7.5~~7.3	9[8]
			24-hour	~~21.4~~20.3	35
NO_2	Botanical Garden, Bronx[4,5]	µg/m^3	1-hour	~~97.1~~77.8	188
			Annual	26.2	100
Lead	IS 52, Bronx[6]	µg/m^3	3-month	0.0049	0.15
Ozone	Botanical Garden, Bronx[7]	ppm	8-hour	~~0.071~~0.0069	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) Annual value based on a three-year maximum of annual concentrations.
(6) Based on the highest quarterly average concentration measured during ~~2021~~ 2022 to ~~2023~~2024.
(7) Based on the three-year average of the 4th highest daily maximum 8-hour average concentrations.
(8) EPA has lowered the NAAQS from 12 µg/m^3, effective March 6, 2024.
(9) Based on the highest 24-hr concentrations for the year 2023 as the latest available monitored value for PM_{10}.
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, ~~2021–2023~~2022-2024 except PM_{10} which is based on the latest three years available (2021-2023).

Table 14-7
Maximum Predicted 8-Hour Average CO No Action Concentrations

Analysis Site	Location	8-Hour Concentration (ppm)
2	Reservoir Avenue & West 195th Street	~~0.07~~1.69

Notes:
8-hour standard (NAAQS) is 9 ppm.
Concentration includes a background concentration of 1.6 ppm.

STATIONARY SOURCES

Absent the Proposed Project, none of the Proposed Actions would be sought or approved, and the Project Site would remain unchanged from its current state. Although the No Action condition would result in less development compared to the Proposed Project in the With Action condition, the restrictions prohibiting the use of fossil fuel-fired heating and hot water systems would not be in place. Therefore, stationary sources of emissions associated with this equipment could potentially be greater under the No Action condition compared to the With Action condition.

G. THE FUTURE WITH THE PROPOSED ACTIONS

MOBILE SOURCES

INTERSECTION ANALYSIS

CO concentrations for the Proposed Project were predicted using the methodology previously described. **Table 14-8** shows the future maximum predicted 8-hour average CO concentrations at the intersection studied. The values shown are the highest predicted concentrations. The results indicate that the Proposed Project would not result in any violations of the 8-hour CO NAAQS. In addition, the incremental increases in 8-hour average CO concentrations are small, and consequently would not result in a violation of the CEQR *de minimis* CO criteria. Therefore, mobile source CO emissions from the Proposed Project would not result in a significant adverse air quality impact.

Table 14-8
Maximum Predicted 8-Hour CO
With Action Concentrations (ppm)

Analysis Site	Location	Non-Event		Event		Maximum Increment	De Minimis
		No Action	With Action	No Action	With Action		
2	West 195th Street & Reservoir Avenue	~~1.7~~ 1.69	~~2.0~~1.71	1.69	1.89	0.20	3.7

Notes:
8-hour standard is 9 ppm.
Concentration includes a background concentration of 1.6 ppm.

Using the methodology previously described, maximum predicted 24-hour and annual average $PM_{2.5}$ concentrations were calculated so that they could be compared with the NAAQS and the *de minimis* criteria, respectively. Based on this analysis, the maximum predicted localized 24-hour average and neighborhood-scale annual average incremental $PM_{2.5}$ concentrations are presented in **Tables 14-9 and 14-10**, respectively. **Tables 14-9 and 14-10** also present the maximum predicted concentrations in the No Action and With Action condition. The values shown are the highest predicted concentrations for the modeled receptor locations and include background concentrations.

The results in **Table 14-9** show that the 24-hour $PM_{2.5}$ increments are predicted to be below the *de minimis* criterion~~.~~ ~~However~~, and as shown in **Table 14-10**, ~~at each of the two intersection sites analyzed,~~ the maximum annual incremental $PM_{2.5}$ concentration is not predicted to exceed the *de minimis* criterion. ~~The annual average $PM_{2.5}$ incremental concentrations would be considered a significant adverse air quality impact in the absence of traffic mitigation measures.~~ The results demonstrate that mobile source $PM_{2.5}$ emissions from the Proposed Project would not result in a significant adverse air quality impact at the analyzed intersections.

Table 14-9
Maximum Predicted 24-Hour Average $PM_{2.5}$
With Action and Incremental Concentrations (µg/m³)

Analysis Site	Location	Non-Event		Event		Maximum Increment (2)	De Minimis Criterion
		No Action	With Action	No Action	With Action		
1	West Kingsbridge Road & Reservoir Avenue	~~3.4~~ 4.2	~~5.6~~4.7	4.2	5.9	~~2.1~~ 1.7	~~6.8~~7.4 (1)
2	West 195th Street & Reservoir Avenue	~~1.8~~2.4	~~2.8~~2.7	2.4	2.9	~~0.9~~ 0.5	~~6.8~~7.4 (1)

Note:
(1) $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration (~~21.4~~20.3 µg/m³) and the 24-hour standard of 35 µg/m³.
(2) Increment is the maximum across five years and event/non-event scenario.

Table 14-10
Maximum Predicted Annual Average $PM_{2.5}$
With Action and Incremental Concentrations (µg/m³)

Analysis Site	Location	No Action (2)	With Action (2)	Increment	*De Minimis* Criterion
1	West Kingsbridge Road & Reservoir Avenue	0.20	~~0.4~~ 0.28	~~0.21~~0.08	0.1(1)
2	West 195th Street & Reservoir Avenue	~~0.1~~ 0.09	~~0.2~~ 0.13	~~0.13~~ 0.04	0.1(1)

Note:
(1) $PM_{2.5}$ *de minimis* criterion—annual (neighborhood scale), 0.1 µg/m³.
(2) $PM_{2.5}$ annual concentration is the sum of the event concentration normalized for 104 event days/year and non-event concentration normalized for the remaining 261 days.

~~Between the Draft and Final EIS, additional review and evaluation will be performed which is expected to determine that the identified impacts related to mobile source annual average $PM_{2.5}$ increments in the With Action condition will be avoided. For annual average $PM_{2.5}$, a more refined microscale analysis will be performed which incorporates all of the traffic peak periods and accounts for the relative frequency of events that would take place. If required, additional modeling of $PM_{2.5}$ concentrations (Grid Analysis) will be performed using more comprehensive analysis procedures to determine the magnitude and extent of neighborhood-scale $PM_{2.5}$ impacts from mobile sources. Other updates may include the use of a newer vehicle emissions data and projections. It is anticipated that these additional measures will reduce $PM_{2.5}$ concentrations below the annual *de minimis* criteria threshold.~~

PARKING ANALYSIS

Based on the methodology previously described, the maximum predicted CO and PM concentrations from the proposed parking garages with the maximum demand were analyzed, assuming a receptor on the façade of the proposed residential building, and a receptor on the residential building rooftop.

The maximum predicted CO and $PM_{2.5}$ concentrations of all the receptors modeled for the analyzed parking garage are presented in **Tables 14-11**.

Table 14-11
Maximum Predicted Concentrations from the Proposed Parking Garages

Pollutant	Averaging Period	Receptor with Maximum Concentration	Garage Contribution	On Street Contribution	Background	Total Concentration	Criterion
Armory							
CO	1-Hour	Building Receptor	1.8	N/A	2.0	3.8	35 ppm
	8-Hour	Building Receptor	0.3	N/A	1.6	1.9	9 ppm
$PM_{2.5}$	24-Hour	Building Receptor	0.93	N/A	N/A	0.93	7.46.8 μg/m³
	Annual	Building Receptor	0.14	N/A	N/A	0.14	0.3 μg/m³
Proposed Residential Building							
CO	1-Hour	Rooftop Receptor	0.3	N/A	2.0	2.3	35 ppm
	8-Hour	Rooftop Receptor	0.2	N/A	1.6	1.8	9 ppm
$PM_{2.5}$	24-Hour	Rooftop Receptor	0.86	N/A	N/A	0.86	7.46.8 μg/m³
	Annual	Rooftop Receptor	0.13	N/A	N/A	0.13	0.3 μg/m³
Note: The annual average $PM_{2.5}$ de minimis criterion is 0.3 μg/m³.							

As shown in the table, the maximum predicted CO concentrations are substantially below the 1-hour and 8-hour standards of 35 ppm and 9 ppm, respectively, and the maximum predicted 8-hour concentration is below the *de minimis* CO criteria.

In addition, the maximum predicted $PM_{2.5}$ increments are well below the respective $PM_{2.5}$ *de minimis* criteria of 7.46.8 μg/m³ for the 24-hour average concentration and 0.3 μg/m³ for the annual average concentration. Therefore, the proposed parking garages would not result in any significant adverse air quality impacts.

STATIONARY SOURCES

INDUSTRIAL SOURCES

The unitary screening results from the refined dispersion modeling *2021 CEQR Technical Manual* were used to predict the worst-case potential air toxics concentrations from the use categories that would be permitted by the Proposed Actions.

The modeled unitary screening concentrations (μg/m³ per g/s) were multiplied by the emission rates obtained from the emissions profile to determine the predicted concentrations. The results were compared with the SGC and AGC values reported in the NYSDEC's DAR-1 guidance document to determine the potential for significant impacts. A summary of the analysis results is presented in **Table 14-12**. A complete summary of the modeled concentrations for each pollutant for each of the analyzed use categories is presented in **Appendix E**.

Table 14-12
Maximum Modeled Pollutant Concentrations (µg/m^3)

Pollutant	CAS No.	Short-term Impact (µg/m3)	SGC (µg/m3) (1)	Annual Impact (µg/m3)	AGC (µg/m3) (1)
Formaldehyde	00050-00-0	1.09	30	9.69 x10^{-3}	0.06
Glycerin	00056-81-5	3.62	----	3.84 x10^{-2}	240
Cyanides	00057-12-5	9.46 x10^{-1}	380	4.74 x10^{-3}	3.5
Aniline	00062-53-3	2.36 x10^{-1}	----	3.95 x10^{-5}	0.63
Ethanol	00064-17-5	2.15 x10^{3}	----	3.87 x10^{1}	45000
Acetic acid	00064-19-7	3.97 x10^{1}	3700	4.42 x10^{-1}	60
Methanol	00067-56-1	9.22 x10^{1}	33000	1.96	4000
Isopropyl alcohol	00067-63-0	2.34 x10^{3}	98000	1.90 x10^{1}	7000
Acetone	00067-64-1	3.08 x10^{2}	180000	2.44	30000
Butyl alcohol, n-	00071-36-3	5.11 x10^{2}	----	5.25	1500
Methyl chloroform	00071-55-6	5.91 x10^{1}	9000	7.72 x10^{-1}	5000
Methane	00074-82-8	9.55 x10^{1}	----	2.50 x10^{-2}	1600
Hydrogen cyanide	00074-90-8	29.8	340	1.81 x10^{-3}	0.8
Acetonitrile	00075-05-8	3.22 x10^{2}	----	3.95 x10^{-3}	60
Dichloromethane	00075-09-2	3.93 x10^{2}	14000	1.91	46
Isophorone	00078-59-1	2.98 x10^{1}	2800	3.45 x10^{-1}	----
Isobutyl alcohol	00078-83-1	1.43 x10^{3}	----	1.15 x10^{1}	360
Methyl ethyl ketone	00078-93-3	1,247	13000	4.17	5000
Dibutyl phalate	00084-74-2	5.21	----	6.85 x10^{-2}	12
Butyl benzyl phthala	00085-68-7	3.16	----	1.32 x10^{-2}	0.42
Biphenyl	00092-52-4	1.30 x10^{1}	----	1.45 x10^{-1}	3.1
Dichlorobenzine, ortho	00095-50-1	7.09	30000	7.96 x10^{-2}	200
Ethyl benzene	00100-41-4	2.48 x10^{1}	----	1.11 x10^{-1}	1000
Styrene	00100-42-5	7.09 x10^{2}	17000	4.94	1000
Benzyl alcohol	00100-51-6	1.51 x10^{1}	1300	6.80 x10^{-2}	350
1,4-dichlorobenzene(p)	00106-46-7	6.62	----	0.072	0.091
Ethylene glycol	00107-21-1	2.68 x10^{1}	1000	3.15 x10^{-1}	400
Propylene glycol methyl et	00107-98-2	1.73 x10^{1}	36850	6.64 x10^{-1}	2000
Vinyl acetate	00108-05-4	2.36 x10^{-1}	5300	7.90 x10^{-3}	200
Methyl isobutyl ketone	00108-10-1	4.97 x10^{2}	31000	4.42	3000
Isopropyl acetate	00108-21-4	1.36 x10^{3}	62700	1.46 x10^{1}	995
Toluene	00108-88-3	2,545	37000	2.25 x10^{1}	5000
Cyclohexone	00108-94-1	6.66 x10^{2}	20000	7.12	190
Methyl cellosolve	00109-86-4	7.09 x10^{-1}	93	1.45 x10^{-3}	20
Isobutyl acetate	00110-19-0	4.57 x10^{2}	71300	2.09	565
Hexane	00110-54-3	4.70 x10^{2}	----	1.34	700
Glycol monoethylether	00110-80-5	1.29 x10^{1}	370	1.36 x10^{-1}	200
Cyclohexane	00110-82-7	1.67 x10^{2}	----	1.94	6000
Cellosolve acetate	00111-15-9	17.1	140	2.90 x10^{-2}	64
Ethylenglycolmonbuty	00111-76-2	1.53 x10^{2}	4700	9.69 x10^{-1}	1600
Butoxyethyl acetate	00112-07-2	1.42	----	6.21 x10^{-3}	310
Butyl carbitol	00112-34-5	42.0	370	4.62 x10^{-1}	200
Propylene	00115-07-1	9.46 x10^{1}	----	1.17	3000
Dioctyl phthalate (2)	00117-81-7	7.48 x10^{1}	----	0.42 (2)	0.42
Trichloro benzene	00120-82-1	3.90 x10^{1}	3700	4.34 x10^{-1}	35
Hydroquinone	00123-31-9	1.73 x10^{1}	----	0.5	2.4
Diacetone alcohol	00123-42-2	9.46 x10^{-1}	----	3.79 x10^{-3}	570
Butyl acetate	00123-86-4	7.09 x10^{2}	71300	2.63	565

Table 14-12
Maximum Modeled Pollutant Concentrations (µg/m^3)

Pollutant	CAS No.	Short-term Impact (µg/m3)	SGC (µg/m3) (1)	Annual Impact (µg/m3)	AGC (µg/m3) (1)
Carbon dioxide	00124-38-9	3.36×10^{4}	----	8.24×10^{1}	21000
Tetrachloroethylene	00127-18-4	278.8	300	2.8	3.8
Monoethanolamine	00141-43-5	94.6	1500	2.63×10^{-3}	18
Ethyl acetate	00141-78-6	2.47×10^{3}	----	3.62	3400
N-heptane	00142-82-5	5.45×10^{2}	210000	9.89	3900
Sodium cyanide	00143-33-9	7.92×10^{-1}	380	3.23×10^{-3}	3.5
Potassium cyanide	00151-50-8	2.36×10^{-1}	380	2.11×10^{-3}	3.5
Copper cyanide	00544-92-3	2.36×10^{-1}	380	2.63×10^{-3}	3.5
Zinc stearate	00557-05-1	2.36×10^{-1}	----	1.58×10^{-3}	7.1
Amyl acetate, n-	00628-63-7	2.60	53000	1.08×10^{-1}	630
Carbon monoxide	00630-08-0	3.29×10^{2}	40000	2.23	----
Cadmium oxide	01306-19-0	9.93	----	1.67×10^{-4}	0.00027
Iron oxide	01309-37-1	5.20	----	3.48×10^{-2}	12
Lead oxide	01309-60-0	2.36×10^{-1}	----	5.27×10^{-6}	0.044
Sodium hydroxide	01310-73-2	47.7	200	5.27×10^{-3}	----
Nickel oxide (2)	01313-99-1	0.2 (2)	0.2	0.001	0.0053
Zinc oxide	01314-13-2	23.6	380	2.00×10^{-1}	4.8
Xylene,m,o&p mixt.	01330-20-7	8.26×10^{2}	22000	6.12	100
Kaolin (clay)	01332-58-7	1.89	----	7.65×10^{-2}	4.8
Carbon black	01333-86-4	1.04	----	4.49×10^{-2}	7
Lead oxide	01335-25-7	2.36	----	4.01×10^{-3}	0.044
Ethyleneglycol monopropyl ether	02807-30-9	41.5	370	1.01	200
Lead stearate	07428-48-0	2.36×10^{-1}	----	7.90×10^{-4}	0.09
Lead	07439-92-1	6.86×10^{-1}	----	5.25×10^{-3}	0.038
Tin	07440-31-5	2.36×10^{-1}	20	2.38×10^{-3}	0.24
Antimony	07440-36-0	2.36×10^{-1}	----	2.50×10^{-3}	1.2
Zinc	07440-66-6	2.36	----	8.69×10^{-3}	45
Sulfur dioxide	07446-09-5	77.0	196	9.50×10^{-1}	80
Hydrogen chloride	07647-01-0	7.87×10^{1}	2100	2.64×10^{-1}	20
Phosphoric acid	07664-38-2	4.49×10^{-1}	300	5.37×10^{-3}	10
Hydrogen fluoride	07664-39-3	2.36×10^{-1}	5.6	6.58×10^{-4}	0.071
Ammonia	07664-41-7	905.0	2400	8.06	500
Sulfuric acid	07664-93-9	0.9	120	4.40×10^{-2}	1
Nitric acid	07697-37-2	52.9	86	1.95×10^{-1}	12.3
Barium sulfate	07727-43-7	1.18	----	6.58×10^{-3}	12
Chlorine	07782-50-5	2.36×10^{-1}	116	5.27×10^{-4}	0.2
Naphtha	08030-30-6	6.09×10^{2}	----	3.19	900
Ligroine	08032-32-4	3.67×10^{3}	----	5.33	900
Nitrogen oxide	10102-43-9	1.14×10^{2}	----	1.31	74
Nitrogen dioxide	10102-44-0	40.3	188	1.28	100
Titanium dioxide	13463-67-7	4.97	----	2.01×10^{-1}	24
Talc	14807-96-6	1.89	----	7.56×10^{-2}	4.8
Dipropylene glycol methyl ether	34590-94-8	6.62	91000	9.22×10^{-3}	1400
Distillate heavy parafinic	64742-65-0	2.36×10^{-1}	----	1.05×10^{-3}	3200
Naphtha light aliphatic	64742-89-8	8.85×10^{2}	----	9.84	3200
Naphtha light aromatic	64742-95-6	1.51×10^{2}	----	1.69	100
Particulates	NY075-00-0	61.3	150	1.05×10^{1}	----

Table 14-12
Maximum Modeled Pollutant Concentrations (µg/m³)

Pollutant	CAS No.	Short-term Impact (µg/m3)	SGC (µg/m3) [1]	Annual Impact (µg/m3)	AGC (µg/m3) [1]

Notes:
[1] *DAR-1 AGS/SGC Tables,* NYSDEC Division of Air Resources, Bureau of Stationary Sources, February 2021.
[2] Emissions of air toxics that would be included in a ~~Restrictive Declaration~~Lease Agreement restricting emissions of the pollutant are not included in this summary table for the particular pollutant.

~~Table 14-12~~
~~Maximum Modeled Pollutant Concentrations (µg/m³)~~

~~Pollutant~~	~~CAS No.~~	~~Short-term Impact (µg/m3)~~	~~SGC (µg/m3) [1]~~	~~Annual Impact (µg/m3)~~	~~AGC (µg/m3) [1]~~
~~Formaldehyde~~	~~00050-00-0~~	~~3.00E+01 [2]~~	~~30~~	~~3.60E+00 [2]~~	~~0.06~~
~~Glycerin~~	~~00056-81-5~~	~~1.53E-02~~	~~----~~	~~3.49E+01~~	~~240~~
~~Cyanides~~	~~00057-12-5~~	~~4.00E-03~~	~~380~~	~~4.31E+00~~	~~3.5~~
~~Aniline~~	~~00062-53-3~~	~~1.00E-03~~	~~----~~	~~3.59E-02~~	~~0.63~~
~~Ethanol~~	~~00064-17-5~~	~~9.09E+00~~	~~----~~	~~3.52E+04~~	~~45000~~
~~Acetic acid~~	~~00064-19-7~~	~~1.68E-01~~	~~3700~~	~~4.02E+02~~	~~60~~
~~Methanol~~	~~00067-56-1~~	~~3.90E-01~~	~~33000~~	~~1.78E+03~~	~~4000~~
~~Isopropyl alcohol~~	~~00067-63-0~~	~~5.67E+00~~	~~98000~~	~~1.72E+04~~	~~7000~~
~~Acetone~~	~~00067-64-1~~	~~1.29E+00~~	~~180000~~	~~2.18E+03~~	~~30000~~
~~Butyl alcohol, n-~~	~~00071-36-3~~	~~2.16E+00~~	~~----~~	~~4.77E+03~~	~~1500~~
~~Methyl chloroform~~	~~00071-55-6~~	~~2.50E-01~~	~~9000~~	~~7.01E+02~~	~~5000~~
~~Methane~~	~~00074-82-8~~	~~4.04E-01~~	~~----~~	~~2.27E+01~~	~~1600~~
~~Hydrogen cyanide~~	~~00074-90-8~~	~~8.63E-02 [2]~~	~~340~~	~~1.64E+00~~	~~0.8~~
~~Acetonitrile~~	~~00075-05-8~~	~~1.36E+00~~	~~----~~	~~3.59E+00~~	~~60~~
~~Dichloromethane~~	~~00075-09-2~~	~~1.66E+00~~	~~14000~~	~~1.73E+03~~	~~46~~
~~Isophorone~~	~~00078-59-1~~	~~1.26E-01~~	~~2800~~	~~3.14E+02~~	~~----~~
~~Isobutyl alcohol~~	~~00078-83-1~~	~~5.83E+00~~	~~----~~	~~1.12E+04~~	~~360~~
~~Methyl ethyl ketone~~	~~00078-93-3~~	~~3.30E+00 [2]~~	~~13000~~	~~3.79E+03~~	~~5000~~
~~Dibutyl phalate~~	~~00084-74-2~~	~~2.21E-02~~	~~----~~	~~6.22E+01~~	~~12~~
~~Butyl benzyl phthala~~	~~00085-68-7~~	~~1.34E-02~~	~~----~~	~~1.20E+01~~	~~0.42~~
~~Biphenyl~~	~~00092-52-4~~	~~5.50E-02~~	~~----~~	~~1.32E+02~~	~~3.1~~
~~Dichlorobenzine, ortho~~	~~00095-50-1~~	~~3.00E-02~~	~~30000~~	~~7.24E+01~~	~~200~~
~~Ethyl benzene~~	~~00100-41-4~~	~~1.05E-01~~	~~----~~	~~1.02E+02~~	~~1000~~
~~Styrene~~	~~00100-42-5~~	~~3.00E+00~~	~~17000~~	~~4.49E+03~~	~~1000~~
~~Benzyl alcohol~~	~~00100-51-6~~	~~6.40E-02~~	~~1300~~	~~6.18E+01~~	~~350~~
~~1,4-dichlorobenzene(p)~~	~~00106-46-7~~	~~2.80E-02~~	~~----~~	~~5.46E+00 [2]~~	~~0.091~~
~~Ethylene glycol~~	~~00107-21-1~~	~~1.13E-01~~	~~1000~~	~~2.86E+02~~	~~400~~
~~Propylene glycol methyl et~~	~~00107-98-2~~	~~7.31E-02~~	~~36850~~	~~6.04E+02~~	~~2000~~
~~Vinyl acetate~~	~~00108-05-4~~	~~1.00E-03~~	~~5300~~	~~7.18E+00~~	~~200~~
~~Methyl isobutyl ketone~~	~~00108-10-1~~	~~2.10E+00~~	~~31000~~	~~4.02E+03~~	~~3000~~
~~Isopropyl acetate~~	~~00108-21-4~~	~~5.27E+00~~	~~62700~~	~~1.20E+04~~	~~995~~
~~Toluene~~	~~00108-88-3~~	~~9.39E+00 [2]~~	~~37000~~	~~2.05E+04~~	~~5000~~
~~Cyclohexone~~	~~00108-94-1~~	~~2.82E+00~~	~~20000~~	~~6.47E+03~~	~~190~~
~~Methyl cellosolve~~	~~00109-86-4~~	~~3.00E-03~~	~~93~~	~~1.32E+00~~	~~20~~
~~Isobutyl acetate~~	~~00110-19-0~~	~~1.93E+00~~	~~71300~~	~~1.89E+03~~	~~565~~
~~Hexane~~	~~00110-54-3~~	~~1.99E+00~~	~~----~~	~~1.22E+03~~	~~700~~

Table 14-12
Maximum Modeled Pollutant Concentrations (µg/m³)

Pollutant	CAS No.	Short-term Impact (µg/m3)	SGC (µg/m3) (1)	Annual Impact (µg/m3)	AGC (µg/m3) (1)
Glycol monoethylether	00110-80-5	5.44E-02	370	1.23E+02	200
Cyclohexane	00110-82-7	7.07E-01	----	1.76E+03	6000
Cellosolve acetate	00111-15-9	3.55E-02 (2)	140	2.23E+03	64
Ethylenglycolmonbuty	00111-76-2	6.48E-01	4700	8.80E+02	1600
Butoxyethyl acetate	00112-07-2	6.00E-03	----	5.65E+00	310
Butyl carbitol	00112-34-5	9.39E-02 (2)	370	4.19E+02	200
Propylene	00115-07-1	4.00E-01	----	1.06E+03	3000
Dioctyl phthalate	00117-81-7	4.22E-01	----	2.52E+01 (2)	0.42
Trichcloro benzene	00120-82-1	1.65E-01	3700	3.95E+02	35
Hydroquinone	00123-31-9	7.30E-02	----	1.44E+02 (2)	2.4
Diacetone alcohol	00123-42-2	4.00E-03	----	3.44E+00	570
Butyl acetate	00123-86-4	3.19E+00	71300	3.15E+03	565
Carbon dioxide	00124-38-9	1.42E+02	----	7.48E+04	21000
Tetrachloroethylene	00127-18-4	7.61E-02 (2)	300	2.28E+02 (2)	3.8
Monoethanolamine	00141-43-5	3.81E-01 (2)	1500	2.39E+00	18
Ethyl acetate	00141-78-6	1.04E+01	----	3.29E+03	3400
N-heptane	00142-82-5	2.31E+00	210000	8.98E+03	3900
Sodium cyanide	00143-33-9	3.35E-03	380	2.93E+00	3.5
Potassium cyanide	00151-50-8	1.00E-03	380	1.91E+00	3.5
Copper cyanide	00544-92-3	1.00E-03	380	2.39E+00	3.5
Zinc stearate	00557-05-1	1.00E-03	----	1.44E+00	7.1
Amyl acetate, n-	00628-63-7	1.10E-02	53000	9.77E+01	630
Carbon monoxide	00630-08-0	1.39E+00	40000	2.02E+03	----
Cadmium oxide	01306-19-0	4.20E-02	----	1.62E-02	0.00027
Iron oxide	01309-37-1	2.20E-02	----	3.16E+01	12
Lead oxide	01309-60-0	1.00E-03	----	4.78E-03	0.044
Sodium hydroxide	01310-73-2	5.07E-02 (2)	200	4.78E+00	----
Nickel oxide	01313-99-1	5.07E-05 (2)	0.2	3.18E-01 (2)	0.0053
Zinc oxide	01314-13-2	9.64E-02 (2)	380	1.82E+02	4.8
Arsenic trioxide	01327-53-3	1.00E-03	----	1.80E-02 (2)	0.0003
Xylene,m,o&p mixt.	01330-20-7	3.49E+00	22000	5.38E+03	100
Kaolin (clay)	01332-58-7	8.00E-03	----	6.95E+01	4.8
Carbon black	01333-86-4	4.40E-03	----	4.08E+01	7
Lead oxide	01335-25-7	1.00E-03	----	4.78E-03	0.044
Ethyleneglycol monopropyl ether	02807-30-9	9.39E-02 (2)	370	9.20E+02	200
Lead stearate	07428-48-0	1.00E-03	----	7.18E-01	0.09
Lead	07439-92-1	1.00E-03	----	2.14E+00	0.038
Tin	07440-31-5	1.00E-03	20	2.16E+00	0.24
Antimony	07440-36-0	1.00E-03	----	2.28E+00	1.2
Cadmium	07440-43-9	1.00E-03 (2)	----	1.44E-02 (2)	0.00024
Zinc	07440-66-6	1.00E-02	----	7.89E+00	45
Sulfur dioxide	07446-09-5	4.97E-02 (2)	196	8.63E+02	80
Hydrogen chloride	07647-01-0	3.33E-01	2100	2.40E+02	20
Phosphoric acid	07664-38-2	1.90E-03	300	4.88E+00	10
Hydrogen fluoride	07664-39-3	1.00E-03	5.6	5.98E-01	0.071
Ammonia	07664-41-7	6.09E-01 (2)	2400	7.32E+03	500
Sulfuric acid	07664-93-9	3.04E-02 (2)	120	4.00E+01	1
Nitric acid	07697-37-2	2.18E-02 (2)	86	1.77E+02	12.3
Barium sulfate	07727-43-7	5.00E-03	----	5.98E+00	12

Table 14-12
Maximum Modeled Pollutant Concentrations (µg/m³)

Pollutant	CAS No.	Short-term Impact (µg/m3)	SGC (µg/m3) (1)	Annual Impact (µg/m3)	AGC (µg/m3) (1)
Lead chromate	07758-97-6	1.27E-05 (2)	0.05	7.80E-03 (2)	0.00013
Chlorine	07782-50-5	1.00E-03	116	4.78E-01	0.2
Naphtha	08030-30-6	2.45E+00	----	4.02E+03	900
Ligroine	08032-32-4	1.55E+01	----	4.85E+03	900
Nitrogen oxide	10102-43-9	4.80E-01	----	1.19E+03	74
Nitrogen dioxide	10102-44-0	4.77E-02 (2)	188	1.16E+03	100
Titanium dioxide	13463-67-7	2.10E-02	----	1.83E+02	24
Talc	14807-96-6	8.00E-03	----	6.87E+01	4.8
Dipropylene glycol methyl ether	34590-94-8	2.80E-02	91000	8.37E+00	1400
Distillate heavy parafinic	64742-65-0	1.00E-03	----	9.57E-01	3200
Naphtha light aliphatic	64742-89-8	3.74E+00	----	8.94E+03	3200
Naphtha light aromatic	64742-95-6	6.40E-01	----	1.53E+03	100
Particulates	NY075-00-0	3.47E-01 (2)	150	1.14E+04	----

Notes:
(1) *DAR-1 AGS/SGC Tables,* DEC Division of Air Resources, Bureau of Stationary Sources, February 2021.
(2) Emissions of air toxics that would be included in a Restrictive Declaration restricting emissions of the pollutant are not included in this summary table for the particular pollutant.

Of the use categories analyzed, a total of nine two (92) use categories were determined to cause potential exceedances of SGCs and/or AGCs at sensitive receptors on existing uses and/or the Proposed Project and would not exceed any thresholds at existing uses. Based on the screening analysis performed for the project Project-generated light industrial sources, restrictions limiting emissions of certain air toxic compounds would be required in order to prevent potential significant adverse air quality impacts at elevated receptors from industrial uses associated with the 9 2 use categories.

The maximum concentrations from the potential light industrial sources exhaust system, which require further evaluation and refinement, would potentially constitute a significant adverse impact on air quality. However, restrictions on the quantity of emissions for certain pollutants could preclude the potential for any significant adverse impact associated with the ventilation of pollutant emissions associated with light industrial sources. Industrial Source Emission Restrictions can be found in Table E-3 of **Appendix E**. A summary of the light industrial source impact avoidance measures that would be provided as part of the Proposed Project and will be required through a Lease Agreement between NYCEDC and the Applicant and is presented in Section “H. Proposed Air Quality Impact Avoidance Measures.”

The highest concentrations would occur at the southern façade of the proposed new residential buildings on the National Guard Site north of the Armory building at a height of approximately 125 feet. Consequently, there is not a significant cumulative effect is not anticipated between the proposed industrial uses and project-generated mobile sources.

Between the Draft and Final EIS, further evaluation and refinement will be performed to confirm this finding. Based on this review, measures would be developed and implemented to eliminate or address any significant adverse impact associated with emissions from light industrial sources.

Between the Draft and Final EIS, it is anticipated that a refined analysis of emissions associated with potential light industrial uses at the Armory will be performed. This would be expected to result in overall lower maximum concentrations, and potentially fewer restrictions in terms of the number of pollutants affected and the allowable emission rates.

H. PROPOSED AIR QUALITY IMPACT AVOIDANCE MEASURES

Based on the assumptions presented in this chapter, measures would be needed to avoid the potential for significant adverse impacts on air quality. The following impact avoidance measures would be provided as part of the Proposed Project and required through a Lease Agreement between NYCEDC and the Applicant:

PROJECT SITE

ARMORY (BLOCK 3247, LOT 210)

Any heating and hot water systems installed in the Armory as part of the renovations for the adaptive reuse, including community facility, commercial, and industrial uses, shall be only electrically powered to avoid any potential significant adverse air quality impacts. Fossil fuel-fired emergency generators installed for the building shall not be enrolled in a demand response program.

Exhausts used for venting of pollutant emissions associated with light industrial uses shall be located on the roof of the Armory at a distance of approximately 157 feet from the nearest receptor of the proposed residential building on the National Guard Site. Maximum emissions from venting of light industrial uses shall also not exceed the thresholds identified in Exhausts used for venting of pollutant emissions associated with light industrial uses shall be a minimum of 60 feet from the nearest receptor. Maximum emissions from venting of light industrial uses shall not exceed the thresholds identified in Table E-3 of **Appendix E**.

The Any Applicant/lessee/successor in interest, tenant, or subtenant that requires an industrial air permit (“the Air Permit Applicant”) will not apply for or accept an industrial air permit until it hasthey have demonstrated through an air quality study to the satisfaction of DEP that the proposed industrial use’s maximum allowable emissions would not violate the AGC, SGC, or NAAQS and will not have significant adverse air quality impacts. The Air Permit Applicant will calculate cumulative emissions impacts from all existing and proposed industrial processes within Kingsbridge Armory that require industrial air permits. At the time of applying for an industrial air permit, the Air Permit Applicant will submit a professional certification by a Professional Engineer certifying to DEP that the above conditions have been satisfied. For any new use that requires an industrial air permit, the process outlined above shall be required. Note, however, that the above requirements will be deemed to have been satisfied if the cumulative proposed emissions, including the proposed emissions source, do not exceed the limits in Table E-3 of **Appendix E** of the FEIS for the two air toxics listed or the maximum modeled emissions for the remainder of the air toxics shown in **Table 14-5** as certified to DEP by a Professional Engineer. If the proposed industrial emissions would exceed emissions in **Table 14-5** (other than those stated in Table E-3) or include an air toxic not listed in **Table 14-5**, an air quality study must be conducted as outlined above. , and The developer/lessee shall require the same restrictions on of all occupants proposing an industrial process by including this condition in all subleases, licenses, or other authorizations. These restrictions will run the duration of the lease.

RESIDENTIAL BUILDING (BLOCK 3247, LOT 2)

Any residential and/or commercial development shall utilize only electrically powered heating and hot water systems, to avoid any potential significant adverse air quality impacts. Fossil fuel-fired emergency generators installed for the building shall not be enrolled in a demand response program. ✷