6.1 INTRODUCTION

This chapter presents a project-level analysis of the potential for air quality impacts that could result from mobile and stationary sources of air emissions generated by the Proposed Project and the Proposed Project *with Option E1*. The air quality analysis was conducted in accordance with federal and state rules and regulations including NEPA, the Clean Air Act and Amendments (CAA), the New York State Implementation Plan (SIP), the New York State Environmental Quality Review Act (SEQRA), in consideration of the technical guidance in the 2014 CEQR Technical Manual, and in accordance with the applicable requirements of transportation conformity rules.

6.2 REGULATORY FRAMEWORK

6.2.1 NATIONAL AMBIENT AIR QUALITY STANDARDS

As required by the Clean Air Act, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO2), ozone, particulate matter (PM), sulfur dioxide (SO2), and lead. In addition to retaining 24-hr PM10 standards (for particulate matter with an aerodynamic equivalent diameter less than 10 micrometers), the U.S. Environmental Protection Agency (EPA) has adopted 24-hour and annual standards for PM2.5, or particulate matter with an aerodynamic equivalent diameter less than 2.5 micrometers (µm). Table 6-1 shows the standards for these pollutants. Some of the NAAQS have also been adopted as the ambient air quality standards by the State of New York. The primary standards protect the public health, and represent levels at which there are no known significant effects on human health. Secondary standards are designed to protect the environment from any known or anticipated adverse effects of a pollutant, including the effects on the natural environment (soil, water, vegetation) and the manmade environment (physical structures). Areas that do not meet the NAAQS for a particular pollutant are called “nonattainment areas” for this criteria pollutant; areas that meet both primary and secondary standards are known as “attainment areas.” Former nonattainment areas are known as “maintenance areas.”

New York State has air quality standards for other pollutants not shown on this summary table, including Total Suspended Particulates and non-methane hydrocarbons.

6.2.2 COMPLIANCE STATUS

The Borough of Manhattan (e.g., New York County) is in attainment with the NAAQS for the criteria pollutants SO2, NO2, and lead (Pb). Manhattan is designated as a nonattainment area for the following NAAQS:

- 8-hr average ozone
- 24-hr average PM10

Manhattan is also designated a maintenance area for carbon monoxide and PM2.5.

6.2.3 TRANSPORTATION CONFORMITY

The 1990 CAA Section 176(c) requires all federally sponsored or approved activities in nonattainment or maintenance areas to conform to the applicable SIP. The Proposed Project is

included in the current 2014-2018 TIP – PIN number ST04-6951 – developed by NYMTC, the designated entity responsible for coordinating transportation planning and decision-making in the New York City metropolitan region. The applicable goals of the 2014–2040 Regional Transportation Plan, include "providing convenient, flexible transportation access" regardless of ability and the desired outcomes of the Regional Transportation Plan include increased transit ridership and safety improvements.

The Proposed Project and the Proposed Project *with Option E1* would be exempt from transportation conformity requirements because it consists of reconstruction or renovation of transit buildings and structures (40 C.F.R. § 93.126[15]). Therefore no conformity determination is required.

Table 6-1:
National and State Ambient Air Quality Standards

Pollutant	Averaging Period	Type of Standard	Form	NAAQS	NYSAAQS
Carbon Monoxide (CO)	8-hour	Primary	Not to be exceeded more than once per year	9.0 ppm	9.0 ppm
	1-hour			35.0 ppm	35.0 ppm
Lead (Pb)	Rolling 3-month Average	Primary and Secondary	Not to be exceeded	0.15 µg/m^3	None
Nitrogen Dioxide (NO_2)	Annual	Primary and Secondary	Annual Mean	0.053 ppm	0.05 ppm
	1-hour	Primary	98th percentile, averaged over 3 years	0.100 ppm	None
Particulates (PM_{10})	24-hour	Primary and Secondary	Not to be exceeded more than once per year on average over 3 years	150.0 µg/m^3	None
Particulates ($PM_{2.5}$)	24-hour	Primary and Secondary	98th percentile, averaged over 3 years	35.0 µg/m^3	None
	Annual	Secondary	Annual mean, averaged over 3 years	15.0 µg/m^3	None
	Annual	Primary	Annual mean, averaged over 3 years	12.0 µg/m^3	None
Ozone (O_3)	8-hour (2008 std)	Primary and Secondary	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years	0.075 ppm	0.08 ppm
	1-hour	N/A	N/A	N/A	0.12 ppm
Sulfur Dioxide (SO_2)	1-hour	Primary	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	75.0 ppb	None
	3-hour	Secondary	Not to be exceeded more than once per year	0.5 ppm	0.50 ppm
	24-hour	N/A	Maximum	N/A	0.14 ppm
	Annual	N/A	Arithmetic Mean	N/A	0.03 ppm

ppm = parts per million
µg/m3 = micrograms per cubic meter
Source: 40 C.F.R. § 50, National Primary and Secondary Ambient Air Quality Standards; NYCRR, Title 6, Chapter III, Subpart B, Part 257 and http://www.dec.ny.gov/chemical/8542.html#fn7. http://www.epa.gov/air/criteria.html

[15] Code of Federal Regulations, Title 40 -- Protection of Environment, § 93.126 Exempt Projects, Table 2.

6.3 METHODOLOGY

The baseline air quality conditions in the study area were determined based on the review of existing ambient air quality data monitored by the New York Department of Environmental Conservation (NYSDEC).

NEPA and SEQRA do not include detailed air quality analysis procedures and therefore the air quality impact analysis follows the guidelines and protocol established by New York City Department of Environmental Protection (NYCDEP) as described in the 2014 CEQR Technical Manual for evaluating air quality impacts associated with the Proposed Action.

6.4 EXISTING CONDITIONS

Table 6-2 summarizes the available ambient air quality monitoring data for the New York area. The data is presented in terms of "design value" which is directly comparable to the statistical form of each of the NAAQS. For example, the 24-hour PM2.5 NAAQS is based on the average of the 98th percentile 24-hour concentrations for each of the three years of monitoring data. The design values presented in Table 6-2 use data from 2011–2013. The data shows that concentrations of the criteria pollutants were all below the applicable NAAQS.

Table 6-2:
Representative Monitored Ambient Air Quality Data (2011 - 2013)

Pollutant	Period	2011-2013 Design Value	NAAQS
Carbon Monoxide (CO)	1-hour	1.8 ppm	35 ppm
	8-hour	1.2ppm	9 ppm
Particulates ($PM_{2.5}$)	24-hour	26 µg/m^3	35 µg/m^3
	Annual	10.8 µg/m^3	12 µg/m^3
Particulates (PM_{10})	24-hour	87 µg/m^3	150 µg/m^3
Ozone (O_3)	8-hour	0.072 ppm	0.075 ppm
Nitrogen Dioxide (NO_2)	Annual Average	21 ppb	53 ppb
	1-hour average	60 ppb	100 ppb
Sulfur Dioxide (SO2)	1-hour average	31 ppb	75 ppb

Source: http://www.epa.gov/airtrends/values.html
$PM_{2.5}$ design value for New York County, last updated 8/28/14
O_3 design value for New York County, last updated 8/1/2014
CO design values for New York County, last updated 7/1/2014
NO_2 design values for Bronx County (no data for New York County), last updated 7/2/2014
SO_2 design value for Bronx County (no data for New York County), last updated 7/8/2014
PM10 design value from Hudson County, New Jersey (Jersey City), no data for New York County (highest 24-hr concentration from 2011 through 2013). Data obtained from http://www.epa.gov/airdata/ad_maps.html

There is no recent monitoring data available for lead in New York City.

6.5 MOBILE SOURCES

According to the 2014 CEQR Technical Manual, projects may result in significant mobile source air quality impacts when they (1) increase or cause a redistribution of traffic, (2) create any other mobile sources of pollutants (such as diesel trains, helicopters, etc.), or (3) add new uses near mobile sources (roadways, garages, parking lots, etc.).

The Proposed Project would change the configuration of East 69th Street by the installation of a neckdown on the south side of the street west of Lexington Avenue. The Proposed Project *with Option E1* would install a neckdown on the south side of East 69th Street both east and west of Lexington Avenue. The neckdowns under the Proposed Project and the Proposed Project *with Option E1* would not affect travel lanes on either East 68th Street, East 69th Street or Lexington Avenue. The Proposed Project and the Proposed Project *with Option E1* would not generate new or additional traffic in the study area or cause the redistribution of traffic in the area, nor would it create other mobile sources of pollutants or add new uses near existing mobile pollution sources (see Chapter 5: Transportation and Pedestrian Circulation). Additionally, the Proposed Project and the Proposed Project *with Option E1* would not generate air emissions. Therefore no air quality impacts related to mobile sources are expected and no further analysis is warranted.

Street Stair Options

The Proposed Project and the Proposed Project *with Option E1* would not affect or generate mobile source air emissions.

6.6 STATIONARY SOURCES

Projects may result in stationary source air quality impacts when they would (1) create new stationary sources of pollutants (such as emission stacks for industrial plants, hospitals, other large institutional uses, or building boilers) that may affect surrounding uses; (2) introduce certain new uses near existing (or planned future) emissions stacks that may affect the use; or (3) introduce structures near such stacks so that the structures may change the dispersion of emissions from the stacks so that surrounding uses are affected.

The Proposed Project and the Proposed Project *with Option E1* would not create new sources of air pollutants and would not introduce new uses near existing or planned future sources. The Proposed Project would not affect current dispersion patterns of existing stationary (or mobile) sources.

The Proposed Project and the Proposed Project *with Option E1* include a louvered fan to provide ventilation for the Elevator Machine Room. The louvered fan would be used to dissipate heat from the Elevator Machine Room, and the exhaust air stream would not contain air emissions or any other hazardous constituents. No air quality impacts related to stationary sources are expected and no further analysis is warranted.

Street Stair Options

The Proposed Project and the Proposed Project *with Option E1* would not affect or generate stationary source air emissions.

6.7 CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM

In September 2006, MTA NYCT submitted an application to the New York City Transportation Coordinating Committee (NYCTCC) for partial federal funding of the Proposed Project under the

Federal Congestion Mitigation and Air Quality Improvement Program (CMAQ). The main goal of the CMAQ Program is to fund transportation projects that reduce emissions in nonattainment and maintenance areas. CMAQ funds are eligible for rehabilitated subway station projects where physical improvements to the station will result in expanded capacity.

The CMAQ application is supported by a Logit travel demand model method that New York City Transit has developed to address the items on the NYCTCC CMAQ application forms, and that has been previously applied to estimate the emissions benefit of its subway station rehabilitation projects. This method focuses on the meso-scale (regional) level of emissions estimation, and is based on estimated changes in vehicle miles traveled between the No-Build and Build conditions. The effects of the rehabilitation at the meso-scale level of analysis are based on the estimated change in daily passenger trips using the subway routes that serve the station complex, and roadway usage throughout New York City, rather than the peak-hour entering and exiting passengers that are analyzed above. It accounts for several facets of the rehabilitation that will make the 68th Street/Hunter College Station and the subway system more attractive to subway usage, as well as the increased capacity of the station that will accommodate growth.

As described in the CMAQ application, the Proposed Project and the Proposed Project *with Option E1* would result in a 1.58 percent increase in daily subway ridership at the 68th Street/Hunter College Station. These new riders would represent a diversion of daily vehicular usage to transit, thereby reducing the total Vehicle Miles Traveled (VMT) by cars and reducing associated emissions. The diversion from cars to subway would predominantly occur during the off-peak period and the mobile source air quality analysis did therefore not assume any emission reduction during the peak hour. However, the diversion from car to subway would reduce overall emissions on a daily basis and thereby improve air quality. The CMAQ application projected that the reduction in Vehicle Miles Traveled (VMT) by cars as a result of the Proposed Project would reduce the total VOC emissions from 2013 to 2030 by 28,525 pounds, total NOx emissions by 31,226 pounds and total CO emissions by 636,909 pounds.