Chapter 17: Public Health

A. INTRODUCTION

This chapter assesses the potential for the Proposed Actions to affect public health. As defined by the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, public health is the organized effort of society to protect and improve the health and well-being of the population through monitoring; assessment and surveillance; health promotion; prevention of disease, injury, disorder, disability, and premature death; and reducing inequalities in health status. The goal of CEQR with respect to public health is to determine whether adverse impacts on human health may occur as a result of a Proposed Project and, if so, to identify measures to mitigate such effects. The potential effects of the Proposed Actions were considered with regard to effects on the surrounding community.

The *CEQR Technical Manual* states that a public health assessment is warranted for a specific technical area if there is a significant adverse impact found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. As described in Chapter 14 of this Environmental Impact Statement (EIS), "Air Quality," the mobile source analysis determined that the maximum annual incremental particulate matter ($PM_{2.5}$) concentration is predicted to exceed the annual *de minimis* criterion at two intersection locations, therefore the Proposed Actions have the potential to result in a significant adverse air quality impact. In addition, as discussed in Chapter 19, "Construction," construction pursuant to the Proposed Actions has the potential to result in construction noise levels that exceed *CEQR Technical Manual* construction noise thresholds as well as result in "objectionable" and "very objectionable" noise level increases at receptors throughout the surrounding area. Therefore, this chapter provides a public health assessment of air quality and construction-period noise. As described in the relevant analyses of this EIS, the Proposed Actions would not result in significant unmitigated adverse impacts in any of the other technical areas related to public health

PRINCIPAL CONCLUSIONS

An analysis of the Proposed Actions' potential effects on public health was conducted based on the methodology set forth in the *CEQR Technical Manual*. The analyses presented in this EIS concluded that the Proposed Actions would not result in unmitigated significant adverse impacts in the areas of water quality, hazardous materials, or operational noise.

The analysis presented in Chapter 14, "Air Quality," determined that the Proposed Actions would result in a significant adverse impact at two intersection locations related to particulate matter ($PM_{2.5}$). The maximum annual incremental $PM_{2.5}$ concentration with the proposed traffic mitigation measures is not predicted to exceed the CEQR *de minimis* criterion at the intersection of 35th Avenue and 41st Street, as shown in Table 20-13 of Chapter 20, "Mitigation." However, the maximum annual incremental $PM_{2.5}$ concentration with the proposed traffic mitigation is predicted to exceed the *de minimis* criterion at the intersection of Northern Boulevard and 43rd Street/42nd Place. The affected areas near this intersection are primarily used by transient users

(pedestrians). Therefore, the overall exposure to the predicted $PM_{2.5}$ exceedances at the affected locations near this intersection would be brief, and this exposure would be below the short-term (24-hour) $PM_{2.5}$ *de minimis* criterion. In addition, the Proposed Actions would not contribute to or exacerbate a violation of the $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) even with the very conservative assumptions relating to traffic, vehicle emissions, meteorology, and background $PM_{2.5}$ concentration levels used in this analysis. Therefore, the exceedances of the $PM_{2.5}$ *de minimis* criterion on an annual basis would not constitute a significant adverse impact on public health.

The analysis presented in Chapter 19, "Construction," determined that construction activities would result in unmitigated significant adverse construction-period noise impacts at receptors in the vicinity of the Project Area, including at Projected Development Sites that are completed and occupied while other nearby or adjacent Projected Development Sites are under construction. However, construction resulting from the Proposed Actions would not result in chronic exposure to high levels of noise, prolonged exposure to noise levels above 85 dBA, or episodic and unpredictable exposure to short-term impacts of noise at high decibel levels, as per the *CEQR Technical Manual*. Consequently, construction activities resulting from the Proposed Actions would not result in a significant adverse public health impact.

B. METHODOLOGY

AIR QUALITY

A quantified assessment of emissions from traffic generated by the Proposed Actions was performed for to evaluate the potential air quality impacts, as described in Chapter 14, "Air Quality." The *CEQR Technical Manual* thresholds for particles with an aerodynamic diameter less than 2.5 microns in diameter ($PM_{2.5}$) include NAAQS. The NAAQS represent levels that are requisite to protect the public health, allowing an adequate margin of safety. In addition, *de minimis* criteria, which for annual average $PM_{2.5}$ is quantified based on the incremental change in concentrations, is used to determine the potential for significant adverse $PM_{2.5}$ impacts under CEQR.

CONSTRUCTION NOISE

The construction noise analysis presented in Chapter 19, "Construction," was used to identify the extent of the potential construction-period noise exposure to the public as a result of the Proposed Actions. The *CEQR Technical Manual* thresholds for construction noise are based on quality-of-life considerations (e.g., noise level increases that could be perceived as noticeable, objectionable, or very objectionable, and the duration of those noise level increases). In this chapter, the potential for the construction-period noise exposure identified in Chapter 19, "Construction," to affect the health of the affected population is evaluated based on relevant health-based noise criteria (e.g., noise levels that have the potential to affect an individual's physical health). These criteria as identified in the *CEQR Technical Manual*, include chronic exposure to high levels of noise, prolonged exposure to noise levels above 85 dBA, and episodic and unpredictable exposure to short-term impacts of noise at high decibel levels.

C. PUBLIC HEALTH ASSESSMENT

AIR QUALITY

INTRODUCTION

The maximum annual incremental $PM_{2.5}$ concentration with the proposed traffic mitigation measures is not predicted to exceed the CEQR *de minimis* criterion at the intersection of 35th Avenue and 41st Street, as shown in Table 20-13 of Chapter 20, "Mitigation." However, the maximum annual incremental $PM_{2.5}$ concentration with the proposed traffic mitigation is predicted to exceed the *de minimis* criterion at the intersection of Northern Boulevard and 43rd Street/42nd Place. No other exceedances of air quality standards (i.e., the National Ambient Air Quality Standards [NAAQS], the New York City carbon monoxide *de minimis*, or the New York State Department of Environmental Conservation [DEC] 24-hour particulate matter *de minimis*) were projected as a result of the Proposed Actions. Therefore, this section focuses on the potential public health effects related to annual incremental $PM_{2.5}$ concentrations with the Proposed Actions.

LIMITATIONS OF DISPERSION MODELS

Chapter 14, "Air Quality," provides the results of microscale analyses that evaluated the potential effect of the Proposed Actions on air pollutant concentrations at critical intersections from the emission of pollutants from mobile sources and their dispersion in the surrounding areas. The emissions and dispersion models utilized available traffic data from different periods of the day; however, for certain periods of the day where traffic data was not available (e.g., overnights, weekend off-peak periods), traffic model outputs from the most representative periods were used in the air quality analysis, which resulted in some hours of the 24-hour weekday and weekend periods utilizing more conservative traffic conditions.

Furthermore, as described in that chapter, the air pollutant dispersion models used in the analysis mathematically simulate how vehicle characteristics, meteorology, and physical configuration combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to predict an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and since it is necessary to predict the reasonable worst-case condition for regulatory purposes, most dispersion analyses predict conservatively high concentrations of pollutants, particularly under adverse meteorological conditions.

POTENTIAL AREA OF IMPACT

The predicted increase in annual average $PM_{2.5}$ concentrations is determined at a distance of 15 meters (approximately 50 feet) from a roadway corridor, which is similar to the minimum distance defined for locating neighborhood scale monitoring stations. The potential exceedances would be limited to the immediate areas around this intersection, on the north and south side of Northern Boulevard. The areas with modeled exceedances of the *de minimis* criterion include the sidewalk locations at the affected intersection and the immediate surroundings and are comprised of surface parking and retail and commercial buildings. The affected areas are primarily used by transient users (pedestrians), therefore, the overall exposure to the predicted $PM_{2.5}$ exceedances at the affected locations near this intersection would be brief, and this exposure would be below the short-term (24-hour) $PM_{2.5}$ *de minimis* criterion. Because the areas affected represent a very small

portion of the area within the neighborhood, the effect on $PM_{2.5}$ concentrations would not represent a neighborhood-scale effect but rather a localized one.

POTENTIAL EFFECT ON PUBLIC HEALTH

While the maximum incremental increase in $PM_{2.5}$ concentration was predicted to exceed the *CEQR Technical Manual de minimis* criterion on an annual basis, it should be noted that the *de minimis* criteria by itself is not a direct indicator of unhealthy air quality. When added to the current measured background concentration at the nearest representative DEC monitoring station (7.4 $\mu g/m^3$, measured at JHS 45 in Manhattan), the maximum total concentration is 8.32 $\mu g/m^3$, which is well below the NAAQS of 12 $\mu g/m^3$ (see Table 15-18). The NAAQS represents a level that is requisite to protect public health, allowing an adequate margin of safety. Future background concentrations are expected to be lower, continuing a long-term trend in improvements in ambient air quality, due to ongoing efforts at the state and local levels to improve air quality. These include DEC's implementation plans for regional haze, the New York City Climate Mobilization Act and the New York State Climate Leadership and Community Protection Act, which seek to reduce emissions from fossil fuels through use of renewable energy sources and increased energy efficiency. In addition, on, December 15, 2021, the New York City Council passed a bill that would effectively ban the installation of most new natural gas and other fossil fuel-fired systems in buildings in New York City prior to the Build Year for the Proposed Actions.

The prediction of future $PM_{2.5}$ concentrations from the Proposed Actions are based on very conservative assumptions of future traffic conditions and vehicle emissions (in particular, the analysis does not assume any significant change in current utilization of gasoline and diesel-powered vehicles versus electric vehicles). When accounting for the above-mentioned factors, both the incremental $PM_{2.5}$ concentrations from the Proposed Actions' mobile sources and the ambient background $PM_{2.5}$ concentrations are anticipated to be reduced in the 2032 analysis year as compared to current levels.

The Proposed Actions would not contribute to or exacerbate a violation of the $PM_{2.5}$ NAAQS even with the very conservative assumptions relating to traffic, vehicle emissions, meteorology and background $PM_{2.5}$ concentration levels used in this analysis. Therefore, the exceedances of the $PM_{2.5}$ *de minimis* criterion on an annual basis would not constitute a significant adverse impact on public health.

CONSTRUCTION NOISE

Construction pursuant to the Proposed Actions would be required to follow the New York City Noise Control Code, which requires the implementation of construction noise control measures. Additionally, the project would include construction noise control measures beyond those required by the Code. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the New York City Noise Code. These measures could include a variety of source controls (i.e., reducing noise levels at the source or during the most sensitive construction time periods) and path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors).

Even with the implementation of these noise control measures, the analysis presented in Chapter 19, "Construction," concluded that construction pursuant to the Proposed Actions has the potential to result in construction noise levels that exceed the *CEQR Technical Manual* construction noise screening threshold for an extended period of time or the CEQR construction noise impact criteria at receptors near the proposed development area. These locations are shown in **Figure 19-10** in Chapter 19, "Construction."

At these receptors, construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive construction activities and would produce noticeable increases over the course of construction. While the greatest levels of construction noise would not persist throughout construction, and the noise levels would fluctuate resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse construction noise impacts. Potential mitigation measures to address these impacts are detailed in Chapter 20, "Mitigation."

Although the *CEQR Technical Manual* thresholds for significant adverse construction noise impacts are predicted to be exceeded at certain locations during construction, these exceedances would not constitute a significant adverse public health impact. As discussed above, an impact found pursuant to a quality-of-life framework (i.e., a significant adverse construction noise impact) does not necessarily indicate that an impact would occur when the analysis area is evaluated in terms of public health (i.e., a significant adverse public health impact).

CHRONIC EXPOSURE TO HIGH LEVELS OF NOISE

The predicted construction-period noise impacts identified and described in Chapter 19, "Construction," would not constitute chronic exposure to high levels of noise because of the temporary and intermittent nature of construction-period noise. The maximum predicted construction noise levels associated with the Proposed Actions would occur over a limited duration during the construction period based on the amount and type of construction work occurring in the construction work areas. The activities that would generate the highest noise levels, i.e., pile installation and site work, are expected to occur for approximately 4 to 5 months at each Projected Development Site. Further, construction activity would typically be limited to the typical construction shift of 7 AM to 3PM, leaving the remainder of the day and the evening unaffected by construction noise. Since the construction noise would fluctuate in level and would not occur constantly throughout the construction period, which itself is limited in duration, construction noise would not be described as "chronic." Therefore, construction associated with the Proposed Actions would not have the potential to result in chronic exposure to high levels of noise.

PROLONGED EXPOSURE TO NOISE LEVELS ABOVE 85 DBA

35-44 Steinway Street

The building at 35-44 Steinway Street is predicted to experience total construction noise levels in the mid-80s dBA at the exterior façades on Floors 2 through 4, which would be above the 85 dBA threshold (within approximately 1 dBA of the threshold) during peak construction periods. However, prolonged exposure to noise levels above 85 dBA would be limited by site conditions at 35-44 Steinway Street and would be experienced only at the exterior façades. 35-44 Steinway Street does not have any outdoor terraces. Additionally, 35-44 Steinway Street was determined by field observations to have insulated glass windows and an alternate means of ventilation (i.e., window air conditioning units) and is assumed to be able to maintain a closed-window condition during construction. The insulated glass windows and window air conditioning units would be expected to provide approximately 25 dBA window/wall attenuation. Therefore, maximum interior noise levels at 35-44 Steinway Street during construction would be in the low 60s dBA, which is well below the 85 dBA threshold. Therefore, construction under the Proposed Actions would not have the potential to result in prolonged exposure to noise levels above 85 dBA at 35-44 Steinway Street.

Projected Development Site B

The proposed development at Projected Development Site B would be completed and occupied during approximately four years of construction at Projected Development Sites A, E, and K. Site B is predicted to experience total construction noise levels in the high 80s dBA at the southern and western portions of Site B, which would be above the 85 dBA threshold (within approximately 3 dBA of the threshold) during peak construction periods. However, prolonged exposure to noise levels above 85 dBA would be limited by site conditions at Site B and would be experienced only at the exterior façades. The design for the façade of this building is expected to provide 25 dBA minimum window/wall attenuation for community facility uses and 35 dBA minimum attenuation for residential uses. Therefore, maximum interior noise levels at Site B during construction would be in the low 50s dBA to low 60s dBA, which is well below the 85 dBA threshold. Therefore, construction under the Proposed Actions would not have the potential to result in prolonged exposure to noise levels above 85 dBA at the completed and occupied Projected Development Site B.

Projected Development Site D

The proposed development at Projected Development Site D would be completed and occupied during approximately six years of construction at Projected Development Sites A, B, E, F, and K. Site D is predicted to experience total construction noise levels in the mid-80s dBA at the eastern façade of Site D's residential tower, which would be above the 85 dBA threshold (within approximately 1 dBA of the threshold) during peak construction periods. However, prolonged exposure to noise levels above 85 dBA would be limited by site conditions at Site D and would be experienced only at the exterior façades. The design for the façade of this building is expected to provide 25 dBA minimum window/wall attenuation for community facility uses and 35 dBA minimum attenuation for residential uses. Therefore, maximum interior noise levels at Site D during construction would be in the low 50s dBA to low 60s dBA, which is well below the 85 dBA threshold. Therefore, construction under the Proposed Actions would not have the potential to result in prolonged exposure to noise levels above 85 dBA at the completed and occupied Projected Development Site D.

All Other Receptors

The predicted absolute noise levels at all other analyzed noise receptors would be below the 85 dBA threshold. The maximum predicted levels of noise resulting from construction under the Proposed Actions would be approximately 84.9 dBA. Therefore, construction would not have the potential to result in prolonged exposure to noise levels above 85 dBA at any of the other receptor locations.

UNPREDICTABLE EXPOSURE TO SHORT-TERM HIGH NOISE LEVELS

Based on the predicted noise levels described in Chapter 19, "Construction," construction associated with the Proposed Actions is not expected to result in unpredictable exposure to short-term impacts of noise at high decibel levels, as per the *CEQR Technical Manual*. The maximum short-term noise impact resulting from construction under the Proposed Actions would be in the mid-80s dBA during peak construction periods. However, because of the magnitude by which exterior noise levels would exceed the acceptable 85 dBA threshold at residential receptors, and because construction noise would typically not occur during the nighttime when residences are most sensitive to noise, predicted noise levels due to construction would not constitute unpredictable exposure to short-term impacts of noise at high decibel levels.

Additionally, the predicted noise exposure for the occupants of the residential buildings that could experience potentially significant adverse construction noise impacts would depend on the amount of façade noise attenuation provided by the buildings. The façade noise attenuation is a factor of the building façade construction as well as whether the building's windows can remain closed. Buildings that have an alternate means of ventilation (e.g., window air conditioning units) are assumed to be able to maintain a closed-window condition, which results in a higher level of façade noise attenuation. At all analyzed noise receptors, interior noise levels are predicted to be well below the 85 dBA threshold. Therefore, construction under the Proposed Actions would not have the potential to result in episodic or unpredictable exposure to short-term impacts of noise at high decibel levels.

Since the area of potential noise impacts is limited and the population exposed to elevated noise levels due to construction is very limited and as described above, the noise would not be chronic, and would not exceed the threshold of short-term high decibel levels, the predicted noise resulting from construction would not constitute a potential significant adverse public health impact. Therefore, there would not be significant adverse public health impacts due to construction under the Proposed Actions. ✷