NYC Parks

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Parks & Recreation

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NOTICE OF COMPLETION
and
NOTICE OF PUBLIC HEARING
regarding the
DRAFT ENVIRONMENTAL IMPACT STATEMENT
For the
EAST SIDE COASTAL RESILIENCY PROJECT

DATE ISSUED:	April 5, 2019
CEQR No.:	15DPR013M
SEQR Classification:	Type I
Lead Agency:	New York City Department of Parks &Recreation (NYC Parks)
Location:	Manhattan, New York
	Community Districts 3 and 6
	Block 243, Lot 1; 244,19; 262,1; 262,25; 25; 316,114; 316,200; 321,1; 323,1; 367,1; 955,5; 981,2; 981,5; 988,1; 990,1; 990,70; 990,90; 991,29 and Street Right-of-way
	The project area is located on the east side of Manhattan, beginning at Montgomery Street to the south and extending north along the waterfront to East 25th Street.

Pursuant to City Environmental Quality Review, Mayoral Executive Order No. 91 of 1977, and the City Environmental Quality Review Rules of Procedure found at Title 62, Chapter 5 of the Rules of the City of New York (CEQR), and the State Environmental Quality Review Act, Article 8 of the New York State Environmental Conservation law and its implementing regulations found in Part 61 of 6 NYCRR (SEQRA), NYC Parks, as Lead Agency under SEQRA/CEQR, has issued a Draft Environmental Impact Statement (DEIS) together with New York City Office of Management and Budget (OMB), as Lead Agency under the National Environmental Policy Act (NEPA), for the actions described below.

A public hearing on the DEIS will be held on July 31, 2019 at 10:00 AM at 120 Broadway, Concourse Level, New York, NY 10271.

A copy of the DEIS can be obtained online on the following websites: http://www.nyc.gov/cdbgdr, http://www.nyc.gov/parks/escr, and http://nyc.gov/escr and is available for public inspection at the following locations during regular business hours:

- OMB, 255 Greenwich Street, 8th Floor, New York, NY 10007

- NYC Parks, The Arsenal, Central Park, 830 Fifth Avenue, Room 401, New York, NY 10065
- New York Public Library – Seward Park Branch, 192 East Broadway, New York, NY 10002
- New York Public Library – Epiphany Branch – 228 East 23rd Street, New York, NY 10010

Written comments must be postmarked or received by email by 5:00 PM on August 15, 2019. Comments can be submitted: (1) either spoken or in writing at the Public Hearing; (2) emailed to the Proposed Project email addresses CDBGDR-Enviro@omb.nyc.gov or escr@parks.nyc.gov; (3) online at https://www1.nyc.gov/site/escr/index.page; or (4) mailed or hand delivered to OMB or NYC Parks directly at:

- New York City Office of Management and Budget, c/o Calvin Johnson, Assistant Director CDBG-DR, 255 Greenwich Street, 8th Floor, New York, NY 10007
- New York City Department of Parks and Recreation, c/o Colleen Alderson, Chief, Parklands and Real Estate, The Arsenal, Central Park, 830 Fifth Avenue, Room 401, New York, NY 10065

A. PROJECT IDENTIFICATION

On October 29, 2012, Hurricane Sandy made landfall, greatly impacting the east side of Manhattan and highlighting the need for the City of New York (the City) to increase its efforts to protect vulnerable populations and critical infrastructure during major storm events. Hurricane Sandy, a presidentially declared disaster, caused extensive coastal flooding, resulting in significant damage to residential and commercial property, open space, transportation, power, and water and sewer infrastructure, which in turn affected medical and other essential services. As part of its plan to address vulnerability to such major flooding, the City is proposing the East Side Coastal Resiliency (ESCR) Project (the proposed project), which involves the construction of a coastal flood protection system along a portion of the east side of Manhattan and related improvements to City infrastructure.

The proposed project area begins at Montgomery Street to the south and extends north along the waterfront to East 25th Street and is composed of two sub-areas: Project Area One and Project Area Two. Project Area One extends from Montgomery Street on the south to the north end of John V. Lindsay East River Park (East River Park) at about East 13th Street. Project Area One is approximately 61 acres and consists primarily of the Franklin Delano Roosevelt East River Drive (the FDR Drive) right-of-way, a portion of Pier 42 and Corlears Hook Park as well as East River Park. The majority of Project Area One is within East River Park and includes four existing pedestrian bridges across the FDR Drive to East River Park (Corlears Hook, Delancey Street, East 6th Street, and East 10th Street Bridges) and the Houston Street overpass. Project Area Two is approximately 21 acres and extends north and east from Project Area One, from East 13th Street to East 25th Street. In addition to the FDR Drive right-of-way, Project Area Two includes the Consolidated Edison Company of New York (Con Edison) East 13th Street Substation and the East River Generating Station, Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Recreational Center and Playground, and in-street segments along East 20th Street, East 25th Street, and along and under the FDR Drive. The proposed flood protection system is completed on the north with a connection to the existing U.S. Veterans Administration (VA) Medical Center flood protection system.

The area that would be protected under the proposed project (the protected area) includes lands within the Federal Emergency Management Agency (FEMA) 100-year special flood hazard area (SFHA). In addition, the protected area also takes into consideration the 90th percentile projection of sea level rise to the 2050s. Based on these assumptions, the protected area includes portions of the Lower East Side and East Village neighborhoods, Stuyvesant Town, Peter Cooper Village as well as East River Park and Stuyvesant Cove Park inland of the flood alignment. Within the project area, the City is proposing to install a flood protection system generally located within City parkland and streets, which would consist of a combination of floodwalls, levees, closure structures (e.g., floodgates), and other infrastructure improvements to reduce the risk of flooding. In addition to providing a reliable coastal flood protection system for this area, another

goal of the proposed project is to improve open spaces and enhance access to the waterfront, including East River Park and Stuyvesant Cove Park.

The City has entered into a grant agreement with the U.S. Department of Housing and Urban Development (HUD) to disburse $338 million of Community Development Block Grant-Disaster Recovery (CDBG-DR) funds for the design and construction of the proposed project. The City is the grantee of CDBG-DR funds related to Hurricane Sandy for the development of a coastal flood protection system, which would be provided to the City through the New York City Office of Management and Budget (OMB), acting under HUD's authority.

Implementing the proposed project requires the preparation of an Environmental Impact Statement (EIS) in accordance with the requirement of NEPA (40 Code of Federal Regulations (CFR) 1500-1508), SEQRA, and CEQR. NEPA is the federal law that governs the disclosure and analysis of the environmental effects of actions that are funded, approved, or directly undertaken by a federal government agency. Pursuant to 24 CFR Part 58 (Environmental Review Procedures for Entities assuming HUD Environmental Responsibilities), and as the recipient of the above-noted CDBG-DR funds, OMB has assumed these environmental review responsibilities which would otherwise apply to HUD. As such, OMB is the HUD-designated responsible entity and has assumed Lead Agency status under NEPA. Since the proposed project also requires State approvals (e.g., permits), the EIS must also comply with SEQRA and its implementing regulations (6 New York City Rules and Regulations [NYCRR] Part 617). Additionally, since the proposed project requires local approvals and would be implemented by the City of New York, it is also subject to the requirements of CEQR, as set forth in Executive Order 91 of 1977, CEQR regulations, and subsequent CEQR amendments. Given that the proposed project would be located in large part within City parkland and requires approvals from NYC Parks, NYC Parks is the Lead Agency under SEQRA and CEQR.

The proposed project triggers three land use actions, subject to the City's Uniform Land Use Review Procedure (ULURP), for the acquisition of real property by the City in the form of easements, a City Map change, and a zoning text amendment to exempt a segment of the proposed project from the requirements of the City's waterfront zoning regulations. The City Map change action would be needed for the reconstruction of the pedestrian bridges and would be carried through at a later date once final design and implementation are completed to record grade and treatment line adjustments, if needed. The properties where these acquisitions are proposed are described in Table 1.

Table 1

ULURP Actions Necessary to Facilitate the Project

Action	Property owner	Block	Lot	Purpose of Action
Acquisition	Gouverneur Gardens Housing Corporation	244	p/o 19	To enable the City to operate, inspect, and maintain the proposed floodwall
Acquisition	East River Housing Corporation	321	p/o 1	To enable the City to operate, inspect, and maintain drainage improvements
Acquisition	New York City Housing Authority (Baruch Houses)	323	p/o 1	To enable the City to operate, inspect, and maintain drainage improvements
Acquisition	New York City Housing Authority (Riis Houses)	367	p/o 1	To enable the City to operate, inspect, and maintain the proposed floodwall
Acquisition	Con Edison	988	p/o 1	To enable the City to operate, inspect, and maintain the proposed floodwall
Acquisition	Con Edison	990	p/o 1	To enable the City to operate, inspect, and maintain the proposed floodwall

Acquisition	U.S. Department of Veterans Affairs	955	p/o 5	To enable the City to operate, inspect, and maintain the proposed floodwall
Acquisition	New York State Department of Transportation	p/o FDR Drive right of way	p/o FDR Drive right of way	To enable the City to operate, inspect, and maintain the proposed flyover bridge
Zoning Text Amendment	New York City Department of Small Business Services	Marginal Wharf, Street or Place	Marginal Wharf, Street or Place	Zoning text amendment to ZR §62-59 to allow the Proposed Project to satisfy the visual corridor and design requirements for lots subject to waterfront regulations.

The DEIS, in conformance with the final scope dated April 5, 2019, has been prepared to describe the proposed project, the project objectives and actions required to implement the project, potential impacts, proposed mitigation, and the No-Action alternative and alternatives that meet project objectives. The 2014 *CEQR Technical Manual* serves as a guide on the methodologies and impact criteria for evaluating the proposed project's potential effects on the various environmental areas of analysis.

B. PURPOSE AND NEED

As established above, Hurricane Sandy underscored the City's need to bolster its resiliency efforts to protect property, vulnerable populations, and critical infrastructure during design storm events. The need to protect the area is magnified by the potential for more frequent flooding events and would align with resiliency planning goals described in *OneNYC* and *A Stronger, More Resilient New York*. To that end, the purpose of the proposed project is to address this coastal flooding vulnerability in a manner that reduces the flooding risk while enhancing waterfront open spaces and access to the waterfront.

Absent the proposed project's coastal flood protection measures, residents, businesses, critical infrastructure, and valuable open space amenities within the protected area would remain vulnerable to flooding during design storm events. Although some resiliency measures are expected to be completed at the New York City Housing Authority (NYCHA)'s Baruch Houses, Wald Houses, Riis Houses, and other developments, these areas as well as the broader protected area would continue to be vulnerable to flood damage during future storm events, and responders' access to the dwellings would continue to be compromised during flood events. Additionally, residents in market rate and affordable dwellings in Stuyvesant Town and Peter Cooper Village, and many housing units east of Avenue B, would remain vulnerable. Further, existing businesses, especially ground floor establishments along Avenues B, C, and D would remain vulnerable through potential loss of customers during flood events, and possibly by water damage to property.

The principal objectives of the proposed project are as follows:

- Provide a reliable coastal flood protection system against the design storm event for the protected area;
- Improve access to and enhance open space resources along the waterfront, including East River Park and Stuyvesant Cove Park;
- Respond quickly to the urgent need for increased flood protection and resiliency, particularly for communities that have a large concentration of residents in affordable and public housing units along the proposed project area; and
- Achieve implementation milestones and comply with the conditions attached to funding allocations as established by HUD, including scheduling milestones.

Additionally, design considerations for the proposed project include the following:

- Reliability of the proposed coastal flood protection system;
- Urban design compatibility and enhancements;

- Improving the ecology and long-term resiliency of East River Park;
- Minimizing environmental impacts, including construction-related effects and disruptions to public right of way;
- Constructability;
- Operational needs;
- Maintenance needs;
- Minimizing use of pre-storm event deployable structures;
- FEMA accreditation;
- Scheduling that meets HUD milestones; and
- Cost effectiveness.

C. PROJECT DESCRIPTION

The DEIS includes a detailed project description and describes environmental impacts, including direct, indirect, and cumulative environmental impacts, associated with No Action Alternative and four With Action Alternatives. The City evaluated and reviewed the proposed alternatives' conceptual design against the purpose and need and principal objectives for the project, including providing a reliable flood protection system for the protected area, improving access to and enhancing open space resources along the waterfront, and meeting HUD funding deadlines for federal spending, along with the goal to minimize potential environmental effects and disruptions to the community.

As described in detail below, the Flood Protection System with a Raised East River Park Alternative (Alternative 4 or Preferred Alternative) best meets the principal objectives for the project and therefore was selected as the Preferred Alternative. With the implementation of the Preferred Alternative, the proposed project would reconstruct East River Park to protect this valuable resource from flooding during coastal storm events as well as inundation from sea level rise and enhance its value as a recreational resource in addition to providing flood protection to the inland communities. The Preferred Alternative would raise the majority of East River Park and would limit the length of exposed wall between the community and the waterfront to provide for enhanced neighborhood connectivity and integration. In addition, pedestrian bridges would be reconstructed and two embayments would be relocated to improve access and enhance the park user experience. Furthermore, Stuyvesant Cove Park, Murphy Brothers Playground, and Asser Levy Playground would be reconstructed and improved. The Preferred Alternative includes the construction of a shared-use flyover bridge linking East River Park and Captain Patrick J. Brown Walk. This bridge will address a long-standing access deficiency along the East River Greenway at the Con Edison 13th Street Generating Station and would substantially improve the City's greenway network. The selection of this alternative also allows for a shorter construction duration and park closure, earlier deployment of the flood protection system (which is expected to be completed in mid-2023), and reduced construction disruption along the FDR Drive.

A summary description of the four With Action alternatives selected for analysis within the DEIS is provided below.

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

DESIGN OBJECTIVES

The Preferred Alternative is a flood protection system comprised of a combination of floodwalls, 18 closure structures (i.e., swing and roller floodgates), and supporting infrastructure improvements that together would reduce risk of damage from coastal storms in the area proposed for protection. The inland limits of the proposed protection area are generally along First Avenue, Avenue B, Avenue C, Avenue D, and

Columbia Street and includes private and public properties and streets within the Lower East Side, East Village, Stuyvesant Town, Peter Cooper Village and Kips Bay communities that are currently in the East River coastal flood hazard area. The design flood elevation for the project is 16.5 feet NAVD88, which is generally 8 to 9 feet above the existing land surface along the project alignment but diminishes in height along the inland alignments (e.g., along Montgomery Street). This design elevation was developed based on the 100-year FEMA flood level and adding to that wave effects and the 90th percentile projection for sea level rise through to the 2050s (30 inches).

As described in greater detail below, a key element of the Preferred Alternative is elevating and reconstructing John V. Lindsay East River Park (East River Park) to make it more resilient to coastal storms. The Preferred Alternative also includes integrating flood protection with open space improvements at other parks along the flood protection alignment including Murphy Brothers Playground, Stuyvesant Cove Park, and Asser Levy Playground, with an improved shared use path (bikeway/walkway) along the project length (from East 23rd Street to Montgomery Street), and a new shared-use flyover bridge to address the narrow and substandard waterfront public access along the segment at the Con Edison facility (on the east side of the FDR Drive) known as the "pinch point."

Also proposed are redesigned and enhanced connections to the waterfront and East River Park, with the reconstruction of the Corlears Hook Bridge, the replacement of the Delancey and East 10th Street bridges, and the above-mentioned flyover bridge. These proposed bridge improvements would create more inviting and accessible crossings over the FDR Drive to the reconstructed East River Park and the East River waterfront, including the waterfront shared-use path. With the proposed project, the reconstructed bridges at Delancey and East 10th Street have also been designed to provide more community-oriented access that supports and encourages public access to the waterfront with gentler grades that are consistent with the principle of universal access. Within the park, the bridge landings would provide an elevated gateway with expanded views of the reconstructed park and the river.

FLOOD PROTECTION ALIGNMENT AND DESIGN

The description below summarizes flood protection alignment and design for the Preferred Alternative:

Project Area One – South of East River Park

The proposed flood protection alignment begins at its southerly tieback along Montgomery about 130 feet west of South Street; at South Street the system turns north along for a distance of about 50 linear feet and then east, crossing under the FDR Drive to the east side of the highway with a pair of swing floodgates. Once on the east side of the highway, the flood protection system turns north and runs adjacent to the FDR Drive, continuing north into East River Park.

Project Area One – East River Park

Once in East River Park, the proposed flood protection alignment starts to turn east towards the East River, near the existing amphitheater. From here, the alignment continues north and the system parallels the East River Park bulkhead.

Within East River Park, the proposed project includes the following key design elements:

- Installing a below-grade flood protection structure (i.e., floodwall) running parallel to the existing East River Park bulkhead coupled with the elevation of a majority of East River Park (with the exception of the Fireboat House), generally beginning at the existing amphitheater and continuing northward to the northern end of the park near East 13th Street, thereby protecting park facilities and recreational spaces from design storm events and sea level rise inundation;
- Installing the floodwall below-grade to soften the visual effect of the flood protection system;
- Raising the majority of park grade with an increase in elevation from west (the FDR Drive) to east (the East River bulkhead) to attain the flood protection design elevation, accompanied by the reconstruction

of the park open space including all fields and passive spaces, and incorporating resilient landscaping and substantial tree replanting that envisions a more diverse, resilient, and ecologically robust habitat;

- Reconstructing the Tennis House, Track and Field House and comfort stations;
- Reconstructing the East River Esplanade to increase the deck elevation to match the raised park and protect the esplanade from design storms and sea level rise;
- Improving north/south access along the waterfront with a new shared-use flyover bridge connecting the north end of East River Park with Captain Patrick J. Brown Walk;
- Improving access to the waterfront by reconstructing the Corlears Hook Bridge over the FDR Drive and replacing the existing Delancey Street and East 10th Street Bridges to be universally accessible;
- Creating an expanded and reconfigured park-side East Houston Street landing and entryway to the waterfront; and
- Relocating the two existing embayments in the park with the objective of repurposing the filled areas as open space that allows for improved recreational programming and creating two new compensatory embayments;
- Reconstructing the amphitheater as an outdoor theater space;
- Reconstructing all water and sewer infrastructure in the park, some of which is reaching the end of the serviceable life, including the outfalls and associated pipes that cross the park to the East River bulkhead.

It is an objective of the design to improve the ecology of East River Park, which is susceptible to the effects of sea level rise, storm surge, and heavy rainfall events. Storm surge from severe events like Hurricane Sandy can overwhelm the park. Moreover, the threat from gradually increasing sea level rise adds to the risk of more frequent flooding from everyday storms or high tides. This flooding not only interrupts the ability for parks visitors to enjoy and utilize the amenities within East River Park, but also affects its ecology. In 2014, NYC Parks removed 258 trees from East River Park due to salt water damage from Hurricane Sandy.

The existing landscaping and planting plan in East River Park is reflective of the popular styles of the late 1930s, when the Park was first designed and completed. The planting design is formal, with a focus on tree geometry and placement that maximizes open spaces for active recreation. Species diversity and ecology were not priorities of the original landscape design: over half of the current tree canopy is comprised of just two species. In the original design, plant selection relied heavily on canopy trees, such as London plane, a non-native species, and oaks. London plane trees in particular were significantly affected by salt inundation post Hurricane Sandy and have comprised most of the tree removals in East River Park since then.

In contrast, the proposed landscaping plan incorporates park resiliency through a design that can withstand a changing climate and consideration of species diversity, habitat, salt spray, wind, maintenance, and care. The landscape plan includes over 50 different species, reflecting research around the benefits of diversifying species to increase resiliency and adaptive capacity in a plant ecosystem. The design also focuses on creating a more layered planting approach, allowing for informal planting areas that have flexibility and plant communities that together improve ecological richness. By elevating the majority of the park and its landscape, and diversifying plant species, the landscape in the park will be more resistant to salt spray exposure and improve resiliency and post-storm functionality over the long term.

Project Area Two

North of East River Park, the proposed flood protection system includes a closure structure across the FDR Drive. Two swing floodgates that when deployed would close this segment of the flood protection system across the highway, but in non-storm conditions would be recessed to the sides of the highway. From there, the floodwall continues northward and aligns along the west (southbound) side of the FDR Drive, connecting into the flood protection system at the Con Edison East River Generating Station (between East

14th and East 15th Streets). A closure structure adjacent to East 14th Street near the FDR Drive would also be installed to allow Con Edison operational access. North of the East River Generating Station, a closure structure is proposed across the FDR Drive East 15th Street ramp, and the floodwall continues northward along the FDR Drive to Murphy Brothers Playground.

At Murphy Brothers Playground the proposed floodwall is aligned along the east side of the park, which would also be reconstructed with new ballfields, active recreational spaces, grading and landscaping.

Beginning at the northeast corner of Murphy Brothers Playground, the proposed flood protection system turns east along Avenue C, heading towards the East River, crossing the FDR Drive ramps (two swing gate closure structures are proposed here) and under the FDR Drive into Stuyvesant Cove Park. Within Stuyvesant Cove Park, the proposed flood protection system turns northward, where it is comprised of a combination of floodwalls with closure structures (roller gates) at the southerly entrance (from Avenue C) and at the East 20th Street entrance to allow public access into the park to the waterfront esplanade during non-storm conditions; design of this segment is also being coordinated with the new design for Solar One Environmental Education Center and existing Citywide Ferry Service ferry landing.

North of Stuyvesant Cove Park, the system again turns west and back under the elevated FDR Drive at East 23rd Street. In this segment, a combination of floodwalls and closure structures (a combination of roller and swing gates) are needed to maintain vehicular and pedestrian circulation through this intersection during non-storm conditions, including: vehicle access to the FDR Drive ramps and service roads; pedestrian and cyclist access to and along the East River shared-use path; and, vehicle and pedestrian access to Waterside Plaza (including the U.N. School and the British International School of New York), the Skyport Marina and parking garage, and a BP service station. These closure structures are to be recessed except under storm conditions when they would be deployed to provide the proposed flood protection.

North of East 23rd Street and west of the FDR Drive, the proposed flood protection system continues northward along the sidewalk of the southbound FDR Drive service road. The proposed system then turns westward into and across the Asser Levy Park Playground (between the Asser Levy Recreation Center and the outdoor recreational space). Similar to Murphy Brothers Playground, the outdoor recreational space at Asser Levy Playground would be redesigned and reconstructed and a roller floodgate is proposed to connect to the VA Medical Center floodwall. The flood gate would maintain the connection between the playground and the Asser Levy Recreation Center and during a storm condition it would be deployed. The VA Medical Center flood protection system extends north and then west along East 25th Street to complete the northern tieback at First Avenue.

DRAINAGE SYSTEM MODIFICATIONS

Drainage system modifications are also proposed as part of the Preferred Alternative, including measures to control flow into the drainage protected area[1] from the larger sewershed (i.e., drainage isolation) and measures to manage flooding within the drainage protected area (i.e., drainage management). These modifications would reduce the risk of flooding in the protected area during extreme storm events coincident with rainfall events. As part of the Preferred Alternative, the water and sewer infrastructure would be reconstructed and reconfigured where necessary to ensure that it could withstand the additional loading from the added fill materials once the Park is raised. A summary of each of these measures is provided below.

Drainage Isolation

Measures to isolate the drainage protected area from the unprotected portions of the larger sewershed would be implemented to eliminate potential pathways for storm surge waters to inundate the existing sewer

[1] The drainage protected area encompasses the project protected area as well as the lateral sewers, regulators, outfalls, and other sewer infrastructure that serve or are tributary to those that serve the project protected area.

system and flood inland areas. The measures include: (1) installing interceptor gates on the existing 108-inch diameter interceptor at the northern and southern extremes of the drainage protected area sewershed, generally in the vicinity of East 20th Street and Avenue C to the north and between Corlears Hook Park and the FDR Drive to the south; (2) floodproofing the regulators, manholes, and other combined sewer infrastructure on the unprotected side of the flood protection system; (3) replacing existing tide gates on the combined sewer outfall pipes that serve the drainage protected area and rerouting storm drainage; and (4) installing one isolation gate valve in the existing Regulator M-39, located within Asser Levy Playground, to isolate a branch interceptor that crosses the flood protection system alignment at the northern boundary of the drainage protected area. These measures would prevent storm surge water from entering the sewer system through existing combined sewers, the outfall pipes, or through at-grade access points (i.e., manholes and hatches) for existing sewer infrastructure on the portion of the drainage protected area that is unprotected from overland coastal surge events.

Two interceptor gates are proposed to prevent floodwaters from entering the protected area through the sewer system during a design storm event. The southernmost interceptor gate is proposed in Project Area One, just south of the Corlears Hook Bridge, and would be sited within an existing sidewalk and lawn along the western edge of the FDR Drive right-of-way. The northern interceptor gate in Project Area Two is proposed in the right-of-way and median of East 20th Street, just west of the intersection with Avenue C. During a design storm event, these gates would be operated to allow the New York City Department of Environmental Protection (DEP) to control flow from outside the protected area into the protected area via the interceptor sewer. Once the storm surge recedes, the interceptor gates would be returned to their open positions to resume normal operations of the sewer system. While mostly below grade, the interceptor gates each would each require a single-story building adjacent to the chamber that contains the controls, electrical, hydraulic, and other ancillary components to operate the interceptor gates.

Drainage isolation for the regulators and other sewer structures would involve replacing each of their existing vented access hatches with lockable vented hatches that could be sealed (i.e., floodproofed) to prevent floodwater water from entering the system. In addition, each regulator would be improved, as needed, which may include lining, patching, jet-grouting, sheet piling, or reinforcing the walls of the structure. There may also be installation of a reinforced concrete slab above each structure and of low-infiltrating fill around each structure. Manhole covers on unprotected sewers would also be floodproofed to protect against loss and/or leakage during a storm event. Manholes that are less structurally stable would be either partially or fully replaced in addition to the replacement of the frame and cover. Manholes requiring additional support would follow the methods described above for external strengthening of the regulators.

To ensure proper functioning of the tide gates during the design storm event, it is proposed that the existing tide gates on the combined sewer outfall pipes that serve the drainage protected area be replaced as part of the Preferred Alternative. In addition, storm drainage that currently connects to the combined sewer system that would be located on the unprotected side of the flood protection system would be rerouted and connected to the outfalls downstream of the tide gates. This would ensure the storm drainage system is isolated from the combined sewer system within the protected area and would eliminate the need for floodproofing storm drains on the unprotected side of the flood protection system.

The Preferred Alternative also proposes that an isolation gate valve be installed within regulator M-39 on an existing sewer segment that crosses from the protected to the unprotected side of the flood protection system at the northern end of the drainage protected area. This conduit has the potential to convey floodwaters from unprotected sewers into the protected area under a design storm event.

Drainage Management

In addition to the isolation measures outlined above, the Preferred Alternative includes drainage management elements to ameliorate the reduced sewer capacity due to outfall closure during a design storm event. The proposed drainage management would reduce the risk of sewer backups and associated flooding

within the drainage protected area during a design storm. These drainage elements include installing additional combined sewers, termed "parallel conveyance," within the drainage protected area to augment the capacity of the existing sewer system. Specifically, nine parallel conveyance connections are proposed.

Parallel conveyance pipes are proposed at 9 locations, for regulators M-22, M-23, M-27, M-28, M-31, M-37, M-38, M-38A, and M-38B, to convey excess combined sewer flows to the interceptor. Each parallel conveyance pipe would consist of a new upstream connection to a regulator or lateral sewer, a downstream connection to the interceptor, and a connecting length of pipe. The parallel conveyance pipes would range in diameter from 18 to 48 inches and require no above ground features. The parallel conveyance would be sited within City rights-of-way with one exception where some parallel conveyance infrastructure is proposed on private property. The parallel conveyance pipes and connections would include manholes for access, similar to the existing sewer pipes, generally every 200 to 250 feet, at pipe bends, and at all connections to allow access for maintenance and repairs, as needed, and would be sited within streets and paved surfaces (e.g., parking), where possible.

In addition, similar to the parallel conveyance, this alternative also proposes to increase the size of the branch interceptor in order to increase the conveyance capacity to the Manhattan Pump Station for three sub-drainage areas within the protected area: M-33, M-34, and M-35.

These proposed drainage management system improvements would not alter daily operation of existing sewer infrastructure under non-storm conditions. Under rainfall events or periods of high sewer flow, combined sewer flow would be conveyed to the interceptor via the existing branch interceptors and potentially also via the parallel conveyance.

East River Park Infrastructure Reconstruction

The Preferred Alternative also includes reconstructing the water and sewer infrastructure within the portion of East River Park that would be elevated, including the outfalls, regulators, and sewers and water supply infrastructure, to withstand the added loads of the proposed flood protection system and elevated parkland. The outfalls and regulators within the portion of East River Park to be elevated are also proposed for replacement. In most cases, the existing infrastructure would be abandoned in place and the new infrastructure would be reconstructed adjacent to the existing locations, although the outfalls would be relocated slightly along the East River Park bulkhead. Of the existing 11 outfalls, two would be combined as part of the outfall reconstruction effort.

SYSTEM OPERATION AND MAINTENANCE

An operations and maintenance manual will be developed for the proposed system to identify the procedures for deploying, inspecting, testing, and maintaining each element of the proposed flood protection system to ensure that the floodwalls, levees, and closure structures remain in proper working order and are ready to perform in advance of a design storm event.

Operation and maintenance of the proposed parallel conveyance and interceptor gates would require periodic inspection and maintenance of the piping and mechanical equipment. These inspections would be in accordance with standard operation and maintenance procedures for the City's sewer infrastructure and a pre-approved operations and maintenance protocol developed for the proposed project.

Upon completion of construction of the proposed project, the City would submit engineering plans, design modifications during construction, supporting materials (i.e., design criteria, geotechnical data, hydraulic modeling, etc.), a final operations and maintenance plan, and relevant construction data to FEMA to demonstrate compliance with requirements listed in Chapter 44 of the Federal Code of Regulations, Section 65.10 for FEMA accreditation.

CONSTRUCTION

The flood protection system and raised East River Park proposed under this alternative would be constructed in 3.5-years and completed in 2023. The foundations for the shared-use flyover bridge would also be completed in 2023. Subsequently, a prefabricated bridge span would be installed and completed in 2025. East River Park is anticipated to be closed for the entire 3.5-year construction duration. The City is committed to the outdoor recreational needs for these communities and is currently identifying opportunities to open portions of East River Park as work is completed, however, to be conservative, the analysis assumes a full close of the park for 3.5 years. The flyover bridge would be complete in 2025. Access to the Corlears Hook and Stuyvesant Cove ferry landings would be maintained. Construction activities would require the use of barges and trucks for material deliveries. Approximately 600,000 cubic yards of fill is estimated to be required for the construction under the Preferred Alternative, and an average of 3 barge trips per day are anticipated throughout the 3.5-year construction period.

OTHER ALTERNATIVE (ALTERNATIVE 2): FLOOD PROTECTION SYSTEM ON THEWEST SIDE OF EAST RIVER PARK – BASELINE

Alternative 2 would provide flood protection in Project Areas One and Two using a combination of floodwalls, levees, and closure structures (i.e., deployable gates) from Montgomery Street to East 25th Street. In Project Area One, the line of flood protection would generally be located on the west side of East River Park. Protection would be provided by a concrete floodwall starting at Montgomery Street within the sidewalk adjacent to the Gouverneur Gardens Cooperative Village. The floodwall would then cross under the FDR Drive with closure structures across the FDR Drive's South Street off- and on-ramps. A combination of floodwalls and levees would then run along the west side of East River Park for the length of the entire park. The park-side landings for the Delancey Street and East 10th Street bridges would be rebuilt within East River Park to accommodate the flood protection system. As with the Proposed Alternative, a shared-use flyover bridge linking East River Park and Captain Brown Walk would be constructed. In Project Area Two, the flood protection alignment would be similar to that proposed under the Preferred Alternative. However, the potions of Murphy Brothers Playground and Asser Levy Playground that are affected by construction of the floodwall would be replaced in kind rather than redesigned and reconstructed. Similar to the Preferred Alternative as described above, this alternative also includes modifications of the existing sewer system.

The flood protection alignment proposed in Alternative 2 would require that the majority of flood protection construction be performed during night-time single-lane closures of the FDR Drive and in close proximity to sensitive Con Edison transmission lines. Given the related construction complexities and logistical considerations, the flood protection system and associated components under this alternative are assumed to be constructed in 5-years and completed in 2025.

OTHER ALTERNATIVE (ALTERNATIVE 3): FLOOD PROTECTION SYSTEM ON THE WEST SIDE OF EAST RIVER PARK - ENHANCED PARK AND ACCESS ALTERNATIVE

Alternative 3 provides flood protection using a combination of floodwalls, levees, and closure structures in Project Areas One and Two. As with Alternative 2, the line of protection in Project Area One would be generally located on the western side of East River Park. However, compared to Alternative 2, there would be more extensive use of berms and other earthwork in association with the flood protection along the FDR Drive to provide for more integrated access, soften the visual effect of the floodwall on park users, and introduce new types of park experience. Due to the extent of the construction of the flood protection system, compared to Alternative 2, this alternative would include a more extensive reconfiguration and reconstruction of the bulk of East River Park and its programming, including landscapes, recreational fields, playgrounds, and amenities. In addition, the existing pedestrian bridges and bridge landings at Delancey and East 10th Streets would be completely reconstructed to provide universal access, and a new raised and landscaped park-side plaza landing would be created at the entrance to the park from the East Houston Street overpass. As with the Proposed Alternative, a shared-use flyover bridge linking East River Park and

Captain Brown Walk would be constructed. In Project Area Two, the flood protection alignment would be similar to that proposed in the Preferred Alternative and would include reconstruction of Murphy Brothers Playground and Asser Levy Playground. Similar to the Preferred Alternative as described above, this alternative also includes modifications of the existing sewer system.

As with Alternative 2, Alternative 3 would involve construction of the flood protection system alignment along the FDR Drive and in close proximity to sensitive Con Edison transmission lines. Given the associated complexities and logistical considerations involved when working in and around these facilities, a 5-year construction duration is assumed, with the proposed project estimated to be completed in 2025.

OTHER ALTERNATIVE (ALTERNATIVE 5): FLOOD PROTECTION SYSTEM EAST OF FDR DRIVE

Alternative 5 proposes a flood protection alignment similar to the Preferred Alignment except for the approach in Project Area Two between East 13th Street and Avenue C. This alternative would raise the northbound lanes of the FDR Drive in this area by approximately six feet to meet the design flood elevation then connect to closure structures at the south end of Stuyvesant Cove Park. Maintaining the flood protection alignment along the east side of the FDR Drive would eliminate the need for gates crossing the FDR Drive near East 13th Street as well as the need to install floodwalls adjacent to NYCHA Jacob Riis Houses, Con Edison property and Murphy Brothers Playground. As with the Preferred Alternative, this alternative would also include the construction of the shared-use flyover bridge to address the Con Edison pinch point. Similar to the Preferred Alternative as described above, this alternative also includes modifications of the existing sewer system, reconstruction of the water and sewer infrastructure within East River Park.

Alternative 5 is anticipated to be constructed in 5-years and completed in 2025 and this duration is driven by construction of the raised northbound lanes of the FDR Drive and the adjacent shared-use flyover bridge in this same footprint.

D. POTENTIAL REGULATORY PERMITTING, APPROVALS, AND COORDINATION

Implementation of the proposed project involves a number of federal, state, and local approvals. The federal, State, and City agencies that may potentially be involved in the environmental review and regulatory permitting processes are as follows:

FEDERAL

- HUD – Disbursement of funds, administration of CDBG-DR grant to the City of New York; review of Action Plan Amendments.
- U.S. Army Corps of Engineers (USACE) – Permits or authorizations for the discharge of dredged or fill materials into Waters of the United States (Section 404 of the Clean Water Act) or structures or work within navigable waters (Section 10 of the Rivers and Harbors Act).
- U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) – Advisory agencies to the environmental review process focusing on activities that affect wetlands, water quality, protected plant and wildlife species, and essential fish habitat.
- U.S. Coast Guard (USCG) – Coordination and authorization regarding placement of construction barges and underwater work.
- FEMA – Review of flood protection design and potential changes to Flood Insurance Rate Maps (FIRM).
- Advisory Council on Historic Preservation (ACHP) –Advisory role in federal review process pursuant to Section 106 of the National Historic Preservation Act (NHPA).

- U.S. Department of Veterans Affairs (VA) – Coordination and authorization regarding flood protection design proposed to connect to the VA Medical Center.

STATE OF NEW YORK

- Department of Environmental Conservation (NYSDEC) – Permits related to activities in tidal wetlands or adjacent areas (Article 25) or protection of waters (Article 15), Water Quality Certification (Section 401); endangered species protection if an incidental take is determined; permits related to the State Pollutant Discharge Elimination System (SPDES) program; SEQRA regulations related to compliance with the National Ambient Air Quality Standards (NAAQS); and approvals related to the handling and transport of hazardous materials and soils.
- Department of State (NYSDOS) – Review of Coastal Zone Consistency.
- Office of General Services (NYSOGS) – Permits related to State Owned Land under Water.
- Office of Parks, Recreation and Historic Preservation (OPRHP) – Advisory role as the State Historic Preservation Office (SHPO) in federal review process pursuant to Section 106 of the National Historic Preservation Act (NHPA) with respect to designated and protected properties on the State and National Registers of Historic Places and properties determined eligible for such listing.
- Department of Transportation (NYSDOT) – Review of flood protection design and approvals related to construction activities along and adjacent to segments of the FDR Drive under NYSDOT jurisdiction.

CITY OF NEW YORK

- OMB – Responsible Entity (RE) for the disbursement of CDBG-DR funds for Hurricane Sandy from HUD to City agencies and NEPA Lead Agency for the environmental review.
- NYC Parks – Review of and issuance of permits and approvals for project design and construction in City parkland and SEQRA/CEQR Lead Agency for the EIS.
- Mayor's Office of Recovery and Resiliency (ORR) – Advisory agency for activities and projects proposed to increase resiliency, including strengthening neighborhoods, upgrading buildings, adapting infrastructure and critical services, and strengthening coastal defenses.
- Department of Design and Construction (DDC) – Coordination of plans, designs, and environmental review of the proposed project for client agencies.
- DEP – Review of design and advisory agency for activities and projects related to stormwater management, water and sewer infrastructure, air quality, noise, hazardous materials, and natural resources.
- Department of Transportation (NYCDOT) – Review of flood protection design and permits related to activities along, adjacent to and within the FDR Drive and Williamsburg Bridge footings, and the local street network.
- Department of City Planning (DCP) – Planning and waterfront area zoning text compliance and decision-making, Coastal Zone Consistency decision-making, and approval of actions subject to Uniform Land Use Review Procedure (ULURP).
- New York City Economic Development Corporation (NYCEDC) – Coordination and approval for activities on NYCEDC-leased property, including Stuyvesant Cove Park and Solar One Environmental Education Center.
- Small Business Services (SBS) – Coordination and approval for activities on SBS property, including Stuyvesant Cove Park and adjacent parking lot. Issuance of permits for construction related to improvement or maintenance on Waterfront Properties under SBS jurisdiction.
- New York City Emergency Management (NYCEM) – Coordination for emergency preparedness, response, and operations under storm conditions.

- Public Design Commission (PDC) – Review and approval of art, architecture, and landscape features proposed for City-owned property and capital projects.
- Landmarks Preservation Commission (LPC) – Advisory agency for activities on or near sites of historic or archaeological value.
- Department of Buildings (DOB) – Review of design and permits related to buildings including compliance with the City's Building, Electrical, and Zoning Codes and construction activities in the FEMA-designated flood hazard area.
- Department of Housing Preservation and Development (HPD) – Review and approval for the disposition of the New York City Housing Authority (NYCHA) property.
- Office of the Deputy Mayor for Operations – Advisory agency in CEQR review and for activities and projects proposed to advance long-term plans for sustainable growth.
- New York City Fire Department (FDNY) – Design approval for emergency access.

UTILITIES AND AUTHORITIES

- Consolidated Edison Company of New York (Con Edison) – Review and approval for activities along and within Con Edison utilities and properties.
- NYCHA – Review and approval for use of NYCHA property (easement).
- New York Power Authority (NYPA)—Review and approval for activities along or within NYPA right of way

COMMISSION

- Public Service Commission—Approval of dispositions involving public utility properties (e.g. Con Edison).

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

Impacts associated with the Preferred Alternative are summarized below. Where applicable and appropriate, mitigatory measures are identified. Impacts associated with the No Action Alternative and other With Action Alternatives are presented in the DEIS. The impacts vary between lesser, equal to, or greater than those identified below; however, none of the other alternatives achieve the purpose and need of the project to the extent of the Preferred Alternative.

LAND USE, ZONING, AND PUBLIC POLICY

The Preferred Alternative proposes to move the line of flood protection in East River Park into the park, thereby protecting both the community and the park from design storm events, as well as increased tidal inundation resulting from sea level rise. The Preferred Alternative would raise the majority of East River Park except the southern end and western pathway. This plan would limit the length of wall between the community and the waterfront to provide for enhanced neighborhood connectivity and integration. In addition, two existing embayments would be relocated 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 aesthetic and experiential value in addition to improved ecological function. A shared-use flyover bridge linking East River Park and Captain Patrick J. Brown Walk 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, substantially improving the City's greenway network and north-south connectivity in the project area.

This alternative would not result in significant adverse effects to any existing or planned land use, zoning, or public policies within the study area. Land use actions resulting from the Preferred Alternative include

acquisition of real property, amendments to the City Map for changes related to existing and proposed pedestrian bridges following construction, and a zoning text amendment; however, these actions would not result in any adverse effects on land uses and would be consistent with zoning and public policies including the City's Waterfront Revitalization Program (WRP). Since the Preferred Alternative provides resiliency and protection for East River Park against design storm events and periodic inundation from projected sea level rise coupled with the enhanced public access, this alternative would ensure that East River Park provides improved public access, operations, and functionality, during pre- and post-storm periods compared to the No Action Alternative.

SOCIOECONOMICS

The Preferred Alternative would result in park and neighborhood connection improvements and does not present new uses or activities to the project area that could markedly influence the study area's residential or commercial market. Therefore, the Preferred Alternative would not result in the direct displacement of any residents or businesses.

Under the Preferred Alternative, residents and businesses within the 100-year floodplain in the socioeconomic study area would be less vulnerable to flooding during storm events. Under the Preferred Alternative, there would be positive socioeconomic benefits due to the avoided costs associated with flood damage that would otherwise be incurred during storm events.

OPEN SPACE

The Preferred Alternative would not result in significant adverse effects to existing or planned open spaces within the study area. Overall, the Preferred Alternative would not alter the amount of open space, nor would this alternative introduce new worker and residential populations to the study area. By elevating East River Park and reconstructing Stuyvesant Cove Park, Murphy Brothers Playground, and Asser Levy Playground, the Preferred Alternative provides the opportunity for a holistic reconstruction, reimagining, and expansion of the types of user experiences in the park, while also enhancing neighborhood connectivity and resiliency. Increased improvements to landscaping along the waterfront and to the waterfront esplanade itself would also be included in this alternative. These benefits would ensure improved resiliency, operations, usability, and functionality of East River Park during pre- and post-storm periods. In addition, the Preferred Alternative would alleviate shared-use path congestion at the Con Edison facility with the construction of a flyover bridge (which would be complete by 2025). The Preferred Alternative also provides inland flood protection and allows these benefits to be available sooner than other alternatives as flood protection construction is expected to be complete in 2023. A total of 981 trees would require removal throughout the project area but would be replaced or replanted in accordance with a NYC Parks-approved tree replanting plan such that there would be a net overall increase in the number of trees within the park, and would also protect the long-term viability of trees and ecological resources by protecting them from damaging salt water inundation and providing for planting that is more appropriate for the park.

HISTORIC AND CULTURAL RESOURCES

Two Phase 1A Archaeological Documentary Studies were prepared for the Area of Potential Effects (APE) in March 2016, and a Supplemental Phase IA Archaeological Documentary Study was prepared in March 2019. The March 2016 reports identified the following broad categories of historic-period archaeological resources that could be located in the APE—river bottom remains, landfill retaining structures and landfill deposits, historic streetbed resources, and former city block resources. Because of the potential presence of these resources, as mitigation, additional archaeological investigation will be performed in accordance with Section 106 regulations, based on a scope of work reviewed and approved by LPC and SHPO; this archaeological investigation would include pre-construction testing and/or monitoring during project construction performed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology, ACHP's Section 106 Archaeological Guidance, and the New York Archaeological Council's Standards for Cultural Resource Investigations and Curation of Archaeological Collections. If significant

archaeological resources are identified during testing and/or monitoring, further archaeology and/or mitigation would be completed in accordance with Section 106 regulations and the guidelines in the CEQR Technical Manual. The additional archaeological investigation will be stipulated in a Programmatic Agreement (PA) that is being prepared and will be included in the Final EIS (FEIS). It is expected that the PA will be executed among HUD, OMB, NYC Parks, SHPO, the Delaware Nation, the Delaware Tribe of Indians, the Shinnecock Nation, the Stockbridge-Munsee Community Band of Mohicans, and ACHP.

The Preferred Alternative would directly affect the FDR Drive (#1, State/National Registers of Historic Places [S/NR]-eligible) through the installation of closure structures. As will be stipulated in the PA, construction affecting the FDR Drive would be coordinated with NYCDOT to ensure that it is protected during construction of the Preferred Alternative.

Construction of the Preferred Alternative would occur within 90 feet of the Asser Levy Public Baths (#12, S/NR, NYCL) and a small portion of the Jacob Riis Houses (#15, S/NR-eligible). In addition, construction of the drainage management components would occur within 90 feet of the following architectural resources: the FDR Drive (#1, S/NR-eligible); Williamsburg Bridge (#2, S/NR-eligible); Engine Co. 66 Fireboat House (#4, S/NR-eligible); Gouverneur Hospital (#5, S/NR); Gouverneur Hospital Dispensary (#6, S/NR-eligible); a portion of the Vladeck Houses within the Lower East Side Historic District (#7, S/NR); a portion of the Baruch Houses (#9, S/NR-eligible); a portion of the Jacob Riis Houses (#15, S/NR-eligible); a portion of Stuyvesant Town (#16, S/NR-eligible); and a portion of Peter Cooper Village (#17, S/NR-eligible). Therefore, as will be stipulated in the PA, the City, in consultation with LPC and SHPO, would develop and implement Construction Protection Plans (CPPs) for these architectural resources to avoid inadvertent construction-period damage from ground-borne vibrations, falling debris, collapse, dewatering, subsidence, or construction equipment.

It is not expected that the Preferred Alternative would result in any contextual effects on architectural resources. As will be stipulated in the PA, an effort would be made to design the floodwalls adjacent to the Asser Levy Public Baths (#12, S/NR, NYCL) so that they are compatible with the historic building, and the design would be coordinated with LPC.

In a future storm condition, the following two S/NR-eligible architectural resources could experience adverse direct effects from storm surge and flooding: the Williamsburg Bridge (#2) and East River Bulkhead (#3) from Whitehall Street to Jackson Street.

The portion of the FDR Drive (#1, S/NR-eligible) that runs through Project Area One would be located on the landward side of the flood protection system that would be constructed under the Preferred Alternative. It would, therefore, be protected from damage that could result from storm surge and flooding in a future storm condition. The portion of the FDR Drive (#1, S/NR-eligible) that runs through Project Area Two, however, would not be protected.

The architectural resources located within the 400-foot portion of the Primary APE and within the Secondary APE are landward of the flood protection system that would be constructed under the Preferred Alternative. Therefore, they would be protected from damage that could result from storm surge and flooding in a future storm condition.

Mitigation

Archaeological Resources

As will be stipulated in the PA, additional archaeological investigation prior to or during construction will be performed in accordance with Section 106 regulations. Such scope of work will be prepared in consultation with LPC and SHPO, and this further phase of archaeological work would include testing and/or monitoring conducted in consultation with LPC and SHPO and in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology*, ACHP's *Section 106 Archaeological Guidance*, and the New York Archaeological Council's *Standards for Cultural Resource Investigations and Curation*

of Archaeological Collections. The testing and/or monitoring would not be done during the EIS process but would occur before and/or during project construction. The scope of work for additional archaeology would include: a sampling strategy that will select specific areas of the APE to be further investigated; identification of those areas that are believed to be most sensitive for recovering landfill retaining structures across the overall APE; a description of the basis for the proposed sampling design, including a tabulation of the various archaeological contexts within the APE and a quantification of the sample fraction for each context; and an unanticipated discoveries protocol. If significant archaeological resources are identified during testing and/or monitoring, further archaeology and/or mitigation would be completed as per the *CEQR Technical Manual*.

Architectural Resources

The City, in consultation with LPC and SHPO, would develop and implement CPPs to avoid impacts to historic architectural resources (see the discussion below under "construction Historic and cultural Resources"). In addition, as will be stipulated in the PA, an effort would be made to design the floodwalls that would be located adjacent to the Asser Levy Public Baths (#12, NYCL, S/NR), so that they are compatible with the architectural resource, and the design of the floodwalls would be coordinated with LPC.

URBAN DESIGN AND VISUAL RESOURCES

It is not expected that the floodwalls and closure structures installed under the Preferred Alternative would have adverse urban design effects to the southern end of Project Area One, Project Area Two, or the surrounding portions of the 400-foot study area. While the shared use flyover bridge would be a new urban design feature, it would have beneficial urban design effects by elevating pedestrians and bicyclists above the Con Edison pier and the FDR Drive. In this area, pedestrians and bicyclists would no longer be immediately adjacent to vehicular traffic on the FDR Drive, but would be above it. Further, the flyover bridge would enhance pedestrian and bicyclist safety by bypassing the narrowed walkway.

In general, the floodwalls, closure structures, and interceptor gate buildings would be new features to the public realm, but they would be installed in locations where there are existing fences and walls and where the FDR Drive runs on a viaduct.

Under the Preferred Alternative, East River Park would be raised and completely reconstructed. While it would have a new design, the park would maintain the visual character of a landscaped, recreational waterfront park with paths, lawns, and athletic fields, and it would add improved entrances to the park from Corlears Hook Park and at Delancey Street, East Houston Street, and East 10th Street.

This alternative would result in a temporary adverse effect from the removal of existing trees in East River Park, and with this alternative 784 of the existing trees in the park would be removed. To lessen that adverse effect, the design of the alternative includes the planting of new trees and the potential transplantation of some existing trees into the raised and reconstructed park. Over time, the new tree canopy, comprised of diverse and resilient species, would fill in and would represent an improved habitat over the existing conditions.

Although Stuyvesant Cove Park would be reconstructed, which would involve the removal of 45 existing trees, the new design would reference the design of the existing park and would include new trees and multiple planting elements, and there would not be an adverse effect.

While the flyover bridge would be a new urban design feature, it would have beneficial urban design effects by elevating pedestrians and bicyclists above the Con Edison pier and the FDR Drive. In this area, pedestrians and bicyclists would no longer be immediately adjacent to vehicular traffic on the FDR Drive, but would be above it. Further, the flyover bridge would enhance pedestrian and bicyclist safety by bypassing the narrowed walkway.

The Preferred Alternative would maintain the visual connectivity between the waterfront and the adjacent upland neighborhoods. In Project Area One, the design of East River Park to slope down to the level of the FDR Drive would maintain views of East River Park from the adjacent neighborhoods. However, by raising East River Park, this alternative would potentially block some views of the East River. On Grand Street, views of the East River would be blocked, resulting in a significant adverse impact, but these eastward views would be of East River Park with Brooklyn in the distance. The raised park would alter views of East River Park and Brooklyn in the East 6th Street and East 10th Street view corridors and from within the Bernard Baruch, Lillian Wald, and Jacob Riis Houses compared to existing views, but these views would be of a landscaped waterfront park and there would be no potential significant adverse effects to these views. At East 6th and East 10th Streets, views to the waterfront would continue to be of East River Park. From the portions of the FDR Drive and FDR Drive service road that run through Project Area One, views would be of East River Park, similar to existing views, although occasional views of the East River would no longer be available. There are no view corridors to the waterfront between East 13th and East 18th Streets and, therefore, the flyover bridge would not block any views from the study area.

Mitigation

As described above, the Preferred Alternative could potentially result in significant adverse visual effects by partially blocking views to the waterfront and East River from multiple locations within the study area. These potential significant adverse effects would not be visually mitigated, resulting in unavoidable significant adverse effects. Lowering the floodwalls and/or raised landscape under the With Action Alternatives to allow continued views to the waterfront and East River would compromise the proposed flood protection and would not meet the project goals. The Preferred Alternative 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, floodwalls are expected to 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.

NATURAL RESOURCES

The Preferred Alternative would result in temporary adverse effects to trees, with a total of 981 trees to be removed for the proposed flood protection system, of which 784 are located within East River Park. 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 Parks Rules) and Local Law 3 of 2010. 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 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.

The Preferred Alternative also includes in-water elements such as support foundations for the shared-use flyover bridge to connect the north end of East River Park to Captain Patrick J. Brown Walk to the north as well as relocating the two existing embayments and reconstructing water and sewer infrastructure within the park. Installation of the structural supports for the flyover bridge and

relocation of the embayments would result in adverse effects to 24,085 square feet of NYSDEC littoral zone tidal wetlands and USACE Waters of the United States within the East River.

Adverse effects to the littoral zone wetland have the potential to affect Essential Fish Habitat (EFH) and habitat for epifaunal benthic organisms that may provide a foraging habitat for certain fish that are protected under the Fish and Wildlife Coordination Act (FWCA). However, identified fish species that would not be considered rare or transient within the study area and the EFH and habitat with the potential to be affected by the Preferred Alternative constitutes a very small portion of the available EFH and habitat within the New York Harbor Estuary waters (<0.1 percent). In addition, the installation of new embayments may constitute not only a replacement in kind within the study area, but an improvement over the existing embayments. The proposed embayments would be of comparable or larger size with improved habitat conditions, including the elimination of bridges that shade aquatic habitat, which can reduce benthic organism productivity and biomass. Moreover, the provision of habitat enhancements designed for the recruitment of shellfish and other aquatic life along East River Park is also being explored as design advances. Lastly, additional habitat would be created within the NY Harbor Estuary through the creation of off-site tidal wetland habitat or purchase of wetland mitigation credits. A consultation with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA NMFS) as required by the FWCA, Magnuson Stevens Fishery Conservation and Management Act, the Endangered Species Act, and the Clean Water has been initiated. Any conservation measures identified as a result of that consultation will be identified in the Final EIS. No significant adverse effects to natural resources are anticipated.

Mitigation

Adverse effects to aquatic resources would be mitigated for with the creation of approximately 26,000 square feet of 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 EDC and located on Staten Island, New York, pursuant to NYSDEC and USACE permit requirements. 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.

HAZARDOUS MATERIALS

The Preferred Alternative would involve demolition and excavation activities and would have the potential to disturb hazardous materials in existing structures and the subsurface. However, with the implementation of appropriate protection measures the potential for significant adverse effects related to hazardous materials would be avoided. Following construction, with the capping layer in landscaped areas and the implementation of Site Management Plans (SMPs) that address long-term management of residual hazardous materials, there would be no pathways for exposure to park users from remaining subsurface contaminants beneath the project construction areas. Therefore, the Preferred Alternative would not have the potential for significant adverse effects related to hazardous materials during the operational stage of the proposed project. In addition, as the alignment of the Preferred Alternative includes areas that have not been fully characterized (e.g., the line of protection in East River Park, two interceptor gate house locations), additional soil and groundwater testing is also to be implemented in both Project Areas One and Two, in accordance with a work plan and Construction Health and Safety Plan (CHASP) submitted to DEP for review and approval for the purposes of identifying any soil groundwater contamination at these locations.

WATER AND SEWER INFRASTRUCTURE

The Preferred Alternative proposes to move the line of flood protection in East River Park into the park, thereby protecting both the community and the majority of the park from design storm events, as well as increased tidal inundation resulting from sea level rise. The existing sewer system would

be modified to isolate the drainage protected area[2] from the larger sewershed during design storm events to prevent coastal floodwaters from inundating the drainage protected area. The existing sewer system would also be modified to increase its capacity to convey wet-weather flows during design storm events with coincident rainfall events, thereby managing flooding within the drainage protected area. The Preferred Alternative would also reconstruct and reconfigure the park's underground sewer and water infrastructure, including outfalls and their tide gates within the park, to withstand the loads of the proposed flood protection system and elevated parkland. The Preferred Alternative would be consistent with the Clean Water Act, CSO Control Policy, and the CSO Abatement Program and CSO Long-Term Control Plan. Therefore, there would be no adverse effects to sewer infrastructure as a result of implementation of the Preferred Alternative.

TRANSPORTATION

The Preferred Alternative is a reconstruction of the existing recreational elements in the park; therefore, the proposed project would not generate any new travel demand upon its completion or significantly affect traffic, transit, or pedestrian operations within the project area. Modifications to the streets attributable to the proposed project (e.g., conversion of East 10th Street from two-way to one-way eastbound) would also not significantly affect vehicle or pedestrian circulation patterns. Therefore, the Preferred Alternative would not result in significant adverse traffic, transit, and pedestrian effects during non-storm conditions. The *CEQR Technical Manual* states that if a quantified traffic analysis is not required, it is likely that a parking assessment is also not warranted. Therefore, a quantified parking analysis is not warranted, and the proposed project would similarly not be expected to result in any significant adverse parking effects during non-storm conditions.

During a storm event and the periodic testing and maintenance of closure structures, certain streets, FDR Drive ramps, and segments of the FDR Drive adjacent to the closure structures would need to be temporarily closed to traffic/pedestrian use. The periodic testing and maintenance of closure structures would be temporary in nature and where feasible, would occur during off-peak hours with the necessary traffic management systems in place and therefore would not result in significant adverse effects on transportation systems. During testing and maintenance of the closure structures or under a design storm condition, access and circulation near the project area, including the Waterside Plaza complex, would be temporarily affected. Any testing and maintenance of the closure structures would be coordinated between NYCDOT, New York Police Department (NYPD), the New York City Fire Department (FDNY), and NYC Parks, to ensure emergency access routes are maintained in a coordinated manner using alternate routes.

NEIGHBORHOOD CHARACTER

The Preferred Alternative would not result in significant adverse effects to neighborhood character within the study area. The Preferred Alternative would provide flood protection, increased access, and enhanced and reconfigured open spaces. The Preferred Alternative would provide additional protection for the majority of East River Park from coastal surge events and periodic inundation as a result of sea level rise. These resiliency measures, including elevating East River Park, would enhance park public access, operations, functionality, and usability during pre- and post-storm periods. These additional resiliency measures would not negatively alter or affect current uses or other features that define the character of neighborhoods within the study area but would enhance the long-term resiliency of a critical neighborhood asset. Therefore, the Preferred Alternative is not expected to result in substantial changes to neighborhood character.

[2] The drainage protected area encompasses the project protected area as well as the lateral sewers, regulators, outfalls, and other sewer infrastructure that serve or are tributary to those that serve the project protected area

ENVIRONMENTAL JUSTICE

Based on the environmental analyses performed for the Preferred Alternative, no minority or low-income communities would be disproportionately or adversely impacted. In addition, all residents in the project area including minority and low-income populations would benefit from the proposed coastal flood protection. Therefore, it is concluded that the proposed project would not result in any adverse effects with respect to environmental justice.

CONSTRUCTION

A preliminary construction schedule was developed to determine the potential construction phasing and timing for project components under each of the With Action Alternatives. The purpose in developing the construction schedule was to determine preliminary project phasing with a conservative analysis of the range of potential environmental effects anticipated during construction of the build alternatives.

Construction activities would involve earthwork (excavation and grading); drilling shafts; installation of piles, foundations, and piers; installation, replacement, and relocation of water and sewer infrastructure; paving and pouring of concrete; fabrication and installation of steel gates; flood-proofing; and installation of park amenities. Upon completion of construction activities, site restoration and decommissioning activities would commence, including final grading, installation of erosion control or slope stabilization measures, as needed, removing barriers, seeding and planting, and replacement or reinstallation of fences and other temporarily removed obstructions. All work would be performed in accordance with applicable methods and standards approved by NYC Parks, DEP, and DDC, as dictated by jurisdiction. Any required temporary lane and road closures would be coordinated with NYCDOT to ensure compliance with applicable restrictions and employment of proper methods.

The construction activities would involve the use of numerous types of equipment and vehicles. As applicable to each phase of construction, earthwork would necessitate the use of excavators, loaders, dump trucks, bulldozers, graders, and vacuum trucks. Cranes, vibratory or impact pile drivers, hydraulic press-in hammers, concrete mixers, and concrete pumps would support installation of project components. Delivery trucks would be utilized throughout the construction period to support a variety of construction activities. Barges are also expected to be used for delivery and removal of materials, and flaggers would assist with traffic control at entry and exit points.

The construction-period impacts associated with the Preferred Alternative are summarized below.

CONSTRUCTION–SOCIOECONOMIC CONDITIONS

Construction activities would not directly displace businesses, nor would they require the temporary closure of businesses within or surrounding the project area, including businesses on routes of access to/from construction sites. Construction activities would, at times, affect pedestrian and vehicular access in the immediate vicinity of construction activities. However, construction activities in the project area are located at a sufficient distance from businesses such that access to businesses would not be impeded. Lane and/or sidewalk closures and construction staging areas would not obstruct entrances to any existing businesses, or obstruct major thoroughfares used by customers. Businesses would not be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Therefore, construction activities associated with the Preferred Alternative would not generate significant adverse socioeconomic effects.

CONSTRUCTION–OPEN SPACE

Direct Effects

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 over the 3.5-year construction period. However, once completed, the Preferred Alternative would positively affect East River Park, Stuyvesant Cove Park, Murphy Brothers Playground and Asser Levy Playground, by enhancing their resiliency, design, and increasing their accessibility to the public.

Predicted noise level increases during construction at these open space locations would be noticeable; however, the total noise levels would be in the range considered typical for Manhattan, and for this area in general. Many New York City parks and open space areas located near heavily trafficked roadways and/or near construction sites, experience comparable, and sometimes higher noise levels. Maximum construction noise levels at receptors nearest floodwall construction with the Preferred Alternative would be slightly lower because pile driving at the Preferred Alternative would generally occur further from the receptors. East River Park, Asser Levy Playground and Murphy Brothers Playground would be closed under the Preferred Alternative during the times when construction activities would occur at these park resources. Therefore, the duration of construction noise would be limited at any given area of open space that would remain open in proximity to construction activities. Furthermore, the construction noise predictions are conservative in that they consider the area of open space that remains open and accessible closest to the construction area. While construction would likely disturb the Asser Levy outdoor pool temporarily, it is anticipated that construction would take place during the off-season of the pool (mid-September to early June) and not affect the operational season of the pool. Based on these factors, the Preferred Alternative construction noise on these open space resources would not result in a significant adverse effect. However, at Asser Levy Recreation Center, construction activity including pile driving that would occur west of the FDR Drive immediately adjacent to this building would produce noise level increases considered high for this area. While the duration of maximum noise levels at this location would be limited and the receptor is typically used for active recreation with a lower sensitivity to noise, the maximum noise levels predicted by the construction noise analysis are high (i.e., in the "clearly unacceptable" range according to CEQR noise exposure guidance). Consequently, the Asser Levy Recreation Center is predicted to experience a significant adverse noise effect as a result of construction.

Construction of the Preferred Alternative would be required to follow the requirements of the *New York City Noise Control Code* and would use additional measures, 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) to minimize the effects of the Preferred Alternative's construction activities on the surrounding community.

Construction of the proposed project under the Preferred Alternative would adhere to Local Law 77 of 2003 for emissions reductions on non-road construction engines, *New York City Air Pollution Control Code* regulations regarding construction-related dust emissions, and *New York City Administrative Code* limitations on construction-vehicle idling time. With the implementation of these measures, the detailed analysis presented in Chapter 6.10, "Construction—Air Quality," showed there would be no significant adverse air quality effects on sensitive receptors, including open space areas near the construction activities.

Indirect Effects

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 42.57 percent in 2023 and a maximum of 49.64 percent in 2020, and therefore would result in potential temporary significant adverse indirect effects on open space resources within the study area under the Preferred Alternative.

Mitigation

The proposed project would introduce potential temporary significant adverse direct and indirect effects on open space during the construction period. Therefore, potential on-site or off-site measures to mitigate the effect to the greatest extent practicable are being explored by the City. The mitigation measures being explored for the Preferred Alternative include accommodating permit users at other existing facilities; identify recreational resources that can be available to the community during construction; providing alternative recreational opportunities (e.g., programs like Shape-Up classes, walking clubs, Arts, greening programs); implementing improvements (e.g., lighting) to parks and playgrounds in the study area; rerouting greenway users to the most direct alternative route; and supporting bicycle projects in the study area. In addition, the City is assessing opportunities to open parts of East River Park as work is completed. The introduction of new publicly 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 potential 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.

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, 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 Preferred Alternative would be especially beneficial for the open space resources in East River Park, as this alternative includes reconstruction of the park, raising it by approximately eight feet to meet the design flood protection criteria while also reducing the risk for effects from 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 narrowed pathway 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.

As discussed above, 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.

CONSTRUCTION—HISTORIC AND CULTURAL RESOURCES

Construction of the Preferred Alternative would directly affect the FDR Drive, which is an architectural resource that has been determined eligible for listing on the S/NR (#1, S/NR-eligible). Therefore, as will be stipulated in the PA, the City, in consultation with LPC and SHPO, would

develop and implement a CPP for the FDR Drive to avoid inadvertent construction-period damage from ground-borne vibrations (i.e., from pile driving), falling debris, collapse, dewatering, subsidence, or construction equipment. The plan would be expected to follow the guidelines of DOB's *TPPN #10/88*, which "requires a monitoring program to reduce the likelihood of construction damage to adjacent historic structures and to detect at an early stage the beginnings of damage so that construction procedures can be changed." It is expected that the CPP will also be prepared in accordance with LPC's guidance document *Protection Programs for Landmarked Buildings* and the National Park Service's *Preservation Tech Notes, Temporary Protection #3: Protecting a Historic Structure during Adjacent Construction*. In addition, construction affecting the FDR Drive would be coordinated with NYCDOT to ensure that it is protected during construction of the Preferred Alternative.

Construction under the Preferred Alternative would occur within 90 feet of the following architectural resources: the FDR Drive (#1, S/NR-eligible); Williamsburg Bridge (#2, S/NR-eligible); Engine Co. 66 Fireboat House (#4, S/NR-eligible); Gouverneur Hospital (#5, S/NR); Gouverneur Hospital Dispensary (#6, S/NR-eligible); a portion of the Vladeck Houses within the Lower East Side Historic District (#7, S/NR); a portion of the Baruch Houses (#9, S/NR-eligible); the Asser Levy Public Baths (#12, S/NR, NYCL); a portion of the Jacob Riis Houses (#15, S/NR-eligible); a portion of Stuyvesant Town (#16, S/NR-eligible); and a portion of Peter Cooper Village (#17, S/NR-eligible). Therefore, as will be stipulated in the PA, the City, in consultation with LPC and SHPO, would develop and implement Construction Protection Plans (CPPs) for these architectural resources to avoid inadvertent construction-period damage from ground-borne vibrations, falling debris, collapse, dewatering, subsidence, or construction equipment.

CONSTRUCTION—URBAN DESIGN AND VISUAL RESOURCES

Construction of the Preferred Alternative would require the closure of East River Park for the 3.5-year construction duration, although the City is investigating opening portions of the park as completed. It is anticipated that the entirety of East River Park would be fenced off for construction to keep the public out of the working areas. The closed and fenced East River Park during construction would obstruct views from the FDR Drive and the upland neighborhood towards the East River. Therefore, construction of the Preferred Alternative could detract the experience of pedestrians in the vicinity and would have temporary adverse visual effects. In addition, the pedestrian experience in the vicinity of the existing bridge landings would temporarily be adversely affected during construction and views of the East River would be temporarily blocked. Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Playground, and a portion of Captain Patrick J. Brown Walk would be closed and temporarily fenced off during construction. Closure of these open space resources would detract from the experience of pedestrians in the immediate vicinity and would also cause temporary adverse effects on the urban visual context.

CONSTRUCTION—NATURAL RESOURCES

Construction of the Preferred Alternative would be performed in accordance with all applicable rules and regulations of USACE, EPA, NOAA NMFS, NYSDEC, DEP, DDC, and other regulatory agencies and procedures, as applicable.

Construction of the Preferred Alternative includes the following in-water elements: the use of construction barges, the installation of shafts and footings to support a shared-use flyover bridge, the reconstruction of sewer outfalls, the demolition of the existing bulkhead for the installation of a new cut-off wall, and the demolition of the existing embayments and existing piles and formwork associated with the esplanade in these areas. These construction activities have the potential to result in temporary adverse effects to NYSDEC littoral zone tidal wetlands and USACE Waters of the United States, surface water resources, benthic resources, EFH, and threatened and endangered

species. Turbidity curtains, water-tight cofferdams, and debris nets would be used as applicable to minimize the potential for these effects.

Although consultation with NOAA NMFS identified both shortnose sturgeon and Atlantic sturgeon as potentially occurring within the study area, shortnose sturgeon rarely leave tidal river habitat (e.g., the Hudson River) and on the rare occasions when shortnose sturgeon have been documented migrating to other tidal rivers such as the Connecticut River, their presence in the East River would be transient. Additionally, the East River contains no submerged aquatic vegetation and limited benthic resources. Therefore, due to the transient nature of shortnose sturgeon in the East River, the lack of suitable habitat, and the sturgeon's ability to avoid the affected area, no significant adverse effects to shortnose sturgeon from construction activities under any alternative are anticipated.

The Atlantic sturgeon is known to utilize the East River as a migratory route between spawning grounds in the Hudson River and suitable marine habitats, primarily between the months of March through October. Atlantic sturgeon is uncommon in the East River. When present, Atlantic sturgeon may forage opportunistically; however, there are limited benthic resources and submerged aquatic vegetation in the East River, thus their presence would primarily be transient. The potentially affected area represents a small portion of overall habitat available in the East River.

Construction of the in-water elements associated with the Preferred Alternative produces noise that has been known to affect Atlantic sturgeon. To minimize the noise effects on Atlantic sturgeon, conservation measures would be implemented that would reduce the noise or the likelihood that sturgeon would be exposed to the construction activities. These conservation measures include, to the greatest extent practicable, the use of a cushion block, and gradually ramping up pile driving. With these conservation measures in place, Atlantic sturgeon may be discouraged from utilizing the near-shore environment in the East River, and the proposed project would not be anticipated to significant adversely affect the Atlantic sturgeon population. A consultation has been reinitiated with NOAA NMFS and any conservation measures identified as a result of that consultation will be included in the Final EIS.

Upon completion of construction, the spuds, barges, turbidity curtains and debris nets would be removed, and the affected area would be allowed to naturally restore to pre-construction conditions. Therefore, while there would be adverse effects to NYSDEC and USACE regulated tidal wetlands resulting from construction of the Preferred Alternative, they would not significantly adversely affect natural resources in the area.

In addition, temporary adverse effects to terrestrial resources due to the removal of trees are anticipated as a result of both construction of the proposed project and to accommodate the proposed design for the Preferred Alternative. 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 Parks Rules) and Local Law 3 of 2010. Therefore, no significant adverse effects to terrestrial resources are anticipated as a result of construction of the Preferred Alternative. No significant adverse effects to other natural resources are anticipated.

CONSTRUCTION—HAZARDOUS MATERIALS

The Preferred Alternative has the potential to disturb subsurface hazardous materials, as it would involve demolition and excavation activities. However, with the implementation of appropriate measures governing the construction (such as air monitoring, proper storage and handling of materials, and, if required, odor suppression), the potential for significant adverse effects related to hazardous materials would be avoided.

CONSTRUCTION—WATER AND SEWER INFRASTRUCTURE

Construction of the Preferred Alternative would be performed in accordance with all methods and standards approved by NYSDEC, DEP, DDC and other appropriate regulatory agencies and procedures. Prior to excavation, interferences with existing water and sewer infrastructure would be identified. Existing water and sewer infrastructure would be protected, supported, and maintained in place throughout the duration of work. Water mains and sewers will be replaced, where required, per DEP and DDC standards. All construction activity associated with drainage isolation, drainage management, infrastructure reconstruction, or relocation/replacement of existing water and sewer infrastructure would be undertaken without affecting the conveyance of flow through the water or combined sewer system. This work would be performed throughout the duration of construction in accordance with methods and standards approved by DEP and DDC. Therefore, no disruption to existing water or sewer services is anticipated, and no adverse impacts to water or sewer infrastructure would occur.

CONSTRUCTION—ENERGY

The Preferred Alternative would involve excavation, pile driving, and other potentially disruptive construction activities in proximity to existing energy transmission and generation infrastructure. To avoid potential adverse effects, protective measures would be implemented to ensure that construction of the proposed project would not disrupt the function of this infrastructure and the electrical supply in Lower Manhattan.

CONSTRUCTION—TRANSPORTATION

Traffic

Construction of the Preferred Alternative would generate 251 passenger car equivalents (PCEs) during the 6:00 to 7:00 AM peak hour and 131 PCEs during the 3:00 to 4:00 PM peak hour, exceeding the *CEQR Technical Manual* analysis threshold of 50 vehicle trips. Based on this trip generation, traffic assignments were prepared and six intersections for the AM peak hour and one intersection for the PM peak hour were selected for detailed traffic analysis. The analysis disclosed temporary significant adverse traffic effects at the intersections of East 23rd Street and First Avenue and East 23rd Street and Avenue C during the AM peak hour. However, these effects could be fully mitigated by implementing standard traffic mitigation measures (e.g., signal timing changes). Additionally, with the full reconstruction of East River Park under this alternative, barging of fill materials to East River Park could be employed, thereby reducing the volume of truck trips from what would otherwise be needed to reconstruct and raise the park.

Parking

An inventory of on- and off-street parking within a ¼-mile radius of the project area showed approximately 70 on-street parking spaces available near Project Area One and 30 on-street parking spaces available near Project Area Two. The off-street survey showed approximately 60 spaces available near Project Area One and 800 spaces available near Project Area Two.

Construction under the Preferred Alternative is anticipated to generate a maximum parking demand of 92 spaces for Project Area One and 52 spaces for Project Area Two. The Project Area Two parking demand would be fully accommodated by the large inventory of available on- and off-street parking spaces near the project area. The Project Area One demand would not be fully accommodated within ¼-mile and could result in a parking shortfall of up to approximately 35 spaces. It is expected that excess parking demand within Project Area One would need to be accommodated by on-street parking or off-street parking beyond a ¼-mile walk from the project area. Alternatively, motorists could choose other modes of transportation. As stated in the *CEQR Technical Manual*, a parking shortfall resulting from a project located in Manhattan does not constitute a significant adverse parking impact, due to the magnitude of available alternative modes of transportation. Therefore, construction of the preferred Alternative would not result in any significant adverse parking effects.

Transit

Construction of the Preferred Alternative would generate 144 transit trips (total of Project Area One and Project Area Two) during the peak hour of the peak construction period, below the *CEQR Technical Manual* analysis threshold of 200 transit trips. Therefore, construction of this alternative would not result in any significant adverse transit effects.

Pedestrians

Construction under the Preferred Alternative would generate 200 pedestrian trips for Project Area One and 112 pedestrian trips for Project Area Two. Given the number of available pedestrian routes to/from area parking facilities and transit services and the various access/egress points to the East River Park, no sidewalks or crosswalks are expected to experience 200 or more pedestrian trips during an hour. However, because this alternative would require a rerouting of the bikeway/walkway along the proposed project area to inland routes, it is concluded to result in temporary significant adverse effects for users of the East River bikeway/walkway. Thus, the Preferred Alternative would require the development and implementation of a rerouting plan.

Mitigation

As described above, the Preferred Alternative would require mitigation for temporary construction traffic effects at the intersections of East 23rd Street and First Avenue and East 23rd Street and Avenue C, and temporary closures of bikeway/walkway along the proposed project area to inland routes.

For the proposed project, the temporary significant adverse traffic effects at the intersections of East 23rd Street and First Avenue and East 23rd Street and Second Avenue could be fully mitigated by implementing standard traffic mitigation measures (e.g., signal timing changes).

Because the proposed project may require a rerouting of the bikeway/walkway along the proposed project area to inland routes, it is concluded to have the potential to result in temporary significant adverse effects for users of the East River bikeway/walkway. Thus, the proposed project would require the development and implementation of a rerouting plan.

CONSTRUCTION—AIR QUALITY

Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes as well as New York City Local Law 77. These include dust suppression measures, idling restriction, and the use of ultra-low sulfur diesel (ULSD) fuel and best available tailpipe reduction technologies. With the implementation of these emission reduction measures, construction of the Preferred Alternative would not result in any predicted concentrations above the National Ambient Air Quality Standards (NAAQS) for nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM_{10} or the *de minimis* thresholds for $PM_{2.5}$) from nonroad and on-road sources. Therefore, no significant adverse air quality impacts are predicted from the construction of the Preferred Alternative.

Annual emissions from nonroad and on-road sources over the scheduled construction duration would not exceed any of the *de minimis* criteria defined in the general conformity regulations. Therefore, construction of the Preferred Alternative would conform to the relevant State Implementation Plan (SIP) and does not require a general conformity determination.

CONSTRUCTION—GREENHOUSE GAS

The total fossil fuel use in all forms associated with construction under the Preferred Alternative would result in up to approximately 48,889 metric tons of CO_2e emissions. Potential measures for further reductions of emissions from construction of the Preferred Alternative are under consideration and may include the use of biodiesel, expanded use of recycled steel and aluminum, as well as expanded construction waste reduction.

CONSTRUCTION—NOISE AND VIBRATION

Construction of the Preferred Alternative is predicted to result in significant adverse noise effects at the following locations: 621 Water Street, 605 Water Street, 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 the Asser Levy Recreation Center. The predicted significant adverse construction noise effects would be of limited duration and would be up to the mid 80s dBA during daytime construction and up to the mid 70s dBA during nighttime construction. Noise levels in this range are typical in many parts of Manhattan along heavily trafficked roadways. 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.

At other receptors near the project area, including open space, residential, school, and hospital receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area and so would not rise to the level of a significant adverse noise effect.

Vibration resulting from construction of the proposed project would not result in exceedances of the acceptable limit, including for historic structures. However, vibration monitoring would be required for all historic structures within 90 feet of the project work areas according to the project's Construction Protection Plan (CPP) to ensure vibration does not exceed the acceptable limit at any of these historic structures. In terms of potential vibration levels that would be perceptible and annoying, the pieces of equipment that would have the most potential for producing levels that exceed the 65 VdB limit are pile drivers. They would produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 230 feet. However, the operation would only occur for limited periods of time at a particular location. While the vibration may be noticeable at times, it would be temporary and would consequently not rise to the level of a significant adverse effect.

Mitigation

Source or path controls beyond code requirements would be considered and implemented during construction of the proposed project to minimize the effects of noise. To that end, the mitigation measures being explored by the City include:

- 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.

- Hanging noise barriers or curtains made from mass-loaded vinyl around the pile driving head to shield receptors from noise of impact 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.
- 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.

Selecting quieter equipment models for equipment (i.e., cranes, generators, compressors, and lifts).

CONSTRUCTION—PUBLIC HEALTH

The Preferred Alternative would not result in unmitigated significant adverse effects in air quality, water quality, or hazardous materials, but 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 project 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.

INDIRECT AND CUMULATIVE EFFECTS

The proposed project would not result in indirect adverse effects generated by induced or secondary growth. In consideration of the range of technical analyses presented in this EIS, the proposed project has little or no potential to result in any cumulative effects, except in the following areas: visual resources—by blocking views to the waterfront and East River from multiple locations—and open space during construction periods by temporarily displacing open space resources.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources, both natural and human-made, would be expended in the construction and operation of the East Side Coastal Resiliency (ESCR) Project (the proposed project). These resources include the building materials used in construction; energy in the form of gas and electricity consumed during construction by various mechanical and processing systems; and the human effort (time and labor) required to develop, construct, and operate various components of the flood protection system. These are considered irretrievably committed because their reuse for some other purpose would be highly unlikely.

The proposed flood protection measures and enhancements to open spaces under the proposed project also constitutes a long-term commitment of land resources, thereby rendering land use for other purposes highly unlikely in the foreseeable future. Furthermore, funds committed to the design, construction/renovation, maintenance, and operation of the proposed project are not available for other projects.

These commitments of resources and materials are weighed against the proposed project's goals to (1) provide a reliable coastal flood protection system against the design storm event for the protected area; (2) improve access to, and enhance open space resources along the waterfront, including East River Park and Stuyvesant Cove Park; (3) respond quickly to the urgent need for increased flood protection and resiliency, particularly for communities that have a large concentration of residents in affordable and public housing units along the proposed project area; and (4) achieve implementation milestones and comply with the conditions attached to funding allocations as established by the U.S. Department of Housing and Urban Development (HUD), including scheduling milestones.

UNAVOIDABLE ADVERSE IMPACTS

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.

URBAN DESIGN AND VISUAL RESOURCES

The Preferred Alternative 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. The Preferred Alternative 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.

NATURAL RESOURCES

Terrestrial Resources

The total number of trees to be removed as a result of the Preferred Alternative design would be 981. This loss of trees represents 77 percent of the trees inventoried for the proposed project. 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 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 Parks Rules) and Local Law 3 of 2010. 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.

Wetland Resources

Under the Preferred Alternative, 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 also includes 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.

Adverse effects to aquatic resources would be mitigated 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) located on Staten Island, New York, pursuant to NYSDEC and USACE permit requirements. 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.

Mitigation

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 Parks Rules) and Local Law 3 of 2010. The permanent loss of tidal wetland habitat associated with the Preferred Alternative would be mitigated for in accordance with all NYSDEC and USACE permit conditions.

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-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 under the Preferred Alternative. 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 under the Preferred Alternative. 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, some of these impacts would result 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 Preferred Alternative, 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, 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 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 first three years of the construction period under the Preferred Alternative.

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:

- 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.;
- 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 publicly 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/obstacle, the proposed project would significantly improve the usability and access to the greenway.

CONSTRUCTION – NOISE AND VIBRATION

As described above with the Preferred Alternative, construction of the proposed project is predicted to result in significant adverse noise effects during construction at a number of locations.

Construction of the Preferred Alternative is expected to occur over a 3.5-year duration as compared to the 5-year duration for the other With Action Alternatives. 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.

Source or path controls 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. Potential mitigation 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 the Preferred Alternative.

NYC Parks

CEQR No.: 15DPR013M

SEQR Classification: Type I

Location: Manhattan, New York

Community Districts 3 and 6

Block 243, Lot 1; 244,19; 262,1; 262,25; 316,114; 316,200; 321,1; 323,1; 367,1; 955,5; 981,2; 981,5; 988,1; 990,1; 990,70; 990,90; 991,29

The project area is located on the east side of Manhattan, beginning at Montgomery Street to the south and extending north along the waterfront to East 25th Street.

Contact Person:

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A copy of the DEIS can be obtained online on the following websites: http://www.nyc.gov/cdbgdr or http://www.nyc.gov/parks/escr or www.nyc.gov/escr and is available for public inspection at the address above or at the following locations during regular business hours:

- OMB, 255 Greenwich Street, 8th Floor, New York, NY 10007
- New York Public Library – Seward Park Branch, 192 East Broadway, New York, NY 10002
- New York Public Library – Epiphany Branch, 228 East 23rd Street, New York, NY 10010

Alyssa Cobb Konon — 4/5/19

Alyssa Cobb Konon — Date

Deputy Commissioner for Planning and Parklands

City of New York/NYC Parks