Chapter 17: Public Health

A. INTRODUCTION

This chapter assesses the potential for the Proposed Project to affect public health. As defined by the 2021 *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 Project 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 an unmitigated significant adverse impact found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, noise, or construction.

As described in Chapter 14, "Air Quality," the mobile source analysis determined that the maximum annual incremental particulate matter ($PM_{2.5}$) concentration is predicted to potentially exceed the annual *de minimis* criterion at the two analyzed intersection locations; therefore, the Proposed Project has the potential to result in a significant adverse air quality impact. This chapter provides a public health assessment of air quality at these locations.

Chapter 16, "Noise," determined that traffic generated by the Proposed Project to result in a significant adverse noise impact at residential buildings along Reservoir Avenue between West 195th Street and West Kingsbridge Road during the Saturday Evening time period (i.e., 6PM to 8PM) on event days. Therefore, this chapter also provides consideration of noise impacts as it relates to public health.

As described in Chapter 19, "Construction," construction of the Proposed Project would have the potential to result in temporary construction noise levels that exceed the construction noise impact criteria at receptors near the Project Site. Therefore, this chapter also provides consideration of construction noise impacts as it relates to public health.

PRINCIPAL CONCLUSIONS

The analyses presented in this EIS concluded that the Proposed Project would not result in unmitigated significant adverse impacts in the areas of water quality, hazardous materials, or construction air quality.

The analysis presented in Chapter 14, "Air Quality," determined that the Proposed Project would potentially exceed the *de minimis* criterion for the maximum annual incremental $PM_{2.5}$ concentration at each of the two intersections analyzed. This would be considered a significant adverse air quality impact in the absence of mitigation measures. As discussed in Chapter 22, "Mitigation," traffic measures will be explored between Draft and Final EIS to mitigate the projected significant adverse traffic impacts to the extent practicable. If required, these mitigation measures would be evaluated to determine whether they would mitigate the predicted significant adverse air quality impact.

Between the Draft and Final EIS, additional review and evaluation will be performed which is expected to determine that the identified impacts related to mobile source annual average $PM_{2.5}$ increments would be avoided. A more refined microscale analysis will be performed which incorporates all of the traffic peak periods and accounts for the relative frequency of events that would take place. If required, additional modeling of $PM_{2.5}$ concentrations (Grid Analysis) would be performed using more refined or comprehensive analysis procedures to determine the magnitude and extent of neighborhood-scale $PM_{2.5}$ impacts from mobile sources. It is anticipated that the grid analysis will show that the $PM_{2.5}$ concentrations are below the annual *de minimis* criterion threshold. Other updates may include the use of newer vehicle emissions model data and projections. It is anticipated that these additional, refined analyses would show a reduction of $PM_{2.5}$ concentrations below the annual *de minimis* criterion threshold, and consequently the identified impacts related to mobile sources would be deemed to have been avoided.

Although the maximum concentrations are predicted to exceed the annual *de minimis* criterion threshold at each of the affected intersection locations, the Proposed Project would not contribute to or exacerbate a violation of the $PM_{2.5}$ annual average 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 the analysis. The NAAQS are established at a level that reduces risk sufficiently that is protective of public health. 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.

While the analysis presented in Chapter 16, "Noise," determined that traffic generated by the Proposed Project to result in a significant adverse noise impact at residential buildings along Reservoir Avenue between West 195th Street and West Kingsbridge Road during the Saturday Evening time period (i.e., 6PM to 8PM) on event days, the public health assessment determined that the traffic noise impact would not generate significant adverse public health impacts.

While the analysis presented in Chapter 19, "Construction," determined that construction activities would result in unmitigated temporary significant adverse noise impacts on the facades of multiple school and residential buildings either adjacent to or with a direct line of sight to the construction work areas as defined by *CEQR Technical Manual* guidance, the public health assessment determined that the construction noise impacts would not generate significant adverse public health impacts.

B. PUBLIC HEALTH ASSESSMENT

AIR QUALITY

INTRODUCTION

As discussed in Chapter 14, "Air Quality," at each of the two intersection sites analyzed, the maximum annual incremental $PM_{2.5}$ concentration is predicted to exceed the *de minimis* criterion. This would be considered a significant adverse air quality impact. However, no other exceedances of air quality standards (i.e., the NAAQS, the New York City carbon monoxide (CO) or 24-hour PM *de minimis*) are projected as a result of the Proposed Project. Therefore, this section focuses on the potential public health effects related to annual incremental $PM_{2.5}$ concentrations in the future with the Proposed Project.

METHODOLOGY

A quantitative assessment of emissions from traffic generated by the Proposed Project was performed to evaluate the potential for 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 public health, allowing an adequate margin of safety. In addition, *de minimis* criteria, which are quantified based on the incremental change in concentrations, are used to determine the potential for significant adverse $PM_{2.5}$ impacts under CEQR.

LIMITATIONS OF DISPERSION MODELS

Chapter 14, "Air Quality," provide the results of microscale analyses that evaluated the potential effect of the Proposed Project 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 modeled or 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 most hours of the 24-hour weekday and weekend periods utilizing more conservative traffic conditions.

Further, 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 increases in annual average $PM_{2.5}$ concentrations are 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 an intersection. The areas with modeled exceedances of the $PM_{2.5}$ *de minimis* criterion include the sidewalk locations at the affected intersections and the immediate surroundings. 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 these intersections would be brief, and average 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-wide effect but rather a localized one, primarily associated with areas near the roadways.

POTENTIAL EFFECT ON PUBLIC HEALTH

While the maximum incremental increase in $PM_{2.5}$ concentrations 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 the maximum incremental $PM_{2.5}$ concentrations associated with the Proposed Project are added to the current measured background concentration at the nearest representative New York State Department of Environmental Conservation (NYSDEC) monitoring station (7.5 $\mu g/m^3$, measured at the New York Botanical Garden), the maximum total annual concentration is 7.7 $\mu g/m^3$, which is below the NAAQS of 9 $\mu g/m^3$. The NAAQS are established at a level that is protective of public health with an adequate margin of safety, including sensitive populations.

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 NYSDEC'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 the use of renewable energy sources and increased energy efficiency.

The prediction of future $PM_{2.5}$ concentrations from the Proposed Project 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 mobile sources associated with the Proposed Project's 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.

As per the *CEQR Technical Manual*, the NAAQS is one of the standards and criteria referenced that can be useful in considering a potential public health impact. The Proposed Project would not contribute to or exacerbate a violation of the $PM_{2.5}$ NAAQS even with the very conservative assumptions relating to traffic and future build year 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. Further, as described in Chapter 14, "Air Quality," additional review and evaluation will be performed between the Draft EIS and Final EIS, which is expected to determine that the identified air quality impacts related to mobile source 24-hour and annual $PM_{2.5}$ increments will be avoided.

NOISE

Chapter 16, "Noise," identifies the potential for traffic resulting from the Proposed Project to result in a significant adverse noise impact at residential buildings along Reservoir Avenue between West 195th Street and West Kingsbridge Road during the Saturday Evening time period (i.e., 6PM to 8PM). At these receptors during this time period, vehicular traffic associated with the Proposed Project would result in a 4.4 dBA noise level increase; however, the total noise exposure at the residences would be in the "marginally acceptable" range and interior noise levels at buildings with standard façade construction would be expected to experience interior noise levels less than 45 dBA L_{10}, which would be considered acceptable according to *CEQR Technical Manual* noise exposure guidance. Possible mitigation measures would be explored by the Applicants in more detail between the DEIS and FEIS, in consultation with the lead agency, but could include an offer of receptor control measures (i.e., building façade improvement) for affected façades. These mitigation measures could be implemented prior to operation of the live event venue. Building façades with insulated glass windows or storm windows and alternative ventilation would provide sound attenuation such that even during warm weather conditions, interior noise levels would be approximately 28 to 30 dBA less than exterior noise levels. As such, with the mitigation measures in place, the predicted operational noise impact would be completely mitigated. However, if the residences were to decline the offer of mitigation, the predicted impact would be considered unmitigated.

The noise impact thresholds are based on quality-of-life considerations. These differ from public health considerations, which employ distinct criteria that are appropriate in the public health context. Significance is assessed in terms of the magnitude of noise level increment. Although the threshold for a significant adverse noise impact is predicted to be exceeded at these residences during the Saturday evening time period, this exceedance would not constitute a significant adverse public health impact, as an impact found pursuant to a quality-of-life framework does not imply that an impact will exist when the analysis area is evaluated in terms of public health. Since interior noise levels would be much lower than exterior noise levels and indeed would be in the "acceptable" range for residential use at buildings that accept the offer of receptor mitigation or already have standard façade construction, there would be neither chronic nor short-term exposure to high noise levels. In addition, the predicted noise impact would occur only on one block and only during a one time period during the week, so the potential noise effects would be limited in duration and not rise to area-wide level impacts that would warrant a detailed public health assessment. Accordingly, while the predicted noise impact may be a quality-of-life concern, the Proposed Project would not result in significant adverse public health impacts due to noise.

CONSTRUCTION NOISE

As described in Chapter 19, "Construction," the *CEQR Technical Manual* specifies that the construction noise analysis consider the potential for construction of a project to create high noise levels (the "intensity"), whether construction noise would occur for an

extended period of time (the "duration"), and the locations where construction has the potential to produce noise ("receptors") in evaluating potential construction noise effects.

Construction of the Proposed Project would be required to follow the New York City (NYC) Noise Control Code, which requires the implementation of construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the 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 of the Proposed Project would have the potential to result in temporary construction noise levels that exceed the construction noise impact criteria at receptors near the Project Site, including at school buildings on West 195th Street between Jerome Avenue and Reservoir Avenue, residential buildings along Reservoir Avenue between West 195th Street and West Kingsbridge Road, residential building at 2755 Reservoir Avenue, residential buildings along Reservoir Avenue between West 195th Street and West Kingsbridge Road, 2700 Jerome Avenue, 1 East Kingsbridge Road, residential buildings at 2614 to 2755 Grand Avenue and 2611 to 2650 Davidson Avenue, and commercial office buildings at 2 to 50 West Kingsbridge Road.

The construction noise impact thresholds are based on quality-of-life considerations. These differ from public health considerations, which employ distinct criteria that are appropriate in the public health context. Significance is assessed in terms of the magnitude of noise level and duration of exposure rather than incremental change in noise level. For example, chronic noise exposure may raise blood pressure and has been suggested to contribute to myocardial infarctions and to interfere with language development in children. Additionally, prolonged exposure to levels above 85 dBA will eventually harm hearing. Moreover, episodic and unpredictable exposure to short-term impacts of noise at high decibel levels may also affect health. Accordingly, it is appropriate to evaluate magnitude of noise level and duration of exposure when examining public health.

Although the 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, the thresholds for construction noise are based on quality-of-life considerations and not on public health considerations. An impact found pursuant to a quality-of-life framework does not imply that an impact will exist when the analysis area is evaluated in terms of public health. At 25 West 195th Street and 2756 Reservoir Avenue (i.e., Receptors 2 and 3 discussed in Chapter 19, "Construction,"), the predicted maximum $L_{eq(1)}$ noise levels during construction may reach 85.6 dBA at windows during proposed construction on the National Guard site. However, the buildings at those receptors with significant adverse construction noise impacts would provide approximately 25 to 32 dBA window/wall attenuation for locations with insulated glass windows and alternate means of ventilation, interior noise levels would be much lower than exterior noise levels. In addition, the potential for noise effects related to construction sources would be temporary and localized and is not expected to rise to area-wide level impacts that would warrant a

detailed public health assessment. Accordingly, given the magnitude and the duration of the construction noise at interior receptors, while such noise impact may be a quality-of-life concern, the Proposed Project would not result in significant adverse public health impacts due to construction noise.

UNPREDICTABLE EXPOSURE TO SHORT-TERM HIGH NOISE LEVELS

Based on the predicted noise levels described in Chapter 19, "Construction," construction associated with the Proposed Project is not expected to result in unpredictable exposure to short-term impacts of noise at high decibel levels, which are indicated as a potential public health concern in the *CEQR Technical Manual*. The maximum short-term noise impact resulting from construction under the Proposed Project would be noise levels in the mid 80s dBA during peak construction periods. However, at the receptor buildings that could potentially experience significant adverse construction noise impacts, the predicted noise exposure for occupants would depend on the amount of façade noise attenuation provided by the buildings. At all analyzed noise receptors, interior noise levels are predicted to be up to 63 dBA. While the *CEQR Technical Manual* sets an acceptable interior L_{10} noise level goal of 45 dBA for residential or community facility uses, the CEQR interior noise guideline is aimed at reducing noise nuisance and improving quality of life for City residents, and interior noise levels higher than the CEQR target do not necessarily indicate public health concerns. Such interior noise levels are similar to typical exterior noise levels commonly experienced at urban areas. Additionally, construction noise would typically not occur during the nighttime hours when receptors are most sensitive to noise.

In terms of public health, construction under the Proposed Project 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, the noise would not be chronic and would not be considered short-term high decibel levels, and 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 Project. ✷