

A. INTRODUCTION

This chapter analyzes the effects of Alternative B, C, and Preferred Alternative D on air quality. Air quality can be affected by air pollutants produced by moving sources, such as vehicular traffic, referred to as “mobile sources,” and by fixed combustion facilities, referred to as “stationary sources.” The chapter concludes that none of the build alternatives would result in significant adverse air quality impacts from either mobile or stationary sources.

POLLUTANTS FOR ANALYSIS

In the New York metropolitan area, ambient concentrations of carbon monoxide (CO) are predominantly influenced by mobile source emissions. Emissions of particulate matter (PM) and nitrogen oxides (NO_x) come from both mobile and stationary sources; emissions of sulfur dioxide are associated mainly with stationary sources. Ozone, one of the region’s most problematic air pollutants, is not emitted directly in any significant quantity, but is formed in the atmosphere by a series of complex chemical reactions involving volatile organic compounds (VOCs) and NO_x.

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 vary greatly over relatively short distances. Elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. CO is also emitted from fossil fuel combustion sources.

NITROGEN OXIDES, VOCs, AND OZONE

NO and NO₂—collectively referred to as NO_x—are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. While there is a standard for average annual NO₂ 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.

LEAD

Lead emissions in air 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, the Environmental Protection Agency (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).

RESPIRABLE PARTICULATE MATTER—PM₁₀ 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 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 natural organic vapors: salt particles resulting from the evaporation of sea spray; windborne 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. 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. Particulate matter also acts as a substrate for the adsorption of other pollutants, often toxic and some likely carcinogenic compounds.

Fine particulate matter, or PM_{2.5}, are fine particles with an aerodynamic diameter of less than or equal to 2.5 micrometers. This smaller fraction of the particle size range has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that are adsorbed to the particle surfaces, 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 particulate matter (often soon after the release from an exhaust pipe or stack) or from precursor gases reacting in the atmosphere to form secondary particulate matter.

SULFUR DIOXIDE

SO₂ emissions are primarily associated with the combustion of sulfur-containing fuels: oil and coal.

AIR QUALITY STANDARDS AND REGULATIONS

NATIONAL AND STATE AIR QUALITY STANDARDS

Under the Clean Air Act, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: CO, nitrogen dioxide (NO₂), ozone, respirable particulate matter (PM), sulfur dioxide (SO₂), and lead. The primary NAAQS standards protect public health and represent levels at which there are no known significant effects on human 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 NO₂, ozone, lead, and PM, the primary and secondary standards

are the same; there is no secondary standard for CO. EPA promulgated additional NAAQS which became effective September 16, 1997: a new 8-hour standard for ozone, which replaced the prior 1-hour standard as of June 15, 2005, and in addition to retaining the PM₁₀ standards, EPA adopted 24-hour and annual standards for PM_{2.5}. The standards for these pollutants are presented in Table 8-1. These standards have also been adopted as the ambient air quality standards for New York State.

STATE IMPLEMENTATION PLAN (SIP)

The Clean Air Act, as amended in 1990 (CAA) 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 is a state's plan on how it will meet the NAAQS under the deadlines established by the CAA.

EPA has recently re-designated New York City as in attainment for CO. The CAA requires that a maintenance plan ensure continued compliance with the CO NAAQS for former non-attainment areas. New York City is also committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period.

Manhattan has been designated as a moderate NAA for PM₁₀. On January 5, 2005, EPA took final action designating the five boroughs of New York City as well as Nassau, Suffolk, Rockland, Westchester, and Orange Counties as non-attainment for PM_{2.5}, effective April 5, 2005. State and local governments are required, by early 2008, to develop implementation plans designed to meet the standards.

Nassau, Rockland, Suffolk, Westchester, and the five counties of New York City have been designated as severe NAAs for the ozone 1-hour standard. In November 1998, New York State submitted its *Phase II Alternative Attainment Demonstration for Ozone*, which addressed attainment of the 1-hour ozone NAAQS by 2007, and has recently submitted revisions to the SIP. These SIP revisions included additional emission reductions that EPA requested to demonstrate attainment of the standard and to update the SIP estimates using a new EPA model to predict mobile source emissions—MOBILE6. On April 15, 2004 EPA designated these same counties as moderate non-attainment for the new 8-hour ozone standard (effective June 15, 2004). EPA revoked the 1-hour standard on June 15, 2005; however, the specific control measures for the 1-hour standard included in the SIP are required to stay in place until the 8-hour standard is attained. The discretionary emissions reductions in the SIP also remain but could be revised or dropped based on modeling. A new SIP for ozone will be adopted by the state no later than June 15, 2007, with a target attainment deadline of June 15, 2010.

**Table 8-1
Ambient Air Quality Standards**

Pollutant	Primary		Secondary	
	ppm	µg/m ³	ppm	µg/m ³
Carbon Monoxide (CO)				
Maximum 8–Hour Concentration ¹	9	10,000	None	
Maximum 1–Hour Concentration ¹	35	40,000		
Lead				
Maximum Arithmetic Mean Averaged Over 3 Consecutive Months	NA	1.5	NA	1.5
Nitrogen Dioxide (NO₂)				
Annual Arithmetic Average	0.053	100	0.053	100
Ozone (O₃)				
1–Hour Average (revoked on June 15, 2005)	0.12	235	0.12	235
8–Hour Average ²	0.08	157	0.08	157
Total Suspended Particles (TSP)				
Annual Mean	NA	45	None	
Rural Open Space		55		
Rural Residential		65		
Urban Residential		75		
Urban Industrial				
Maximum 24–Hour Concentration	NA	250		
Respirable Particulate Matter (PM₁₀)				
Average of 3 Annual Arithmetic Means	NA	50	NA	50
24–Hour Concentration ¹	NA	150	NA	150
Fine Respirable Particulate Matter (PM_{2.5})				
Average of 3 Annual Arithmetic Means	NA	15	NA	15
24–Hour Concentration ³	NA	65	NA	65
Sulfur Dioxide (SO₂)				
Annual Arithmetic Mean	0.03	80	NA	NA
Maximum 24–Hour Concentration ¹	0.14	365	NA	NA
Maximum 3–Hour Concentration ¹	NA	NA	0.50	1,300
<p>Notes: ppm – parts per million µg/m³ – micrograms per cubic meter NA – not applicable</p> <p>Particulate matter concentrations are in µg/m³. Concentrations of all gaseous pollutants are defined in ppm — approximately equivalent concentrations in µg/m³ are presented. TSP levels are regulated by a New York State Standard only. All other standards are National Ambient Air Quality Standards (NAAQS).</p> <p>¹ Not to be exceeded more than once a year. ² Three–year average of the annual fourth highest daily maximum 8–hr average concentration. ³ Not to be exceeded by the 98th percentile averaged over 3 years.</p> <p>Sources: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards; 6 NYCRR Part 257: Air Quality Standards.</p>				

B. EXISTING CONDITIONS

Existing conditions in the area are represented by the highest concentrations monitored during past years at the nearest New York State Department of Environmental Conservation (NYSDEC) background monitoring stations. Stations used for background measurements are designed to monitor general population exposure and, to the greatest extent possible, avoid the influence of specific local sources. Nevertheless, the concentrations monitored at such stations do include some contribution from local sources, such as nearby traffic, and therefore produce conservatively high background readings.

Maximum monitored concentrations from 2002 through 2004 at the nearest stations representing existing conditions in the area are presented in Table 8-2.

Table 8-2
Monitored Concentrations from NYSDEC's Nearest Air Quality Stations

Pollutant	Station	Period	Units	2002	2003	2004	Maximum
CO	PS 59	1-hour	ppm	3.2	4.0	2.6	4.0
		8-hour		2.2	2.8	2.0	2.8
O ₃	Queens College	1-hour	ppm	0.127	0.106	0.095	0.127
		8-hour	ppm	0.089	0.086	0.086	0.089
NO ₂	PS 59	Annual	ppm	0.038	(0.038)	0.035	0.038
SO ₂	PS 59	3-hour	ppm	0.060	0.077	0.056	0.077
		24-hour		0.036	0.047	0.033	0.047
		Annual		0.012	(0.014)	0.010	0.014
PM ₁₀	JHS 126	24-hour	µg/m ³	42	50	32	50
	JHS 126	Annual	µg/m ³	21	20	17	21
PM _{2.5}	PS 59	24-hour	µg/m ³	35.6	36.6	41.1	41.1
		Annual		15.8	18.6	15.6	18.6
Lead	Susan Wagner	Quarterly	µg/m ³	0.01	0.01	0.01	0.01
Notes:							
1 Table updated since January 2005 EA to reflect most recent data.							
2 All averages other than annual are second-highest of the year, except PM _{2.5} 24-hour averages, which are the 98th percentile value, and ozone 8-hour averages, which are based on 4th highest.							
3 Values in parentheses indicate less than 75% data available annually.							
Sources: NYSDEC, EPA.							

C. ALTERNATIVE A (NO ACTION ALTERNATIVE)

In Alternative A, the no action alternative, which was analyzed in the Final Environmental Impact Statement (FEIS) prepared for the East Side Access Project, dated March 2001, ventilation of the tunnel, cavern, and concourse areas under normal and emergency conditions would be accomplished via street-level grates in the sidewalk on 49th and 50th Streets, between Park and Madison Avenues. Fresh air intakes would be located in sidewalk grates along 49th Street and exhausts would be in sidewalk grates along 50th Street. Warm air would be exhausted

from the concourse and caverns continuously along East 50th Street during normal conditions. If a smoke condition occurred in the southern portion of the train tunnels, smoke would be exhausted directly upward from these sidewalk grates along 50th Street. In addition, the FEIS noted that intake and exhaust shafts could be constructed at other locations, using gratings in the street or sidewalk, vents on the roofs of existing buildings, grills or louvers on the facades of existing buildings, or kiosk-type pylons installed in open plazas or sidewalks.

In Alternative A, no new traffic would be brought to 49th or 50th Streets, and therefore no changes to air quality from mobile sources would result.

D. PROBABLE IMPACTS OF BUILD ALTERNATIVES

ALTERNATIVE B (50TH STREET FACILITY WITHOUT THROUGH DRIVE)

MOBILE SOURCE EMISSIONS

The *New York City Environmental Quality Review (CEQR) Technical Manual* was used to determine whether the project would result in any significant adverse air quality impacts. The *CEQR Technical Manual* was developed specifically for analyzing the impacts of projects in New York City, and therefore provides relevant guidance for those analyses. Using the guidance provided in the manual, the 50th Street facility would not result in any significant adverse mobile source air quality impacts. As described in Chapter 7, “Traffic and Transportation,” the facility would generate a total of up to eight peak hour truck trips, or 16 peak hour vehicle trips (converting these truck trips into passenger car equivalents). This level of trip generation is well below the threshold warranting detailed air quality analysis to determine if a significant impact would occur as set forth in the *CEQR Technical Manual*. That threshold is 75 project-generated peak hour vehicle trips. Projects that result in fewer than 75 vehicle trips are not large enough to have the potential to cause significant adverse mobile source air quality impacts. The project trip generation rate is also below the 21 peak hour truck trip threshold specified by the New York City Department of Environmental Protection (NYCDEP) as warranting detailed analysis of potential PM_{2.5} impacts.

Finally, as described in Chapter 7, an intersection level of service analysis was conducted using the *Highway Capacity Manual (HCM)* methodology to analyze the combined effect of trucks generated by the 50th Street facility and other trips generated by the East Side Access Project that were analyzed in the FEIS. This additional analysis demonstrated that the combination of East Side Access taxi trips and project-generated truck trips would not result in any significant adverse traffic impacts at the new intersections affected by the facility—Park and Madison Avenues at 49th Street and 50th Street, and would not result in any additional significant adverse traffic impacts at the other intersections that were not already identified as having significant adverse impacts in the FEIS. In light of these findings, and the fact that project-generated trips would be well below the CEQR mobile source air quality analysis threshold of 75 vehicle trips and the NYCDEP threshold of 21 truck trips, the combination of East Side Access taxi trips and project-generated truck trips would not result in any significant adverse mobile source air quality impacts at the new intersections affected by the 50th Street facility—Park and Madison Avenues at 49th Street and 50th Street. In addition, facility-generated trips would not change the FEIS conclusion that no significant adverse mobile source air quality impacts would occur at any of the five worst-case intersections in the vicinity of Grand Central Terminal analyzed in the FEIS, with the implementation of the traffic mitigation measures specified in the FEIS.

STATIONARY SOURCE EMISSIONS

The 50th Street facility in Alternative B would include four possible stationary sources of air emissions: exhaust vents for exhausting the air present in the East Side Access Project's tunnels during normal and emergency conditions; exhaust vents for exhausting ambient air from the cavern and concourse areas during normal operations only; a rooftop cooling tower for air conditioning the East Side Access caverns and concourse areas; and two emergency generators to provide power in the event of a power outage, which would be tested once a month. The proposed facility would not include any stationary fuel combustion sources that would operate continuously, because under normal operating conditions electricity supplied by Consolidated Edison would be used to power the equipment housed within it.

Smoke from a fire in the new passenger concourse and caverns would not be exhausted from the 50th Street facility. In the event of a fire in the concourse or caverns, smoke would be exhausted through the East Side Access Project's 44th Street ventilation building. The 50th Street facility would exhaust only ambient air from the terminal during normal operations. No polychlorinated biphenyls (PCBs) or other pollutants would be present in this air, since there would be no source for such pollutants in the ambient air of the concourse or caverns.

Concourse, Cavern, and Tunnel Exhaust Air Under Normal Conditions

As described in Chapter 2, "Project Alternatives," the 50th Street facility in Alternative B would house the intake and exhaust ventilation shafts serving the northern half of the caverns, and a portion of the concourse, between 47th and 50th Streets. Intake and exhaust ventilation shafts serving the southern half of the concourse and caverns would be housed in the 44th Street ventilation facility. The 50th Street facility outside air intake shaft would have a capacity of 200,000 cubic feet per minute (cfm) and the exhaust shaft would have a capacity of 250,000 cfm. Under normal operating conditions, the concourse and cavern ventilation system would be operating at or near capacity. The concourse and cavern ventilation fans would not be located inside the 50th Street facility. There would be many such fans, and they would be located at the 44th Street ventilation facility, as well as throughout the concourse and caverns.

In Alternative B, the 50th Street facility would also house the ventilation shaft and the four reversible tunnel ventilation fans serving the southern half of the Manhattan (Park Avenue) tunnels. The tunnel shaft, which would operate in either intake or exhaust mode, would have a capacity of 800,000 cfm, with each of the four tunnel ventilation fans having a capacity of 200,000 cfm. Under normal operating conditions, the tunnel ventilation fans would operate in exhaust mode. When the tunnels are not congested with train traffic, the fans would not operate at all, with one exception. On days when the ambient temperature is 89° F or higher, the fans would operate at one-fourth capacity, providing a ventilation rate of 200,000 cfm. When the tunnels are congested with train traffic on hot days, the fans would operate at one-half capacity, providing a ventilation rate of 400,000 cfm, to keep the train tunnels from becoming too hot.

The air exhausted from the 50th Street facility under normal conditions would be the ambient air present in the concourse, caverns, and tunnels. It would not include any fuel combustion exhaust gases, because trains operating within the caverns and tunnels would be powered by third rail electricity, not diesel locomotives. This air would also not include PCBs or creosote, since no PCBs or creosote would be used in the concourse, caverns, or tunnels. The ambient air exhausted from terminal spaces during normal operations would not include hazardous pollutants; it would consist only of the ambient air circulating in the new East Side Access passenger spaces and tunnels.

In Alternative B, all normal ventilation exhaust louvers on the 50th Street facility would be separated from any fresh air intakes on adjacent buildings or on the 50th Street facility itself by at least the minimum separation required by the New York State Mechanical Code, which specifies a 10-foot separation between exhausts and intakes; and the New York City Building Code, which requires a 10-foot separation between exhausts and windows (except for combustion sources and hazardous exhausts, such as infectious medical waste, which require a 25-foot separation).

Based on the information presented above, no significant adverse air quality impacts would result from exhausting air at the 50th Street facility from the concourse, caverns and tunnels under normal conditions.

In addition, for the reasons described below, no significant adverse air quality impacts would result from the proposed facility due to tunnel exhaust under emergency conditions, or from the proposed facility's cooling tower or emergency generators.

Tunnel Exhaust Air Under Emergency Conditions

The 50th Street facility is designed to provide emergency ventilation for the tunnels, and therefore smoke from a fire in the new passenger concourse and caverns would not be exhausted from the 50th Street facility.

As described in Chapter 2, "Project Alternatives," during an emergency (such as a smoke condition) in the southern portion of the train tunnels (between 50th and 55th Streets), the emergency ventilation system would clear smoke from the tunnels by providing longitudinal (or "push-pull") ventilation, in which fans on one side of the incident would be operated in supply mode, while fans on the opposite side would be operated in exhaust mode. The supply fans would establish a smoke-free zone for evacuation, rescue, and firefighting activities, while the exhaust fans would purge smoke from the tunnel system. The tunnel ventilation fans located in the 50th Street facility would work in conjunction with fans in the 55th Street ventilation facility, and would function in either intake or exhaust mode, depending on the location of the incident relative to the position of the train in the tunnel. For a fire located anywhere else in the tunnels, the 50th Street tunnel ventilation fans may operate in support of the ventilation facilities at either 44th or 55th Streets, but no smoke would be exhausted from the 50th Street facility. The maximum ventilation rate during emergency conditions would be 800,000 cfm.

Such emergencies are by definition life-threatening, extremely rare, and of very short duration. In the rare event that a tunnel fire or smoke condition did occur, the most important consideration would be to remove smoke from the tunnels below, to minimize danger to people in those below-grade spaces. Any smoke that would emerge from the louvers on the 50th Street facility would be exhausted at high velocity horizontally away from the facility and would be diluted by the outside air. This would achieve a higher degree of dilution as compared to the no action alternative, under which smoke would be exhausted at relatively low velocity from street-level grates on 50th Street. As previously noted, in Alternative B the separation between the emergency tunnel exhaust louvers on the proposed 50th Street facility and the fresh air intakes on adjacent buildings would be equal to or greater than the minimum separation required by the New York State Mechanical Code and the New York City Building Code.

During the preparation of the January 2005 EA, a concern was raised by the public about the potential for smoke emitted by the 50th Street facility in Alternative B during a tunnel fire to impede use of the external emergency stairs located on the Colgate-Palmolive Building (at 300 Park Avenue). The stairs are located on the rear façade of the building, near the southeast corner

of the 50th Street facility. In order for use of this stairway to be impeded, two things would have to happen at the same time: a fire in the southern portion of the train tunnels (between 50th and 55th Streets); and an emergency requiring evacuation of the 300 Park Avenue building using this staircase. The likelihood that both of these events would occur simultaneously is extremely low. Nevertheless, a coordination plan between the Metropolitan Transportation Authority (MTA)/Long Island Rail Road (LIRR) and the building management staff of 300 Park Avenue will be developed to deal with such a situation, should it ever occur.

Based on the information presented above, no significant adverse air quality impacts would result from exhausting air at the 50th Street facility from the tunnels under emergency conditions.

Cooling Tower

In Alternative B, the 50th Street facility would include a cooling tower consisting of three open-circuit, mechanical draft cells with a cooling capacity of 1,000 tons each. This cooling tower would be installed on the roof of the facility, and would be at least 20 lateral feet from adjacent buildings, as the New York State Mechanical Code requires. They would cool the condenser water from the chillers by bringing it into contact with the airstream flowing through the towers' internal packing. The only potential emissions from these towers would be mist consisting of condensed water vapor, and small droplets of cooling water, referred to as drift, that may be carried away by the exiting airstream. The drift would be prevented from reaching adjacent buildings by drift eliminators and wind screens.

The mist, which consists of microscopic droplets of condensed water vapor, would form when the cooling tower's exiting airstream is saturated with moisture from the warm condenser water. A dispersion modeling analysis conducted as part of the design of the cooling tower concluded that visible mist would extend from the cooling tower as far as the adjacent building at 300 Park Avenue for an average of approximately 100 hours per year, and as far as the adjacent building at 437 Madison Avenue for an average of approximately 200 hours per year, out of a total of 8,760 hours in the year. Most of the time, the visible mist predicted by the dispersion modeling performed would be confined to the region immediately above or beside the cooling tower.

During the preparation of the January 2005 EA, a concern was raised by the public about the potential for emissions of ammonia or other water treatment chemicals, and *Legionella* or other kinds of bacteria, from the cooling tower in Alternative B. As with cooling tower systems for most buildings in New York City, to protect public health, the water circulating between the condensers and the cooling tower would be treated with standard water treatment additives to prevent formation of bacteria or other types of fouling. Use of these additives would follow industry-accepted best practices. The cooling tower would emit only mist, consisting of condensed water vapor. This mist could include trace amounts of the water treatment additives used to protect public health.

To further examine the effects that may result from dispersion of mist containing trace amounts of water treatment additives, a dispersion modeling analysis was conducted using the ISCST3 dispersion model, which is approved for use in such an analysis by NYSDEC and EPA (see Appendix E, "Air Quality," for the "MTA/LIRR East Side Access Project 50th Street Vent Building Cooling Tower Impacts Analysis," July 2004). The analysis indicates that the maximum concentration of sodium hydroxide—the only component of the water treatment chemicals that would be used for which NYSDEC has set a 1-hour short-term guideline concentration (SGC)—would be 5 ug/m³. This level is less than 3 percent of the SGC of 200

ug/m³ specified by NYSDEC. While the NYSDEC has not established SGCs for the other components of the water treatment chemicals that would be used in the proposed cooling tower, it is reasonable to assume that such SGCs would be comparable to the SGC for sodium hydroxide. Since the concentrations of the other treatment additives in the circulating water would be similar to that of sodium hydroxide, it can be concluded that the presence of trace amounts of these additives in the cooling tower mist would not pose a health threat to adjacent buildings.

Based on the information presented above, no significant adverse air quality impacts would result from the proposed cooling tower at the 50th Street facility.

Emergency Generators

The 50th Street facility in Alternative B would include two 1.5-megawatt (MW) emergency generators, fueled by low sulfur diesel fuel oil that would be used in the event of a power outage. MTA intends to use low sulfur diesel fuel to power the generators, which would significantly reduce diesel emissions. Engine exhaust from the emergency generators would be discharged at roof level, horizontally at high velocity, from the front of the building. As with emergency generators in most buildings in New York City, these generators would be tested once a month, for 30 minutes at 50 percent of full-rated load, to ensure their availability and reliability in the event of an actual emergency. The proposed generators would not be operated continuously and would not constitute significant long-term sources of air pollution.

Based on the information presented above, no significant adverse air quality impacts would result from the proposed emergency generators at the 50th Street facility.

Cavity Effect

During the preparation of the January 2005 EA, a concern was raised by the public about the potential for air emissions to be trapped in the “cavity” above the proposed 50th Street facility (Alternative B), formed by the taller buildings surrounding it on three sides—300 Park Avenue to the east and south, and 437 Madison to the west. The effect of this cavity would be to break up the condensed water vapor mist generated by the cooling tower through the increased turbulence that is normally present in such cavities. This effect was conservatively not included in the dispersion modeling analysis of the cooling tower mist described above. Inclusion of this effect would reduce the number of hours the mist would be visible above the 50th Street facility, as well as beyond the facility, in the direction of either 300 Park Avenue or 437 Madison Avenue.

The cavity would not trap exhaust from the normal or emergency ventilation exhaust louvers because these would not be located on the roof. In Alternative B, the normal ventilation exhaust louvers would be located along the northwest corner of the proposed building, and the emergency exhaust louvers would be located on the front façade. Both would exhaust horizontally away from the building. Furthermore, normal ventilation would contain ambient air from the East Side Access terminal and tunnels, as described above. The emergency generators in Alternative B would exhaust at roof level, horizontally at high velocity, from the front of the building, as described above. Based on this information, it is highly unlikely that exhaust from normal or emergency ventilation, or the emergency generators, would bend back and enter the air space above the 50th Street facility.

TRANSPORTATION CONFORMITY

As described in the FEIS, the regional air quality effects of the East Side Access Project were analyzed as part of the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) conformity analyses, both of which met the conformity tests specified by federal and state regulations. The 50th Street facility, which would relocate certain decentralized components of the East Side Access Project into a centralized facility, would not introduce any new air pollution sources or change the regional air quality benefits of the improved transit service created by the East Side Access Project. As such, the 50th Street facility would not alter the conclusions of the aforementioned RTP and TIP conformity analyses.

As described above, the small number of truck trips generated by the 50th Street facility would not result in any localized mobile source air quality impacts. The combination of East Side Access taxi trips and project-generated truck trips would not result in any significant adverse mobile source air quality impacts at the new intersections affected by the facility—Park and Madison Avenues at 49th Street and 50th Street. In addition, project-generated trips would not change the FEIS conclusion that no significant adverse mobile source air quality impacts would occur at any of the five worst-case intersections in the vicinity of Grand Central Terminal analyzed in the FEIS, with the implementation of the traffic mitigation measures specified in the FEIS. Project-generated trips during the proposed construction period would be comparable to those generated during operation of the 50th Street facility, and well below the CEQR mobile source air quality analysis threshold of 75 vehicle trips and the NYCDEP threshold of 21 truck trips, and would therefore not result in any localized mobile source air quality impacts.

ODORS

The new dumpster and trash compactor in the 50th Street facility in Alternative B would handle trash from East Side Access commuters and retail stores located within the East Side Access terminal. It would be emptied several times per week and would be cleaned periodically so that it does not develop odors. The 50th Street facility would not include any other potential sources of odors, and based on the above information would not result in any significant adverse odor impacts.

A comment was made during a public meeting on the 50th Street facility about the potential for odors and litter because of trucks making deliveries and picking up garbage at the proposed facility. As described above, the dumpster and trash compactor would be emptied frequently and cleaned periodically prevent odor buildup. Trucks delivering merchandise or picking up trash at the 50th Street facility loading dock would be operated in accordance with MTA standard operating procedures, which are designed to promote safety and prevent disturbance to surrounding land uses.

ALTERNATIVE C (50TH STREET FACILITY WITH THROUGH DRIVE)

The effects of Alternative C on air quality would be the same as those described above for Alternative B. Although some of the mechanical equipment inside the building would be arranged differently, this altered internal configuration would not result in any changes to the conclusions regarding air quality impacts. Therefore, Alternative C would not result in any significant adverse mobile source or stationary source air quality impacts.

PREFERRED ALTERNATIVE D (50TH STREET FACILITY WITH THROUGH DRIVE AND PUBLIC OPEN SPACE)

The effects of Preferred Alternative D on air quality would be the same as those described above for Alternatives B and C. Based on the analysis presented above, Preferred Alternative D would therefore not result in any significant adverse mobile or stationary source air quality impacts.

Preferred Alternative D would place the elevated louvers for the emergency ventilation system on the eastern façade of the 50th Street facility (facing 300 Park Avenue). In Alternatives B and C, these louvers would be located on the front façade of the facility (facing 50th Street). The tunnel vent fans would be relocated at the 50th Street facility to a below-grade location in this alternative. As described above, during an emergency in the southern portion of the train tunnels (between 50th and 55th Streets), the tunnel ventilation fans located in the 50th Street facility would function in either intake or exhaust mode, depending on the location of the incident relative to the position of the train in the tunnel. Although Preferred Alternative D would bring smoke emitted by the 50th Street facility closer to the external emergency stairs located on the rear façade of 300 Park Avenue, the distance between the exhaust louvers and the emergency stairs would be sufficiently large (40 feet) to ensure that any smoke emitted would be adequately diluted by the ambient air, and would not pose a health threat to anyone using the emergency stairs. Please also note that a coordination plan between the MTA/LIRR and the building management staff of 300 Park Avenue would be developed to ensure safe evacuation of 300 Park Avenue.

Preferred Alternative D also would relocate the cooling tower and the emergency generator exhaust to the rooftop of 300 Park Avenue. As described in Chapter 2, "Project Alternatives," the decision to relocate these elements is a result of public concerns about their proximity to neighboring buildings and their ventilation intakes. These modifications also address public concerns about exhaust from the cooling tower and generator becoming trapped in the space above the 50th Street facility formed by the taller buildings that surround the project site. As described earlier for Alternative B, it is highly unlikely that this would occur even without relocation of these elements, but placing them on the rooftop of a high-rise building addresses a stated public concern.

CONCLUSIONS

The 50th Street facility in any of the build alternatives would not result in significant adverse impacts related to mobile source air quality. All three build alternatives would bring a small number of new truck trips to the site, and this number of trucks is not large enough to adversely affect localized air quality. All three build alternatives also would not result in significant adverse impacts related to stationary source air quality. The 50th Street facility would exhaust only ambient air from the terminal during normal operations. No PCBs or other pollutants would be present in this air, since there would be no source for such pollutants in the ambient air of the concourse or caverns. During emergency conditions, exhaust from the ventilation system and the emergency generators would not constitute long-term sources of air pollution. Again, PCBs would not be present in the air emissions during emergencies, as they are a banned substance and will not be used in the construction of the new tunnels and are not present in LIRR's trains. Furthermore, MTA intends to use low-sulfur diesel fuel for the emergency generators, which would significantly reduce diesel emissions. During normal operations, the 50th Street facility's new rooftop cooling tower under all three build alternatives, like all cooling towers throughout the city, would emit condensed water vapor with minute amounts of additives added to the water

to protect public health by preventing formation of bacteria. This mist would not pose a health threat to nearby buildings.

Preferred Alternative D is preferred over Alternatives B and C since it would relocate the cooling tower and emergency generator exhaust to the rooftop of 300 Park Avenue, thereby addressing public concerns regarding exhaust from the cooling tower and emergency generators adversely affecting nearby buildings. *