Appendix 5
Air Quality

A. AIR QUALITY ANALYSIS RESULTS

INDIVIDUAL HEAT AND HOT WATER SYSTEMS

A summary of the results of the refined dispersion modeling analysis (Tier 1 and Tier 2) of development and enlargement sites is presented in Table 5-1 of this appendix. The table presents, for emissions from each development and enlargement site, the existing properties and/or proposed site(s) affected thereby, the maximum predicted concentrations of $PM_{2.5}$ and NO_2, and the type(s) of restrictions for the proposed (E) designation for these constituents. It also presents the maximum annual frequencies and annual average frequencies greater than 2 $\mu g/m^3$. Consistent with the refined analysis, the maximum predicted concentrations presented assume application of the proposed restrictions.

As shown in the table, the results of the analysis determined that maximum concentrations of NO_2 would be less than the annual and 1-hour NAAQS for all sites for which a refined modeling analysis was performed (excluding sites that would be restricted by an (E) designation to utilize Con Edison steam and potential enlargement sites that would be subject to DOB Code restrictions through (E) designations). The air quality modeling analysis also determined the highest predicted increase in $PM_{2.5}$ concentrations. The maximum projected $PM_{2.5}$ increments from the Proposed Action would be less than the applicable interim guidance criteria of 0.3 $\mu g/m^3$ on an annual basis and 5 $\mu g/m^3$ on a 24-hour average basis.

At 14 projected and potential sites (excluding sites that would be restricted by an (E) designation to utilize Con Edison steam and potential enlargement sites that would be subject to DOB restrictions), the maximum 24-hour average $PM_{2.5}$ incremental concentration was predicted to exceed the interim guidance criterion of 2 $\mu g/m^3$. Therefore, the $PM_{2.5}$ concentration increments with the Proposed Action were compared to the 24-hour average interim guidance criterion of 2 $\mu g/m^3$ for discrete receptor locations (see Section D. Air Quality Standards, Regulations Benchmarks for a description of the City's $PM_{2.5}$ interim guidance criteria). An assessment of the magnitude, duration, frequency, and extent of the increments at locations where exposure above the 2 µg/m3 threshold averaged over a 24-hour period could occur follows.

Projected Development Site 2 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 3.6 $\mu g/m^3$ from Projected Development Site 2 was predicted on the south façade of an existing transient hotel at 246 Spring Street at a height of 336 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was twice per year, with the average frequency of once per year, over five years. At the same elevation, on the south and west façades of the building, there were locations with incremental concentrations exceeding 2 $\mu g/m^3$ At these locations, 24-hour average incremental concentrations from Projected Development Site 2 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency ranging from one to two times per year, with an average frequency of less than two times per year. One other floor on this building was found to have

locations with incremental concentrations exceeding 2 µg/m^3, on the south façade at a height of 326 feet. At these locations, 24-hour average incremental concentrations from Projected Development Site 2 were predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year.

Projected Development Site 11 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.4 µg/m^3 from Projected Development Site 11 was predicted on the north façade of Projected Development Site 10 at a height of 110 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was twice per year, with the average frequency of less than once per year, over five years. At the same elevation, on the north and east façades of the building, there were locations with incremental concentrations exceeding 2 µg/m^3. At these locations, 24-hour average incremental concentrations from Projected Development Site 11 were predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year. One other building was found to have a location with incremental concentrations exceeding 2 µg/m^3, on the west façade of Projected Development Site 3 at a height of 110 feet. At this location, 24-hour average incremental concentration from Projected Development Site 11 was predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year.

Projected Development Site 12 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 3.0 µg/m^3 from Projected Development Site 12 was predicted on the south façade of Projected Development Site 3 at a height of 184 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the south façades of the building, there were locations with incremental concentrations exceeding 2 µg/m^3 At these locations, 24-hour average incremental concentrations from Projected Development Site 2 were predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than two times per year. One other building was found to have a location with incremental concentrations exceeding 2 µg/m^3, on the east façade of Projected Development Site 10 at a height of 184 feet. At this location, 24-hour average incremental concentration from Projected Development Site 12 was predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year.

Projected Development Site 15 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.6 µg/m^3 from Projected Development Site 15 was predicted on the south façade of an existing commercial building at 119 Varick Street at a height of 129 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was three times per year, with the average frequency of less than twice per year, over five years. At the same elevation, on the south façade of the building, there were locations with incremental concentrations exceeding 2 µg/m^3. At these locations, 24-hour average incremental concentrations from Projected Development Site 15 were predicted to exceed 2 µg/m^3 at a maximum frequency ranging from one to two times per year, with an average frequency of less than once per year.

Projected Development Site 16 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.8 µg/m^3 from Projected Development Site 16 was predicted on the east façade of Projected Enlargement Site 2 at a height of 198 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations

greater than 2 $\mu g/m^3$ was three times per year, with the average frequency of less than once per year, over five years. At the same elevation, on the east façade of the building, there was a location with incremental concentrations exceeding 2 $\mu g/m^3$. At this location, 24-hour average incremental concentrations from Projected Development Site 16 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency ranging from once per year, with an average frequency of less than once per year. One other floor on this building was found to have a location with incremental concentrations exceeding 2 $\mu g/m^3$, on the east façade at a height of 188 feet. At this location, 24-hour average incremental concentrations from Projected Development Site 16 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of twice per year, with an average frequency of less than once per year.

Potential Development Site 20 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 3.3 $\mu g/m^3$ from Potential Development Site 20 was predicted on the east façade of Projected Development Site 19 at a height of 110 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was twice per year, with the average frequency of once per year, over five years. At the same elevation, on the north and east façades of the building, there were locations with incremental concentrations exceeding 2 $\mu g/m^3$ At these locations, 24-hour average incremental concentrations from Potential Development Site 20 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of once per year, with an average frequency of less than once per year.

Potential Development Site 22 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 3.6 $\mu g/m^3$ from Potential Development Site 22 was predicted on the north façade of an existing transient hotel at 52 Watts Street at a height of 129 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was five times per year, with the average frequency of less than twice per year, over five years. At the same elevation, on the south façade of the building, there were locations with incremental concentrations exceeding 2 $\mu g/m^3$. At these locations, 24-hour average incremental concentrations from Potential Development Site 22 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency ranging from one to six times per year, with an average frequency ranging from less than once per year to less than four times per year.

Potential Development Site 23 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.4 $\mu g/m^3$ from Potential Development Site 23 was predicted on the west façade of an existing commercial building at 119 Varick Street at a height of 129 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was twice per year, with the average frequency of less than once per year, over five years. At the same elevation, on the west façade of the building, there was a location with incremental concentrations exceeding 2 $\mu g/m^3$. At this location, 24-hour average incremental concentrations from Potential Development Site 23 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of once per year, with an average frequency of less than once per year. One other building was found to have a location with incremental concentrations exceeding 2 $\mu g/m^3$, on the east façade of 250 Hudson Street at a height of 129 feet. At this location, 24-hour average incremental concentration from Potential Development Site 23 was predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of once per year, with an average frequency of less than once per year.

Projected Enlargement Site 2 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.5 $\mu g/m^3$ from Projected Enlargement Site 2 was predicted on the south façade of an existing hotel at 246 Spring Street at a height of 336 feet. At the location where the maximum 24-hour

average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the north and east façades of the building, there were locations with incremental concentrations exceeding 2 µg/m^3. At these locations, 24-hour average incremental concentrations from Projected Enlargement Site 2 were predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year. One other floor on this building was found to have locations with incremental concentrations exceeding 2 µg/m^3, on the north and east façade at a height of 326 feet. At these locations, 24-hour average incremental concentrations from Projected Enlargement Site 2 were predicted to exceed 2 µg/m^3 at a maximum frequency of twice per year, with an average frequency of less than once per year.

Projected Enlargement Site 3 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.8 µg/m^3 from Projected Enlargement Site 3 was predicted on the west façade of Potential Development Site 20 at a height of 103 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the west façade of the building, there were locations with incremental concentrations exceeding 2 µg/m^3. At these locations, 24-hour average incremental concentrations from Projected Development Site 2 were predicted to exceed 2 µg/m^3 at a maximum frequency ranging from one to six times per year, with an average frequency of less than two times per year. One other building was found to have locations with incremental concentrations exceeding 2 µg/m^3, on the north façade of Projected Development Site 19 at a height of 110 feet. At these locations, 24-hour average incremental concentrations from Projected Enlargement Site 3 were predicted to exceed 2 µg/m^3 at a maximum frequency ranging from once to twice per year, with an average frequency of less than once per year.

Potential Enlargement Site 5 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.5 µg/m^3 from Potential Enlargement Site 5 was predicted on the east façade of an existing commercial building at 161 Avenue of the Americas at a height of 90 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the east façade of the building, there were locations with incremental concentrations exceeding 2 µg/m^3. At these locations, the 24-hour average incremental concentrations from Potential Enlargement Site 5 were predicted to exceed 2 µg/m^3 at a maximum frequency of once per year, with an average frequency of less than once per year. One other floor on this building was found to have locations with incremental concentrations exceeding 2 µg/m^3, on the east façade at a height of 100 feet. At these locations, 24-hour average incremental concentrations from Potential Enlargement Site 5 were predicted to exceed 2 µg/m^3 at a maximum frequency ranging from once to twice per year, with an average frequency of less than once per year.

Potential Enlargement Site 11 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.8 µg/m^3 from Potential Enlargement Site 11 was predicted on the south façade of Projected Development Site 2 at a height of 110 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 µg/m^3 was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the south façade of the building, there was a location with incremental concentrations exceeding 2 µg/m^3 At this location, 24-hour average incremental concentrations

from Potential Enlargement Site 11 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of once per year, with an average frequency of less than once per year.

Potential Enlargement Site 13 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.7 $\mu g/m^3$ from Potential Enlargement Site 13 was predicted on the south façade of Projected Development Site 2 at a height of 90 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was twice per year, with the average frequency of less than once per year, over five years.

Potential Enlargement Site 15 - The maximum 24-hour average incremental $PM_{2.5}$ concentration of 2.3 $\mu g/m^3$ from Projected Enlargement Site 15 was predicted on the south façade of Projected Development Site 19 at a height of 110 feet. At the location where the maximum 24-hour average concentration was predicted, the maximum annual frequency of concentrations greater than 2 $\mu g/m^3$ was once per year, with the average frequency of less than once per year, over five years. At the same elevation, on the south façade of the building, there was a location with incremental concentrations exceeding 2 $\mu g/m^3$. At this location, 24-hour average incremental concentrations from Projected Development Site 2 were predicted to exceed 2 $\mu g/m^3$ at a maximum frequency of once per year, with an average frequency of less than once per year.

ADDITIONAL SOURCE ANALYSIS

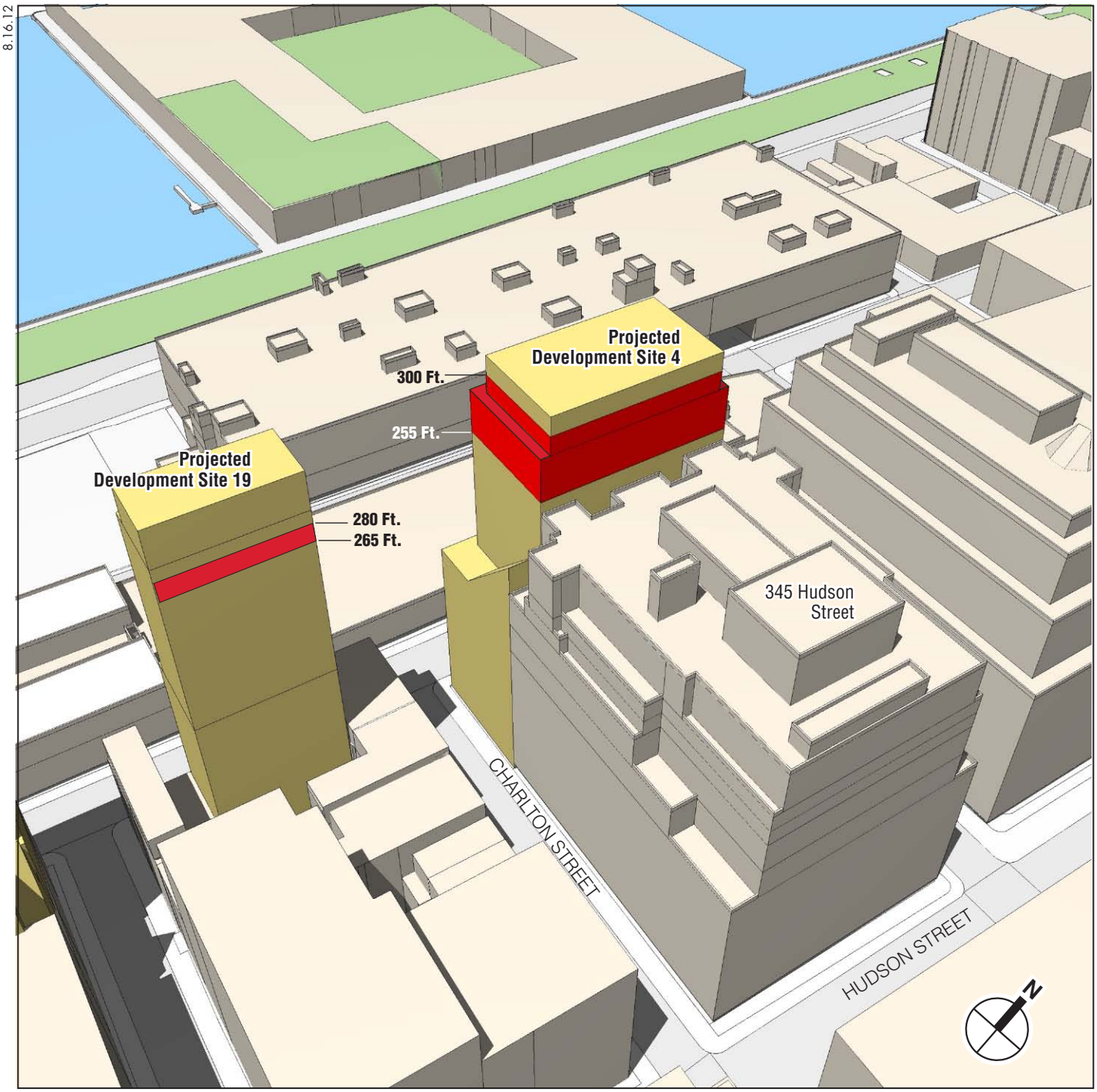
A summary of the results of the refined dispersion modeling analysis of existing sources on affected development and enlargement sites are presented in Table 5-2 of this appendix. The table presents, for each affected development and enlargement site, the maximum predicted concentrations of $PM_{2.5}$, NO_2 and SO_2, and the type(s) of restrictions for the proposed (E) designation for these constituents. Consistent with the refined analysis, the maximum predicted concentrations presented assume application of the proposed restrictions.

As shown in the table, the results of the analysis determined that maximum concentrations of NO_2 would be less than the annual and 1-hour NO_2 NAAQS and maximum concentrations of SO_2 would be less than the 1-hour SO_2 NAAQS for all sites for which a modeling analysis was performed due to existing sources.

The air quality modeling analysis also determined the highest predicted increase in $PM_{2.5}$ concentrations. The maximum projected $PM_{2.5}$ increments from the Proposed Action would be less than the applicable interim guidance criteria of 0.3 $\mu g/m^3$ on an annual basis and 5 $\mu g/m^3$ on a 24-hour average basis. In addition, $PM_{2.5}$ incremental concentrations from existing sources were predicted to be less than 2.0 $\mu g/m^3$ for five of the seven development and enlargement sites analyzed. At the two enlargement sites where the maximum 24-hour average incremental $PM_{2.5}$ concentration was predicted to exceed 2.0 $\mu g/m^3$, the maximum predicted concentration was no greater than 2.2 $\mu g/m^3$, and the maximum frequency was once per year over five years. Therefore, the magnitude, frequency and extent of these impacts are considered to be very low.

The results of the analysis of existing buildings determined that certain restrictions would be necessary for each of the seven affected development and enlargement sites (Projected Development Sites 1, 4, 6, 16 and 19, Potential Development Site 24, and Enlargement Site 2) with respect to the placement of operable windows and air intakes. The affected areas of the sites are shown in **Figure 5-1** (Projected Developments Site 4 and 19), **Figure 5-2** (Projected Development Site 6 and Potential Development Site 24), **Figure 5-3** (Projected Enlargement Site 2 and Projected Development Site 16), and **Figure 5-4** (Projected Development Site 1). An (E) designation would be assigned

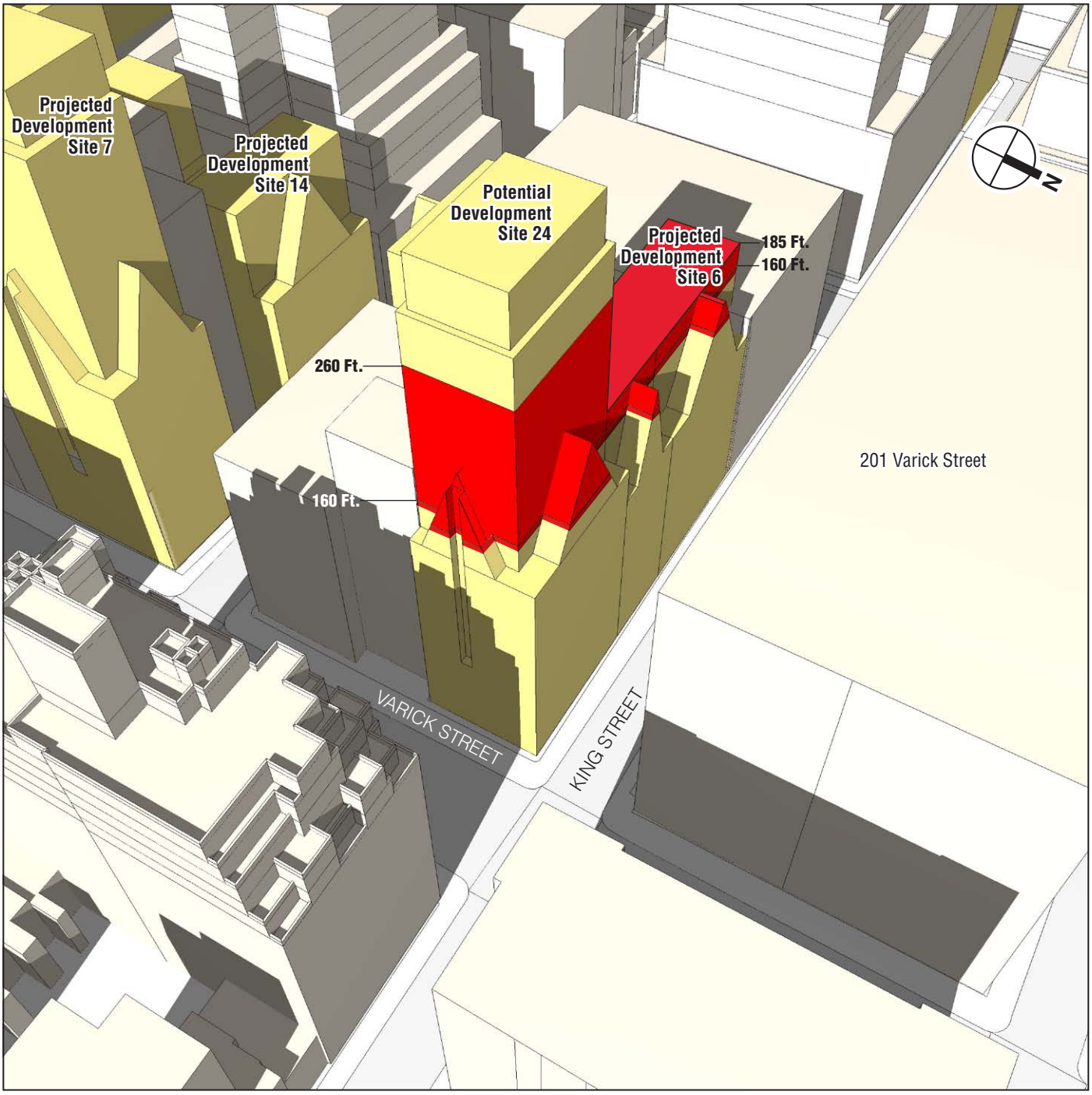
8.16.12



Area where no operable windows or air intakes would be permitted
(North, east and south facades on Projected Development Site 4)
(North, east, and west facades on Projected Development Site 19)

Projected Development Site 4
Figure 5-1

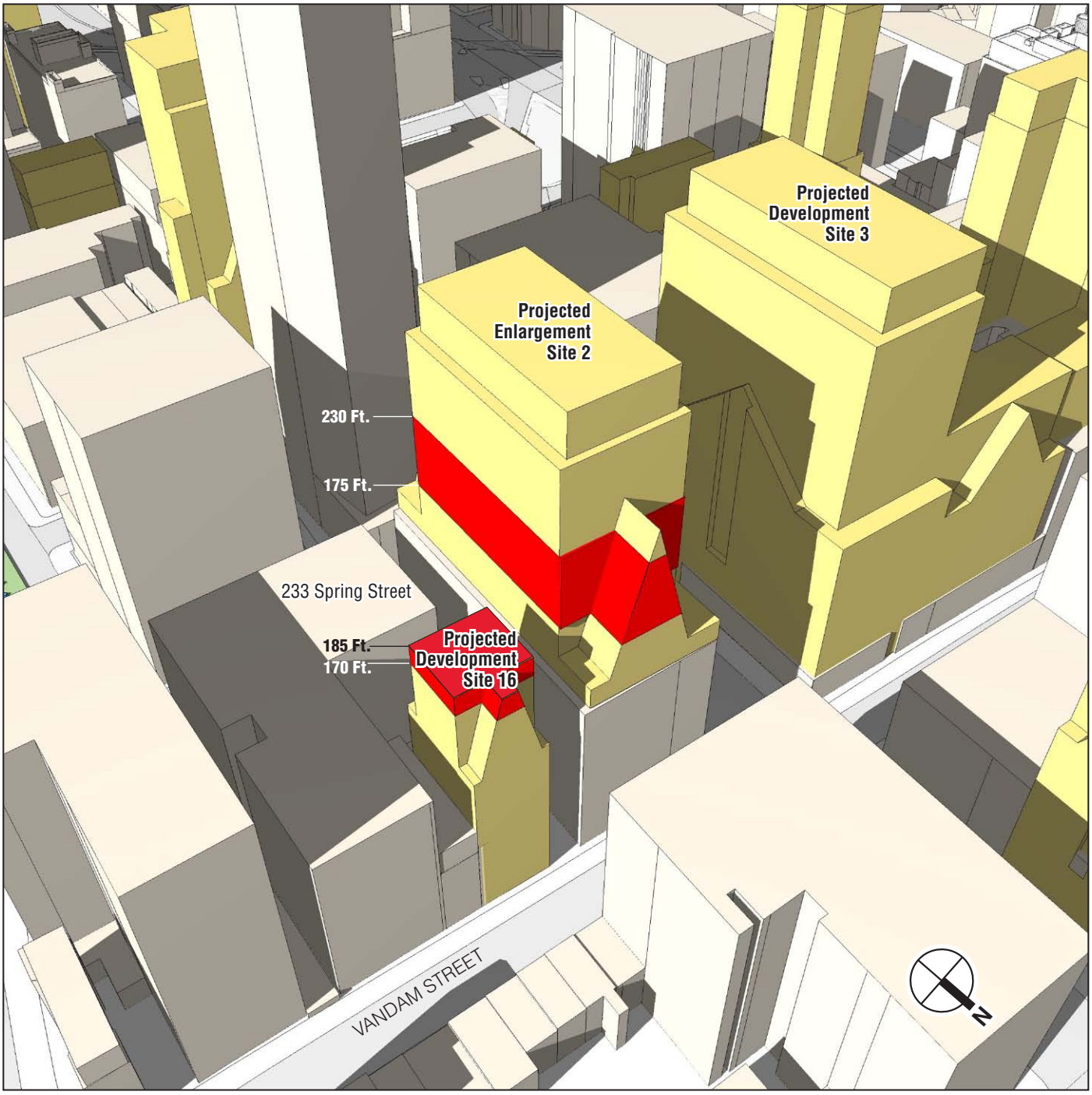
8.16.12



Area where no operable windows or air intakes would be permitted (North, east, and west facades on Projected Development Site 6 and Potential Development Site 24)

Projected Development Site 6
and Potential Develoment Site 24
Figure 5-2

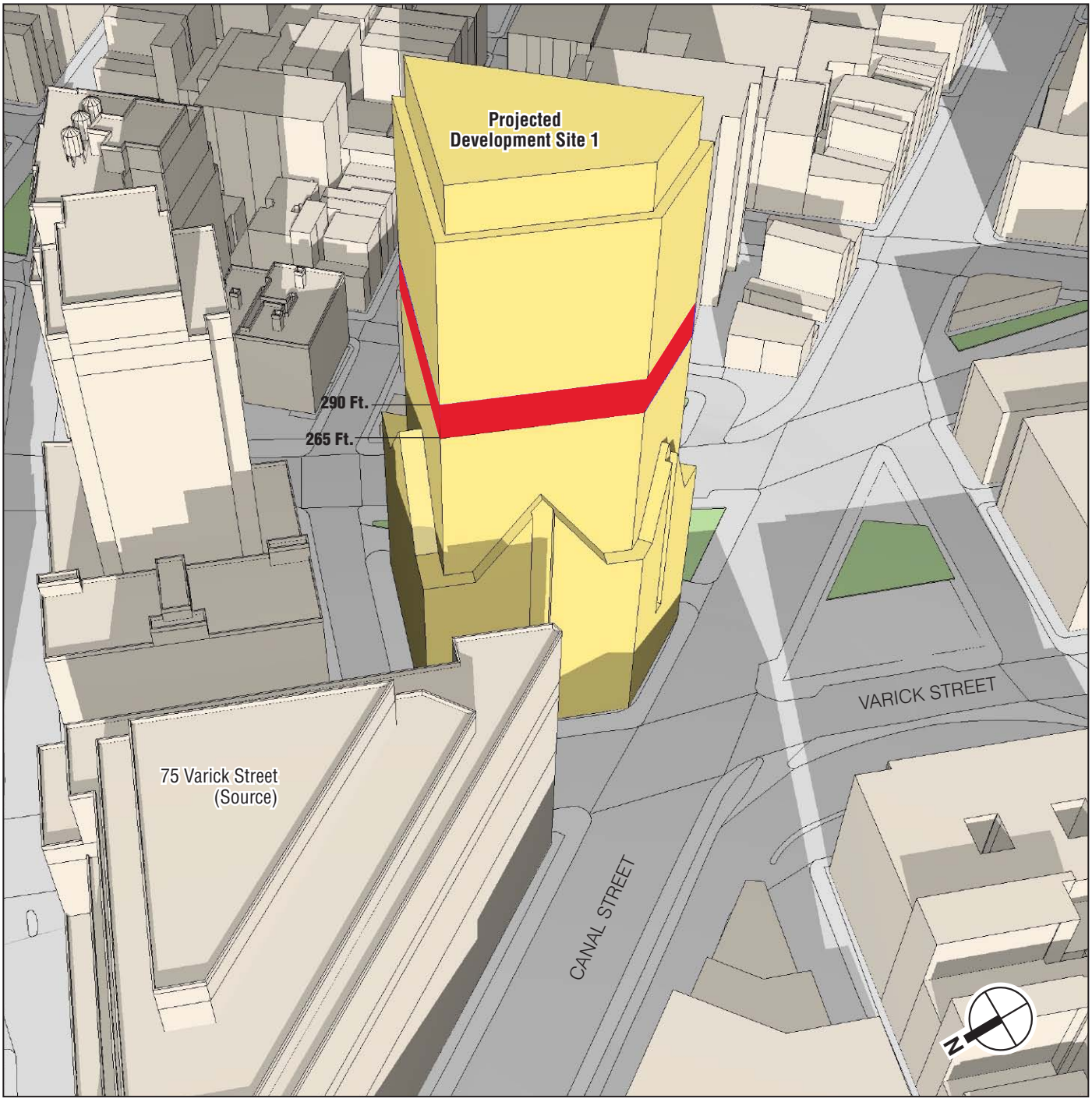
8.16.12



Area where no operable windows or air intakes would be permitted (North east, and south facades on Projected Enlargement Site 2 and Projected Development Site 16)

Projected Enlargement Site 2
and Projected Development Site 16
Figure 5-3

8.8.12



Area where no operable windows or intakes would be permitted
(North, west and south facades on Projected Development Site 1)

Projected Development Site 1
Figure 5-4

to these sites as part of the Proposed Action to enforce the restrictions on these projected and potential sites, as discussed in Section B of this appendix.

B. PROPOSED TEXT FOR SITES REQUIRING AIR QUALITY (E) DESIGNATIONS

As discussed in Chapter 14, "Air Quality", the stationary source analysis determined that at certain projected and potential development or enlargement sites, environmental requirements would be necessary to ensure that emissions from the sites' heat and hot water systems would not result in a significant adverse impact and/or to ensure that emissions from nearby existing sources of emissions would not result in a significant adverse impact on the development site. At these sites, (E) designations (E-288) would be mapped as part of the Proposed Action to ensure that the developments would not result in any significant air quality impacts from heat and hot water systems emissions due to individual or groups of development sites.

The requirements of the (E) designations resulting from the air quality analyses would be as follows:

Projected Development Sites:

Block 226, Lot 1 (Projected Development Site 1)

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 75 Varick Street, no operable windows or air intakes on the northern, western, and southern facades of Block 226, Lot 1 would be permitted between a height of 265 feet and 290 feet above grade .

Block 491, Lot 3 (Projected Development Site 2)

Any new residential and/or commercial development on Block 491, Lot 3 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and fire only natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 110 feet away from the lot line facing Dominick Street.

Block 579, Lots 60, 68, 70, 74 (Projected Development Site 3)

Any new residential and/or commercial development on Block 579, Lots 60, 68, 70, and 74 must ensure that only utility steam from Con Edison is used for the heating system boilers, except.

Block 598, Lots 42, 48 (Projected Development Site 4)

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 345 Hudson Street, no operable windows or air intakes on the northern, eastern, and southern facades of Block 598, Lots 42, 48 would be permitted between a height of 255 feet and 300 feet above grade .

Block 477, Lots 35, 42, 44, 76 (Projected Development Site 5)

Any new residential and/or commercial development on Block 477, Lots 35, 42, 44, and 76 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas.

Block 580, Lot 52 (Projected Development Site 6)

Any new residential and/or commercial development on Block 580, Lot 52 must ensure that only utility steam from Con Edison is used for the heating system boilers.

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 201 Varick Street, no operable windows or air intakes on the northern, eastern, and western facades of Block 580, Lot 52 would be permitted above a height of 160 feet above grade.

Block 597, Lot 10 (Projected Development Site 8)

Any new residential and/or commercial development on Block 597, Lot 10 must ensure that only utility steam from Con Edison is used for the heating system boilers.

Block 579, Lot 5 (Projected Development Site 11)

Any new residential and/or commercial development on Block 579, Lot 5 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas and that the stack(s) shall be located at the highest rooftop of the building and at least 55 feet away from the lot line facing Dominick Street.

Block 579, Lot 35 (Projected Development Site 12)

Any new residential and/or commercial development on Block 579, Lot 35 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 100 feet away from the lot line facing Hudson Street and at least 135 feet away from the lot line facing Spring Street.

Block 580, Lot 11 (Projected Development Site 14)

Any new residential and/or commercial development on Block 580, Lot 11 must ensure that only utility steam from Con Edison is used for the heating system boilers.

Block 578, Lot 75 (Projected Development Site 15)

Any new residential and/or commercial development on Block 578, Lot 75 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 70 feet away from the lot line facing Dominick Street.

Block 505, Lot 14 (Projected Development Site 16)

Any new residential and/or commercial development on Block 505, Lot 14 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and fire only natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 45 feet away from the lot line facing Varick Street.

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 233 Spring Street, no operable windows or air intakes on the northern, eastern, and southern facades of Block 505, Lot 14 would be permitted above a height of 170 feet above grade.

Block 491, Lot 7502 (Projected Development Site 18)

Any new residential and/or commercial development on Block 491, Lot 7502 must ensure that only natural gas is used as fuel for the heating system boilers.

Block 598, Lot 58 (Projected Development Site 19)

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 345 Hudson Street, no operable windows or air intakes on the northern, eastern, and western facades of Block 598, Lot 58 would be permitted between a height of 265 feet and 280 feet above grade.

Potential Development Sites:

Block 597, Lot 46 (Potential Development Site 20)

Any new residential and/or commercial development on Block 597, Lot 46 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 45 feet away from the lot line facing Greenwich Street and at least 95 feet away from the lot line facing Vandam Street.

Block 477, Lots 72, 73, 74, 75 (Potential Development Site 22)

Any new residential and/or commercial development on Block 477, Lots 72, 73, 74, and 75 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 70 feet away from the lot line facing Avenue of Americas.

Block 578, Lots 77, 78, 79 (Potential Development Site 23)

Any new residential and/or commercial development on Block 578, Lots 77, 78, and 79 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 65 feet away from the lot line facing Dominick Street, and at least 60 feet away from the lot line facing Varick Street.

Block 580, Lot 60 (Potential Development Site 24)

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 201 Varick Street, no operable windows or air intakes on the northern, eastern, and western facades of Block 580, Lot 60 would be permitted between a height of 160 feet and 260 feet above grade.

Projected Enlargement Sites:

Block 579, Lot 47 (Projected Enlargement Site 1)

Any new residential and/or commercial development on Block 579, Lot 47 must ensure that only natural gas is used as fuel for the heating system boilers.

Block 505, Lot 1 (Projected Enlargement Site 2)

Any new residential and/or commercial development on Block 505, Lot 1 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 170 feet away from the lot line facing Spring Street.

To preclude the potential for significant adverse air quality impacts from the heating and hot water systems boilers at 233 Spring Street, no operable windows or air intakes on the northern, eastern, and southern facades of Block 505, Lot 1 would be permitted between a height of 175 feet and 230 feet above grade.

Block 597, Lot 45 (Projected Enlargement Site 3)

Any new residential and/or commercial development on Block 597, Lot 45 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 70 feet away from the lot line facing Hudson Street and at least 45 feet away from the lot line facing Vandam Street.

Potential Enlargement Sites:

Block 598, Lots 42 and 48 (Potential Enlargement Site 4)

Any new residential and/or commercial development on Block 598, Lots 42 and 48 must ensure that fossil fuel-fired equipment meets applicable Department of Building Code provisions regarding the placement of exhausts to ensure they are equal to or taller than operable windows or air intakes on adjacent buildings.

Block 505, Lot 26 (Potential Enlargement Site 5)

Any new residential and/or commercial development on Block 505, Lot 26 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 80 feet away from the lot line facing Spring Street.

Block 597, Lot 32 (Potential Enlargement Site 6)

Any new residential and/or commercial development on Block 597, Lot 32 must ensure that fossil fuel-fired equipment meets applicable Department of Building Code provisions regarding the placement of exhausts to ensure they are equal to or taller than operable windows or air intakes on adjacent buildings.

Block 597, Lot 33 (Potential Enlargement Site 7)

Any new residential and/or commercial development on Block 597, Lot 33 must ensure that fossil fuel-fired equipment meets applicable Department of Building Code provisions regarding the placement of exhausts to ensure they are equal to or taller than operable windows or air intakes on adjacent buildings.

Block 597, Lot 50 (Potential Enlargement Site 8)

Any new residential and/or commercial development on Block 597, Lot 50 must ensure that fossil fuel-fired equipment meets applicable Department of Building Code provisions regarding the placement of exhausts to ensure they are equal to or taller than operable windows or air intakes on adjacent buildings.

Block 597, Lot 52 (Potential Enlargement Site 9)

No operable lot line windows on the western facade of Block 597, Lot 52 would be permitted.

Any new residential and/or commercial development on Block 597, Lot 52 must ensure that fossil fuel-fired equipment meets applicable Department of Building Code provisions

regarding the placement of exhausts to ensure they are equal to or taller than operable windows or air intakes on adjacent buildings.

Block 597, Lot 51 (Potential Enlargement Site 10)

Any new residential and/or commercial development on Block 597, Lot 51 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 20 feet away from the lot line facing Hudson Street.

Block 491, Lot 1 (Potential Enlargement Site 11)

Any new residential and/or commercial development on Block 491, Lot 1 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 45 feet away from the lot line facing Dominick.

Block 491, Lot 26 (Potential Enlargement Site 12)

Any new residential and/or commercial development on Block 491, Lot 26 must ensure that only natural gas is used as fuel for the heating system boilers.

Block 491, Lot 27 (Potential Enlargement Site 13)

Any new residential and/or commercial development on Block 491, Lot 27 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 25 feet away from the lot line facing Dominick Street.

Block 578, Lot 70 (Potential Enlargement Site 14)

Any new residential and/or commercial development on Block 578, Lot 70 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas, and that the stack(s) shall be located at the highest rooftop of the building and at least 25 feet away from the lot line facing Hudson Street.

Block 597, Lot 37 (Potential Enlargement Site 15)

Any new residential and/or commercial development on Block 597, Lot 37 must ensure that the heating system boilers be fitted with low NO_x (30 ppm) burners and only fire natural gas.

No operable lot line windows on the eastern facade of Block 597, Lot 37 would be permitted.

Table 5-1
New and Enlarged Building Sources - Refined Modeling Results [1,2,3]

Source	Block	Lots	Affected Site(s)	24-Hour PM2.5 Analysis (Interim Guidance Criteria: 2 µg/m³; 5 µg/m³ not-to-exceed value)					Annual PM2.5 Analysis (Interim Guidance Criteria = 0.30 µg/m3)	Annual NO2 Analysis (NAAQS = 100 µg/m3)	1-Hour NO2 Analysis (NAAQS = 188 µg/m³)	
				Analysis Approach [5]	Maximum Predicted Concentration (µg/m³)	Maximum Annual Frequency >2 µg/m³	Annual Average Frequency >2 µg/m³ (Over 5 Years)	Proposed (E) Designation [8]	Maximum Predicted Concentration (µg/m³)	Maximum Predicted Concentration including Background (µg/m³) [6]	Maximum Predicted Concentration including Background (µg/m³)	Proposed Additional (E) Designation [8]
The values in this table are reflective of the implementation of the proposed (E) designations												
Projected 2 [4]	491	3	Trump Soho Hotel	*Tier 2*	*3.6*	*2*	*1.0*	(a), (b)	0.09	68.6	172.7	(d)
Projected 5	477	35, 42, 44, 76	--	Tier 1	1.96	--	--	(a)	0.06	68.3	148.9	(d)
Projected 11	579	5	Projected 10, 12	Tier 1	2.4	2	0.6	(a), (b)	0.07	68.4	163.2	(d)
Projected 12	579	35	Projected 3, 10	*Tier 2*	*3.0*	*1*	*0.6*	(a), (b)	0.06	68.2	181.5	(d)
Projected 15	578	75	Existing Commercial Building	Tier 1	2.6	3	1.4	(a), (b)	0.09	68.6	154.3	(d)
Projected 16	505	14	Projected Enlargement 2	*Tier 2*	*2.8*	*3*	*0.8*	(a), (b)	0.10	68.7	184.9	(d)
Projected 18	491	7502	--	Tier 1	1.5	--	--	(a)	0.05	68.2	184.3 [7]	--
Potential 20	597	46	Projected 19	*Tier 2*	*3.3*	*2*	*1.0*	(a), (b)	0.10	68.7	176.5	(d)
Potential 22	477	72, 73, 74, 75	Existing Hotel	*Tier 2*	*3.6*	*6*	*3.4*	(a), (b)	0.12	68.9	171.7	(d)
Potential 23	578	77, 78, 79	Existing Commercial Buildings	Tier 1	2.4	2	0.6	(a), (b)	0.06	68.3	153.6	(d)
Proj. Enlargement 1 [4]	579	47	--	Tier 1	1.6	--	--	(a)	0.07	68.3	162.0 [7]	--
Proj. Enlargement 2	505	1	Trump Soho Hotel	Tier 1	2.5	2	0.8	(a), (b)	0.05	68.2	153.5	(d)
Proj. Enlargement 3	597	45	Projected 19, Potential 20	Tier 1	2.8	6	1.8	(a), (b)	0.08	68.5	185.3	(d)
Pot. Enlargement 5	505	26	Existing Commercial Building	Tier 1	2.5	2	0.8	(a), (b)	0.07	68.4	180.0	(d)
Pot. Enlargement 10	597	51	Potential Enlargement 9	*Tier 2*	*1.6*	--	--	(a), (b), (c)	0.06	68.3	144.2	(d)
Pot. Enlargement 11	491	1	Projected 2	*Tier 2*	*2.8*	*1*	*0.4*	(a), (b)	0.10	68.7	172.1	(d)
Pot. Enlargement 12	491	26	--	Tier 1	1.9	--	--	(a)	0.02	67.9	169.8 [7]	--
Pot. Enlargement 13	491	27	Projected 2	*Tier 2*	*2.7*	*2*	*0.8*	(a), (b)	0.07	68.4	142.6	(d)
Pot. Enlargement 14	578	70	Projected 15	*Tier 2*	*1.9*	--	--	(a), (b), (c)	0.03	68.0	153.1	(d)
Pot. Enlargement 15	597	37	Projected 19	*Tier 2*	*2.3*	*1*	*0.4*	(a)	0.09	68.6	183.4	(d)

Notes:
[1] SO2 impacts were not analyzed since sites would be restricted to natural gas or Con Edison Steam under proposed (E) Designations.
[2] Potential Enlargement Sites 4, 6, 7, 8, and 9 where the provisions of the existing DOB Code are more stringent than the contemplated (E) Designation requirements are not included in this table.
[3] The values for development sites (Projected Development Sites 3, 6, 8, and 14) with Con Edison steam restrictions are not shown in this table because with the Con Edison steam restriction, there would be no impact.
[4] Applicant Site
[5] 24-Hour $PM_{2.5}$ Analysis Approach - Tier 1 approach is based on an annual energy consumption factor, which is then conservatively converted to a daily energy consumption rate assuming a 100 day heating season and includes emissions from the No Action scenario; Tier 2 approach is based on examination of the number of heating and cooling degree-days based on historical data available for New York City and excludes the incremental $PM_{2.5}$ concentrations associated with the No Action scenario.
[6] The values shown for Annual NO_2 Analysis are reflective of the implementation of fuel restriction and/or stack location restriction only and without the use of low NOx burner.
[7] The values shown for Development Site 18, Potential Enlargement 1, and Potential Enlargement 12 are reflective of the implementation of fuel restriction only and without the use of low NOx burner.
[8] Proposed (E) Designations:
(a) Fuel Type Restriction (Natural Gas)
(b) Stack Location Restriction
(c) Prohibition on Operable Windows on Certain Lot Line(s) at Affected Site
(d) Low NOx (30 ppm) Burner Restriction

Table 5-2
Existing Building Sources - Refined Modeling Results

Source	Source Block	Source Lot	Affected Site	Affected Site Maximum Development Height (feet)	Proposed (E) Designations - Elevations where Operable Window or Air Intake are not Permitted (feet)	24-Hour $PM_{2.5}$ Analysis (Maximum Predicted Conc. (µg/m3) <Interim Guidance Criteria: 2 µg/m3; 5 µg/m3 not-to-exceed value>	24-Hour $PM_{2.5}$ Analysis Maximum Annual Frequency >2 $µg/m^3$	24-Hour $PM_{2.5}$ Analysis Annual Average Frequency >2 $µg/m^3$ (Over 5 Years)	Annual PM2.5 Analysis Maximum Predicted Conc. (µg/m3) <Interim Guidance Criteria = 0.3 µg/m3>	1-Hour NO_2 Analysis Maximum Predicted Conc. (µg/m3) <NAAQS = 188 µg/m3>	Annual NO2 Analysis Maximum Predicted Conc. (µg/m3) <NAAQS = 100 µg/m3>	1-Hour SO_2 Analysis Maximum Predicted Conc. (µg/m3) <NAAQS = 196 µg/m3>
The values shown in this table are with the implementation of the proposed (E) designations.												
Existing Source (75 Varick St)	226	1	Projected 1 [1]	430	265 to 290 (North, West, and South Facades)	2.2	1	0.2	0.11	176.5	69.7	79.7
Existing Source (345 Hudson St)	598	58	Projected 4 [1]	320	255 to 300 (North, East, and South Facades)	2.1	1	0.2	0.05	156.9	68.6	79.6
Existing Source (201 Varick St)	581	1	Projected 6	185	160 and up (North, East, and West Facades)	0.7	-	-	0.07	162.7	69.9	102.7
Existing Source (233 Spring St)	505	36	Projected 16	185	170 and up (North, East, and South Facades)	0.7	-	-	0.07	124.6	68.2	124.1
Existing Source (345 Hudson St)	598	58	Projected 19	320	265 to 280 (North, East, and West Facades)	1.6	-	-	0.04	154.5	68.4	79.3
Existing Source (201 Varick St)	581	1	Potential 24	320	160 to 260 (North, East, and West Facades)	1.6	-	-	0.11	176.3	69.9	133.7
Existing Source (233 Spring St)	505	36	Projected Enlargement 2	320	175 to 230 (North, East, and South Facades)	1.5	-	-	0.13	172.6	68.6	182.5

Notes:
[1] Applicant Site