

8.15 PUBLIC HEALTH

8.15.1 Introduction

This Section provides an assessment of the potential public health impacts from the proposed construction and operation of the E. 54th Street/Second Avenue Shaft Site and the associated water mains.

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 and its associated water main connections, 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 8.11, during the shaft site and water main connections construction for the E. 54th Street/Second Avenue Shaft Site, equipment would generate particulate matter (PM) emissions from the combustion of fuel and construction-related activities. Section 8.11 provides the air quality impact assessment, based on the peak air quality emission level increases expected to occur from the E. 54th Street/Second Avenue Shaft Site and associated water main connections construction. The overview of the health concerns related to particulate matter emissions are discussed in more detail in Section 4.15. This section presents an assessment of the potential public health effects related to the E. 54th Street/Second Avenue Shaft Site and associated water main connections that may result from air, noise, traffic and hazardous materials impacts.

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

8.15.2 Existing Conditions

Existing conditions related to public health effects near the E. 54th Street/Second Avenue Shaft Site and along the associated water main 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 Chapter 4, “Preferred Shaft Site,” Section 4.15, “Public Health.”

8.15.3 Future Conditions Without the Project

In the Future Without the Project near the E. 54th Street/Second Avenue Shaft Site and along the associated water main routes, air quality, traffic, noise and hazard 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. 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.

8.15.4 Future Conditions With the Project

A summary of potential public health impacts from the construction and operation of the E. 54th Street/Second Avenue Shaft Site and associated water main connections is provided here. Potential impacts from air, noise, traffic and hazardous materials were assessed, to determine their potential affect on public health from this alternative.

No significant adverse impacts on air quality, noise, traffic and hazardous materials from the operation of the E. 54th Street/Second Avenue Shaft Site and associated water main connections are expected. Thus, the public health analysis for the E. 54th Street/Second Avenue 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. The potential impacts on asthma incidences in the community from construction-related activities are determined to the extent possible from the air quality impact assessment.

As described in Chapter 2, “Purpose and Need and Project Overview,” at the alternative Shaft Sites, the excavation could either be undertaken using raise bore or surface excavation methods (the latter would apply if the contractor was not able to use the City Tunnel No. 3 below as a means to remove earth from the site). From a public health perspective, the potential impacts from the construction of the E. 54th Street/Second Avenue Shaft Site would be the same if either raise bore or surface excavation methods were employed. Also the potential public health impacts from the construction of the water main connections to the E. 54th Street/Second Avenue Shaft Site would not differ significantly whether the route selected was the along the reasonable worst case route (First Avenue) or the alternative 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 to the E. 54th Street/Second Avenue Shaft Site presented in the EIS.

Construction

Shaft Site

Air Quality

The air quality issues related to the preferred Shaft Site construction would also apply to the E. 54th Street/Second Avenue Shaft Site and water main connections construction. The construction of the Shaft Site is expected to result in PM emissions from construction-related truck traffic and on-site construction-related mobile and stationary sources, both of which were included in the air quality assessment for the E. 54th Street/Second Avenue Shaft Site. The potential increase of PM that would result from construction of the Shaft Site (and potential combined impacts from the

construction of the water main connections) was evaluated using air quality models for the worst-case stages of construction. The results of this analysis were used to conduct a conservative assessment of the public health affect for this Shaft Site, since the air quality analysis assesses the worst-case increase in emissions at the project site. In reality, the exposure to peak emission levels would rapidly decrease with distance from the Shaft Site and would affect a limited population.

Air Quality Modeling Results

As described in Section 8.11, the maximum short-term and annual average air emission levels are expected to peak in the Stage 3 construction phase for the raise bore method (see Section 6.1 for further descriptions of the construction phases). For the surface excavation method, maximum short-term and annual emissions would occur during Stage 2b. The emissions of airborne particulate matter related to construction would be less for other stages.

The anticipated construction-related PM_{2.5} emission increments associated with the E. 54th Street/Second Avenue Shaft Site were discussed in Section 8.11. Analyses were performed for the peak air quality short-term (e.g., 24-hours) and long term (e.g., annual average) periods for both the raise bore and surface excavation methods. Potential PM_{2.5} emission 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} concentrations from construction vehicles and equipment for the E. 54th Street/Second Avenue Shaft Site would be less than the applicable ambient air quality standard. 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 construction of the E. 54th Street/Second Avenue Shaft Site on PM_{2.5} concentrations would be insignificant under all scenarios considered.

The PM_{2.5} emissions from mobile and stationary construction sources associated with the construction of the E. 54th Street/Second Avenue Shaft Site 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 analysis for the E. 54th Street/Second Avenue Shaft Site that was quantitatively addressed in Section 8.11, presented results for a highly localized area under reasonable worst-case and maximum activity conditions. 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 of the E. 54th Street/Second Avenue Shaft Site.

Air Quality Conclusions

The construction of the E. 54th Street/Second Avenue Shaft Site and associated water main connections 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. 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 E. 54th Street/Second Avenue Shaft Site would not expect to result in a significant adverse impact on air quality under any scenario. To the extent that it can be determined from the changes in air quality resulting from the construction of the E. 54th Street/Second Avenue Shaft Site, 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 this Shaft Site and associated water main connections.

Noise

As described in Section 8.12 “Noise,” the potential significant adverse noise impacts from the construction of the E. 54th Street/Second Avenue Shaft Site would occur at a number of receptor locations. Based on the noise modeling results, under these circumstances the resultant noise pollution exposure from construction activity would drop off with distance from the construction area. While the noise impacts during construction were determined to be significant adverse impacts, they would not be expected to result in any permanent loss of hearing. Significant noise activities would not occur overnight during construction, so no additional loss of sleep from noise activities would be expected. NYCDEP is exploring potential mitigation measures that would reduce noise levels at these receptors. However, even without the mitigation measures, the predicted noise levels are not expected to result in a significant adverse impact on public health.

Traffic

Based on the analyses reported in Section 8.9 “Traffic and Parking” and Section 7.11 “Air Quality”, the construction of the E. 54th Street/Second Avenue Shaft Site is not expected to result in any significant adverse impacts on air quality from increased emissions as a result of construction activities. 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 for the E. 54th Street/Second Avenue Shaft Site.

Hazardous Materials

As described in Section 8.14, “Hazardous Materials,” during construction, subsurface soils would be excavated from the E. 54th Street/Second Avenue Shaft Site. 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 below. With the proposed general procedures and protective measures in place, no significant adverse impact on public health from hazardous materials is expected.

Conclusions

Based on the air quality assessment of the construction stages (including the benefits of the diesel emissions control that NYCDEP will require the contractor to implement), taking into account stationary and mobile impacts from construction, the construction of the E. 54th Street/Second Avenue 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. Therefore, potential PM_{2.5} emissions from mobile and stationary sources related to the construction of the E. 54th Street/Second Avenue Shaft Site 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 E. 54th Street/Second Avenue Shaft Site, 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. Further, a comprehensive pest management plan would be developed to address potential rodent activity on the site. This plan would be submitted to NYCDOHMH for review and approval prior to implementation. Therefore, the construction of the E. 54th Street/Second Avenue Shaft Site is not expected to result in a significant adverse impact on public health.

Water Main Connections

Construction of water main connections under the E. 54th Street/Second Avenue Shaft Site is expected to have public health impacts similar to those analyzed in detail and discussed in Section 5.15. Therefore, no significant public health impacts from the construction of water main connections (also considering potential combined impacts of such water main connections with the shaft site construction) for the E. 54th Street/Second Avenue Shaft Site are expected.

Activation and Operation

Hazardous Materials

Following the procedures outlined in Section 4.14 for the potential to use sodium bisulfate to dechlorinate water in the tunnel before activation of the shaft, no significant adverse public health impacts are expected on the surrounding community from the use of sodium bisulfate. Following construction and activation of the E. 54th Street/Second Avenue Shaft and water main connections, no hazardous materials would be used at the site during operation of the shaft. Therefore, no potential significant adverse impacts on public health would be expected from the operation of the E. 54th Street/Second Avenue Shaft Site.

