

5.15 PUBLIC HEALTH

5.15.1 Introduction

This Section addresses the public health impacts associated with the potential construction and operation of the water main connections from the preferred Shaft Site. While the final route and construction timing for the water main connections has not yet been determined, for the purposes of EIS impact assessment a reasonable worst-case route and additional representative water main connection routes (as described in Section 5.1, “Project Description”) have been examined.

The project-related air, noise, traffic and hazardous materials impacts from construction would likely have the greatest potential project-related effects on public health. Similar to the construction work at the preferred Shaft Site, the potential of diesel emissions from construction-related activities would be of particular concern for considering potential impacts to public health. As described in Section 5.11, “Air Quality,” during the water main connections, construction equipment would generate particulate matter (PM) emissions from the combustion of fuel and construction-related activities. Section 5.11 provides the air quality impact assessment, based on the peak air quality emission level increase expected to occur from water main connections construction. The overview of the health concerns related to particulate matter emissions are discussed in more detail in Chapter 4, “Preferred Shaft Site,” Section 4.15, “Public Health.” This Section presents an assessment of the potential public health effects related to the water main connections for the preferred Shaft Site that may result from air, noise, traffic and hazardous materials impacts. Potential public health impacts for water main connections for the alternative Shaft Sites are included in their respective chapters.

The methodology utilized to prepare this assessment as well as regulations applicable for the protection of public health to the Study Area are described in Chapter 3, “Impact Methodologies,” Section 3.15, “Public Health.”

5.15.2 Existing Conditions

Existing conditions related to public health effects along the water main connection routes are expected to be similar to those at the preferred Shaft Site. These existing conditions, especially as they relate to the effects of PM emissions, are discussed in detail in Section 4.15.

5.15.3 Future Conditions Without the Project

In the Future Without the Project along the water main routes, air quality, traffic, noise and hazardous materials conditions are anticipated to be relatively similar to those described for existing conditions. Public health initiatives undertaken by the City, along with federal, state and local regulations outlined in Section 3.15, are expected to continue. Land uses are expected to generally remain the same in this neighborhood. Air quality regulations mandated by the Clean Air Act are anticipated to maintain or improve air quality in the region. Localized carbon

monoxide and PM concentrations along the reasonable worst-case route were estimated (see Section 5.11). It can be expected that public health conditions related to air quality, noise, traffic and hazardous materials conditions in the Future Without the Project would likely be no worse than those that presently exist.

5.15.4 Future Conditions With the Project

A summary of potential public health impacts from the construction and operation of the water main connections to the preferred Shaft Site is provided here. Potential impacts from air, noise, traffic and hazardous materials were assessed, to determine their potential affect on public health from the water main connection routes.

No significant adverse impacts on air quality, noise, traffic, and hazardous materials from the operation of the water main connections are expected. Thus, the public health analysis for the water main connections to the preferred Shaft Site focuses on the possible impacts on public health from changes in air quality, noise, traffic, and hazardous materials during construction activities. In addition, potential combined impacts from construction at the Shaft Site and water main connections are also assessed below. The potential impacts on asthma incidences in the community from construction-related activities were determined to the extent possible from the air quality impact assessment.

From a public health perspective, the potential impacts from the construction of the water main connections would not differ significantly whether the route selected was the reasonable worst case route (First Avenue) or the additional representative routes (Sutton Place, E. 59th Street/E. 61st Street) presented for analysis purposes in the EIS. Therefore, the analysis presented below is applicable to all of the water main connection routes presented in the EIS.

Construction

Air Quality

The air quality issues related to the preferred Shaft Site construction would also apply to the water main connections construction. The construction of the water main connections is expected to result in particulate matter (PM) emissions from construction-related truck traffic, increased congestion from roadway surface disruptions, and on-site construction-related mobile and stationary sources, all of which were included in the air quality assessment of the water main connections. The potential increase of PM that would result from construction of the water main connections was evaluated using air quality models for the worst-case stages of construction.

Air Quality Modeling Results

As discussed in Section 5.11, “Air Quality,” two scenarios are analyzed for the reasonable worst-case route: the Base Scenario assumes all construction occurring in the street and Scenario A assumes the usage of five feet of the eastern sidewalk on First Avenue. Since the reasonable worst-case route is expected to result in the maximum predicted air quality impacts associated

with any water main option, potential air quality impacts from other possible water main connections were based on a comparative analysis with the modeled reasonable worst-case route.

As described in Section 5.11, the greatest on-site air quality emission levels from construction-related activity would occur in 2008. The anticipated construction-related PM_{2.5} peak emission increases associated with the preferred Shaft Site were discussed in Section 4.11. Analyses were performed for the peak air quality short-term (e.g., 24 hours) and long term (e.g., annual average) periods. The maximum potential impacts of the combined construction of the preferred Shaft Site and the water main connections were also assessed and the results are reported in Section 5.11. Potential PM_{2.5} increments for other time periods are anticipated to be less than those calculated for the worst-case periods.

The air quality modeling analysis predicted that the maximum daily total PM_{2.5} emission concentrations from potential construction-related vehicles, equipment for the water main connections and disruptions to street traffic during construction (including the potential combined Shaft Site/water main connection construction activities) would be less than the applicable NAAQS. The maximum annual average neighborhood-scale incremental concentrations from such sources were less than the interim guideline criterion, used as a threshold for determining significant adverse impacts related to air quality. The predicted impact of the construction of the water main connections would result in insignificant incremental PM_{2.5} concentrations at the neighborhood scale.

The PM_{2.5} emissions from mobile and stationary construction sources associated with the construction of the water main connections are not expected to significantly increase the concentration of PM_{2.5} in the nearby community.

Asthma

As discussed in Section 4.15, hospitalizations from asthma, cardiovascular diseases, and deaths are caused by many things. The reasonable worst-case route that was quantitatively addressed in Section 5.11, presented results for a highly localized area under reasonable worst-case and maximum activity conditions. This would be especially pertinent for water main work, which would occur along a street corridor, but would only be adjacent to a specific local population for a limited time period. Based on the air quality modeling results, under these circumstances the resultant air pollution exposure from construction activity would drop off rapidly with distance from the construction areas. Thus, the exposure of the population affected by such emissions would also be less affected. Though daily and even weekly hospitalization numbers in New York City are numerous from a public health point of view, based on the expected incremental exposures of PM_{2.5} from the construction activities, there would likely be no significant increase in such rates from the construction activities along the water main routes.

Air Quality Conclusions

The construction of the water main connections to the preferred Shaft Site would not result in any new predicted exceedances of air quality standards and the predicted neighborhood average incremental concentration of PM_{2.5} would be less than the applicable interim guideline criterion. In addition, the exposure to localized peak emission levels utilized in these analyses would

rapidly decrease with distance and would affect a limited population. The construction of the water main connections would not expect to result in a significant adverse impact on air quality under any potential route. To the extent that it can be determined from the changes in air quality resulting from the construction of the water main connections, no significant adverse impacts on public health or increases of asthma rates in the community would be expected as a result of the increases in airborne emissions generated by the water main connections.

Noise

As described in Section 5.12, “Noise,” the potential adverse noise impacts from the construction of the water main connections would occur at a limited number of receptor locations for each day of construction. Based on the noise modeling results, under these circumstances the resultant noise pollution exposure from construction activity would be for a limited area per any given time period, and drop off rapidly with distance from the construction area. The adverse noise impacts during construction of the water main connections would not be expected to result in any permanent loss of hearing. While there is the possibility that work could occur overnight for the water main connections, the work zones would be transient and no same location along the corridor(s) selected in the future would experience such noise impacts for an extended period of time. The predicted noise levels from the water main connections construction are not expected to result in a significant adverse impact on public health.

Traffic

Based on the analyses reported in Section 5.9, “Traffic and Parking” and Section 5.11, “Air Quality”, the construction of the water main connection routes is not expected to result in any significant adverse impacts on air quality as a result of potential increased emissions from adverse traffic impacts. In addition, any increases in emission levels as a result of vehicular traffic would be transient. Therefore, there are no expected adverse impacts on public health from construction-related traffic or street surface disruptions for the water main connection routes.

Hazardous Materials

As described in Section 5.14, “Hazardous Materials,” during construction, subsurface soils would be excavated along the water main route. The subsurface soils may contain contaminants resulting from a number of sources including deposition and infiltration, contamination from off-site sources, and from historic fill material commonly used throughout the City of New York. Therefore, a number of preventive measures will be implemented to minimize exposure to potentially contaminated soils and groundwater during construction as discussed in Section 5.14. With implementation of such measures, there would be no potential significant adverse hazardous materials impacts from construction of the water mains.

Conclusions

Based on the air quality assessment of the construction stages (including the benefits of the diesel emissions control that the contractor will be required to implement under Local Law 77), the construction of the water main connections to the preferred Shaft Site would not result in any

new predicted exceedances of air quality standards and the predicted neighborhood average incremental concentration of PM_{2.5} would be less than the applicable interim guideline concentration. Additionally, any increased emission levels produced during the construction activity would be transient and short-term as the work along the water main progresses. Therefore, potential PM_{2.5} emissions from mobile and stationary sources related to the construction of the water main connections are not anticipated to result in an adverse impact on public health. The principal health effects of airborne particulate matter are on the respiratory system. To the extent that it can be determined from the changes in air quality resulting from the construction of the water main connections, no significant increases of asthma incidences in the community would be expected. In addition, the potential impacts from noise, traffic and hazardous materials are also not expected to result in an adverse impact on public health. As stated in Section 4.15, construction of the shaft is not expected to result in a significant adverse impact to public health. Therefore, the construction of Shaft 33B and its water main connections (including potential combined effects) at the preferred Shaft Site is not expected to result in a significant adverse impact on public health.

Operation

Following construction and activation of the water mains, no hazardous materials would be used for the operation of the mains. Therefore, no potential significant adverse impacts on public health would be expected from the operation of the water main connections.

