Chapter 8.0: Unavoidable Adverse Effects

A. INTRODUCTION

This chapter summarizes the unavoidable adverse effects resulting from the proposed project and mitigation measures to address those effects. According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, unavoidable significant effects are those that would occur if a proposed project or action is implemented regardless of the mitigation employed, or if mitigation is impossible. Unavoidable significant adverse impacts resulting from the proposed project have been identified in the area(s) of analysis under operational conditions: urban design and visual resources, natural resources; and under construction conditions: open spaces, and noise and vibration.

B. URBAN DESIGN AND VISUAL RESOURCES

Alternatives 2 through 5 could potentially result in significant adverse visual effects by blocking certain views to the East River from multiple locations within the study area. Since these effects result from the installation of the flood protection structures, these potential significant adverse effects could not be visually mitigated, resulting in unavoidable significant adverse effects. Lowering the floodwalls and/or raised landscapes to minimize or reduce obstructions of views to the East River would compromise the ability of the proposed project to provide adequate flood protection to the surrounding communities and would not meet the project goals. Although views to East River Park would be blocked under Alternatives 2 and 3, Alternative 3 would provide enhanced and more direct connections to the park, improving accessibility and the pedestrian experience. The Preferred Alternative and Alternative 5 would maintain views to East River Park, because the park would slope down to the grade of the FDR Drive and there would be no floodwalls along the park's western edge; these alternatives would also improve accessibility to the park. While the finishes of floodwalls would not mitigate the significant adverse effects of blocked views to the East River in Project Area One under Alternatives 2 and 3 or in Project Area Two under Alternative 5, the aesthetics of the finishes would affect the experience of pedestrians, residents, motorists, and bicyclists. Therefore, the finishes are being taken into account, and the floodwalls would be finished with board form concrete to create alternating smooth and textured surfaces to provide visual interest and relieve the monotony of an untextured blank wall. In addition, planting and landscape treatment can be used to mitigate the visual impact of floodwalls.

C. NATURAL RESOURCES

TERRESTRIAL RESOURCES

The total number of trees to be removed as a result of the Alternative 2 design would be 265, which represents a loss of 20 percent of the trees inventoried for the project.

The total number of trees to be removed as a result of the Alternative 3 design would be 776. This loss of trees represents 61 percent of the trees inventoried for the proposed project.

The total number of trees to be removed as a result of the Preferred Alternative and Alternative 5 design would be 981. This loss of trees represents 77 percent of the trees inventoried for the proposed project. For all alternatives, trees in excellent condition measuring up to 7 inches diameter breast height (dbh) would be considered potential transplant candidates and may reduce the total number of trees to be removed. Under the Preferred Alternative and Alternative 5 there would be 1,442 trees planted within the project area and the net change to trees would be an increase of 399. In addition, the project would implement a comprehensive planting program as part of a landscape restoration plan and restoration for the tree removals would be provided in compliance with Chapter 5 of Title 56 of the Rules of New York (NYC Department of Parks and Recreation Rules) and Local Law 3 of 2010. NYC Department of Parks and Recreation (NYC Parks). This landscape restoration plan includes over 50 different species, reflecting research around the benefits of diversifying species to increase resilience and adaptive capacity in a plant ecosystem and also pays special attention to species that can handle salt spray, strong winds, and extreme weather events. The design also focuses on creating a more layered planting approach, allowing for informal planting areas that layer plant communities together to express ecological richness. A more diverse native plants palette has the ability to better adapt to climate change stressors. Once planted and established, the new landscape would represent an improvement in ecological sustainability, habitat creation, and adaptability in the face of a changing climate. The landscape restoration plan would ultimately result in a net increase of 399 total trees within the project area. While these trees would not be as mature as some existing trees, over time, the new tree canopy would fill in and represent an improved habitat over the existing conditions, which is largely dominated by London plane trees, known for their poor response to salt-water inundation.

Under Alternative 2, as part of the replanting plan, at a minimum the trees removed would be replaced, resulting in no net loss of trees. Under Alternative 3, as part of the replanting plan, there would be 1,180 trees planted within the project area. The net change to trees would be an increase of 342.

WETLAND RESOURCES

Under the With Action Alternatives, a shared-use flyover bridge would be built cantilevered over the northbound FDR Drive to address the narrowed pathway (pinch point) near the Con Edison facility between East 13th Street and East 15th Street, thus providing a more accessible connection between East River Park and Captain Patrick J. Brown Walk. The support structures (shafts and footings) for the flyover bridge would result in permanent adverse effects to 652 square feet of New York State Department of Environmental Conservation (NYSDEC) littoral zone tidal wetlands and U.S. Army Corps of Engineers (USACE) Waters of the United States within the East River.

The Preferred Alternative and Alternative 5 also include the filling and relocation of two existing embayments within the project area to provide adequate space to site heavily utilized active recreation facilities and to allow for an Americans with Disabilities Act (ADA) accessible path to improve accessibility to, and enjoyment of, the waterfront for all Park users. The two proposed embayments would be comparable or larger in size, would be similarly located within East River Park, and would be designed to provide enhanced ecological value to the aquatic environment compared to the existing embayments.

The embayment relocations would result in the permanent loss of 24,085 square feet of littoral zone tidal wetland habitat as shown in Table 5.6-7. Under Alternative 5, the raised FDR Drive platform would require permanent support shafts to be constructed in tidal wetlands. Of the 15 support shafts proposed as part of the elevated FDR Drive platform, eight are anticipated to occur through the deck of the waterfront esplanade and into the East River. The support shafts would result in a permanent loss of an additional 157 square feet of unvegetated and shaded littoral zone tidal wetland habitat compared to the Preferred Alternative.

Adverse effects to aquatic resources would be mitigated for with the creation of approximately 26,000 square feet new embayments within the project area and off-site wetland restoration or through the purchase of credits from the Saw Mill Creek Wetland Mitigation Bank operated by New York City Economic Development Corporation (EDC) and located on Staten Island, New York, pursuant to NYSDEC and USACE permit requirements, and would not be considered significant. The mitigatory elements of the Preferred Alternative are consistent with the City's WRP policies of protecting water quality, sensitive habitats, and the aquatic ecosystem.

CONCLUSION

Tree replacement would be conducted as part of a landscape restoration plan and restoration for the tree removals would be provided in compliance with Chapter 5 of Title 56 of the Rules of New York (NYC Department of Parks and Recreation Rules) and Local Law 3 of 2010. NYC Department of Parks and Recreation (NYC Parks). The permanent loss of tidal wetland habitat associated with the With Action Alternatives would be mitigated for in accordance with all NYSDEC and USACE permit conditions.

D. CONSTRUCTION—OPEN SPACE

The open space resources within the project area, including East River Park, Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Playground and Captain Patrick J. Brown Walk, would be partially or fully closed for at least a portion of the approximately 3.5 to 5-year-long construction duration to accommodate the construction of the proposed project. Therefore, there is potential for temporary significant adverse direct effects over multiple analysis years due to the displacement of the numerous recreational resources in East River Park across all alternatives. The open space ratios would exceed the *CEQR Technical Manual* threshold of 5 percent change between the With Action and No Action conditions during construction. Temporary displacement of open space for construction over the 5 percent threshold is considered significant since it could result in the overburdening of remaining available open spaces within the study area. Therefore, the construction—open space analysis concluded that there would be potential significant adverse indirect effects on open space during the construction period across all alternatives. On-site or off-site measures can be made to mitigate the effect to the greatest extent practicable; however, these impacts cannot be fully mitigated. Therefore, resulting in unavoidable significant adverse effects.

According to the *CEQR Technical Manual*, on-site improvements are considered a mitigation measure. 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 a 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 Preferred Alternative would be especially beneficial for the open space resources in East River Park, as this alternative includes a full reconstruction of the park, raising it by approximately eight feet to meet the design flood protection criteria. These enhancements would ensure that East River Park would be more resilient in future storm events. The flood protection measures proposed to be integrated into park features aim to reduce the effects from future storm events on the community. The Preferred Alternative proposes the replacement of pedestrian crossings at 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. Additionally, as stated in the *CEQR Technical Manual*, the implementation of missing segments of the City's greenway network would be considered a mitigation strategy. By remedying a long-standing restriction/obstacle at the Con Edison "pinch-point," the proposed project under all alternatives would significantly improve the usability and access to the greenway with the construction of the shared-use flyover bridge.

The Asser Levy Recreation Center is predicted to experience a significant adverse noise effect as a result of construction. The feasibility of utilizing less impactful construction methods (i.e., press in pile) are being explored to mitigate this noise effect.

PARTIAL MITIGATION OF EFFECTS

The proposed project introduces potential temporary significant adverse direct and indirect effects on open space during the construction period. Since the proposed project would result in temporary significant adverse effects, potential on-site or off-site measures to mitigate the effect to the greatest extent practicable are being explored by the city. However, with these measures, the effects would only partially mitigate construction effects on open space resources for the five-year construction duration under Alternatives 2 and 3, and for the first three years of the construction period under the Preferred Alternative and Alternative 5.

POTENTIAL MITIGATION MEASURES

As per *CEQR Technical Manual* guidance, a mitigation effort would be to improve existing open spaces in the study area and increase the utility, safety, and capacity of those resources. To that end, the mitigation measures being explored for the Preferred Alternative by the City include:

- The New York City Department of Parks and Recreation (NYC Parks) would work to accommodate permit users, with youth leagues as highest priority, within existing facilities under NYC Parks jurisdiction. Due to the high volume of permitted use across all NYC Parks, permittees may have to limit playing time to be accommodated;
- The City is working with other entities with open space resources to identify recreational resources that may be opened to the community during construction;
- The City is assessing opportunities to open parts of East River Park as work is completed;
- NYC Parks is exploring providing alternative recreational opportunities throughout the Lower East Side neighborhoods through programs like Shape-Up classes, walking clubs, Arts, greening programs, etc.;
- The New York City Department of Transportation (NYCDOT) would reroute greenway users to the most direct alternate route within the existing bicycle network, primarily along

the protected bike lanes on First Avenue and Second Avenue; bicycles looking to access Stuyvesant Cove Park ferry landing would have access via the existing protected bike lanes onto East 20th Street;.

- NYDOT is investigating supporting bicycle infrastructure upgrades along the alternate route, including new markings and signage;
- NYC Parks is exploring a Lower East Side Greening program with the opportunity to plant up to 1,000 trees in parks and streets, and create up to 40 bioswales;
- The City is exploring purchasing lighting to be used at several Lower East Side parks to extend playing time at fields for permitted use during construction of the proposed project; and
- The City is assessing opportunities for improvements to parks and playgrounds in the vicinity.

The City is also assessing the feasibility of utilizing quieter construction methods (i.e., press in pile), to partially mitigate noise effects that would be experienced at the Asser Levy Recreation Center. Additionally, the introduction of new publically accessible open space such as Pier 42 Park, Pier 35, and Phase IV of the East River Waterfront Esplanade project, totaling 4.81 acres could be considered a mitigation effort. In addition, there has been funding allocated for the demolition of LaGuardia Bathhouse and interim recreation improvements which will create approximately 7,000 square feet of new publicly accessible open space.

Although full mitigation of the significant adverse construction open space effects is not possible as it is not feasible to acquire enough land to develop new open spaces to replace the existing resources that would be displaced under the proposed project, the measures proposed above would mitigate to the extent practicable, the construction effects on open space resources. Furthermore, the proposed project would substantially improve existing open space resources. All temporary displacement would be met with the refurbishment and re-construction of the displaced open space amenities. After construction, Murphy Brothers Playground, Stuyvesant Cove Park, and Asser Levy Playground would be redesigned and reconstructed and East River Park would be reconstructed as a newly landscaped open space, which would enhance the use experience of the park. In addition, the proposed project seeks to protect portions of the ½-mile study area that are inland from the flood protection systems. Upon completion of the proposed project, 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.

IMPROVEMENT OF NON-MOTORIZED ACCESS TO PARKS

The Preferred Alternative would include the replacement of the Delancey Street, East 10th Street, and the Corlears Hook bridges. The enhancement of these 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 proposed project would also include a shared-use fly-over bridge in the East River Bikeway along the Con Edison facility between East 13th Street and East 15th Streets. This would allow pedestrians and cyclists to travel between Stuyvesant Cove Park and the East River Esplanade/East River Bikeway without conflict with visitors travelling in the opposite directions or requiring cyclist dismounts. As stated in the *CEQR Technical Manual*, the implementation of missing segments of the City's greenway network would be considered a mitigation strategy. By

remedying a long-standing restriction/obstacles, the proposed project would significantly improve the usability and access to the greenway.

E. CONSTRUCTION—NOISE AND VIBRATION

Under the Preferred Alternative, construction of the proposed project is predicted to result in significant adverse noise effects at 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, and 520 East 23rd Street, 123 Mangin Street, and the Asser Levy Recreation Center. The buildings at 315-321 Avenue C, 620 East 20th Street, 601 East 20th Street, 8 Peter Cooper Road, 7 Peter Cooper Road, 530 East 23rd Street, 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, and 520 East 23rd Street already have insulated glass windows and an alternative means of ventilation (i.e., air conditioning), and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA during much of the construction period, which would be considered acceptable according to CEQR criteria. The buildings at 621 Water Street, 605 Water Street, 765 FDR Drive, 819 FDR Drive, 132 Avenue D, 465 Avenue D, 123 Mangin Street, and the Asser Levy Recreation Center appear to have monolithic glass (i.e., non-insulating) and would consequently be expected to experience interior $L_{10(1)}$ values up to the high 60s dBA, which is up to approximately 23 dBA higher than the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines. See Table 6.12-8 for a summary of construction noise analysis results for the Preferred Alternative.

Under Alternative 3, construction of the proposed project is predicted to result in significant adverse noise effects at 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, 132 Avenue D, 465 East 10th Street, and 520 East 23rd Street. The buildings at 315-321 Avenue C, 620 East 20th Street, 601 East 20th Street, 8 Peter Cooper Road, 7 Peter Cooper Road, 530 East 23rd Street, 911 FDR Drive, 1023 FDR Drive, 1115 FDR Drive, 1141 FDR Drive, 1223 FDR Drive, and 520 East 23rd Street already have insulated glass windows and an alternative means of ventilation (i.e., air conditioning), and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA during much of the construction period, which would be considered acceptable according to CEQR criteria.

Under Alternatives 2 and 5, significant adverse construction noise effects are expected to be similar to those under Alternatives 3 and the Preferred Alternative, respectively.

Construction of the Preferred Alternative is expected to occur over a 3.5-year duration as compared to the 5-year duration for Alternatives 2, 3, and 5. This shorter construction duration for the Preferred Alternative is primarily due to less disruption to the FDR Drive since flood protection in East River Park would be primarily along the East River rather than along the FDR Drive and the Preferred Alternative also allows full closure of East River Park so it can be reconstructed in a single stage. In addition, compared to Alternatives 2 and 3, maximum

construction noise levels at receptors nearest the East River floodwall construction within East River Park for the Preferred Alternative would be slightly lower, because pile driving for the Preferred Alternative would occur further from the receptors.

Even with the noise control measures described in Chapter 6.12, "Construction—Noise and Vibration," construction of the proposed project would result in potential temporary significant adverse noise effects at 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, and 520 East 23rd Street. The predicted significant adverse construction noise effects would be of limited duration and would be up to the high 80s dBA during daytime construction and up to the mid 70s during nighttime construction. Noise levels in this range are typical in many parts of Manhattan along heavily trafficked roadways. Because the analysis is based on worst-case construction phases, it does not capture the natural daily and hourly variability of construction noise at each receptor. The level of noise produced by construction fluctuates throughout the days and months of the construction phases, while the construction noise analysis is based on the worst-case time periods only, which is conservative.

Source or path controls beyond those already identified in Chapter 6.12, "Construction—Noise and Vibration," were considered for feasibility and effectiveness in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. These measures may include the following:

- Using a hydraulic press-in pile installation method instead of the standard impact pile driving provides a large reduction in noise from pile installation, which would result in a substantial reduction in overall construction noise because pile installation is the dominant source of construction noise at most receptors. However, the press-in pile installation method is not suitable for pile installation in some space-limited areas and in areas where there are large subsurface obstructions. In those cases, impact pile driving would be unavoidable.
- Hanging noise barriers or curtains made from mass-loaded vinyl around the pile driving head to shield receptors from noise of impact pile driving would provide approximately 5 to 10 dBA reduction in noise from pile installation. However, this would require a crane or cranes to hang the noise barriers, which introduces an additional noise source. Furthermore, the time required to place the noise barriers at the start of driving each pile could extend the total duration of pile driving.
- Enclosing the concrete pump and concrete mixer trucks at any time that the mixer barrels would be spinning in a shed or tunnel including 2 or 3 walls and a roof, with the opening or openings facing away from receptors would provide approximately 10 to 15 dBA reduction in Approximately 10 to 15 dBA reduction in concrete operation noise, which does not represent a substantial portion of the project's construction noise. Consequently, this measure would not be effective in reducing total construction noise levels at surrounding receptors.
- Using barging for deliveries of construction materials (including concrete) and importing of fill to the project sites, rather than trucks on roadways to from the construction work areas, would provide approximately 3 to 6 dBA reduction in noise levels from dump trucks and/or

delivery trucks. If noise from pile installation is reduced by one of the means described above, the trucks would be the next greatest contributor to the total construction noise level, so this reduction measure could be effective in further reducing the total construction noise levels at surrounding receptors. However, it may result in conflicts with esplanade work, in which case truck deliveries would be unavoidable.

- Selecting quieter equipment models for cranes, generators, compressors, and lifts may result in up to a 10 dBA reduction in noise levels from construction if the pile installation and truck noise are reduced by the means described above. This is subject to the availability of quieter equipment in the quantities necessary to complete the proposed project in the projected timeframe.

During construction of the proposed project, noise control measures would be implemented 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).

However, even with these measures, the cumulative analysis of construction vehicle trips and operation of on-site construction equipment indicated the potential for significant adverse noise effects as a result of construction at some receptors under each of the analyzed alternatives. ✷