A. INTRODUCTION

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to air quality that were not previously identified in the 2006 FEIS.

As described in Section 14, "Traffic and Parking", considerable changes to traffic conditions have occurred since completion of the 2006 FEIS, including changes in the roadway network, existing traffic volumes and traffic patterns, planned development projects, as well as changes in the No Action development for the Farley Complex. Therefore, the mobile source analysis of carbon monoxide (CO) and particulate matter (PM) was examined in this Technical Memorandum.

In addition, several changes in air quality standards have occurred since the FEIS was issued in 2006, and are discussed in Section B, below.

The 2006 FEIS concluded that there would be no significant adverse air quality impacts due to stationary sources. Changes in the Project and in background conditions since 2006 would not alter this conclusion. Accordingly, the discussion below focuses on the potential air quality impacts of mobile source emissions.

The air quality analysis indicates that the Project, like the Project as assessed in the FEIS, would not result in any significant adverse impacts and would not cause exceedances of the National Ambient Air Quality Standards. Further, as in 2006, the anticipated Congestion Mitigation and Air Quality (CMAQ) Improvement Program grants for the Project indicate that there would be some regional air quality benefits resulting from the proposed transportation investment and the transit-oriented development associated with the Project.

B. CHANGES IN BACKGROUND CONDITIONS

As discussed in Section 14, "Traffic and Parking," the Project would be expected to produce better overall traffic conditions than concluded in the 2006 FEIS as a result of lower existing baseline traffic volumes (a condition that exists city-wide), a change in the mix of land uses for the No Build condition generating fewer auto trips on weekdays, and fewer additional trips generated by the Build scenario when taking into consideration the expected use of the Farley Complex in the No Build condition. As a result of these changes, the resulting air quality concentrations from mobile sources would be similar or lower than the concentrations reported in the 2006 FEIS.

In addition, the background CO and PM_{10} concentrations used in this analysis have been updated to reflect the concentrations measured over the most recent three-year period at the nearest New York State Department of Environmental Conservation background monitoring station for which data are available. Background concentrations are added to modeling results to obtain total pollutant concentrations at a study site.

Since the Project is now anticipated to be fully complete in 2015, CO concentrations were determined for the 2015 analysis year. In addition, with the proposed traffic modifications, the maximum predicted number of vehicle trips generated by the Project no longer exceeds the *CEQR Technical Manual* threshold of 75 vehicles per peak hour for three of the four analysis sites assessed in the 2006 FEIS. Therefore, a quantified assessment of on-street mobile source CO emissions at these three sites was not warranted.

For particulate matter, Ninth Avenue and West 31st Street was selected for microscale analysis, as was previously selected in the 2006 FEIS. This location is still projected to have the highest overall Project-generated truck traffic with the proposed traffic modifications and, therefore, provides a reasonable basis for assessing the effects of the Project on levels of $PM_{2.5}$ and PM_{10}.

The weekday AM (8 to 9 AM), weekday Midday (12 to 1 PM) and the weekday PM (5 to 6 PM) peak periods were selected for the mobile source analysis in this Technical Memorandum to represent the reasonable worst-case condition when considering total traffic volumes, Level of Service (LOS), and project-generated traffic at the intersections selected for analysis. The remainder of the modeling analysis used the same methodology as described in the 2006 FEIS.

In addition, EPA has made the following changes to the National Ambient Air Quality Standards (NAAQS) since the FEIS was issued in 2006:

- EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ and retaining the level of the annual standard at 15 $\mu g/m^3$. The PM_{10} 24-hour average standard was retained and the annual average PM_{10} standard was revoked. These changes do not affect the nonattainment status of New York City.
- EPA has revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective May 2008. On January 6, 2010, EPA proposed a further reduction in the 2008 ozone NAAQS, lowering the primary NAAQS to within the range of 0.060-0.070 ppm. EPA is also proposing a secondary standard, measured as a cumulative concentration within the range of 7-15 ppm-hours aimed mainly at protecting sensitive vegetation. EPA intends to complete this reconsideration of the 2008 ozone NAAQS by August 31, 2010. These changes do not affect the nonattainment status of New York City.
- EPA lowered the primary and secondary standards for lead to 0.15 $\mu g/m^3$, effective January 12, 2009. EPA revised the averaging time to a rolling 3-month average and the form of the standard to not-to-exceed across a 3-year span. This change does not affect the attainment status of New York City.
- On November 16, 2009, EPA proposed to establish a new 1-hour average SO_2 standard at a level between 0.050-0.100 ppm, replacing the current 24-hour and annual primary standards. The statistical form proposed is the 3-year average of the 4th highest daily maximum 1-hour average concentration in a year (the 4th highest daily maximum corresponds approximately to 99th percentile for a year). Since some monitors in New York City are within the proposed range, it is unclear what the status of the area will be at this time. EPA intends to issue a final decision on the SO_2 standard by June 2, 2010.
- EPA established a new 1-hour average NO_2 standard of 0.100 ppm, effective April 12, 2010, in addition to the current annual standard. The statistical form is the 3-year average of the 98th percentile of daily maximum 1-hour average concentration in a year. The existing monitoring data indicates background concentrations that are below the new standard.

However, it is unclear at this time what the City's future attainment status will be due to the need for additional near road monitoring required for the new standard. It is likely that New York City will be designated as "unclassifiable" at first (January 2012), and then classified once three years of monitoring data are available (2016 or 2017).

Regarding the new 1-hour average NO_2 standard, there is uncertainty at this time as to background levels, specifically for near-road conditions which are not yet monitored. No specific guidance exists at this time describing how this standard should be evaluated for mobile sources and for evaluating the ratio of NO_2:NO_x. Note that this is a change in standards—not a change in the project; no increase in emissions would result from the project changes.

Region wide, the project is projected to reduce NO_x emissions (including NO_2) due to the increase in the use of passenger rail and the ensuing reduction in on-road vehicles. Overall, NYSDEC is projecting lower future NO_x (including NO_2) concentrations due to existing plans for reducing emissions aimed at attaining the ozone standards. Overall, the project may result in some minor increases in local NO_2 concentrations, specifically near intersections where small increases in traffic volumes may occur, and HVAC emissions, which were screened out in 2006 FEIS as insignificant for the annual NO_2 standard (those emissions were 13 percent of the screening threshold). Some increments would occur due to construction engines as well in the immediate vicinity of the site.

EXISTING CONDITIONS

Receptors were placed at multiple sidewalk locations next to the intersection under analysis. The receptor with the highest predicted CO concentrations was used to represent this intersection site for the existing conditions. CO concentrations were calculated for each receptor location for each peak period specified above.

Table 16-1 shows the maximum modeled existing CO 8-hour average concentrations at the selected intersection of Eighth Avenue and West 33rd Street. At all time periods, the maximum predicted 8-hour average concentrations are lower than the 9 parts per million (ppm) NAAQS.

Table 16-1
Existing Maximum Projected 8-Hour Average Carbon Monoxide Concentrations (ppm)

2006 FEIS Site	Location	Time Period	Concentration
4	Eighth Avenue and West 33rd Street	Weekday AM	2.8
		Weekday MD	3.0
		Weekday PM	2.9

Notes:
8-hour CO standard is 9 ppm.
An adjusted ambient background concentration of 1.7 ppm is included in the existing values presented above.

NO BUILD CONDITION

CARBON MONOXIDE

CO concentrations without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-2** presents the maximum predicted 8-hour

average CO No Build concentrations at the selected analysis intersection in the Project study area. The values shown are the highest predicted concentrations.

Table 16-2
2015 Maximum Predicted 8-Hour Average Carbon Monoxide No Build Concentrations (ppm)

2006 FEIS Site	Location	Time Period	Concentration
4	Eighth Avenue and West 33rd Street	Weekday AM	2.7
		Weekday MD	2.9
		Weekday PM	2.9

Notes:
8-hour CO standard is 9 ppm.
An adjusted ambient background concentration of 1.7 ppm is included in the No Build values presented above.

As indicated in the table, the No Build concentrations are lower than the corresponding 9 ppm NAAQS.

PM_{10}

PM_{10} concentrations without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-3** presents the future maximum predicted 24-hour average PM_{10} concentration in the No Action Alternative at the selected analysis intersection in the Project study area: Ninth Avenue and West 31st Street. The values shown are the highest predicted concentrations for the receptor location. As indicated in the table, the No Build concentration is lower than the 150 $\mu g/m^3$ NAAQS.

Table 16-3
2015 Maximum Predicted 24-hour Average PM_{10} No Build Concentration ($\mu g/m^3$)

2006 FEIS Site	Location	Concentration
3	Ninth Avenue and West 31st Street	67.1

Note: 24-hour standard 150 $\mu g/m^3$. Includes background concentration of 60 $\mu g/m^3$.

FUTURE WITH THE PROJECT

CARBON MONOXIDE

CO concentrations with the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-4** presents the maximum predicted 8-hour average CO Build concentrations at the selected analysis intersection. The values shown are the highest predicted concentration for each of the time periods analyzed. Also shown in the table is the *de minimis* criteria used to determine the significance of the incremental increase in CO concentrations that would result from the Project. The *de minimis* criteria are derived using procedures outlined in the *CEQR Technical Manual* that set a significance threshold keyed to the change in 8-hour average CO concentrations due to the Project.

The results indicate that with the Project there would be no potentially significant adverse mobile source air quality impacts (i.e., *de minimis* criteria were not exceeded). In addition, in the

future without and the future with the Project, maximum predicted ambient CO concentrations at the intersection analyzed would be lower than the corresponding NAAQS.

Table 16-4
2015 Maximum Predicted 8-Hour Average Carbon Monoxide Build Concentrations (ppm)

2006 FEIS Site	Location	Time Period	Concentration[a]	Not-To-Exceed *De minimis* Criteria[b]
4	Eighth Avenue and West 33rd Street	Weekday AM	3.2	5.9
		Weekday MD	3.3	6.0
		Weekday PM	3.3	6.0

Notes:
[a] An adjusted ambient background concentration of 1.7ppm is included in the Project build values presented above.
[b] The not-to-exceed value is derived by adding the minimum acceptable increase of CO concentrations (set forth in the *CEQR Technical Manual*) to the No Build concentration.
8-hour CO standard is 9 ppm.

PM_{10}

PM_{10} concentrations with the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-5** presents the future maximum predicted 24-hour average concentrations at the selected analysis intersection. The value shown is the highest predicted concentration for the receptor locations analyzed. As indicated in the table, the Build concentrations are lower than the 150 µg/m^3 NAAQS.

Table 16-5
2015 Maximum Predicted PM_{10} Build Concentrations (µg/m^3)

2006 FEIS Site	Location	Concentration
3	Ninth Avenue and West 31st Street	67.2
Note: 24-hour standard 150 µg/m^3. Includes background concentration of 60 µg/m^3.		

$PM_{2.5}$

$PM_{2.5}$ concentrations with and without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. The results of this analysis are presented in **Table 16-6** for the 24-hour and annual time periods. As indicated in the table, the maximum predicted 24-hour and annual average increases in $PM_{2.5}$ concentrations are lower than the corresponding interim guidance levels. Therefore, the Project is not considered to have significant $PM_{2.5}$ impacts, and no additional modeling is required for this pollutant.

Table 16-6
2015 Maximum Predicted $PM_{2.5}$ Concentrations Increments ($\mu g/m^3$)

2006 FEIS Site	Location	Neighborhood Scale Annual Increment	Local 24-Hour Increment
3	Ninth Avenue and West 31st Street	0.007	0.02

Note:
$PM_{2.5}$ Interim Guidance Criteria:
Annual Average (Neighborhood Scale)—0.1 $\mu g/m^3$
24-Hour (Localized)—2-5.0 $\mu g/m^3$

C. PROJECT DESIGN CHANGES

Changes to the Project design in Phase 1 or Phase 2, under the Amtrak Station Option or the Open Station Option, would not affect the results of the 2006 FEIS air quality conclusions. ✷