

## Chapter 18:

## Public Health

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### 18.1 INTRODUCTION

This chapter presents the analysis FRA conducted on the potential impacts to public health of the No Action Alternative and Preferred Alternative. Environmental, social, demographic, and economic conditions drive the health and well-being of communities and are considered as part of this analysis. FRA's conclusions regarding public health are based on the analyses of those resource categories that may be associated with the following public health effects: Air Quality, Noise, Contaminated Materials (concerning hazardous materials), and Water Quality, as presented in other chapters of this DEIS.

### 18.2 REGULATORY CONTEXT

NEPA requires consideration of the potential effects of Federal actions on public health (42 USC 4321). In accordance with 23 CFR Part 771 and relevant CEQ guidelines, FRA considered impacts to public health. FRA also considered the *CEQR Technical Manual* (see Chapter 20, Section 300) for assessing potential impacts on public health.

Many of the laws and regulations protecting public health are resource-specific—for example, the CAA of 1970 and its amendments of 1990 (42 USC 7401), and the NAAQS (40 CFR 50). However, it is important to consider these laws and the impacts from resources in regard to overall public health concerns.

For details on the regulatory context for this resource category, please refer to Chapter 15 of **Appendix B**, “Methodology Report.”

### 18.3 ANALYSIS METHODOLOGY

The Study Area for this resource category includes the Project Site and GENERALLY extends outward to include routes for travel of construction workers, materials, and services (as appropriate), and represents the distance that, based on *CEQR Technical Manual* guidelines, defines the area in which the Preferred Alternative could cause impacts. The Study Area for the public health impacts assessment coincides with the Study Areas of the resource category analyses for Air Quality (see Chapter 7), Noise and Vibration (see Chapter 8), Contaminated Materials (see Chapter 12), and Water Quality (see Chapter 15). The Study Area is consistent with study areas for the environmental analysis of similar projects in New York City.

Following *CEQR Technical Manual* guidance, a public health assessment is warranted for a specific resource category if there is an unmitigated adverse impact found related to public health, in resource areas such as air quality, water quality, hazardous materials, or noise.

Please see Analysis Methodology in Chapter 15 of **Appendix B**, for a complete detailed description of the data sources consulted and the analysis methodology FRA developed for this resource category.

## **18.4 AFFECTED ENVIRONMENT**

This section describes the Affected Environment for each of the resource categories FRA has examined in this public health analysis.

### **18.4.1 AIR QUALITY**

For the air quality analysis FRA conducted, Table 7-4 in Chapter 7, “Air Quality, Greenhouse Gas Emissions, and Resilience,” presents the representative background concentrations of all criteria pollutants of concern within the Study Area. The NYSDEC collected the concentrations presented in that table at the air quality monitoring stations nearest the Preferred Alternative.

### **18.4.2 NOISE AND VIBRATION**

As discussed in Chapter 8, “Noise and Vibration,” the noise analysis considers nine receptors located near the Project Site, as summarized in Table 8-1 and Figure 8-1. These receptors represent noise-sensitive locations that would have the potential to experience noise level increases resulting from the construction or operation of the Preferred Alternative. Existing noise levels at each of the nine receptors were determined based on noise measurements at three representative noise-monitoring sites, as shown in Table 8-2.

### **18.4.3 CONTAMINATED MATERIALS**

As discussed in Chapter 12, “Contaminated Materials,” the Study Area for the analysis of contaminated materials includes the Project Site and extends to the known environmental record sources in accordance with ASTM E1527-13. The Study Area, which includes portions of existing railroad infrastructure underlain by anthropogenic fill and sand, was formerly part of the Hudson River, which was filled to expand the Manhattan shoreline beginning in the latter half of the 1800s. Ground disturbance associated with construction of the Preferred Alternative could encounter soil and/or fill materials containing petroleum contamination, creosote, coal tar, PCB-containing components, and/or buried demolition debris. Former on-site industrial uses may also have affected groundwater and/or soil vapor conditions on the Project Site.

### **18.4.4 WATER QUALITY**

Chapter 15, “Water and Natural Resources,” presents FRA’s analysis of the potential impacts of the Preferred Alternative on Water Quality. As discussed in that chapter, the Study Area for the analysis comprises the Lower Hudson River, with a focus on the area of the Hudson River with the potential to receive stormwater runoff from the Project Site; CSOs with the potential to be affected by the No Action Alternative and Preferred Alternative; and effluent from the North River WWTP.

The portion of the Hudson River that includes the Study Area falls within the NYCDEP Harbor Survey Inner Harbor Study Area. Chapter 15 summarizes the findings of the 2018 NYCDEP New York Harbor Water Quality Report pertinent to the Study Area. In particular, the results of the NYCDEP Harbor Survey indicate that water quality of New York–New Jersey Harbor, including the lower Hudson River within the Inner Harbor, has improved since the 1970s as a result of measures undertaken by New York City (e.g., improvements to wastewater treatment plants and increased capture of stormwater runoff) and others.

## **18.5 ENVIRONMENTAL CONSEQUENCES**

### **18.5.1 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the existing use of the rail yard and associated LIRR facilities, as well as their maintenance regimen would continue. In addition, no excavation or foundation construction would occur. As outlined in the relevant analysis chapters discussed above, the No Action Alternative would not have the potential to result in any adverse impacts to air quality, noise and vibration, contaminated materials, or water quality. Therefore, under the No Action Alternative, there would be no impacts to the existing public health in the Study Area.

### **18.5.2 OPERATIONAL IMPACTS OF THE PREFERRED ALTERNATIVE**

As described in the relevant analyses of this DEIS and summarized below, the Preferred Alternative would not result in unmitigated adverse impacts in any of the resource categories related to public health. Therefore, FRA concluded that operation of the Preferred Alternative would not result in an adverse public health impact.

#### *18.5.2.1 AIR QUALITY*

FRA found that the maximum predicted concentrations associated with ventilation of dual-mode locomotive engine exhaust analysis (shown in Table 7-7 of Chapter 7) are below the applicable NAAQS for all relevant pollutants. Furthermore, PM<sub>2.5</sub> and CO incremental concentrations are below the City's *de minimis* criteria for these pollutants. FRA estimated that emissions from the operation of diesel generators would be minor on an annual basis due to their limited usage and are not anticipated to result on a significant effect on ambient concentrations; therefore, FRA has predicted no adverse public health impacts related to air quality during operation of the Preferred Alternative.

#### *18.5.2.2 NOISE AND VIBRATION*

The noise analysis found that noise exposure resulting from the Preferred Alternative would not be considered a moderate nor a severe impact according to FTA noise impact criteria at noise receptors representing noise-sensitive land uses in the Study Area. The greatest increase in noise level at any receptor resulting from the operation of the Preferred Alternative would be approximately 3 dB(A). The Project Sponsor would incorporate sufficient noise control measures in the final design of the ventilation system plans to ensure compliance with the NYCNCC at all surrounding residential receptors, which would be expected to result in noise levels lower than those presented in the analysis. Consequently, FRA has concluded based on the analysis that operation of the Preferred Alternative would not result in any adverse public health impacts related to noise.

#### *18.5.2.3 CONTAMINATED MATERIALS*

While most effects related to contaminated materials would occur from ground disturbance during construction activities (see Section 18.5.3.3, below), operation of the Preferred Alternative may expose workers to airborne contaminants from trains operating in the railyard. To account for this possibility, the Project Sponsor would install permanent ventilation systems for areas enclosed by the Platform, in accordance with LIRR's engineering design criteria for yard ventilation. Therefore, FRA has concluded that operation of the Preferred Alternative would not result in any adverse public health impacts related to contaminated materials.

#### *18.5.2.4 WATER QUALITY*

The aquatic resources analysis found that operation of the Preferred Alternative would not have an adverse impact on aquatic resources in the Lower Hudson River, including water quality. In particular, although additional discharge of sanitary sewage would occur as a result of the Preferred Alternative, the incremental increase would be minimal and would not be expected to cause the North River WWTP to be above its permitted daily flow limit of 170 mgd or adversely affect compliance of the North River WWTP effluent with its SPDES permit limits. The Preferred Alternative would not result in additional CSOs to the Hudson River. With the Preferred Alternative operational, stormwater collected on the Platform would be primarily detained on-site for reuse. Otherwise, any overflow of stormwater collected on the Platform would be conveyed to the NYCDEP sewer infrastructure in West 33rd Street, and on to the North River WWTP for treatment. On portions of the Project Site that would not be covered by Platform, stormwater would be conveyed to the existing LIRR storm sewer that drains to the Hudson River. The LIRR storm sewer would continue to meet the treatment requirements of the existing MS4 permit for stormwater discharge. As a result, the Preferred Alternative would have the potential to result in improved water quality in the vicinity of stormwater outfalls due to diversion of stormwater to the North River WWTP for treatment, and/or the LIRR storm sewer. Therefore, operation of the Preferred Alternative would not result in any adverse public health impacts related to water quality.

### **18.5.3 CONSTRUCTION IMPACTS OF THE PREFERRED ALTERNATIVE**

As described in the relevant analyses of this DEIS and summarized below, FRA concluded that the Preferred Alternative, with mitigation, would not result in adverse construction impacts in any of the resource categories related to public health. Therefore, the Preferred Alternative would not result in an adverse public health impact during construction.

#### *18.5.3.1 AIR QUALITY*

The maximum concentrations predicted during the representative worst-case construction periods (presented in Table 7-9 of Chapter 7) found that the maximum predicted total concentrations of relevant pollutants are below the applicable NAAQS for both construction phases. In addition, PM<sub>2.5</sub> and CO incremental concentrations are below the City's *de minimis* criteria for these pollutants. Emissions from the other less intensive construction periods would be less than the emissions during the modeled worst-case periods; therefore, the resulting concentrations from these non-peak periods are expected to be less than the concentrations presented for the worst-case periods. Overall, based on the analysis, FRA has concluded that no adverse air quality impacts would occur during construction of the Preferred Alternative. Therefore, construction of the Preferred Alternative would not result in any public health impacts related to air quality.

### 18.5.3.2 NOISE AND VIBRATION

The construction noise analysis is presented in Section 8.5.3 and follows the general assessment procedure of the FTA's Guidance Manual, *Transit Noise and Vibration Impact Assessment* (FTA Report No. 0123, September 2018), which considers the two loudest pieces of equipment for each stage of construction operating simultaneously. For the construction of the Preferred Alternative, this would be hoe rams used for demolition during Platform Construction and Tunnel Encasement. Worst-case construction noise levels are compared to the FTA construction noise impact thresholds and the incremental changes in noise level are compared to the *CEQR Technical Manual* construction noise evaluation thresholds. The analysis found that worst-case noise levels resulting from construction of the Preferred Alternative would not exceed the FTA's General Assessment construction noise impact criteria, but would constitute adverse noise impacts according to the *CEQR Technical Manual* at the High Line north of 30th Street, at residences along Eleventh Avenue between 29th and 33rd Streets, at residences along 30th Street between Eleventh and Twelfth Avenues, and at residences along West 33rd Street between Tenth and Eleventh Avenues.

The *CEQR Technical Manual* 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. Thus, pursuant to the public health assessment, significance is assessed in terms of the magnitude of noise level and duration of exposure rather than the incremental change in noise level. As stated in Chapter 20 of the *CEQR Technical Manual*, these criteria are appropriate because they more closely relate to public health concerns. For example, chronic noise exposure at elevated decibel levels 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 dB(A) 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 the magnitude of construction noise levels and duration of exposure during construction when examining public health. An impact found using a quality of life framework (i.e., adverse construction noise impact) does not imply that an impact would exist when the analysis area is evaluated in terms of public health (i.e., adverse public health impact).

At the residential buildings where potential adverse noise impacts were identified—the residential buildings along Eleventh Avenue between 29th and 33rd Streets represented by receptors 2a, 2b, and 2c, the residential buildings along 33rd Street between Eleventh and Tenth Avenues represented by receptor 2c, and the residential buildings along 30th Street between Eleventh and Twelfth Avenues represented by receptors 3a and 3b— predicted construction noise levels would not rise to the level of an adverse impact according to the FTA Guidance Manual; however, predicted construction noise levels would exceed the *CEQR Technical Manual* screening threshold. The predicted exterior absolute construction noise levels would be below the health-based noise threshold of 85 dB(A) at all residential receptors, as required by the NYCNCC, see Section 18.6. Additionally, NYCDCP has placed (E) Designations<sup>1</sup> for noise which requires these buildings to provide a minimum of 33 to 35 dB(A) façade attenuation, as achieved through modern façade design. With modern façade design and the required minimum attenuation, interior noise levels during construction would be acceptable according to the *CEQR Technical Manual* at receptors 2a, 2b, and 2c and exceed the *CEQR Technical Manual* acceptable threshold for interior noise levels by up to 6 dB(A) during the worst-case construction at receptors 3a and 3b. Construction noise would fluctuate in level and the maximum predicted noise levels would not occur constantly throughout the construction period. Consequently, noise from construction of the Preferred Alternative would not constitute chronic or episodic and unpredictable exposure to high levels of noise, and would not constitute an adverse public health impact related to noise at these receptors.

At the High Line west of Eleventh Avenue, worst-case noise levels resulting from construction of the Preferred Alternative projected using the FTA general assessment methodology would be up to 94 dB(A) during construction for the Tunnel Encasement and up to 82 dB(A) during Platform construction. The maximum predicted noise level increment at the High Line, 23 dB(A), would occur during hoe ram use periods for the first 20 months of excavation for Tunnel Encasement. During non-hoe ram use periods and the remaining 14 months of Tunnel Encasement construction, maximum predicted noise level increments at this receptor would be up to 18 dB(A) resulting from drill rig use. Construction noise levels would be below the FTA guidance manual impact criteria for non-residential receptors, but would constitute an adverse impact according to the *CEQR Technical Manual*.

The worst-case construction noise levels would not extend throughout the full length of the High Line, most of which would be substantially further from the construction work areas associated with the Preferred Alternative than the worst-case noise analysis location. At portions of the High Line east of Eleventh Avenue noise levels would be below the health-based noise threshold of 85 dB(A) throughout construction. Furthermore, the maximum predicted noise levels are associated with construction of the Tunnel Encasement, which would not occur during weekend days or during evening or nighttime hours. Construction noise would fluctuate in level and the maximum predicted noise levels would not occur constantly throughout the construction period. Consequently, noise from construction of the Preferred Alternative would not constitute an adverse public health impact related to noise at the High Line.

FRA has coordinated with NYC Parks to determine appropriate minimization measures to address impacts to the High Line. These are described in detail in Chapter 8.

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<sup>1</sup> Noise (E) Designations, as listed in Appendix C of the *New York City Zoning Resolution*, are placed on zoning lots in areas with high ambient noise levels when they are rezoned by NYCDCP to allow a noise-sensitive use to be built on those sites. A Noise (E) Designation specifies a minimum level of façade noise attenuation as well as the provision of an alternate means of ventilation to allow for the maintenance of a closed-window condition. The intent of the Noise (E) Designation is to protect inhabitants of buildings constructed on the (E) Designated lot from high levels of ambient noise.

At the other analyzed receptors, representing commercial buildings along Eleventh Avenue north of West 33rd Street the analysis found that construction noise levels would be below the FTA guidance manual impact criteria during all stages of construction. Commercial buildings are not considered under the *CEQR Technical Manual* for construction noise; therefore, construction of the Preferred Alternative would not result in any adverse public health impacts related to noise and vibration.

### 18.5.3.3 CONTAMINATED MATERIALS

To prevent exposure of hazardous materials that may threaten human health, the Project Sponsor would include appropriate health and safety, investigative, or remedial measures for the construction of the Preferred Alternative (conducted in compliance with applicable laws and regulations, and conforming to appropriate engineering practice). These health and safety measures would be implemented before, and remain in place after, demolition and soil disturbance. In particular, preparation of a site-specific RAP and CHASP would be required. Additional measures would include installation of appropriate permanent ventilation systems for areas under the platform, conducting dewatering activities in accordance with NYCDEP requirements, and proper handling and disposal of any building materials, equipment, or utilities containing suspect hazardous materials, in accordance with the applicable regulations. With these measures in place, construction of the Preferred Alternative would not result in any adverse public health impacts related to contaminated materials.

### 18.5.3.4 WATER QUALITY

The aquatic resources analysis FRA performed found that construction of the Preferred Alternative would not have an adverse impact on aquatic resources, including water quality. Specifically, during construction, stormwater from the Project Site would be discharged to either:

- the existing LIRR outfall (has an existing MS4 permit for stormwater discharge) that drains stormwater from the rail yard to the Hudson River, or
- the NYCDEP sewer system, and from there directed to municipal wastewater treatment facilities for treatment before discharge to the Hudson River.

In addition, the Project Sponsor would treat all groundwater recovered during dewatering in accordance with NYCDEP requirements prior to discharge to the municipal sewer. Therefore, FRA has concluded that construction of the Preferred Alternative would not result in any adverse public health impacts related to water quality.

## 18.6 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

The Project Sponsor would undertake measures to avoid, minimize, and mitigate impacts of the Preferred Alternative on public health, including the following:

- The Project Sponsor would install appropriate permanent ventilation systems during construction of the Preferred Alternative (to be operated post-construction) for areas under the Platform at the Project Site, in accordance with LIRR's engineering design criteria for yard ventilation.
- Prior to any excavation or construction activity, a site-specific RAP and CHASP would be prepared.
- During any subsurface disturbance, the Project Sponsor would handle and dispose of excavated soil properly in accordance with all applicable regulatory requirements, with spill reporting as required.

- The Project Sponsor would treat any groundwater recovered during dewatering in accordance with NYCDEP requirements prior to discharge to the municipal sewer.
- The Project Sponsor would transport all material leaving the Site for off-site disposal in accordance with federal, state, and local requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.
- The Project Sponsor would incorporate sufficient noise control measures in the final design of the ventilation system plans to ensure compliance with the NYCNCC at all surrounding residential receptors
- Construction of the Preferred Alternative would include sufficient mitigation to meet the NYCNCC construction noise limit of an  $L_{max}$  of 85 dB(A) at the exteriors of any adjacent residential properties. \*