

A. INTRODUCTION

Public health is the effort of society to protect and improve the health and well-being of its population. The goal of a public health analysis per the 2014 *City Environmental Quality Review (CEQR) Technical Manual* is to determine whether adverse effects on public 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

A public health assessment is warranted for a specific technical area if there is a significant unmitigated adverse effect found in other analysis areas, such as air quality, water quality, hazardous materials, or noise. As identified in Chapter 6.12, “Construction—Noise and Vibration,” the proposed project may result in unmitigated construction noise effects. No significant adverse effects are anticipated for air quality, water quality or hazardous materials. Therefore, this chapter provides a public health assessment of construction noise.

B. PRINCIPAL CONCLUSIONS

The analyses presented in this DEIS conclude that the proposed project would not result in unmitigated significant adverse effects in air quality, water quality, or hazardous materials. The analysis presented in Chapter 6.12, “Construction—Noise and Vibration,” determined that construction activities could potentially result in unmitigated significant adverse construction-period noise effects at receptors in the vicinity of the proposed project’s construction work areas. However, construction of the proposed projects 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 effects of noise at high decibel levels, as per the *CEQR Technical Manual*. Consequently, construction of the proposed project would not result in a significant adverse public health effect.

In accordance with Executive Order (EO) 13045, Protection of Children from Environmental Health Risks and Safety Risks, an assessment of the proposed project's potential to affect children's health was conducted. The analysis concluded that the temporary significant adverse effects identified under the Preferred Alternative would not disproportionately affect children.

NO ACTION ALTERNATIVE (ALTERNATIVE 1)

The No Action Alternative assumes that no new comprehensive coastal protection system is installed in the proposed project area. No construction noise is expected to occur with the No Action Alternative.

PREFERRED ALTERNATIVE (ALTERNATIVE 4): FLOOD PROTECTION SYSTEM WITH A RAISED EAST RIVER PARK

Construction of the Preferred Alternative 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 effects of noise at high decibel levels. Since the area of potential noise effects is limited and as described below, the noise would not be chronic and would not exceed the threshold of short-term, high-decibel levels, the predicted noise resulting from construction of the proposed project would not constitute a potential significant adverse public health impact according to the criteria of the *CEQR Technical Manual*.

OTHER ALTERNATIVES

Construction of Alternative 3 is predicted to result in significant adverse construction noise effects at certain locations, as described in Chapter 6.12, “Construction—Noise and Vibration.” Under the Flood Protection System on the West Side of East River Park – Baseline Alternative (Alternative 2) and The Flood Protection System East of Franklin Delano Roosevelt East River Drive (FDR Drive) (Alternative 5), significant adverse construction noise effects are expected to be similar to those under the Preferred Alternative.

C. REGULATORY CONTEXT

The regulatory context for the proposed project includes the following requirement for which the proposed project has been analyzed with respect to in order to make a determination of potential environmental effects associated with project implementation.

EO 13045-PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH RISKS AND SAFETY RISKS

Executive Order (EO) 13045, Protection of Children from Environmental Health Risks and Safety Risks, specifies prioritization of the identification and assessment of potential environmental health and safety risks that may disproportionately affect children, and to ensure policies, programs, activities, and standards address those risks. Analysis and disclosure of these potential effects under the National Environmental Policy Act (NEPA) are necessary because some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to environmental health and safety risks. It should be noted that in general the regulatory standards and guidelines, used for comparison purposes, already incorporate protection of sensitive individuals, including children. If adverse effects are identified, CEQR requires that the effects be disclosed and mitigated or avoided to the greatest extent practicable.

D. METHODOLOGY

The construction noise analysis presented in Chapter 6.12, “Construction—Noise and Vibration,” was used to identify the extent of the potential temporary noise exposure to the public as a result of construction of the proposed project. The *CEQR Technical Manual* thresholds for construction noise are based on nuisance levels that could include quality of life and public health effects. The potential temporary noise exposure identified in Chapter 6.12, “Construction—Noise and Vibration,” was evaluated for its potential to impact the health of the affected population by comparing it with the relevant health-based noise criteria as described in the *CEQR Technical Manual*.

Although the *CEQR Technical Manual* thresholds for significant adverse effects are predicted to be exceeded at certain locations during construction, these exceedances would not necessarily constitute a significant adverse public health effect. The *CEQR Technical Manual* identifies public health concerns from noise related to three factors:

- Chronic exposure to high levels of noise (i.e., high levels of noise that occur indefinitely and do not fluctuate or abate);
- Prolonged exposure to noise levels above 85 dBA (the *CEQR Technical Manual* recommended threshold for potential hearing loss); and
- Episodic and unpredictable exposure to short-term effects of noise at high decibel levels.

To determine whether public health effects could occur as a result of the construction noise related to the proposed project, predicted noise levels at the locations where significant adverse effects were predicted to occur were evaluated for the potential to impact the health of the affected population using these three criteria provided in the *CEQR Technical Manual*.

E. ENVIRONMENTAL EFFECTS

NO ACTION ALTERNATIVE (ALTERNATIVE 1)

The No Action Alternative assumes that no new comprehensive coastal protection system is installed in the proposed project area. No construction noise is expected to occur with the No Action Alternative.

PREFERRED ALTERNATIVE (ALTERNATIVE 4): FLOOD PROTECTION SYSTEM WITH A RAISED EAST RIVER PARK

Construction of the Preferred Alternative would include noise control measures as required by the *New York City Noise Control Code*, including both path control (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors) and source control (i.e., reducing noise levels at the source or during the most sensitive time periods). Even with these measures, the analysis presented in Chapter 6.12, “Construction—Noise and Vibration,” shows that construction of the proposed project is predicted to result in significant adverse effects at the following locations: 621 Water Street, 605 Water Street, 309 Avenue C Loop, 315-321 Avenue C, 620 East 20th Street, 601 East 20th Street, 8 Peter Cooper Road, 7 Peter Cooper Road, 530 East 23rd Street, 765 FDR Drive, 819 FDR Drive, 911 FDR Drive, 1023 FDR Drive, 1115 FDR Drive, 1141 FDR Drive, 1223 FDR Drive, 570 Grand Street, 455 FDR Drive, 71 Jackson Street, 367 FDR Drive, 645 Water Street, 322 FDR Drive, 525 FDR Drive, 555 FDR Drive, 60 Baruch Drive, 132 Avenue D, 465 East 10th Street, 520 East 23rd Street, 123 Mangin Street, and Asser Levy Recreation Center. Affected locations include residential areas immediately adjacent to proposed construction areas.

The predicted temporary noise effects identified would not constitute chronic exposure to high levels of noise because of the temporary and intermittent nature of construction noise as described in Chapter 6.0, “Construction Overview.” The maximum construction noise levels predicted to occur under the Preferred Alternative at the locations identified above (up to the high 80s dBA during daytime construction and up to the mid 70s during nighttime construction) would occur primarily as a result of sheet pile installation activities occurring at very short distances from receptors. Such noise levels are highly dependent on the specific location of pile installation activity relative to the receptors, and since sheet pile installation would occur in any

single location for no more than approximately four months, the maximum noise levels would not persist at any one receptor over an extended duration. At locations where maximum predicted levels of construction noise would result from construction activities other than sheet pile installation (e.g., locations near pedestrian bridge reconstruction, landscaping work, or excavation activity), maximum construction noise levels would also occur over a limited duration depending on the amount, type, and location of the construction work in that area. Since the construction noise would fluctuate in intensity, no sensitive receptors would be subject to the full effects of construction for the entire construction period, and it would not persist for the full duration of construction, these temporary noise effects would not be prolonged (or chronic) noise effect as defined under *CEQR* for determining public health effects. In addition, with the Preferred Alternative, the duration of construction is limited to approximately 3.5 years for project completion.

For a majority of the receptors where significant adverse noise effects would occur, the predicted absolute noise levels would be below the threshold for potential hearing loss of 85 dBA. As shown in Table 6.12-8 in Chapter 6.12, “Construction—Noise and Vibration,” the maximum predicted levels of noise resulting from nighttime construction associated with the Preferred Alternative would be less than 85 dBA for all receptors and the maximum predicted levels of noise resulting from daytime construction associated with the Preferred Alternative would be less than 85 dBA or less for all receptors except receptor 1 (Corlears Hook Park). The maximum predicted levels of noise resulting from daytime construction associated with the Preferred Alternative would be less than 85 dBA or less for all receptors except receptor 15 (605 Water Street) and receptor 23 (the Asser Levy Recreation Center).

As described in Chapter 6.12, “Construction—Noise and Vibration,” under the Preferred Alternative, construction noise levels up to the mid 80s dBA would occur at receptor 1, Corlears Hook Park. While pile installation within the park is expected to occur over the course of approximately 19 months during construction of the Corlears Hook Bridge, pile installation activities associated with Reach C flood protection would occur intermittently in a single location for a relatively brief period of time not greater than 4 months. Outside of this duration, it is expected that pile installation associated with flood protection installation would be at least 100 feet from the building and would consequently not result in noise levels greater than 85 dBA. During the times that pile installation adjacent to this receptor produces maximum noise levels, if noise levels in the park were to reach the threshold that would result in discomfort, it is unlikely that the users of the park would remain. Consequently, it is not expected that users of Corlears Hook Park would experience noise levels high enough to potentially result in hearing loss, but such noise levels in the park would be unpleasant.

As described in Chapter 6.12, “Construction—Noise and Vibration,” construction noise levels up to the high 80s dBA would occur at receptor 23, Asser Levy Recreation Center, during pile installation in Reach P west of the FDR Drive immediately adjacent to this building. Although construction in Reach P is expected to occur over the course of approximately 19 months, pile installation activities would occur intermittently in a single location for a relatively brief period not greater than 4 months. Outside of this duration, it is expected that pile installation would be at least 100 feet from the building and would consequently not result in noise levels greater than 85 dBA. Such noise levels in the recreation center would be unpleasant. It is expected that this pile installation would be scheduled outside of the summer months when the Recreation Center’s pool would be in use.

Based on the limited duration of the predicted high levels of noise at these receptors, the lower noise levels that would occur inside 605 Water Street, and the likelihood that users of the Corlears Hook Park and Asser Levy Recreation Center would not remain in these areas during times of maximum construction noise, construction associated with the proposed project would not result in prolonged exposure to noise levels greater than 85 dBA.

As described in Chapter 6.0, “Construction Overview,” a team of Community Construction Liaisons (CCLs), managed and staffed by a Borough Outreach Coordinator, would be available from pre-construction through the completion of the proposed project to serve as contacts for the community and local leaders. The CCLs would be available to address concerns or problems that may arise during construction, maintain direct communication with the construction project managers, and be able to quickly troubleshoot and respond to construction-related inquiries. The CCLs would send out email advisories and notifications, weekly construction bulletins, newsletters, and other forms of information through the Neighborhood Network Notification (NNN) list. The CCLs would also attend meetings held by District Service Cabinet, Community Boards, Elected Officials and other community meetings as necessary. In addition, New York City maintains a 24-hour telephone hotline (311) so that concerns can be registered with the City. This coordination would keep the communities informed of the construction activities associated with the proposed project and minimize unpredictable exposure to noise at high decibel levels for surrounding receptors.

Additionally, at residential and school buildings predicted to experience adverse construction noise effects, the predicted noise exposure for the residents 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 are able to remain closed. Buildings that have insulated glass windows and an alternate means of ventilation (e.g., some form of air conditioning) allowing for the maintenance of a closed-window condition would provide approximately 25 dBA window/wall attenuation. With this closed window condition, maximum nighttime interior noise levels at these receptors would not exceed the mid 50s dBA. This is up to approximately 11 dBA higher than the 45 dBA threshold recommended for residential areas according to the *CEQR Technical Manual* noise exposure guidelines but is typical of existing condition noise levels with windows open or daytime noise levels inside the residences. Consequently, the predicted levels of construction noise would not constitute episodic or unpredictable exposure to noise at high decibel levels at these buildings.

At buildings that do not have façade construction that would provide such levels of attenuation (i.e., 605 Water Street, 621 Water Street, 765 FDR Drive, 819 FDR Drive, 132 Avenue D, 465 East 10th Street, and 123 Mangin Street), maximum nighttime interior noise levels at these receptors would not exceed the high 60s dBA, up to approximately 23 dBA higher than the 45 dBA threshold recommended for residential or classroom uses according to the *CEQR Technical Manual* noise exposure guidelines. For these buildings, further noise reduction measures will be considered to reduce the level of noise exposure such that it would not constitute unpredictable exposure to noise at high decibel levels for surrounding receptors. Such additional measures may include source control measures (e.g., alternative construction methods, quieter equipment, changes in construction scheduling), and path control measures (e.g., noise barriers) and are discussed in further details in Chapter 6.12, “Construction—Noise and Vibration.”

As discussed above, construction of the Preferred Alternative 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 effects of noise at high decibel levels. Since the area of

potential noise effects is 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 of the proposed project would not constitute a potential significant adverse public health impact according to the criteria of the *CEQR Technical Manual*.

OTHER ALTERNATIVES

Construction of Alternative 3 is predicted to result in significant adverse construction noise effects are expected at certain locations, as described in Chapter 6.12, “Construction—Noise and Vibration.” Under the Flood Protection System on the West Side of East River Park – Baseline Alternative (Alternative 2) and The Flood Protection System East of FDR Drive (Alternative 5), significant adverse construction noise effects are expected to be similar to those under the Preferred Alternative.

As described in Chapter 6.12, “Construction—Noise and Vibration,” under Alternative 3, construction noise levels up to the high 80s dBA would occur at Receptor 15, 605 Water Street, during the construction activity in Reach A near Montgomery Street immediately adjacent to these buildings. This would include construction of flood protection structures under the FDR Drive and north of the FDR Drive, which is anticipated to occur for approximately nine months. During that time, residents would experience lower noise levels inside the building, because the building façade would provide approximately 15 dBA attenuation. Consequently, these residents would not experience noise levels in excess of 85 dBA. While the predicted interior noise levels, in the mid 70s dBA, would be intrusive, they would not constitute prolonged exposure to noise levels above 85 dBA.

As described in Chapter 6.12, “Construction—Noise and Vibration,” construction noise levels up to the high 80s dBA would occur at receptor 23, Asser Levy Recreation Center, during pile installation in Reach P west of the FDR Drive immediately adjacent to this building. Although construction in Reach P is expected to occur over the course of approximately 20 months, pile installation activities would occur intermittently in a single location for a relatively brief period not greater than 4 months. Outside of this duration, it is expected that pile installation would be at least 100 feet from the building and would consequently not result in noise levels greater than 85 dBA. Such noise levels in the recreation center would be unpleasant. It is expected that this pile installation would be scheduled outside of the summer months when the Recreation Center’s pool would be in use.

Based on the limited duration of the predicted high levels of noise at these receptors, the lower noise levels that would occur inside 605 Water Street, and the likelihood that users of the Corlears Hook Park and Asser Levy Recreation Center would not remain in these areas during times of maximum construction noise, construction associated with the proposed project would not result in prolonged exposure to noise levels greater than 85 dBA.

F. EO 13045-PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH AND SAFETY RISKS

The Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, specifies the prioritization the identification and assessment of potential environmental health and safety risks that may disproportionately affect children. The proposed project has the potential to affect children’s health as a result of temporary open space displacement and

construction noise. Therefore, the disclosure of potential public health effects, as it relates to open space and noise that may disproportionately affect children has been provided below.

With respect to air quality, Chapter 6.10, “Construction—Air Quality” presents a detailed analysis of air quality during construction, including a quantitative analysis of both on-site and on-road transportation sources of air emissions, including dust emissions, and the overall combined impact of both sources, where applicable. Pollutant concentrations of particulate matter (PM₁₀ and PM_{2.5}), nitrogen dioxide (NO₂), and carbon monoxide (CO) from construction site sources on the adjacent community, including public schools (i.e., 84 Montgomery Street and 123 Mangin Street) and playgrounds, were estimated in accordance with accepted *CEQR Technical Manual* methodology. The proposed project would include measures to reduce on-site pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes, including diesel equipment reduction, the use of ultra-low sulfur diesel (ULSD) fuel, and best available technologies. With these emission reduction measures in place, the analysis of construction emissions determined that PM_{2.5}, PM₁₀, NO₂, and CO concentrations would be below their corresponding NAAQS, which have been established to protect human health, including vulnerable populations such as children. Additionally, incremental concentrations of PM_{2.5} and CO would be below their corresponding *de minimis* thresholds, designed to improve air quality conditions within New York City and maintain concentrations below the National Ambient Air Quality Standard (NAAQS). As described in Chapter 6.10, “Construction—Air Quality,” concentrations below the NAAQS would provide adequate protection from adverse public health impacts—including the at-risk populations of older adults, children and people with asthma. Accordingly no significant adverse air quality impacts from construction would occur with the proposed project. Therefore, in accordance with *CEQR Technical Manual*, no significant adverse impacts to public health would occur as a result of construction air quality.

CONSTRUCTION—NOISE

Of the significant adverse noise effects resulting from construction of the proposed project discussed above, only the potential impact at 123 Mangin Street under the Preferred Alternative would have the potential to disproportionately affect children, because of that building’s school use. The maximum predicted noise level increment resulting from construction at the exterior of the 123 Mangin Street building during daytime hours is approximately 11 dBA, which would be considered a perceived doubling of loudness compared to existing levels. However, the predicted total noise levels would be considered “marginally unacceptable” according to *CEQR Technical Manual* noise exposure criteria and is typical of many schools in Manhattan. The maximum predicted exterior construction noise levels (as would be experienced outside the school building including at the playground), which were in the low 70s dBA, while subjectively twice as loud as the existing noise levels at this receptor, are moderate for Manhattan locations and would be within the range experience by many New York City children who occupy school yards and open space proximate to heavily trafficked roadways. Based on an estimate of 15 dBA window/wall attenuation from the school’s monolithic glass windows and window air conditioning units, the maximum interior noise levels at the school resulting from construction are predicted to be in the low 60s dBA. This level would exceed the 45 dBA threshold recommended for classroom use according to *CEQR Technical Manual* noise exposure criteria, but would also be comparable to many other classroom environments in New York City adjacent to heavily trafficked roadways or other urban noise sources. Furthermore, the predicted construction noise at this location would be temporary and would occur only during the period

of floodwall construction and landscaping immediately adjacent to the school, which would not be expected to occur for more than 11 months. Consequently, while the predicted construction noise at the 123 Mangin Street school was determined to result in a significant adverse effect, it would not constitute a potential environmental health or safety risk to the students.

A school use was also identified at 84 Montgomery Street within the construction noise analysis study area. The maximum predicted noise level increment resulting from construction at the exterior of the 84 Montgomery Street building (as would be experienced at the playground) during daytime hours is approximately 2 dBA, which would be considered just noticeable and would not constitute a significant adverse impact, and consequently would not have the potential to disproportionately affect the health of children.

Daycare uses present within the study area of the construction noise analysis would be subject to the same noise impact criteria as residences, and as such the general discussion of public health above would apply, indicating that children in daycare facilities experiencing noise as a result of construction of the proposed project would not experience chronic exposure to high levels of noise (i.e., high levels of noise that occur indefinitely and do not fluctuate or abate), prolonged exposure to noise levels above 85 dBA (the *CEQR Technical Manual* recommended threshold for potential hearing loss), or episodic and unpredictable exposure to short-term effects of noise at high decibel levels. As a result, construction would not have the potential to disproportionately affect the health of children in such daycare facilities. Furthermore, any daycare facilities in this study area would tend to be in ground-floor spaces, which were are predicted to experience the smallest construction noise increments, because they experience the greatest level of noise reduction from site-perimeter noise barriers (as a result of being below the height of the barrier) and have the highest baseline levels of noise (as a result of being closer to existing roadway traffic).

CONSTRUCTION—OPEN SPACE

As described in Chapter 5.3, “Open Space,” there are 32 publicly available open spaces within the study area, which collectively total 86.65 acres. Open spaces are identified on Table 5.3-2 and shown in Figure 5.3-1. With regard to evaluating the adequacy of open spaces, the amount of useable open space acreage in relation to the study area population—referred to as the open space ratio—is compared with guidelines provided in the *CEQR Technical Manual*. Two sets of guidelines provided in the *CEQR Technical Manual* are used to determine the adequacy of open space. The first guideline is a City-wide median open space ratio of 1.5 acres per 1,000 residents. The second is the City’s optimal planning goal of 2.5 acres per 1,000 residents—2.0 acres of active and 0.5 acres of passive open space per 1,000 residents.

With a total of approximately 86.65 acres of open space and a total residential population of 157,263, the study area has an overall existing open space ratio of approximately 0.55 acres per 1,000 residents. This is lower than the City’s planning goal of 2.5 acres of combined active and passive open space ratio per 1,000 residents and is lower than the citywide median of 1.5 acres per 1,000 residents. Overall, the existing ratio suggests that the area currently experiences a shortage of open space typical of many neighborhoods within the City.

NO ACTION ALTERNATIVE (ALTERNATIVE 1)

As described in Chapter 5.3, “Open Space,” the No Action Alternative assumes that projects planned or currently under construction in the project area are completed by the 2025 analysis year (i.e., No Action projects). A list of these planned projects is included in **Appendix A1**.

Within the study area, there are several park rehabilitation and reconstruction projects ongoing or proposed that are anticipated to be complete by the 2025 analysis year.

Funded through HUD’s National Disaster Resilience Competition (NDRC), the Trust for Public Land (TPL) school playground project consists of renovation and improvement of existing playground facilities at two public schools in the Two Bridges neighborhood in Manhattan, New York City. Currently, the existing playgrounds are not open to the public during non-school hours. Improvements to open spaces at P.S. 184 Shuang Wen School, located at Cherry Street and Montgomery Street, and P.S. 2 Meyer London, located at Madison Street and Pike Street, totaling 1.16 acres, would result in redesigned playspaces, which may include features such as running tracks, athletic courts, upgraded play equipment, trees, gardens and plantings, gazebos, outdoor classrooms, benches and other seating, game tables, student artwork, signage, trash and recycling receptacles, and drinking fountains. This project would also incorporate green infrastructure features such as artificial turf fields with gravel underlays, bioswales, permeable pavers, and rain gardens into project design and is anticipated to be complete by 2021.

At the southern end of Project Area One, NYC Parks is proposing to construct Pier 42 as a public waterfront open space that would increase accessible open space within the study area. For many years, the Pier 42 property consisted of warehouse space and parking, located just south of East River Park between the East River and the FDR Drive. A masterplan for the overall redevelopment of Pier 42 as an open space was approved by a Community Board 3 subcommittee and the New York City Public Design Commission (PDC). Phase 1A of the Pier 42 redevelopment included the demolition of the pier shed. Phase 1B would include the redevelopment of the upland park (north and east of Phase 1A) with amenities such as an entry garden in the western section, a playground, a comfort station, a grassy knoll rising approximately seven feet above grade, solar powered safety lighting throughout the park, and access from the shared-use path along the FDR Drive service road or Montgomery Street. The Pier 42 project would introduce approximately 2.93 acres of new passive open space to the study area by 2021.

Direct Effects

The planned renovations of the playgrounds at P.S. 184 Shuang Wen School and P.S. 2 Meyer London have the potential to render these school’s open space resources unavailable to school children until 2021, while construction of the proposed project is taking place. School children affected by the renovation of the playground located at P.S. 184 Shuang Wen and P.S. 2 Meyer London would have comparable resources of similar type and quality available at Cherry Clinton Playground, Lilian D. Wald Playground, Little Flower Playground, and Corlears Hook Park. In 2021, when the playground renovations are proposed to be complete, school children will avail of a newly renovated playground and also be in proximity to the planned new public open space of Pier 42 Park (2.93 acres). According to the New York City Department of Education (DOE) 2015–2019 and 2020–2024 Proposed Five-Year Capital Plans, there are no other planned athletic field or playground projects within the open space study area.^{1,2,3}

¹ DOE 2015–2019 Proposed Five-Year Capital Plan, Amendment February 2019; SCA.

² DOE 2020–2024 Proposed Five-Year Capital Plan, Amendment February 2018; SCA.

³ The study area is based on the distance a person is assumed to be willing to walk to reach a neighborhood open space. Residents are assumed to be willing to walk approximately 10 minutes (about a ½-mile distance) to reach both passive and active neighborhood open spaces.

Indirect Effects

As described in Chapter 5.3, “Open Space,” total open space ratios with the No Action Alternative (Alternative 1) would remain lower than the City’s planning goal of 2.5 acres of combined active and passive open space ratio per 1,000 residents and would remain lower than the citywide median of 1.5 acres per 1,000 residents in the No Action Alternative.

PREFERRED ALTERNATIVE (ALTERNATIVE 4): FLOOD PROTECTION SYSTEM WITH A RAISED EAST RIVER PARK

Direct Effects

As described in Chapter 6.2, “Construction—Open Space,” there is the potential for temporary adverse direct effects under the Preferred Alternative over multiple analysis years due to the extent of displacement of recreational facilities and open space amenities in East River Park, Stuyvesant Cove Park, Murphy Brothers Playground, Asser Levy Playground, and Captain Patrick J. Brown Walk over the 3.5-year construction period.

Outside of East River Park, Stuyvesant Cove Park, Murphy Brothers Playground, Asser Levy Playground, and Captain Patrick J. Brown Walk, there are comparable resources of similar type and quality available. Additionally, there are other open space resources immediately adjacent to the open space study area that offer comparable resources of similar type and quality (e.g., Tompkins Square, Madison Square, Union Square, Sara D. Roosevelt Park, Hester Street Playground, Coleman Playground, etc.). However, there are no comparable shared-use pathways in the ½-mile study area. According to the *CEQR Technical Manual*, this displacement would have the largest effect on the user group within the 20–64 age range. Additionally, during the displacement of Segment 3 (2020 to 2023) under the Preferred Alternative, there are no comparable grilling areas within the ½-mile study area. This displacement would have the largest effect on families and users of all ages.

However, once completed, the Preferred Alternative would directly affect East River Park, Stuyvesant Cove Park, Murphy Brothers Playground and Asser Levy Playground in a positive manner, by enhancing their design and increasing their accessibility to the public. The proposed project under the Preferred Alternative would also enhance the resiliency of open space and protect park resources from future design storms.

Indirect Effects

As described in Chapter 6.2, “Construction—Open Space,” as a result of the extended open space closures due to construction, the total open space ratios within the study area would decrease in the Preferred Alternative from the No Action Alternative. The proposed project would reduce open space ratios by a minimum of 45.93 percent in 2023 and a maximum of 50.27 percent in 2020. The open space ratios would exceed the *CEQR Technical Manual* threshold of five percent change between the With Action and No Action conditions during construction. Temporary displacement of open space for construction over the five percent threshold is considered significant since it could result in the overburdening of existing facilities and further exacerbate the existing deficiency in open space within the study area. Therefore, there is the potential for temporary significant adverse indirect effects on open space resources within the study area under the Preferred Alternative.

The open space resources that are most at risk to experience the effects of overburdening are those that offer similar amenities to those resources that will be displaced by the construction of the proposed project.

The amenities in East River Park include East River Promenade, East River Bikeway, passive seating, lawn areas, two playgrounds with water fountains, picnic and barbequing areas, amphitheater, eight baseball fields, two and one-half basketball courts, two volleyball courts, 12 tennis courts, three soccer fields, a track, and athletic fields. Although all user groups would be affected by the closure of East River Park due to construction, the user group most affected would be those between the ages of 15 to 19, based on *CEQR Technical Manual* guidelines for user groups.

Amenities in Stuyvesant Cove Park include pathways, seating, landscaping, and program space. Although all user groups would be affected by the closure of Stuyvesant Cove Park due to construction, the user group most affected would be those between the ages of 20 to 64 and 65 and over, based on *CEQR Technical Manual* guidelines for user groups.

Murphy Brothers Playground amenities include basketball courts, playgrounds, and handball courts. All user groups would be affected by the closure of Murphy Brothers Playground due to construction, based on *CEQR Technical Manual* guidelines for user groups.

Asser Levy Playground amenities include basketball courts, football fields, indoor and outdoor pools, playgrounds, running track, fitness equipment, handball courts, and recreation center. Although all user groups would be affected by the closure of Asser Levy Playground due to construction, the user group most affected would be those between the ages of 15 to 19, based on *CEQR Technical Manual* guidelines for user groups.

Captain Patrick J. Brown Walk has a pathway and seating amenities. Although all user groups would be affected by the closure of East River Park due to construction, the user group most affected would be those between the ages of 20 to 64 and 65 and over, based on *CEQR Technical Manual* guidelines for user groups.

In summary, the 15 to 19, 20 to 64, and 65 and over user groups would be the most affected by the displacement of open space resources during construction of the proposed project. The amenities largely utilized by the 4 and younger, 5–9, and 10–14 user groups would not experience a higher risk of overburdening of existing facilities as there are less amenities within the displaced open space resources that service these user groups. In EPA’s *America’s Children and the Environment* (2013) report, a child is considered 17 years of age and under.⁴ Taking this into consideration, the amenities utilized by the 15–19 year old user group would experience an overburdening of existing facilities. In particular, the displacement of the baseball, soccer, track and athletic fields and the basketball, volleyball, and tennis courts would be overburdened due to the displacement of these amenities in the project area.

There are no significant adverse indirect effects for the 2024 and 2025 analysis years, as any remaining construction would be minimal and the vast majority of displaced open space areas would be restored and reopened to the public with new and enhanced park features.

4 United States Environmental Protection Agency (EPA). *America’s Children and the Environment*, Third Edition. (January 2013). Retrieved from https://www.epa.gov/sites/production/files/2015-06/documents/ace3_2013.pdf, last visited 8/2019.

Mitigation of Effects

Of the significant adverse effects resulting from the temporary displacement of open space resources discussed above, there is the potential that all alternatives, except the No Action Alternative, would have the potential to disproportionately affect children. However, a number of mitigation measures proposed to offset the effects of the temporary displacement of open space resources to the greatest extent practicable have a focus on reducing these effects on children. The measures most applicable to children include the following: accommodating youth permit users within existing facilities under the New York City Department of Parks and Recreation (NYC Parks) jurisdiction; working with other entities with open space resources, such as the New York City Department of Education (DOE) and the New York City Housing Authority (NYCHA), to identify recreational resources that may be opened to the community during construction; purchasing solar lighting to be used at 6 Lower East Side parks to extend playing time at fields for permitted use during construction; improving the synthetic turf at 7 park locations; installing new sports coating at seven sites; painting playgrounds and park equipment at up to 16 parks; enhancing existing Parks barbeque areas; identifying alternative tennis locations; and exploring open space improvements at Waterside Pier. In addition, reduced effects on children would also be realized through the use of quieter construction methods, to partially mitigate noise effects that would be experienced at the Asser Levy Recreation Center. Furthermore, the City is assessing opportunities to open parts of East River Park as work is completed. These measures would partially mitigate construction effects on open space resources. A full list of mitigation measures can be found in Chapter 6.2, “Construction—Open Space.”

Although construction would temporarily displace open space resources in East River Park, Stuyvesant Cove Park, Murphy Brothers Playground, Asser Levy Playground, and Captain Patrick J. Brown Walk under the With Action Alternatives, the end result would be a refurbished open space resource. After construction, East River Park would be newly landscaped and raised park with pathways for the Preferred Alternative, which would enhance the user experience of the park. In addition, the upland open space resources in the ½-mile study area would be protected against future storm events, thus increasing the utility and safety of those resources. The flood protection measures proposed to be integrated into park features aim to reduce the effects from future storm events on the community, including children.

The Preferred Alternative proposes the replacement of pedestrian crossings at the Delancey Street, East 10th Street, and Corlears Hook Bridges. The enhancement of pedestrian bridges to East River Park would improve the east–west connectivity for residents in the ½-mile study area to East River Park upon project completion. The improvements to these open space resources under the proposed project would be considered partial mitigation.

Based on the availability of comparable resources of similar type and quality in the open space study area; the availability of additional resources immediately adjacent to the open space study area; and the mitigation measures to enhance existing barbeque areas that will reduce the burden on families and user groups of all ages, the temporary significant adverse direct effects identified under the Preferred Alternative do not disproportionately affect children. There are fewer amenities within the displaced open space resources that service user groups 14 years of age and younger than resources for users 15 and over; therefore, the temporary significant adverse indirect effects identified under the Preferred Alternative would not disproportionately affect children 14 years of age or younger.

As stated above, the amenities within the displaced open space resources utilized by the 15–19 year old user group would experience an overburdening of existing facilities. In particular, the displacement of the baseball, soccer, track and athletic fields and the basketball, volleyball, and tennis courts. However, with the mitigation measures to accommodate youth permit users, assess opportunities to open parts of East River Park as work is completed, extend playing time at fields for permitted use; improve synthetic turf and install new sports coating at seven locations, and identify alternative tennis locations, the temporary significant adverse indirect effects under the Preferred Alternative would have the potential to lessen the effects felt on children ages 15 to 17. Therefore, the temporary significant adverse indirect effects identified under the Preferred Alternative would not disproportionately affect children in the 15–19 year old user group.

CONCLUSIONS

Executive Order 13045 specifies the prioritization the identification and assessment of potential environmental health and safety risks that may disproportionately affect children. As stated in Chapter 6.0, “Construction—Overview,” a variety of measures would be employed to ensure public safety during construction of the proposed project, including children.

The maximum predicted exterior construction noise levels (as would be experienced outside the 123 Mangin Street School including at the playground), are moderate for Manhattan locations and would be within the range experience by many New York City children who occupy school yards and open space proximate to heavily trafficked roadways. The predicted construction noise at this location would be temporary and would occur only during the period of floodwall construction and landscaping immediately adjacent to the school, which would not be expected to occur for more than 11 months. Consequently, while the predicted construction noise at the 123 Mangin Street School was determined to result in a significant adverse effect, it would not constitute a potential environmental health or safety risk to the students. Additionally, the maximum predicted noise level increment at the 84 Montgomery Street school would not constitute a significant adverse impact, and consequently would not have the potential to disproportionately affect the health of children.

Daycare uses present within the study area of the construction noise analysis would be subject to the same noise impact criteria as residences, and as such the general discussion of public health above would apply, indicating that children in daycare facilities experiencing noise as a result of construction of the proposed project would not experience chronic exposure to high levels of noise (i.e., high levels of noise that occur indefinitely and do not fluctuate or abate), prolonged exposure to noise levels above 85 dBA (the *CEQR Technical Manual* recommended threshold for potential hearing loss), or episodic and unpredictable exposure to short-term effects of noise at high decibel levels. As a result, construction would not have the potential to disproportionately affect the health of children in such daycare facilities. Furthermore, any daycare facilities in this study area would tend to be in ground-floor spaces, which were are predicted to experience the smallest construction noise increments, because they experience the greatest level of noise reduction from site-perimeter noise barriers (as a result of being below the height of the barrier) and have the highest baseline levels of noise (as a result of being closer to existing roadway traffic).

As described above, the temporary significant adverse direct and indirect effects identified under the Preferred Alternative for the displacement of open space during construction, would not disproportionately affect children. There would be comparable resources available within and immediately adjacent to the open space study area that would be accessible to the public,

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including children. Although the amenities within the displaced open space resources utilized by the 15–19 year old user group would experience an overburdening of existing facilities, the mitigation measures proposed would reduce this burden on children. Therefore, the temporary significant adverse direct and indirect effects identified under the Preferred Alternative would not disproportionately affect children.

All safety requirements would be followed, and construction of the proposed project would be conducted with care to minimize the disruption to the community. Therefore, construction of the proposed project would not result in a significant adverse public health effect. *