A. INTRODUCTION AND METHODOLOGY

This chapter analyzes the effects of the project alternatives on air quality. Air quality can be affected by air pollutants produced by moving sources, such as vehicular traffic or diesel locomotives, referred to as "mobile sources;" and by fixed or immobile facilities, referred to as "stationary sources." Stationary sources can include industrial stacks, vents, parking garages or lots, and diesel freight yards. While the Preferred Alternative for the East Side Access Project would result in an overall decrease in regional pollutant emissions due to a reduction of vehicular miles traveled, it has the potential to create localized adverse air quality effects in the vicinity of Grand Central Terminal (GCT) and at Long Island Rail Road (LIRR) stations in Queens or on Long Island, because of increases in traffic there and increased activities in LIRR parking lots. In addition, the new heating, ventilation, and air conditioning system *on 44th Street in Manhattan* for Option 2 of the Preferred Alternative has the potential to change air quality nearby. The Preferred Alternative would also affect certain diesel rail operations, in connection with relocation of the New York & Atlantic Railway (NYAR) and possible new nighttime storage yards on Long Island. Both potential localized impacts and regional benefits from operation of the project alternatives on air quality are evaluated in this chapter. Construction-related air quality effects are discussed in Chapter 17, "Construction and Construction Impacts."

POLLUTANTS FOR ANALYSIS

In the New York metropolitan area, ambient concentrations of carbon monoxide are predominantly influenced by mobile source emissions; emissions of nitrogen oxides come from both mobile and stationary sources; and emissions of respirable particulate matter and sulfur dioxide are associated mainly with stationary sources, though heavy-duty diesel trucks, buses, and locomotives can emit significant amounts of particulate matter.

Ozone, one of the region's most problematic air pollutants, is not emitted directly by any source but is formed in the atmosphere from the reaction of other primary pollutants.

CARBON MONOXIDE

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. New York City and Nassau County are designated as moderate non-attainment areas for CO by the U.S. Environmental Protection Agency (EPA). In an urban area like New York City or Long Island, approximately 80 to 90 percent of CO emissions are from motor vehicles. CO concentrations can vary greatly over relatively short distances. Elevated concentrations are usually limited to locations near crowded intersections, along heavily traveled and congested roadways or at parking lots or garages. Consequently, CO concentrations must be predicted on a localized or microscale basis.

The Preferred Alternative would produce increased traffic in the vicinity of GCT and other heavily utilized stations that may result in localized increases in CO levels. Therefore, an analysis of the impact from traffic increases on CO levels at critical intersections in the project study area was performed. In addition, both the Preferred and Transportation Systems Management (TSM) Alternatives would reduce vehicular travel in the region, as measured in annual vehicle miles traveled. Therefore, a regional analysis was performed for CO, computing expected reductions of CO emitted in a year, to determine potential benefits resulting from the general changes in vehicular activity on overall background levels of this pollutant.

NITROGEN OXIDES AND OZONE

Nitrogen oxides (NO_x) are of principal concern because of their role, together with volatile organic compounds (VOCs), as precursors in the formation of ozone. While there is a standard for average annual nitrogen dioxide (NO_2) concentrations, it is normally examined only for fossil fuel energy sources. 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 diffusing downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from mobile sources are therefore generally examined on a regional basis, together with the emissions of these pollutants from stationary sources. The change in regional mobile source emissions of these pollutants is related to the total number of vehicle trips and vehicle miles of travel throughout the New York Metropolitan Area (NYMA), which is designated as a severe non-attainment area for ozone by EPA. The Preferred and TSM Alternatives would potentially result in changes to the regional vehicular travel patterns in the study area zones. Therefore, the change in regional NO_x and VOC emissions was analyzed.

LEAD

Lead emissions are principally associated with industrial sources and motor vehicles that use gasoline containing lead additives. Most U.S. vehicles produced since 1975, and all produced after 1980, are designed to use unleaded fuel. As these newer vehicles have replaced the older ones, motor-vehicle-related lead emissions have decreased. As a result, ambient concentrations of lead have declined significantly. Nationally, the average measured atmospheric lead level in 1985 was only about one-quarter the level in 1975.

In 1985, EPA announced new rules drastically reducing the amount of lead permitted in leaded gasoline. The maximum allowable lead level in leaded gasoline was reduced from the previous limit of 1.1 to 0.5 grams per gallon effective July 1, 1985, and to 0.1 grams per gallon effective January 1, 1986. Monitoring results indicate that this action has been effective in significantly reducing atmospheric lead levels. Even at locations in the New York City area where traffic volumes are very high, atmospheric lead concentrations are far below the national standard of 1.5 micrograms per cubic meter (3-month average). No significant sources of lead are associated with the proposed project, and, therefore, an analysis was not warranted.

RESPIRABLE PARTICULATES—PM_{10}

Particulate matter is emitted into the atmosphere from a variety of sources: industrial facilities, power plants, oil burners, construction work, and similar activities. Gasoline-powered vehicles do not produce any appreciable quantities of particulate emissions. Diesel-powered vehicles, especially heavy trucks and buses, as well as diesel-powered locomotives, do emit particulates; particulate concentrations may therefore be locally elevated near roadways with high volumes of heavy diesel-powered vehicles or near storage yards for diesel trains.

Particulates less than 10 μm in diameter (PM_{10}) have become of primary concern because they are respirable. Air quality monitoring indicates that, in the past, respirable particulate levels in New York State have exceeded the applicable national ambient air quality standards at only one monitored location, along Madison Avenue in Midtown Manhattan. Manhattan continues to be a non-attainment area with respect to PM_{10}—concentrations have exceeded standards in the past due to high traffic volumes (including buses and trucks) in close proximity to the monitor. As described in Chapter 9, "Transportation," the Preferred Alternative would not result in significant increases in bus service in Queens, but it could result in increased bus trips in Manhattan. Therefore, an analysis of particulates was performed for Manhattan. Further, due to the relocation of NYAR facilities from Yard A, as well as the possible addition of new storage yards for diesel trains on Long Island as part of the Preferred Alternative, some changes in diesel locomotive operations are expected. While the new facilities are generally located far from residential uses, an analysis was conducted to determine the effect, if any, on ambient PM_{10} levels from relocated diesel operations.

SULFUR DIOXIDE

Sulfur dioxide (SO_2) emissions are primarily associated with the combustion of sulfur-containing fuels: oil and coal. No significant quantities are emitted from mobile sources. Monitored SO_2 concentrations throughout the study area are below the national standards. No significant sources of SO_2 are associated with the project, and therefore, an analysis was not warranted.

The air quality analysis presented in this chapter includes an assessment of the following:

- Effects of the project on CO concentrations due to increased traffic around GCT and stations in Queens and on Long Island that are expected to experience large increases in passenger demand;
- Potential effects on regional emissions of CO, VOCs, NO_x, and PM_{10} due to potential changes in vehicular travel patterns in the area resulting from the project; and
- Potential effects on PM_{10} concentrations due to relocated diesel locomotive operations.

AIR QUALITY STANDARDS

NATIONAL AND STATE 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, nitrogen dioxide, ozone, respirable particulate matter, sulfur dioxide, and lead. EPA recently promulgated additional respirable particulate matter standards. In addition to retaining the PM_{10} standards, EPA adopted 24-hour and annual standards for respirable particulate matter with an aerodynamic equivalent diameter less than 2.5 μm ($PM_{2.5}$), which became effective September 16, 1997. However, on May 14, 1999, the U.S. Court of Appeals for the District of Columbia Circuit concluded that EPA overstepped its legislative authority in its 1997 promulgation of stricter ambient air quality standards for ozone and fine particulate matter. The Court noted that EPA failed to establish clear principles to support the pollution levels selected as minimum requirements to protect the public health and, therefore, must re-examine the 1997 standards. Table 10-1 shows the standards for these pollutants. These standards have also been adopted as the ambient air quality standards for 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

Table 10-1
National and New York State Ambient Air Quality Standards

Pollutant	Primary		Secondary	
	PPM	Micrograms Per Cubic Meter	PPM	Micrograms Per Cubic Meter
Carbon Monoxide				
Maximum 8-Hour Concentration [1]	9		9	
Maximum 1-Hour Concentration [1]	35		35	
Lead				
Maximum Arithmetic Mean Averaged Over 3 Consecutive Months		1.5		
Nitrogen Dioxide				
Annual Arithmetic Average	0.05	100	0.05	100
Ozone[2]				
1-Hour Maximum	0.12	235	0.12	235
8-Hour Maximum	0.08	157	0.08	157
Respirable Particulates (PM_{10})				
Annual Geometric Mean		50		50
Maximum 24-Hour Concentration [3]		150		150
Sulfur Dioxide				
Annual Arithmetic Mean	0.03	80		
Maximum 24-Hour Concentration [1]	0.14	365		
Maximum 3-Hour Concentration [1]			0.50	1,300

Notes:
1 Not to be exceeded more than once a year.
2 The ozone 1-hour standard applies only to areas that were designated nonattainment when the ozone 8-hour standard was adopted in July 1997.
3 Not to be exceeded by 99th percentile of 24-hour PM_{10} concentrations in a year (averaged over 3 years).

Sources: 40 CFR Part 50—National Primary and Secondary Ambient Air Quality Standards 40 CFR 50.12 "National Primary and Secondary Standard for Lead," 43 CFR 46245.

health. 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. For CO, NO2, ozone, and respirable particulates, the primary and secondary standards are the same.

STATE IMPLEMENTATION PLAN (SIP)

The Clean Air Act Amendments of 1990 (CAAA) define non-attainment areas as geographic regions that have been designated as not meeting one or more of the NAAQS. The attainment status for the counties in New York City and on Long Island is shown in Table 10-2.

Table 10-2
Counties Designated Non-Attainment by EPA in New York City and Long Island

County	Ozone*	PM_{10}**	CO**
Kings (Brooklyn)	✔		✔
Bronx	✔		✔
Manhattan	✔	✔	✔
Richmond (Staten Island)	✔		✔
Queens	✔		✔
Nassau	✔		✔
Suffolk	✔		

Notes:
* Severe non-attainment.
** Moderate non-attainment.

REGULATORY SETTING

A State Implementation Plan (SIP) is a state's plan on how it will meet the NAAQS under the deadlines established by the CAAA. EPA's final transportation conformity rule, dated August 15, 1997, requires metropolitan planning organizations (MPOs), the Federal Highway Administration (FHWA), and FTA to make conformity determinations on metropolitan long-range transportation plans (LRTPs), transportation improvement programs (TIPS), and transportation projects with respect to the SIP before they are adopted or approved. The LRTP is the official intermodal metropolitan transportation plan for an area and generally has a 20-year planning horizon. The TIP is a staged, multiyear, intermodal program of transportation projects which is consistent with the LRTP.

The conformity regulations require that, to demonstrate conformity, transportation programs must contribute to annual emission reductions and provide for the implementation of transportation control measures, consistent with SIP requirements. Project-level conformity to the SIP is determined by demonstrating conformity to a plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and supporting the expeditious attainment of the standards.

The applicable MPO for NYMA is the New York Metropolitan Transportation Council (NYMTC). NYMTC approved the conformity determination for the LRTP, known as the Regional Transportation Plan (RTP) and entitled "Mobility for the Millennium," and the 2000-2004 TIP on September 23, 1999. FHWA and FTA approved the TIP/SIP conformity determination and EPA concurred with the findings. The MTA/LIRR East Side Access Project is included in the TIP *and RTP.*

DE MINIMIS CRITERIA

For all pollutants, an exceedance of the NAAQS constitutes a significant impact. In addition to the NAAQS, New York City has developed de minimis criteria to assess the significance of impacts on air quality that would result from proposed projects or actions being evaluated under New York's City Environmental Quality Review (CEQR). While it is not mandatory that these criteria be followed for EISs being conducted under the National Environmental Policy Act, this EIS uses the criteria as a guide for establishing whether a given air pollution increase is significant. These New York City criteria define a minimum change in CO concentration that constitutes a significant environmental impact. Significant increases with respect to CO concentrations are defined by the criteria as: (1) an increase of 0.5 parts per million (ppm) or more in the maximum 8-hour average CO concentration at a location where the project's predicted No Action Alternative 8-hour concentration is equal to or between 8 and 9 ppm; or 2) an increase of more than half the difference between baseline concentrations and the 8-hour standard, when No Action Alternative concentrations are below 8.0 ppm.

As part of the 1992 CO SIP submission, New York State Department of Environmental Conservation (NYSDEC) committed to similar de minimis criteria for the Manhattan Central Business District (CBD), which define a significant impact requiring mitigation to be an incremental increase greater than 0.5 ppm over a proposal's No Action Alternative.

METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS FROM MOBILE SOURCES

To compare estimated CO concentrations with the national and state ambient air quality standards for CO (which are based on 1- and 8-hour averages of CO concentrations), estimates of maximum concentrations for these same periods must be prepared. Since experience in the study area has been that violations of the 1-hour CO standard are extremely rare, the CO analysis for this study focuses on determining the maximum predicted 8-hour CO concentrations for the project alternatives.

The prediction of motor-vehicle-generated CO concentrations in an urban environment characterized by complex meteorological phenomena, traffic conditions, and physical configurations is a challenging problem. Air pollutant dispersion models simulate mathematically how traffic, meteorology, and geometry combine to affect pollutant concentrations. The mathematical expressions and formulations that comprise the various models attempt to describe an extremely complicated physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and because a worst-case condition is of most relevance, most of these dispersion models are conservative and tend to overpredict pollutant concentrations, particularly under adverse meteorological conditions.

The CO analysis for this project uses a modeling approach approved by EPA that has been widely employed for evaluating air quality impacts of projects in New York City, New York State, and throughout the country, and has coupled this approach with a series of worst-case assumptions relating to meteorology, traffic, background concentration levels, etc. This combination results in a conservative estimate of expected CO concentrations and resulting air quality impacts caused by the project.

DISPERSION MODELS FOR MICROSCALE ANALYSES

At all sites selected for analysis, maximum 1- and 8-hour average CO concentrations were determined using EPA's CAL3QHC model, Version 2.0, (*User's Guide to CAL3QHC, A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections*, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, September 1995). The CAL3QHC model is a Gaussian model, which assumes that the dispersion of pollutants downwind of a pollution source follows a Gaussian (or normal) distribution, and is used for predicting CO concentrations along roadway segments.

WORST-CASE METEOROLOGICAL CONDITIONS

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, which accounts for the effects of dispersion or mixing in the atmosphere.

CO computations were performed using a wind speed of 1 meter/second, and stability class D, representative of neutral conditions in New York City and Long Island. For sites in Midtown Manhattan, a persistence factor of 0.77 for the 8-hour period was selected. Sites in Queens and on Long Island were analyzed using a persistence factor of 0.7. The persistence factor takes account of the fact that over 8 hours, traffic parameters will fluctuate downward from the peak and meteorological conditions will change, as compared with the 1-hour values. Based on the latest local guidance from the New York City Department of Environmental Protection (NYCDEP) dated March 1998, an ambient temperature of 50° Fahrenheit was assumed for the emissions computations in Manhattan and 43° Fahrenheit was used for the sites in Queens, Nassau, and Suffolk Counties. At each receptor location, the wind angle that maximized the pollutant concentrations was used in the analysis regardless of frequency of occurrence.

VEHICLE EMISSIONS DATA

To predict ambient concentrations of pollutants generated by vehicular traffic, emissions from vehicle exhaust systems must be estimated. Vehicular emissions were computed using the EPA-developed Mobile Source Emissions Model, MOBILE5B. For the Manhattan sites, emission estimates were made for six classes of motor vehicles:

- Light-duty, gasoline-powered automobiles;
- Light-duty, gasoline-powered taxis—new;
- Light-duty, gasoline-powered taxis—old police cars;
- Light-duty, gasoline-powered trucks;
- Heavy-duty, gasoline-powered trucks; and
- Heavy-duty, diesel-powered trucks.

Vehicle classifications as given in the New York State Department of Transportation's (NYSDOT) Environmental Procedure's Manual (EPM), based on NYSDOT region and road type, were used for the sites in Queens and on Long Island. Taxis were not modeled distinctly from automobiles for the sites on Long Island, since they do not represent a significant portion of the vehicle mix.

Emission estimates were based on implementation of the New York State auto and light-duty gasoline-powered truck inspection and maintenance (I&M) program begun in January 1982 and the taxi I&M program begun in October 1977. The existing I&M program requires annual inspections of automobiles and light trucks to determine if CO and hydrocarbon emissions from the vehicles' exhaust systems are below emission standards. Vehicles failing the emissions test must undergo maintenance and pass a re-test to be registered in New York State. Oxygenated fuel credits—emission estimates for oxygenated fuels were based on a gasoline blend with a 2.7 percent oxygen content—were taken in the microscale modeling analyses for the months of January-April and October-December only. These are the NYSDEC-approved credits.

Emissions from vehicle exhaust systems vary depending on whether the vehicles are warmed up or not. For this analysis, in the AM peak period, all vehicles arriving at the project sites were assumed to be warmed up and therefore operating in "hot" mode. In the PM peak period, all vehicles departing LIRR parking lots were assumed to be operating in the "cold start" mode. All vehicles were assumed to idle for 1 minute before departing the parking lots. In both the AM and the PM peak periods, all taxis were assumed to be operating in the "hot" mode.

For vehicular traffic, PM_{10} emission factors were obtained from EPA's particulate model, PART 5. PM_{10} emission estimates for diesel locomotives were based on data from EPA's "Final Emission Standards for Locomotives," Office of Mobile Sources EPA420-F-97-048, December 1997.

BACKGROUND CONCENTRATIONS

The modeling analysis directly accounts for vehicular-generated emissions on the streets within 1,000 to 1,600 feet and line-of-sight of the receptor location. In addition to these localized emissions, background concentrations must be added to modeling results to obtain total pollutant concentrations at a prediction site.

For this EIS, future 8-hour average CO background concentrations used in the analysis were 2.9 ppm for Midtown Manhattan, 2.3 ppm for Queens, 2.2 ppm for Suffolk County, and 2.6 ppm for Nassau County. These values, obtained from NYCDEP and NYSDEC, are based on CO concentrations measured at NYSDEC monitoring stations and are adjusted to reflect the reduced vehicular emissions expected in the analysis year. This decrease reflects the increasing numbers of federally mandated lower-emission vehicles that are projected to enter the vehicle fleet as older, higher polluting vehicles are retired (i.e., vehicle turnover), and the continuing benefits of the New York I&M program.

MOBILE SOURCE ANALYSIS LOCATIONS

To analyze the effects on air quality from localized increases in traffic, a microscale analysis was conducted for the Preferred Alternative. This analysis was conducted at key locations where the Preferred Alternative was predicted to result in traffic increases, and therefore vehicular emissions. Locations for the analysis were selected using a screening evaluation, with particular consideration for congested intersections in each study area zone.

Analysis locations (also referred to as "receptor sites") were selected based on a screening of traffic volumes and approach delays and the corresponding levels of service for the Preferred Alternative. The screening analysis determined the intersections that would be subjected to full-scale microscale analysis for the future alternatives. To select those locations, the intersections analyzed as part of the project's transportation analysis (which is presented in Chapter 9 of this EIS) were ranked based on the methodology developed by NYSDOT and NYSDEC to evaluate critical locations. The screening methodology is based on three criteria—the Level of Service (LOS), or congestion, predicted for the intersection; the intersection's total traffic volumes; and the number of project-generated vehicles expected to travel through the intersection.

As described in Chapter 9, "Transportation," the traffic study area in Manhattan surrounding GCT extended from Seventh Avenue to First Avenue along 42nd Street and included all the intersections between Fifth and Third Avenues from 40th to 48th Street. Several of these intersections met New York City's revised CEQR screening criteria of 25 or more new project-generated trips in the peak hour. Of these, representative intersections were selected based on a combination of worst LOS (D or worse), largest overall volumes, and most project-generated trips. The air quality receptor sites in the GCT area selected for microscale analysis are shown in Table 10-3.

Table 10-3
Mobile Source Receptor Locations, GCT Area

Receptor Site	Location
1	Madison Avenue/48th Street
2	Park Avenue/48th Street
3	Park Avenue/42nd Street
4	Lexington Avenue/45th Street
5	Third Avenue/48th Street

Based on NYSDOT's EPM capture criteria, microscale analyses are required at affected Long Island sites that experience a 10 percent or greater increase in traffic volumes in either direction. None of the traffic study area sites in either Nassau or Suffolk County had a greater than 10 percent increase in traffic volumes between the No Action and Preferred Alternatives, and therefore did not require a microscale analysis. In addition, sites in Long Island City did not meet the CEQR revised criteria of 10 or more project-generated trips in the peak hour and sites in the rest of Queens did not meet the criteria of 100 or more new trips in the peak hour. Despite these results in Queens, Nassau, and Suffolk Counties, representative sites were still chosen so that potential localized impacts due to the Preferred Alternative could be assessed. The candidate intersections were ranked based on worst LOS (D or worse) and largest overall traffic volume. Of these, the intersections receiving the largest fraction of project-generated trips in the study area were chosen for analysis. Table 10-4 presents the intersections included in the traffic study in Queens and on Long Island (as described in Chapter 9, "Transportation"), and indicates the intersections selected for the air quality analysis based on the methodology described above.

PARKING FACILITIES

To assess the potential effects on ambient CO concentrations from parking facilities adjacent to the intersections studied in Queens and on Long Island, parking analyses were performed using the methodology set forth in the *CEQR Technical Manual*. Emissions from vehicles entering, parking at, and exiting the parking facilities were estimated using EPA's MOBILE5B mobile source emissions model at an ambient temperature of 43° Fahrenheit. For all arriving and departing vehicles, an average speed of 5 miles per hour was conservatively assumed for travel within the parking facilities. In addition, all vehicles were assumed to idle for 1 minute before proceeding to the exit (and therefore were considered "cold starts"). These parking facilities were modeled as additional line sources and were included in the CAL3QHC modeling.

METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS FROM RELOCATED DIESEL OPERATIONS

To determine the effects on ambient PM_{10} levels from diesel trains relocated for the Preferred Alternative, a screening analysis was performed. For those yards where increases in diesel train activity would occur, EPA's SCREEN3 (September 1995) was used to assess the potential for impacts. The air quality screening analysis evaluated the potential localized effects of idling diesel trains at affected diesel yards. The proposed new diesel yards would provide storage for

Table 10-4
Mobile Source Receptor Screening Locations, Long Island and Queens

Station	Receptor Site	Location
Nassau County		
Great Neck	6	Middle Neck Road/North Station Plaza
	—	Middle Neck Road/South Station Plaza
Hempstead	—	Main Street/West Columbia Street
	—	Main Street/Fulton Street (Route 24)
	—	Fulton Street/Washington Avenue
Hicksville	—	Newbridge Road (Route 106)/West John Street
	7	Newbridge Road (Route 106)/Duffy Avenue
	—	Broadway (Route 107)/East John Street
	—	Bay Avenue/East Barclay Street/Woodbury Road
Malverne	—	Hempstead Avenue/Nassau Avenue/Francis
	—	Hempstead Avenue/Utterby Road
Long Beach	—	LIRR Parking Lot Exit/West Park Avenue
	—	LIRR Parking Lot Exit/West Park Avenue
	—	Center Street/West Park Avenue
	—	Edwards Boulevard/West Park Avenue
	—	Edwards Boulevard/West Park Avenue
Mineola	—	Mineola Boulevard/Old County Boulevard
	—	Mineola Boulevard/2nd Street
Port Washington	—	Main Street/LIRR Parking Entrance
	8	Main Street/Port Washington Boulevard
Valley Stream	—	South Franklin Avenue/Merrick Road
	—	South Franklin Avenue/West Hawthorne Avenue
	—	South Franklin Avenue/Sunrise Highway (Route 2)
Merrick	—	Merrick Avenue/Broadcast Plaza
	—	Merrick Avenue/Smith Street
	—	Merrick Avenue/Sunrise Highway
Suffolk County		
Babylon	—	Deer Park Avenue/Railroad Avenue
	—	Deer Park Avenue/Park Avenue
	—	Deer Park/Fire Island/West Main Street/East Main Street
Huntington	—	Executive Drive/Long Island Avenue
	—	Executive Drive/Pine Aire Drive
Port Jefferson	—	Main Street (25A)/LIRR Parking Entrance
	—	Main Street (25A)/North Country Road
Ronkonkoma	—	Hawkins Avenue/Union Avenue
	—	Hawkins Avenue/LIE North Service Road
	9	Hawkins Avenue/LIE South Service Road
	—	Ronkonkoma Avenue Ramp/LIRR Parking Lot
Queens County		
Sunnyside	—	Queens Boulevard/Van Dam Street/Thomson Avenue
	—	Queens Boulevard/Skillman Avenue
	—	Queens Boulevard/Jackson Avenue/Queens Plaza East
	—	Northern Boulevard/Queens Plaza North/41st Avenue
Bayside	10	Northern Boulevard/Bell Boulevard
	—	Bell Boulevard/41st Avenue

Note: The five receptor sites selected for detailed microscale analysis are those numbered 6-10.

three diesel trains. Each train would idle for approximately 1 hour before leaving the yard, once a day. The analysis was based on a worst-case scenario in which all three diesel trains are idling at the same time.

B. EXISTING CONDITIONS

EXISTING MONITORED AIR QUALITY CONDITIONS (1997)

Monitored concentrations of CO, SO_2, PM_{10}, NO_2, lead, and ozone ambient air quality data for the New York City area are shown in Table 10-5, while Table 10-6 shows data for Nassau and Suffolk. As can be seen from the monitored data, in both areas, only the ozone standard continues to be exceeded. It should be noted, however, that in recent years, measured PM_{10} concentrations at the Madison Avenue site have exceeded the annual average standard and the 1997 levels are still extremely close to the NAAQS. Conversely, no violations of the CO standard have been recorded in the study area since 1991, even though New York City and Nassau County still retain their non-attainment designation for that pollutant.

Table 10-5

Representative Monitored Ambient Air Quality Data, New York City

				Concentrations			Number of Exceedances of Federal Standard	
Pollutant	Location	Units	Period	Mean	Highest	Second Highest	Primary	Secondary
CO	Bloomingdale's	ppm	8-hour 1-hour	— —	6.2 18.0	6.1 13.6	0 0	0 0
	225 E. 34th Street	ppm	8-hour 1-hour	— —	4.1 6.3	3.8 6.1	0 0	0 0
SO_2	P.S. 59—Midtown	ppm	Annual 24-hour 3-hour	0.012 — —	— 0.041 0.066	— 0.040 0.066	0 0 —	— — 0
	Queens College	ppm	24-hour	0.005 — —	— 0.029 0.043	— 0.022 0.042	0 0 —	— — 0
Respirable Particulates (PM_{10})	Madison Avenue and 46th Street	μg/m³	Annual 24-hour	46 —	— 105	— 101	0 0	0 0
	P.S. 59	μg/m³	Annual 24-hour	31 —	— 60	— 59	0 0	0 0
NO_2	P.S. 59	ppm	Annual	0.040	—	—	0	0
Lead	Madison Avenue	μg/m³	3-month	—	0.060	0.060	0	0
O_3	Queens College	ppm	1-hour	—	0.147	0.135	2	2

Source: *New York State Air Quality Report, Ambient Air Monitoring Systems*, Annual 1997 DAR-98-1.

Table 10-6

Representative Monitored Ambient Air Quality Data, Long Island

Pollutant	Location	Units	Period	Concentrations			Number of Exceedances of Federal Standard	
				Mean	Highest	Second Highest	Primary	Secondary
CO	Eisenhower Park	ppm	1-hour 8-hour	— —	8.5 4.9	8.4 4.7	0 0	0 0
SO_2	Eisenhower Park	ppm	Annual 24-hour 3-hour	0.005 — —	— 0.031 0.072	— 0.029 0.059	0 0 —	— — 0
	Babylon	ppm	Annual 24-hour 3-hour	0.006 — —	— 0.031 0.051	— 0.029 0.046	0 0 —	— — 0
Respirable Particulates (PM_{10})	Eisenhower Park	μg/m³	Annual 24-hour	21 —	— 73	— 46	0 0	0 0
	Babylon		24-hour	19 —	— 43	— 39	0 0	0 0
NO_2	Eisenhower	ppm	Annual	0.025	—	—	0	0
Lead	None	μg/m³	3-month	—	—	—	—	—
O_3	Babylon	ppm	1-hour	—	0.146	0.137	4	4

Source: *New York State Air Quality Report, Ambient Air Monitoring Systems*, Annual 1997 DAR-98-1.

C. PROBABLE IMPACTS OF THE PROJECT ALTERNATIVES

The East Side Access Project could affect both localized and regional air quality. The discussion below describes the project's potential effects on local carbon monoxide levels from increases in traffic (e.g., near Grand Central Terminal or near various LIRR parking lots on Long Island) as well as effects on regional air quality from changes in the total number of vehicle miles traveled. It also considers the effects of railroad activities (specifically, the relocation of diesel trains to new yards). Finally, the potential effects from stationary sources associated with the Preferred Alternative—i.e., the new heating, ventilation, and air conditioning (HVAC) system for Option 2 and the new emergency ventilation—are considered.

LOCALIZED (MICROSCALE) CARBON MONOXIDE ANALYSIS

A microscale CO analysis was performed for the year 2010. For CO modeling, 2010 is the critical analysis year, since in later years reduced vehicle emissions would yield lower predicted concentrations. Moreover, the project-generated traffic in 2020 would not be significantly greater than in 2010. In addition, as discussed later in this section, the modeled air quality results for 2010 were well within the standards for CO. For these reasons, it was not necessary to study the year 2020 conditions as well as 2010.

The analysis followed the general modeling procedures that are discussed above. Vehicular traffic estimates, which are outlined in Chapter 9, "Transportation," were employed in the air quality mobile source modeling. Table 10-7 shows the results of this analysis for the No Action and Preferred Alternatives. The TSM Alternative would not generate significant vehicular activity, and was therefore not subjected to full microscale analysis.

Table 10-7

Maximum Predicted 8-Hour Average Carbon Monoxide Concentrations in 2010

Receptor Site	Location	Time Period	No Action	Preferred Alternative
1	Madison Avenue/48th Street	MD	6.7	7.8*
2	Park Avenue/48th Street	AM	7.3	7.2
3	Park Avenue/42nd Street	PM	6.6	6.7
4	Lexington Avenue/45th Street	MD	7.8	7.9
5	Third Avenue/48th Street	MD	6.7	6.8
6	Middle Neck Road/North Station Plaza	AM	4.8	4.8
7	Newbridge Road (Route 106)/Duffy Avenue	AM	6.6	6.7
8	Main Street/Port Washington Boulevard	AM	4.5	4.5
9	Hawkins Avenue/LIE South Service Road	AM and PM	4.8	4.8
10	Northern Boulevard/Bell Boulevard	AM	4.8	4.9

Notes:
* Significant impact
The TSM Alternative was not subject to microscale air quality modeling due to the small number of trips generated as part of this alternative.
CO concentrations were predicted for project alternatives only at receptor sites where localized traffic conditions are expected to change because of those alternatives.
The 8-hour NAAQS for CO is 9 ppm.

Because predicted concentrations are far below the respective standard, no 1-hour values are shown. In addition, 8-hour values are the most critical for impact assessment. The values shown for CAL3QHC modeling are the highest predicted concentrations for each receptor location.

NO ACTION ALTERNATIVE

As shown in Table 10-7, at all receptor sites analyzed, the future (2010) maximum predicted 8-hour average CO concentrations for the No Action Alternative are below the 8-hour NAAQS of 9 ppm.

TSM ALTERNATIVE

As described earlier, the TSM Alternative would not generate significant vehicular activity or affect traffic conditions significantly in the Manhattan study area. Consequently, it would be expected that CO concentrations in Manhattan would be similar to the No Action levels. At sites on Long Island, the TSM Alternative would result in an increase in ridership on the LIRR, so it would be expected that CO levels would be higher than No Action levels. However, the new ridership, and therefore the associated increases in traffic levels and CO levels, would be lower than Preferred Alternative.

PREFERRED ALTERNATIVE

As shown in Table 10-7, at all receptor sites the maximum predicted 8-hour average CO concentrations for the 2010 Preferred Alternative are less than the 8-hour NAAQS of 9 ppm. However, at Receptor Location 1 (Madison Avenue/48th Street), the incremental increase over the No Action conditions would be greater than 0.5 ppm. For receptor sites located in Manhattan's CBD, a change of this level is considered a significant impact requiring mitigation. As shown in section D, which follows ("Mitigation Measures"), the traffic mitigation measures proposed at this receptor location would be effective. The resulting incremental increase would be less than 0.5 ppm over the No Action condition.

REGIONAL (MESOSCALE) ANALYSIS

A mesoscale analysis is typically performed by computing total pollutant levels ("burdens") within a project's overall study area. Pollutant burdens represent total expected quantities of pollutant emissions for a region for a defined time period. Pollutant burdens were computed for the annual quantities of CO, VOCs, NO_x, and PM_{10} that would be emitted due to project-related changes in vehicular activity within the entire study area. Vehicular pollutant burdens were computed based on the most recent EPA vehicle emission estimating procedures, MOBILE5B (for CO, VOCs, and NO_x), PART 5 (for PM_{10}), and on the changes in vehicle miles traveled (VMT) for the analysis year (2010).

Pollutant burdens provide an indication of the general change in air quality. They are particularly useful for assessing the relative change in the concentration of the reactive air pollutants—hydrocarbons and NO_x—and resultant concentrations of photochemical oxidants (ozone). In addition, CO burdens are examined to determine the general effect of changes in vehicular activity on background levels of this pollutant.

Changes in VMT within the network were based on the project's transportation model (described in Chapter 9, "Transportation"). Vehicular speeds for each county were based on information in NYSDEC's SIP emissions inventory. For each pollutant, an appropriate temperature was used to compute the various speed-dependent emission factors. For CO, 50° Fahrenheit was used for Manhattan and 43° Fahrenheit for Queens, Kings, Bronx, Nassau, and Suffolk Counties. For VOCs and NO_x, 78.3° Fahrenheit was used for all counties, reflecting the summer ozone season. The emission factors for rail diesel locomotives were based on the estimated controlled emission rates for locomotives manufactured in 1973-2001 (Tier 0) from EPA 420-F-97-048. As shown in Table 10-8, the project would reduce the pollutant burdens of CO, VOCs, NO_x, and PM_{10} in the region because of its anticipated reductions to vehicular traffic. To provide context as to the magnitude of this change, Table 10-9 provides the estimated total budgets for each of those pollutants, as provided in the SIP.

PARTICULATE MATTER ANALYSIS

EFFECTS OF VEHICULAR TRAFFIC

As discussed previously in Chapter 9, "Transportation," the Preferred Alternative could result in an increase in bus volumes during the peak periods on some local bus routes serving the GCT area. Most notably, the Preferred Alternative may require an increase in bus trips in the peak hour on Madison Avenue (M1/M2/M3/M4/Q32) and on Lexington Avenue (M101/M102/M103/M98). Therefore, an analysis was conducted to determine the effect of these increases on ambient levels of respirable particulate matter (PM_{10}). In Midtown Manhattan, PM_{10}

Table 10-8

Regional Mobile Source Pollutant Burdens Relative to the No Action Alternative

Vehicle Class	Incremental Pollutant Burdens (tons per year)							
	Preferred Alternative				TSM Alternative			
	CO	VOCs	NO_x	PM_{10}	CO	VOCs	NO_x	PM_{10}
Motor Vehicle								
Queens	-149.0	-50.4	-28.5	-21.1	-41.8	-14.1	-8.0	-5.9
Nassau	-136.0	-45.7	-24.8	-18.6	-49.1	-16.5	-9.0	-6.7
Suffolk	-30.2	-10.9	-6.3	-4.7	-27.1	-9.8	-5.7	-4.2
New York	-182.9	-36.0	-10.4	-7.4	-24.1	-4.8	-1.4	-1.0
Brooklyn	1.1	0.4	0.2	0.2	-3.3	-1.2	-0.7	-0.5
Bronx	-63.1	-21.5	-12.2	-9.0	-6.7	-2.3	-1.3	-1.0
Other	1.5	0.4	0.2	0.2	-1.2	-0.35	-0.2	-0.1
Total Motor Vehicle	-558.6	-163.7	-81.8	-60.5	-153.3	-49.0	-26.2	-19.4
Commuter Rail/Diesel	-5.2	-2.0	-35.0	-1.3	10.3	3.9	69.1	2.6
TOTAL	**-563.8**	**-165.6**	**-116.7**	**-61.8**	**-143.0**	**-45.1**	**43.0**	**-16.8**

Note: The totals in this table do not include provision of a new diesel rail yard at Yaphank or Riverhead. If that yard is included, the decrease to CO, VOCs, NO_x, and PM_{10} would be slightly less.

Table 10-9

Projected Emissions Budgets for New York Metropolitan Area

Pollutant	Emissions Budgets (tons per year)	
	2000	2007
CO	889,505	869,065
VOCs	53,290	48,180
No_x	73,365	60,955
PM_{10}	NA*	NA*

Note: * The PM_{10} budget for New York County is 321 tons per year for 2000. New York County is the only county in the NYMA that is non-attainment for PM_{10} and therefore the only county with a PM_{10} budget.

concentrations are monitored by NYSDEC at three locations—P.S. 59 on 57th Street between Second and Third Avenues, Madison Avenue between 47th and 48th Streets, and West 37th Street between Seventh and Eighth Avenues. The monitor at P.S. 59 is a rooftop monitor that, in the past, has shown annual average concentrations of between 30 and 40 $\mu g/m^3$. These concentrations are well below the NAAQS of 50 $\mu g/m^3$. At the 37th Street site, which is a new monitoring site in the Garment District, only one year of data is available and the annual average concentration in 1997 was 42 $\mu g/m^3$. However, between 1988 and 1991, annual average PM_{10} concentrations at the Madison Avenue site exceeded the NAAQS, which resulted in New York

County (Manhattan) being designated non-attainment for this pollutant by EPA. In 1994 and 1995 the annual average concentration at this location also slightly exceeded (51 $\mu g/m^3$) the NAAQS, while the 1996 and 1997 annual averages were below the NAAQS (45 and 46 $\mu g/m^3$, respectively).

In the 1995 New York SIP PM_{10} Redesignation Request and Attainment Demonstration, NYSDEC concluded that the high concentration of PM_{10} at the Madison Avenue site was the result of a high number of heavy-duty diesel vehicles (principally buses) and a canyon-like, narrow street geometry. Other Midtown locations, such as Seventh Avenue at 34th Street, which had similar bus volumes and even more heavy-duty diesel trucks, did not exhibit the high PM_{10} concentrations seen at the more confined Madison Avenue site. The monitoring site at Seventh Avenue was subsequently discontinued after years of monitored levels in compliance with the NAAQS. In a source apportionment study, conducted for NYSDEC, it was determined that 53 percent of the particulate matter at the Madison Avenue site was derived from emissions from heavy-duty diesel vehicles, primarily buses.

The lower PM_{10} concentrations in recent years are primarily due to EPA's 1993 final rule on diesel bus emissions. As determined in the 1995 SIP, PM_{10} emissions from urban buses were expected to decrease by more than 60 percent from 1995 to 2000 due to the new emission standards. These estimates did not include the additional benefit from alternatively-fueled vehicles such as buses fueled by compressed natural gas. Many of the benefits of this rule will be realized after 2000, as new lower polluting buses replace older higher polluting vehicles, and by 2010, the full benefit of this rule should be realized. Based on NYSDEC's apportionment study, approximately 24 $\mu g/m^3$ of the 46 $\mu g/m^3$ for the most recent data along Madison Avenue is due to diesel bus emissions. While no measured PM_{10} data is available for Lexington Avenue, it can conservatively be assumed that PM_{10} concentrations and the bus contribution is similar to that of Madison Avenue. While Lexington has a greater number of diesel trucks than Madison Avenue, it is a wider street and the bus volumes are lower.

While the proposed project would require an increase in the number of buses during the peak hour, annual average concentrations would only be affected slightly. It should be noted that the short-term standard for PM_{10} is based on 24-hour average concentrations, and the measured levels at even the highest site are only ⅔ of the NAAQS for this averaging period. The annual average concentration (as well as the 24-hour average) reflects the cumulative concentration from all of the buses passing by the monitoring location during the day. Therefore, to assess the change in concentration due to the Preferred Alternative, it is necessary to determine the increase in the total number of buses along Lexington or Madison Avenue during a 24-hour period. Currently, during the course of a day, approximately 1,300 and 530 buses travel along Madison and Lexington Avenues, respectively. On a 24-hour basis, the Preferred Alternative could increase volumes by up to approximately *10* buses on both Madison and Lexington Avenues. This represents an increase in bus passbys of approximately *1.9* percent on Lexington Avenue and *0.8* percent on Madison Avenue. Based on current bus contribution (24 $\mu g/m^3$) to ambient PM_{10} levels at these locations, this magnitude of bus volume increase would result in an increase in concentration of approximately *0.2* to *0.5* $\mu g/m^3$. This increase is much less than the expected decrease in concentration of more than 10 $\mu g/m^3$ due to the new emission standards. Therefore the Preferred Alternative would not cause an exceedance of the PM_{10} NAAQS or result in a significant air quality impact with respect to this pollutant.

EFFECTS OF RAIL YARD ACTIVITY

The No Action and TSM Alternatives would not result in changes in diesel train activities at rail yards. The new yard required on the Port Jefferson Branch under these alternatives would be for storage of electric trainsets. Therefore, neither the No Action nor the TSM Alternative would result in changes in air quality from train yard activities.

An assessment was conducted to determine if the Preferred Alternative would result in any adverse air quality effects from changes in rail yard activities. Specifically, the analysis considered the relocation of NYAR from Yard A to Blissville or Maspeth Yard and Fresh Pond Yard in Queens, the relocation of MNR activities from Madison Yard to Highbridge Yard in the Bronx, and the possible creation of a new nighttime storage yard for diesel trains at Yaphank or Riverhead, Suffolk County. At these locations, yard facilities, the main concern would be PM_{10} emissions from operations or idling of diesel locomotives. The analysis conducted is described below.

At Highbridge Yard, the East Side Access Project would provide for the midday storage of electric trainsets only, since these are being displaced from the lower level of GCT. *Since electric trainsets do not emit pollutants, the storage facilities at Highbridge Yard* would not result in changes to air pollutant levels *at the yard or in surrounding areas. In addition to the tracks at Highbridge Yard for trains displaced by East Side Access, future MNR plans also include the midday storage of dual-mode equipment and servicing of diesel engines at Highbridge. The trains would operate in the electric mode when traveling to Highbridge Yard. Significant increases in diesel emissions are not expected to result from Metro-North's future operations at Highbridge.*

In terms of NYAR operations, only Blissville Yard would experience an increase in diesel locomotive operations, *since Blissville is the only site where NYAR does not store trains today. Consequently, only Blissville Yard has the potential for increased diesel emissions and related changes in air quality.* Based on discussions with NYAR and an analysis of their operating needs, it is expected that one train a day would operate out of Blissville. This train would be equipped with one or two diesel locomotives operating for a period of approximately four hours throughout the yard. Since the nearest sensitive receptor is approximately 400 feet away, this level of diesel activity would not result in a measurable change in ambient levels of PM_{10} and therefore would not result in any significant *air quality* impacts. Although Maspeth Yard may be used as an alternate location for freight car storage, train operations in the future with or without the Preferred Alternative would be the same—i.e., two freight trains per day. Therefore, there would be no increase in locomotive diesel emissions at Maspeth. *Similarly, the number of trains traveling to Fresh Pond Yard would not change from existing conditions. Consequently, the Preferred Alternative would not result in changes in air quality at Fresh Pond Yard or the surrounding area.*

In addition, a screening analysis of the potential air quality effects associated with the creation of new yards for nighttime storage of trains on Long Island was conducted. Of the *seven illustrative yard sites* being evaluated *in this FEIS, only* the Riverhead site and potentially the Yaphank sites would be for diesel trains. Therefore, the air quality screening analysis evaluated the potential localized effects of idling diesel trains at the worst-case site, Riverhead. The analysis considered the effects on the residences and other sensitive receptors nearby. *A new yard at* Riverhead would provide storage for three diesel trains. Each train would idle for approximately 1 hour before leaving the yard, once a day. The analysis was based on the worst case scenario of all three diesel trains idling at the same time. The maximum predicted 24-hour average PM_{10} concentration from the screening analysis of diesel trains is 49$\mu g/m^3$. The maximum annual average concentration would be much less than the 24-hour average concentration, and therefore would be well below the annual standard of 50 $\mu g/m^3$. Therefore the additional diesel activity at Riverhead would not result in any predicted localized air quality impacts.

EFFECTS OF PROJECT VENTILATION SYSTEMS

As described in Chapter 2, most of the Preferred Alternative's new ventilation systems would be passive systems that draw fresh air into and out of the tunnels and station area. These ventilation facilities required for the Preferred Alternative—including the ventilation building at 47 East 44th Street under Option 1—would not emit air contaminants during normal operations, since they would be exhausting air from the normal station and tunnel operations. The Preferred Alternative's Option 2 (new tracks and platforms beneath GCT's existing lower level) would require a new HVAC system for its below-grade mezzanine, cross passages, and station. The new facility would be created in conjunction with the new ventilation facility to be constructed under either project option on East 44th Street. In addition, either project option would require a ventilation system to clear smoke from tunnels and passenger areas in emergencies. The air quality effects of these two project components are described below. *As noted in Chapter 2, Option 2 is the preferred engineering option for East Side Access.*

HVAC SYSTEM

Option 2's new HVAC plant at 47 East 44th Street would be equipped with either air- or water-cooled chillers, cooling towers (if water chilled), and several air handling units. The equipment would be powered with either electricity or natural gas supplied by Con Edison. With natural gas, the main pollutant of concern is nitrogen dioxide, and concentrations of this pollutant are below NAAQS in the vicinity of the project. The exhaust from the gas-fired system would be placed on the roof of the new structure in accordance with the applicable air quality pollution control requirements for similar HVAC systems in New York City. The exhaust would be placed to avoid adverse effects on any sensitive receptors, including the adjacent buildings' ventilation systems.

EMERGENCY VENTILATION SYSTEM

In accordance with National Fire Protection Association Standard 130, an emergency ventilation system would be provided for the Preferred Alternative's tunnels. The objective of the emergency ventilation system is to preserve safe egress routes for LIRR passengers/employees and safe ingress routes for emergency service personnel during tunnel fire events. To meet this objective, the mechanical/electrical elements of the emergency ventilation system would be designed to direct smoke away from the designated egress routes and the preferred ingress route for emergency service personnel during a particular tunnel fire event. The desired effect can be achieved by adopting a longitudinal (or "push-pull") ventilation approach—whereby ventilation fans on one side of the incident location are operated in supply mode, while ventilation fans on the opposite side of the incident are operated in exhaust mode. The operation of the ventilation fans in supply mode would establish a smoke-free zone for evacuation, rescue and fire-fighting activities; the ventilation fans operating in exhaust mode would purge smoke from the tunnel system. Smoke from the fire would be exhausted from ventilation structures on the roofs of buildings above the trainshed and/or from grates in streets and sidewalks in the area.

D. MITIGATION MEASURES

An analysis was performed to determine the effect of the proposed traffic mitigation measures, discussed in Chapter 9, "Transportation," on maximum predicted CO concentrations at each microscale intersection where changes were recommended. As discussed above, the air quality analysis identified one significant adverse air quality impact, at Receptor Site 1 (Madison Avenue/48th Street). This impact would be mitigated through the implementation of the proposed traffic mitigation measures *at the intersections of 48th Street and Park and Third Avenues.* As shown in Table 10-10, the analysis concluded that with the traffic mitigation measures in place, no significant air quality impacts would result from the Preferred Alternative.

Table 10-10
Maximum Predicted 8-Hour Average Carbon Monoxide Concentrations in 2010 for Proposed Traffic Mitigation Measures

Receptor Site	Location	Time Period	No Action	Preferred Alternative	Preferred Alternative with Mitigation
1	Madison Avenue/48th Street	MD	6.7	7.8	6.8
2	Park Avenue/48th Street	AM	7.3	7.2	7.0
3	Park Avenue/42nd Street	PM/MD	6.6/6.4	6.7/6.4	6.6/6.7
4	Lexington Avenue/45th Street	MD/AM	7.8/6.2	7.9/6.1	—/6.1
5	Third Avenue/48th Street	MD	6.7	6.8	6.8
6	Middle Neck Road/North Station Plaza	AM	4.8	4.8	4.8
7	Newbridge Road (Route 106)/Duffy Avenue	AM	6.6	6.7	6.7
8	Main Street/Port Washington Boulevard	AM	4.5	4.5	4.6
9	Hawkins Avenue/LIE South Service Road	AM and PM	4.8	4.8	4.8
10	Northern Boulevard/Bell Boulevard	AM	4.8	4.9	4.8

Note: For locations where the maximum predicted 8-hour average CO concentrations do not occur in the same time period as in the No Action and Preferred Alternatives, the concentrations for both time periods are given.

E. CONSISTENCY WITH THE NEW YORK STATE AIR QUALITY IMPLEMENTATION PLAN: PROJECT-LEVEL CONFORMITY

Projects that are funded or approved by the Federal Transit Administration (FTA) are subject to the conformity requirements of the CAAA. Air quality analyses indicate that the East Side Access Project would conform to the regional air quality requirements defined, within the framework of the CAAA, in the SIP. The effects of the East Side Access Project were analyzed as part of the RTP and TIP conformity analyses, both of which have been found to meet the conformity tests as identified by federal and state requirements. Further, the results of the localized CO concentration analyses at specific intersections demonstrate that no new violations of the NAAQS standards would occur, nor would existing violations worsen, under the Preferred Alternative. ❖