

**East Side Coastal Resiliency Project:
Draft Scope of Work to Prepare a Draft Environmental
Impact Statement**

October 30, 2015

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Impact Statement

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CEQR No: 15DPR013M

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TABLE OF CONTENTS

1 Introduction6

2 Background of the Proposed Action7

3 Purpose and Need of the Proposed Action9

4 Environmental Review Process10

5 Potential Regulatory Permitting, Approvals, and Coordination10

6 Public Scoping for the Draft Scope of Work.....12

6.1 Organization and Scope of the Draft Environmental Impact Statement 13

6.2 Description of Alternatives 14

6.2.1 Alternative 1 – No Action Alternative 14

6.2.2 Proposed Action Alternatives Overview..... 14

6.2.3 Alternative 2 – Baseline Flood Protection System..... 17

6.2.4 Alternative 3 – Flood Protection System with Park Enhancements and Neighborhood Connection Improvements 18

6.2.5 Alternative 4 – Flood Protection System With Integrated Park Facility and Resiliency Measures..... 18

6.2.6 Additional Alternatives 18

6.3 Other Alternatives Considered, But Not Advanced Further 19

6.4 Analytical Framework..... 19

6.5 Affected Environment and Environmental Consequences..... 20

6.5.1 Land Use, Zoning, and Public Policy..... 20

6.5.2 Socioeconomic Conditions..... 21

6.5.3 Open Space 21

6.5.4 Historic and Cultural Resources..... 22

6.5.5 Urban Design and Visual Resources 24

6.5.6 Natural Resources 25

6.5.7 Hazardous Materials..... 27

6.5.8 Water and Sewer Infrastructure..... 28

6.5.9 Transportation 28

6.5.10 Public Health 31

6.5.11 Neighborhood Character..... 31

6.5.12 Construction..... 32

6.5.13 Environmental Justice..... 35

6.6 Mitigation..... 36

6.7 Cumulative Effects..... 36

6.8 Summary Chapters 36

List of Figures

- Figure 1: Regional Location
- Figure 2: Extent of Hurricane Sandy Flooding
- Figure 3: FEMA Preliminary Flood Hazard Areas (2015)
- Figure 4: Proposed Project Area with Design Reaches
- Figure 5: Proposed Project Area Aerial Map
- Figure 6: Typical Reinforced Berm Cross-Section
- Figure 7: Typical Floodwall with Reinforced Berm Cross-Section
- Figure 8: Typical Floodwall Cross-Sections
- Figure 9: Typical Swing Gate Illustrative Designs
- Figure 10: Typical Steel Roller Gate Illustrative Designs
- Figure 11: Typical Crest Gate Illustrative Designs
- Figure 12: Typical Demountable Gate Illustrative Designs
- Figure 13a: Alignment of Alternative 2
- Figure 13b: Schematic of Alternative 2
- Figure 14a: Alignment of Alternative 3
- Figure 14b: Schematic of Alternative 3
- Figure 15: Land Use Study Area
- Figure 16: Open Space Study Area
- Figure 17: Historic and Cultural Resources Study Area
- Figure 18: Urban and Visual Resources Study Area and Visual Corridors
- Figure 19: Soil and Groundwater Testing Locations
- Figure 20: Pedestrian and Bicyclist Data Collection Locations
- Figure 21: Noise Measurement Locations for Construction Period Analysis

List of Appendices

Appendix A: SEQRA/CEQR Positive Declaration

1 INTRODUCTION

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 redouble its efforts to protect vulnerable populations and critical infrastructure during major storm events. Hurricane Sandy caused extensive coastal flooding, resulting in significant damages to residential and commercial property, open space, transportation, critical power, and water and sewer infrastructure, which in turn affected healthcare and other essential services. To address this vulnerability, the City is proposing to construct a coastal flood protection system along a portion of the east side of Manhattan as part of the East Side Coastal Resiliency (ESCR) Project (the Proposed Action) (see **Figure 1**) and make related improvements to City infrastructure. The proposed project area begins on the south at Montgomery Street and extends north along the waterfront to East 23rd Street (and, in one alternative, to East 25th Street) with inland segments along these streets and a design study area that includes portions of the Lower East Side and East Village neighborhoods, Stuyvesant Town, and Peter Cooper Village. Within the proposed project area, the City is proposing to install a flood protection system that is within City parkland and streets. This flood protection system may include a combination of berms (or “bridging berms”), floodwalls, and deployable systems with other infrastructure improvements to reduce flooding. In addition to providing a reliable coastal flood protection system for this area, a goal of the Proposed Action would be to improve open spaces and enhance access to the waterfront, including the John V. Lindsay East River Park (East River Park) and Stuyvesant Cove Park.

To implement the Proposed Action, the City is proposing to enter into a grant agreement with the U.S. Department of Housing and Urban Development (HUD) to disburse \$335 million Community Development Block Grant-Disaster Recovery (CDBG-DR) Funds for the design and construction of the Proposed Action. The City is the grantee of the CDBG-DR funds for Hurricane Sandy, which would be provided to the City through its Office of Management and Budget (OMB) acting under HUD’s authority.

Implementing the Proposed Action requires the preparation of an Environmental Impact Statement (EIS) in accordance with the requirement of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations (CFR) 1500-1508), the State Environmental Quality Review Act (SEQRA), and the City Environmental Quality Review Act (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 under NEPA. Since the Proposed Action 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 Action 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 Action would be located in large part within City parkland, and requires approvals from the New York City Department of Parks & Recreation (DPR), DPR has assumed Lead Agency status under SEQRA and CEQR. OMB and DPR, with the cooperation of a number of involved and interested agencies at the city, state and federal levels, will therefore be preparing an Environmental Impact Statement (EIS) that will analyze the potential



- Proposed Project Area*
- Alternative Flood Protection System Alignment*

0 1 MILES

environmental impacts of the Proposed Action. The EIS will serve to fulfill the statutory obligations of NEPA, SEQRA and CEQR.

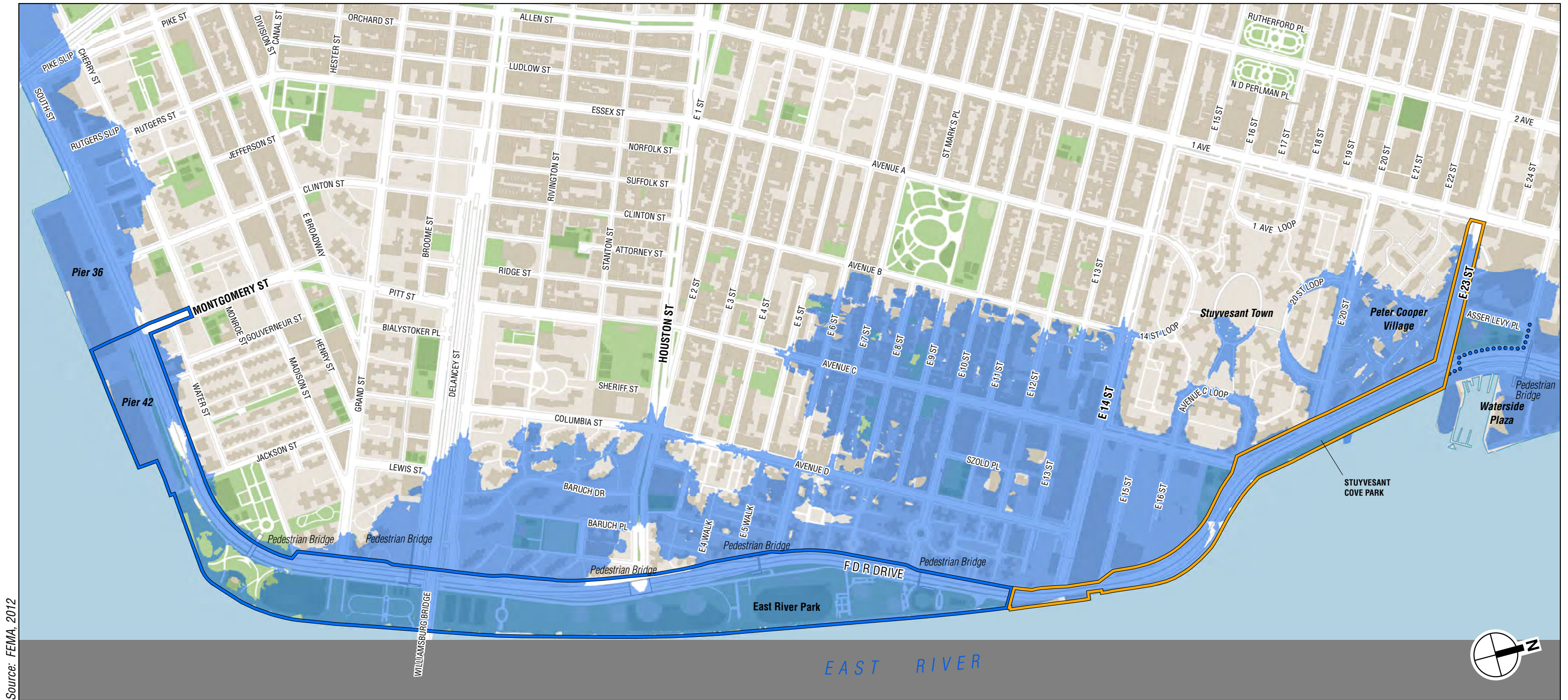
Public scoping is the first step in the environmental review process and is the period during which government agencies, elected officials, community organizations, groups, and individuals can review and provide comments on the Draft Scope of Work to Prepare a Draft EIS (DEIS). This Draft Scope of Work (Draft Scope) therefore describes the following: the purpose and need for the Proposed Action, a summary of the Proposed Action and its alternatives, and the methodologies to be used in assessing the potential for impacts associated with the Proposed Action alternatives. The proposed DEIS impact assessment criteria and methodologies contained in this Draft Scope are primarily based on the guidance set forth in the *CEQR Technical Manual*, but also draw upon applicable state and federal guidelines, where appropriate. The proposed scope of work for each DEIS technical area is described in the sections below. The potential for impacts will be assessed and disclosed in the DEIS.

2 BACKGROUND OF THE PROPOSED ACTION

On October 29, 2012, Hurricane Sandy hit New York City with tropical-storm-force winds. The resulting waves and storm surge battered the City's coastline causing 44 deaths, the destruction of homes and other buildings, and severely damaging critical infrastructure. The hurricane's effects were particularly intense in neighborhoods across Southern Manhattan, Southern Queens, Southern Brooklyn, and the East and South shores of Staten Island.

During Hurricane Sandy, Manhattan's East River waterfront between East 42nd Street on the north and the Brooklyn Bridge on the south experienced extensive coastal flooding, which affected approximately 31 million square feet of built space, including residential and commercial buildings, parks, and critical infrastructure (see **Figure 2**). The storm surge from the East River overtopped the bulkhead and the flood waters inundated East River Park, crossed the Franklin D. Roosevelt East River Drive (FDR Drive), and flowed across the inland streets. Flooding was reported at depths of up to four feet along Avenue C and extended approximately 2,000 feet inland, nearing Avenue B. This flooding damaged critical mechanical systems within buildings, including fire-, life-safety, and heating and cooling systems.

Hurricane Sandy also significantly damaged critical elements of the City's utility infrastructure, including the energy grid, the water supply and sewer service facilities, and transportation systems. As Hurricane Sandy approached New York City, the Consolidated Edison Company of New York (Con Edison) shut down electrical networks in Southern Manhattan (the area south of 42nd Street), including the Con Edison East River Generating Facility, to minimize severe damage to their facilities and critical infrastructure. Nonetheless, the surge damaged substation facilities located at East 13th Street and at the South Street Seaport, shutting down electrical service to much of Manhattan below 34th Street for nearly four days after the storm. Surge waters also damaged two New York City Department of Environmental Protection (DEP) wastewater facilities serving Southern Manhattan, including the Avenue D Pump Station (also referred to as the Manhattan Pump Station or the 13th Street Pump Station), located at East 13th Street and FDR Drive, and the Canal Street Pump Station, located near the intersection of Canal and Varick Streets. The Manhattan Pump Station experienced service outages and was shut down for a little more than a day, exacerbating combined sewer overflow (CSO) discharges into the East River during that time. Flooding also affected seven subway tunnels, including the 14th Street Tunnel for the L line (BMT-Canarsie Line). Damage to these tunnels resulted in their closure for up to a week after the storm.

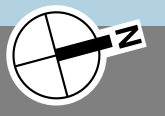


Source: FEMA, 2012

- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment

Hurricane Sandy Flooding Extent

0 1,000 FEET



In Sandy's aftermath, the City formed the Special Initiative for Rebuilding and Resiliency (SIRR) to analyze the impacts of the storm on the City's buildings, infrastructure, and people; to assess climate change risks in the near term (2020s) and long term (2050s); and to outline strategies for increasing resiliency citywide. The report, *A Stronger, More Resilient New York*, released in June 2013, was the result of that effort and contains Community Rebuilding and Resiliency Plans (CRRP) for five particularly vulnerable neighborhoods in the City, including Southern Manhattan.

The CRRP for Southern Manhattan outlines specific initiatives to address coastal defenses of buildings and critical infrastructure coupled with post-storm community and economic recovery. With respect to coastal protection, the City's proposals were based on a multi-faceted analysis that considered the various types of coastal hazards and their likelihood of occurrence, the potential impact of these hazards on the built environment and critical infrastructure, and the likely effectiveness of proposed measures to address these hazards. In addition, the coastal defense measures were informed by the New York City Department of City Planning's (DCP) *Urban Waterfront Adaptive Strategies* (UWAS) study, published in June 2013, and funded by a HUD Sustainable Communities Regional Planning Grant. The UWAS study examined the underlying geomorphology of the various regions, including categorizing each coastal reach of the City's shoreline by geomorphic type. The UWAS study provided an assessment of coastal resiliency measures that would be appropriate for each geomorphology type along the City's shoreline. The CRRP built upon the results of the UWAS study to recommend coastal initiatives for Southern Manhattan's coastline, which includes the proposed project area.

Coastal Protection Initiative 21 of the CRRP calls for an integrated flood protection system in Lower Manhattan, extending from East 14th Street to Battery Park City, the first phase of which is intended to protect the Lower East Side and part of Chinatown. These neighborhoods are home to a large residential population, including one of the greatest concentrations of low- and moderate-income households in the City, with over 9,000 New York City Housing Authority (NYCHA) housing units. In addition, critical infrastructure, including the City's subway system, Con Edison substations, the Manhattan Pump Station, and FDR Drive, are all located here. It was recognized in the CRRP that potential storm damage to these critical assets would result in citywide impacts on thousands of housing units, transportation systems, parks, and the economy.

In June 2013, HUD launched the Rebuild by Design (RBD) competition to respond to Hurricane Sandy's devastation. Through this competition that was funded using foundation and private-sector funding sources, selected proposals were identified for further analysis with the goal of identifying a number of projects for implementation. In June 2014, following a year-long process during which the design teams met with regional experts, including government agencies, elected officials, community organizations, local groups and individuals, HUD announced six winning proposals with projects throughout the Hurricane Sandy-impacted area, including Long Island, New Jersey, the Bronx, Staten Island, and Manhattan. The concept for Manhattan was named "the Big U" which focused on a flood protective system around Manhattan extending south along the Hudson River from West 57th Street to The Battery, and then north up the East River to East 42nd Street. As part of the RBD process, a more focused proposal was developed to reduce the flood risk for vulnerable communities along the East Side. This proposal identified three waterfront compartments between The Battery and East 23rd Street. These compartments were determined based on the 100-year mapped flood hazard area (see **Figure 3**), topography, and sea level rise projections developed by the New York City Panel on Climate Change. Although the compartments were conceptualized together, each could provide flood protection independently of the others. CDBG-DR funds were subsequently

Source: FEMA Preliminary Flood Insurance Rate Maps, 1/30/2015



- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- 100-Year Flood Hazard Area (1% Annual Chance)
- 500-Year Flood Hazard Area (0.2% Annual Chance)
- Boundary dividing Flood Hazard Area Zones and areas of different Base Flood Elevations, flood depths, and flood velocities
- Limit of Moderate Wave Action (V Zone)

0 1,000 FEET



allocated by HUD for the design and construction of the Montgomery Street to East 23rd Street compartment, which is the proposed project area. As described below, this compartment is composed of two sub-areas: Project Area One and Project Area Two. Project Area One extends south from Cherry Street along Montgomery Street to Pier 42 and continues north along the eastern coastline to East 13th Street. Project Area Two extends from East 13th Street north to East 23rd Street and west along 23rd Street, or to East 25th Street in one alternative, to First Avenue or the U.S. Department of Veterans Affairs (VA) Medical Center New York (see **Figures 4 and 5**).

The importance of this project to the City was emphasized in *One New York: The Plan for a Strong and Just City (OneNYC)*, released April 2015. With *OneNYC*, the City expands and accelerates the roadmap to build a stronger, more resilient New York City that is prepared for the impacts of climate change. Specifically, Initiative 1 of *OneNYC* calls for the completion of vital coastal protection projects throughout the City, including the Proposed Action.

3 PURPOSE AND NEED OF THE PROPOSED ACTION

As described above, Hurricane Sandy greatly impacted Manhattan's East Side along the proposed project area underscoring the City's need to bolster its resiliency efforts to protect property, vulnerable populations, and critical infrastructure during major storm events. The need to protect this 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 Action is to address this coastal flooding vulnerability in a manner that reduces the flooding potential while enhancing waterfront open spaces and access to the waterfront.

The principle objectives of the Proposed Action are to:

- Provide a reliable coastal flood protection system for the 100-year flood event for the FEMA-designated flood hazard area, taking into consideration sea level rise, for the area between Montgomery Street to the south and East 23rd Street to the north (see **Figure 3**);
- 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 vulnerable communities and the large concentration of affordable and public housing units along the proposed project area; and
- Achieve implementation milestones and draw down on funding allocations as established by HUD.

Additionally, the principle design and implementation objectives for the Proposed Action include:

- Reliability of the proposed coastal flood protection system;
- Urban design compatibility and enhancements;
- Minimizing environmental impacts;
- Constructability;
- Operational needs;
- Maintenance needs;
- Scheduling that meets HUD milestones; and



- Project Area One
- Project Area Two
- Proposed Project Design Reaches
- Alternative Flood Protection System Alignment
- Design Study Area

Existing Pedestrian Bridges

0 1,000 FEET



Source: Aerial Image - USGS

- Project Area One
- Project Area Two
- Proposed Project Design Reaches
- Alternative Flood Protection System Alignment
- Design Study Area

0 1,000 FEET

- Cost.

4 ENVIRONMENTAL REVIEW PROCESS

It is the purpose of the environmental review process to provide a means for decision-makers to systematically consider environmental effects along with other aspects of project planning and design, to evaluate and compare reasonable alternatives, and to identify and mitigate, where practicable, any significant adverse environmental impacts. OMB and DPR, as the NEPA and SEQRA/CEQR Lead Agencies, respectively, have determined that the Proposed Action has the potential to result in significant adverse environmental impacts. Therefore, at OMB's request, HUD has issued a Notice of Intent to Prepare an EIS (in accordance with 24 CFR Part 1502). OMB and DPR have also prepared this Draft Scope to Prepare a DEIS to describe the proposed content of the DEIS, the methodologies to be used in the impact analyses, and to allow for public and stakeholder participation as recommended by 6 NYCRR Part 617. The Lead Agencies will then prepare a DEIS based on the Final Scope of Work to be issued following the public input and review period. That Final Scope of Work will include a response to comments on the Draft Scope of Work and will be modified as necessary to address those comments. As stated above, the DEIS and subsequent Final EIS will serve to fulfill the statutory obligations of NEPA, SEQRA, and CEQR.

Once OMB and DPR have determined that the DEIS is complete, a Notice of Availability (pursuant to NEPA) and a Notice of Completion (pursuant to CEQR) will be prepared, distributed, and published in accordance with applicable regulations. The DEIS will then be subject to additional public review, in accordance with NEPA, SEQRA and CEQR procedures, including a public hearing and a period for public comment. After the DEIS public comment period has closed, a Final EIS (FEIS) will be prepared, which will include a summary of the comments received on the DEIS, responses to all substantive comments, and any necessary revisions to the DEIS to address those comments. No sooner than 30 days after publishing the FEIS, OMB, as NEPA Lead Agency, will prepare a Record of Decision and Statement of Findings that will describe the Preferred Alternative for the project, its environmental impacts, and any required mitigation. Similarly, DPR, as the CEQR Lead Agency, will prepare a Statement of Findings, demonstrating that it has reviewed the impacts, mitigation measures, and alternatives in the FEIS prior to adopting its findings. OMB can proceed with the federal action of requesting release of CDBG-DR grant funds from HUD once the environmental review process is concluded.

5 POTENTIAL REGULATORY PERMITTING, APPROVALS, AND COORDINATION

Implementation of the Proposed Action would involve federal, State, and local approvals, and is subject to NEPA, SEQRA, and CEQR and their implementing regulations. The federal, State, and City agencies that may potentially be involved in the environmental review and regulatory permitting processes are as follows:

FEDERAL

- U.S. Department of Housing and Urban Development (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 activities in Waters of the United States (Section 404 of the Clean Water Act) or structures within navigable waters (Section 10 of the Rivers and Harbors Act).
- U.S. Environmental Protection Agency (USEPA), 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.
- Federal Emergency Management Agency (FEMA) – Review of flood protection design and potential changes to Flood Insurance Rate Maps (FIRM).
- National Park Service (NPS) – Coordination and authorization for activities that may be necessary within parkland that was improved using federal Land and Water Conservation Funds (LWCF).

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; approvals related to the handling and transport of hazardous materials and soils.
- Department of State (NYSDOS) – Review of Coastal Zone Consistency.
- Office of Parks, Recreation and Historic Preservation (OPRHP) – Liaison with the Federal government for purposes of administering the LWCF program, including monitoring compliance with LWCF requirements. 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 FDR Drive under NYSDOT jurisdiction.
- New York City Housing Authority (NYCHA) – Approval for activities on NYCHA property.

Subject to the review of additional design alternatives, the Proposed Action may also require an approval from the State Legislature to alienate portions of parkland within East River Park for non-park uses.

CITY OF NEW YORK

- Office of Management and Budget (OMB) – Disbursement of funds from HUD to City agencies and NEPA Lead Agency for the environmental review.

- Department of Parks & Recreation (DPR) – Review of and issuance of permits and approvals for project design and construction in City parkland and future 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 Action for client agencies.
- Department of Environmental Protection (DEP) – Review of design and advisory agency for activities and projects related to stormwater management, water and sewer infrastructure, and natural resources.
- Department of Transportation (NYCDOT) – Review of flood protection design and permits related to activities along, adjacent to and within 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 (EDC) – Coordination and approval for activities on EDC-leased property, including Stuyvesant Cove Park and Solar One.
- Small Business Services (SBS) – Coordination and approval for activities on SBS-owned 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 & Development (HPD) – Review and approval for the disposition of NYCHA property.
- Mayor’s Office of Sustainability (MOS) – 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.

6 PUBLIC SCOPING FOR THE DRAFT SCOPE OF WORK

In accordance with the requirements of NEPA, SEQRA, and CEQR, this Draft Scope of Work is available for public review and comment.

To solicit public comments on the Proposed Action, the alternatives to be analyzed in the EIS, and this Draft Scope of Work, a public meeting has been scheduled for 7:00 PM on December 3, 2015, at the following location:

Bard High School Early College
525 East Houston Street
New York, NY 10002

A copy of the Draft Scope to Prepare the DEIS can be obtained online at <http://www.nyc.gov/html/cdbg/html/home/home.shtml> or by contacting:

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Written comments on this Draft Scope of Work can also be sent to either of the above mailing addresses, fax numbers, or email addresses through Monday, December 21, 2015. OMB and DPR will review and consider these comments before issuing a Final Scope of Work. The Final Scope of Work will address the comments received during the public review and will include any changes that are necessary in the Draft Scope of Work to address those comments.

6.1 ORGANIZATION AND SCOPE OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The DEIS will include the following chapters: Executive Summary; Introduction; Purpose and Need; Description of Alternatives, including a No Action Alternative and up to three flood protection alternatives; Potential Regulatory Permitting, Approvals, and Coordination; Analytical Framework; Affected Environment and Environmental Consequences (Significant Adverse Impacts); Cumulative Impacts; Mitigation Measures; Unavoidable Adverse Impacts; Irreversible and Irrecoverable Commitment of Resources; and Growth-Inducing Aspects of Each Alternative. The following sections of the Draft Scope provide a description of the DEIS approach and analyses for the following sections: Description of Alternatives, Analytical Framework, Affected Environment and Environmental Consequences, Mitigation, Cumulative Impacts, and Summary Chapters.

6.2 DESCRIPTION OF ALTERNATIVES

Evaluating alternatives allows for the comparison of reasonable alternatives that achieve the goals and objectives of the Proposed Action. The DEIS need not consider every possible alternative to the Proposed Action, but will consider a reasonable range of potentially feasible alternatives that will be analyzed in the EIS at an equal level of detail.

The DEIS will include a project description chapter that will use text and graphics to provide a thorough description of the Proposed Action and its alternatives and will set the context to assess and compare the impacts among the alternatives. The project description will be essential to understanding the Proposed Action and will provide the public and decision-makers a base from which to not only evaluate the impacts under each alternative, but to select the Preferred Alternative. This chapter will provide: a project identification (i.e., a brief description of the Proposed Action and its location); the project background and/or history; a statement of the public purpose and need; key planning considerations that have shaped the current proposal; a description of the design elements of each alternative, including the types of flood protection systems that may be used and proposed elements in parkland and streets; sources of soil and the use of fill materials; any related infrastructure, utility relocation, and drainage improvements; operations and maintenance requirements; any connections to and coordination with other flood protection systems; and the repair and replacement of parkland and streets that may be affected by construction. The project description will also describe any related improvements to waterfront structures that may be necessary, temporary mooring facilities, and any dredging in the East River that may be required to allow barge access during construction. This description will also include a discussion of the approvals required, any acquisition of land that may be required, procedures to be followed during environmental review and permitting, and the role of the EIS in these processes.

Provided below is a summary of the alternatives that are expected to be analyzed in the DEIS and the process to be used in developing and refining those alternatives.

6.2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

The No Action Alternative will evaluate conditions in the 2022 analysis year without the Proposed Action, including other projects being constructed and/or operated within the same vicinity and time frame. The No Action Alternative will assume that no new comprehensive coastal flood protection systems are implemented in the study area. Under this alternative, it is assumed that Con Edison would continue pursuing its planned resiliency projects (e.g., elevating critical electrical equipment) at its East 13th Street complex, the Con Edison East River Generating Facility and substations; Pier 42 at Montgomery Street would continue to be reconstructed as a public open space; the Houston Street overpass would be improved (this would not include any improvements within the park); resiliency measures would be implemented at the New York City Housing Authority properties; and hospitals along Hospital Row, including the VA Medical Center New York on East 23rd Street, would continue their resiliency upgrades.

6.2.2 PROPOSED ACTION ALTERNATIVES OVERVIEW

Description of the Two Project Areas

For the purposes of developing the conceptual designs and alternatives for the Proposed Action, the proposed project area is composed of two project areas and 17 reaches (see **Figures 4 and**

5). Project Area One to the south, has 10 reaches and extends from Montgomery Street on the south to the north end of East River Park (or about East 13th Street). Much of this project area is within East River Park, but there are also limited segments of the coastal flood protection system proposed in City streets and underneath the elevated FDR Drive. Project Area One also includes the existing pedestrian bridges across the FDR Drive to East River Park. Project Area Two is composed of seven reaches along the East River waterfront and includes flood protection system alignments along the FDR Drive right-of-way (including possibly along the west side of the FDR Drive to utilize the flood resiliency measures at the Con Ed East River Generating Facility) and East 23rd Street (east of First Avenue), with an alternative alignment along East 25th Street. Project Area Two includes a Con Edison-operated pier with a narrow segment of public walkway (at approximately East 14th Street), the Captain Patrick J. Brown Walk to the north (at approximately East 15th Street to East 18th Street), Stuyvesant Cove Park at the northern end, the street segments along and under the FDR, and segments of East 23rd and East 25th Streets.

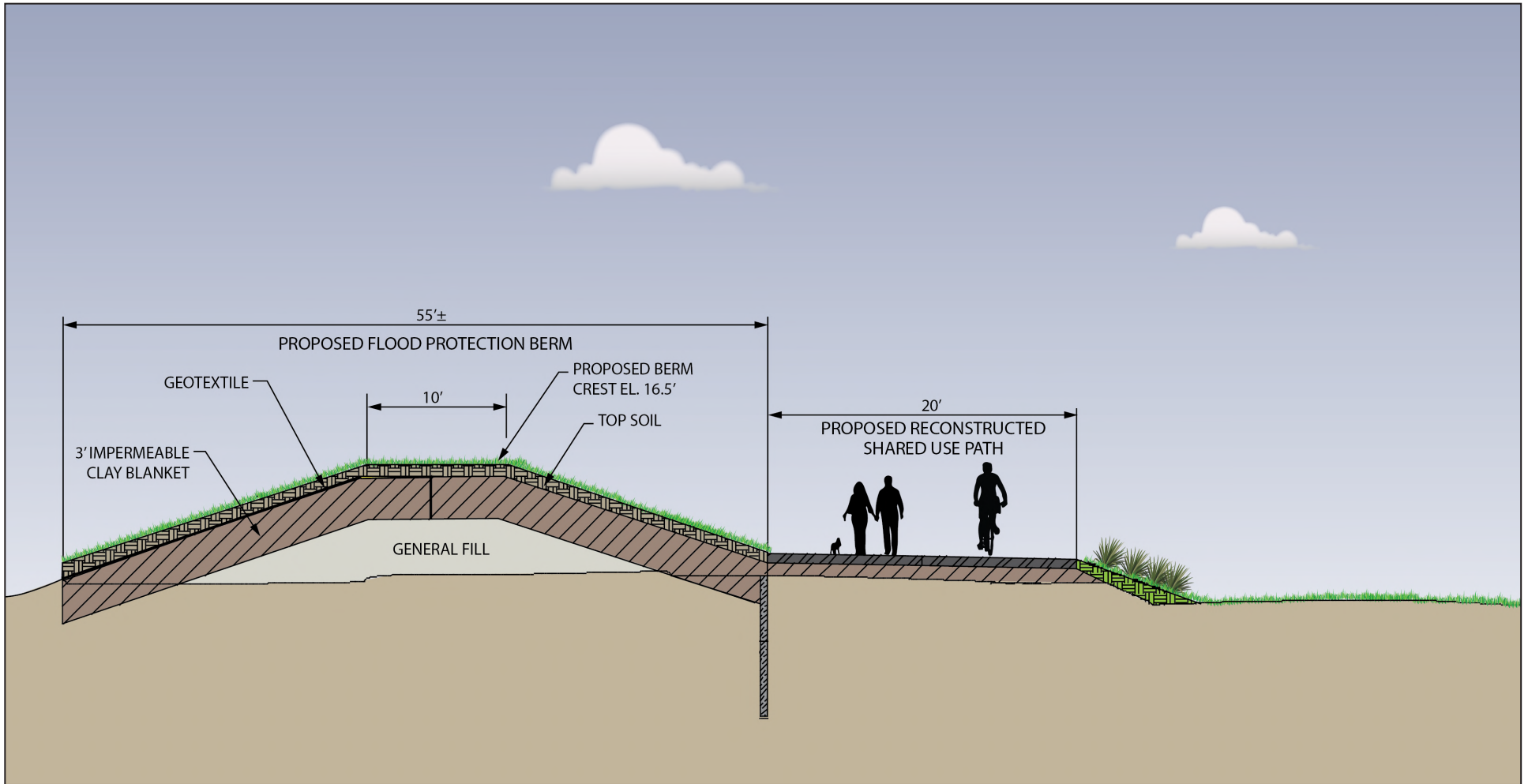
Alternatives Design Process

A set of alternatives will be developed and refined during the public scoping process, which commenced with the issuance of this Draft Scope, with input from the public, agencies, and other stakeholders. The DEIS will describe all of the alternatives that have been considered for analysis, identify those that have been eliminated from further consideration because they do not meet the stated purpose and need of the Proposed Action, and identify those that will be analyzed further in the DEIS. This process, which will be described in the DEIS, will lead to the designation of a Preferred Alternative.

Coastal Flood Protection Elements Common to Each Design Alternative

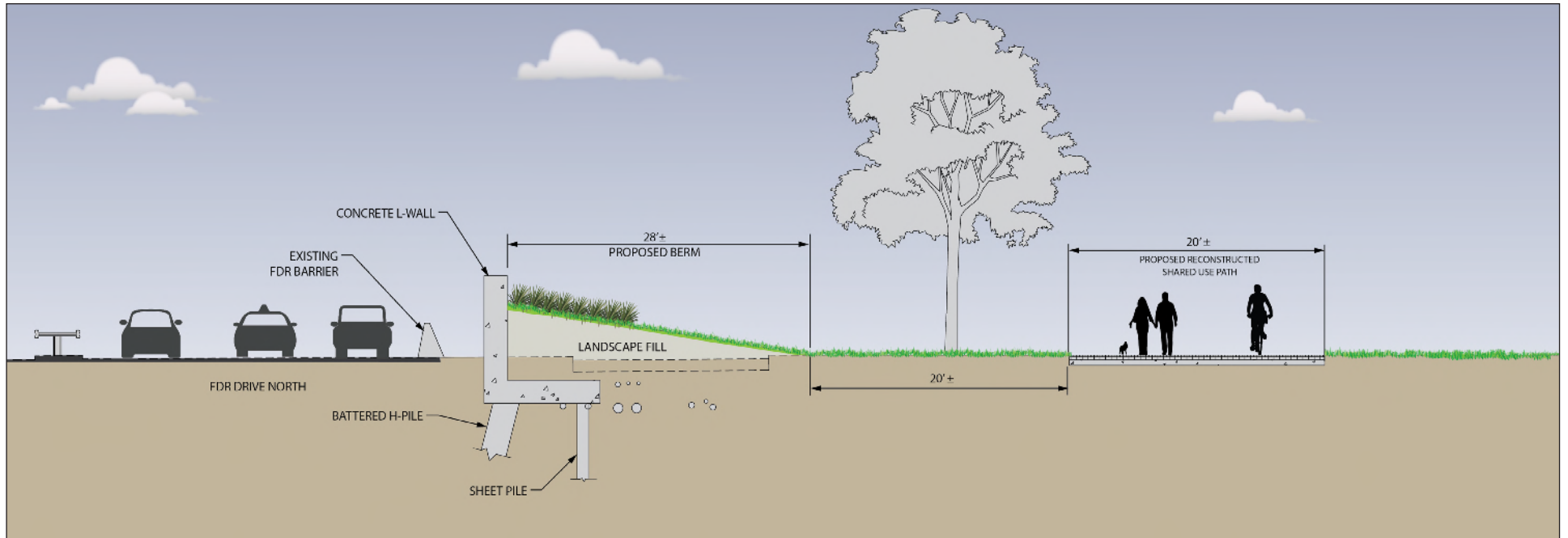
To implement integrated coastal flood protection and resiliency measures, the design alternatives may include a combination of systems composed of berms, floodwalls, deployable systems, and sewer system improvements. Provided below are brief descriptions of these systems:

- **Engineered and Landscape Berm** (also referred to as a “bridging berm”). Engineered berms elevate the existing topography to form a line of coastal flood protection and, therefore, require a relatively wide space to be installed. They are typically constructed of a core of compacted fill material, capped by stiff clay to withstand storm waves, with a stabilizing landscaped cover. To avoid seepage, the coastal flood protection berm has an interior cutoff wall that is constructed of either a stiff clay or slurry. These coastal protection berms can be integrated into a park setting and are also considered adaptable to provide increased protection or accommodate sea level rise to meet future design needs. Floodwalls (see below) are also used in conjunction with a berm at locations where there are horizontal space limitations. In certain reaches of Project Area One, these berms would be integrated with the pedestrian bridges that cross the FDR Drive and touch down in the park; these landings in the park (i.e., the “bridging berms”) may then provide the dual benefit of improved access and flood protection. See **Figure 6** for a cross section of a typical engineered berm. Engineered berms may be used for coastal flood protection within East River Park in Project Area One and within Stuyvesant Cove Park in Project Area Two. Floodwalls (see the description below) can also be used in conjunction with a landscaped berm in design reaches where there are horizontal space limitations (see **Figure 7**). (In this combination, the floodwall provides the coastal protection and the berm is an associated landscape feature.)
- **Floodwalls.** Floodwalls are narrow, vertical structures with a below-grade foundation that are designed to withstand both tidal storm surge and waves. They are typically



NOTE: Preliminary Illustrative Design Concept

Typical Cross-Section for Project Area One



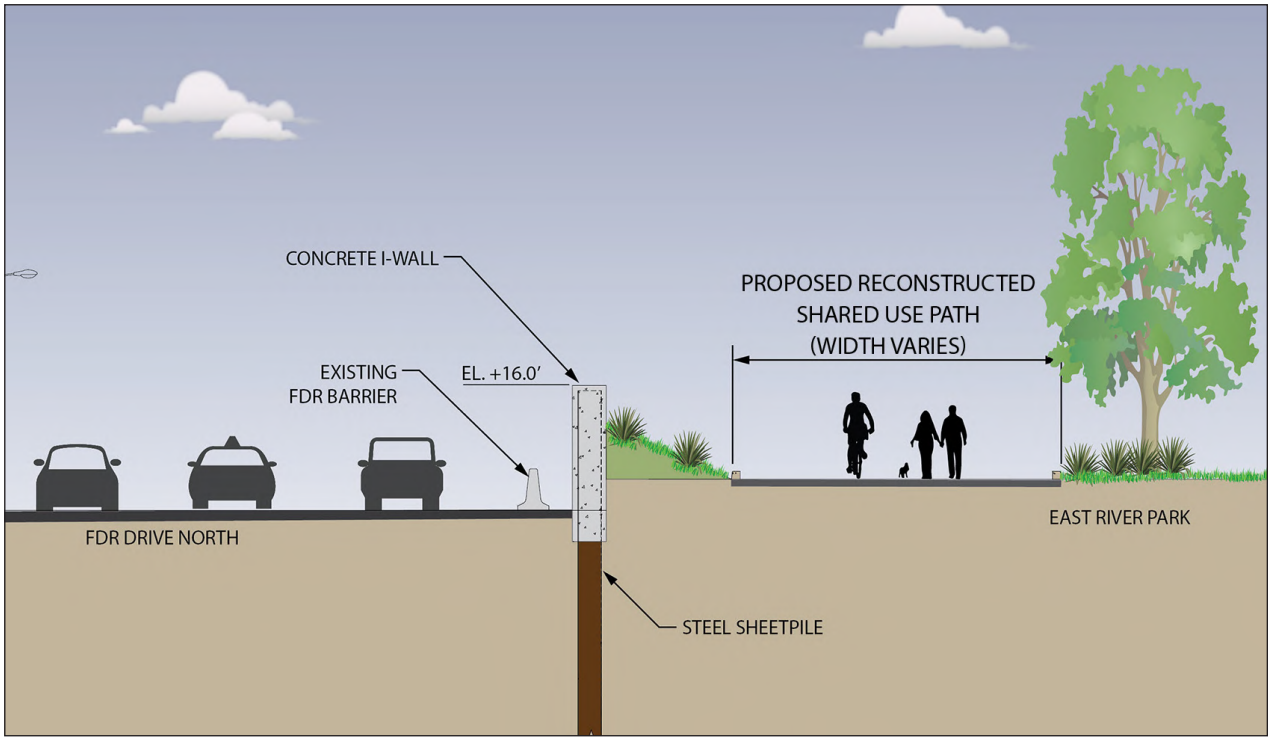
NOTE: Preliminary Illustrative Design Concept

Typical Cross-Section for Project Area One

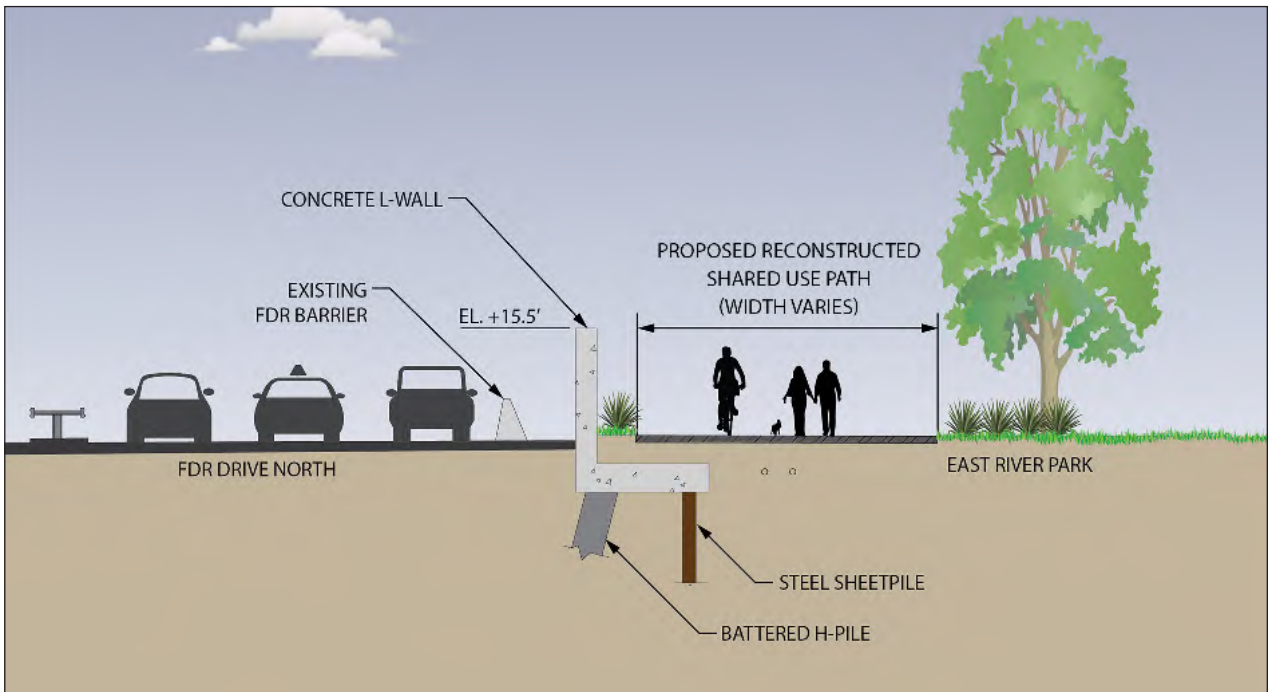
constructed of steel, reinforced concrete, or a combination of materials with a reinforced concrete cap. Floodwalls can be used where there are horizontal space limitations and where there is a design objective to protect existing recreational facilities by narrowing the footprint of the flood protection system. Typical floodwall designs include I-walls, L-walls, and T-walls, each providing differing degrees of structural protection to withstand tidal surge and wave forces. See **Figure 8** for cross sections of a typical I-wall and typical L-wall. Floodwalls may be used (in combination with landscape berms) along the interior limits of East River Park in Project Area One (adjacent to the FDR Drive) and along the west (or inland) side of the FDR Drive between about East 13th and East 18th Streets in Project Area Two.

- **Deployable Systems.** In many flood protection systems it is necessary to provide an opening to accommodate day-to-day vehicular or pedestrian circulation along a street or sidewalk, for example. In these instances, deployable systems are used. There are several types of deployable systems that may be used in both Project Areas One and Two, each of which is made of steel and structurally reinforced. These deployable systems include the following.
 - **Swing Floodgates.** These gates operate like a hinged door and are deployed to the closed position prior to the anticipated arrival of the surge event. The width limit for these systems is generally about 40 feet. See **Figure 9** for a cross section of a typical swing floodgate.
 - **Roller Floodgates.** A roller floodgate is a deployable system that can be used in openings up to and exceeding 40 feet wide. It is stabilized with a single or double line of wheels and slides into its protection position prior to the anticipated arrival of the storm event. See **Figure 10** for a cross section of a typical roller floodgate.
 - **Crest Floodgates.** Crest floodgates are a deployable flood protection system composed of a series of steel panels that are used along longer openings such as roads, sidewalks, or esplanades. A crest gate is more commonly built to meet site-specific requirements (i.e., custom built) and they typically lie flat in a solid foundation that is either flush with the road surface or stored below grade in a recess covered by grating or steel plates. In preparation for a flood event, the gates are deployed and reinforced by retention arms or braces. See **Figure 11** for a cross section of a typical crest gate.
 - **Demountable Floodgates.** Demountable floodgates consist of a frame structure with stacked panels that are typically stored off-site. When a flood event is projected, the frame and panels are transported to the site in modular sections and are manually installed. See **Figure 12** for a cross section of a typical demountable gate.

An evaluation of the need for modifications or improvements to the City’s existing sewer system will be undertaken to determine the resiliency needs of the proposed project area with respect to the operation of the sewer system during a storm event. Related improvements may include installing gates on sewer interceptors, flood-proofing regulators and manholes, and installing gates on existing outfalls to ensure that the drainage system does not serve as a conduit for conveying floodwaters inland of the FDR. Other improvements to provide additional sewer capacity to address drainage service during a storm condition will also be identified and evaluated. Components designed to provide additional sewer capacity could include installation



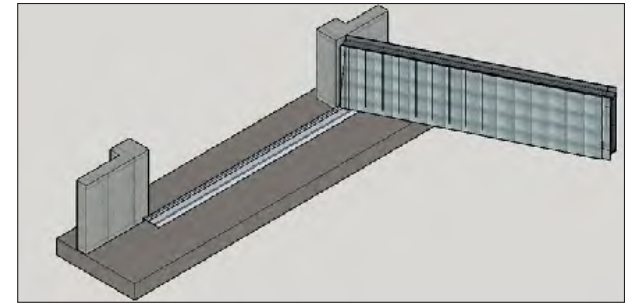
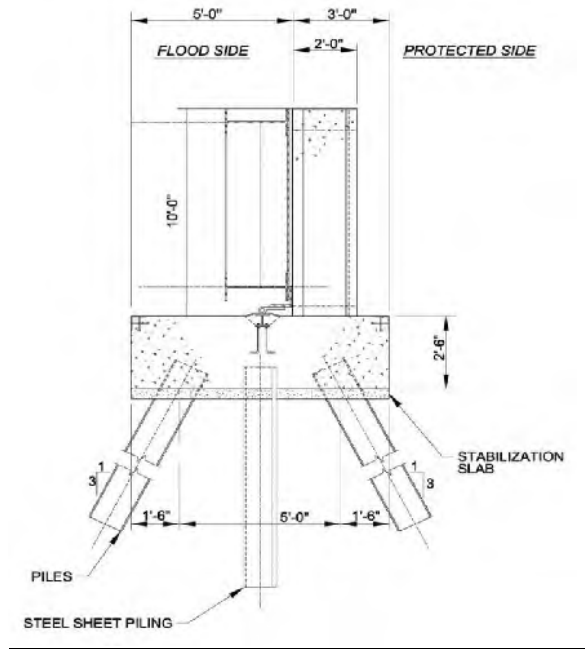
Typical I-Wall Cross-Section, Project Area One



Typical L-Wall Cross-Section, Project Area One

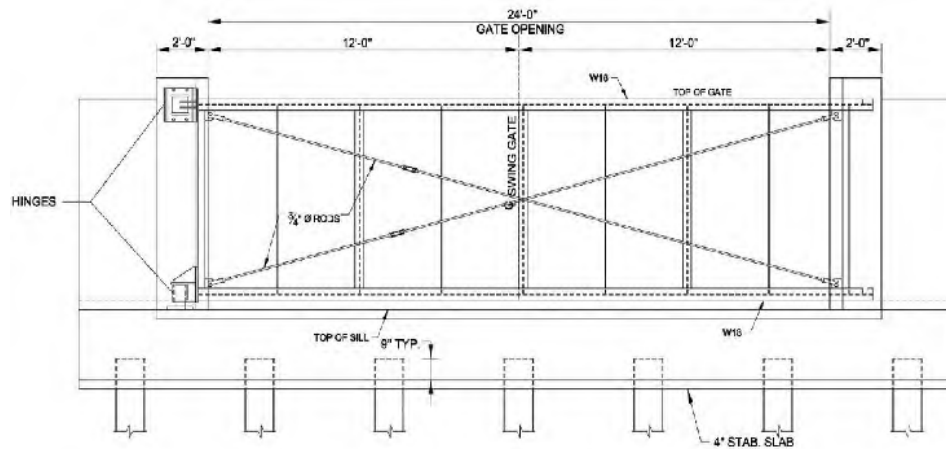
NOTE: Preliminary Illustrative Design Concept

Typical Section

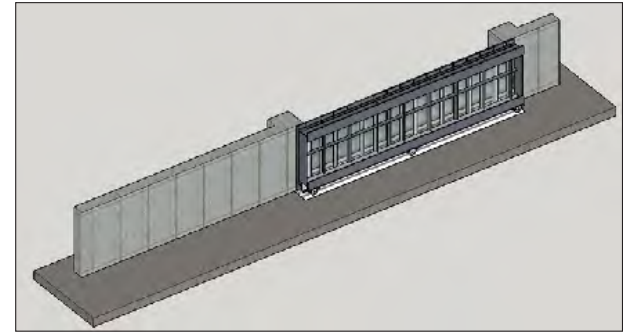
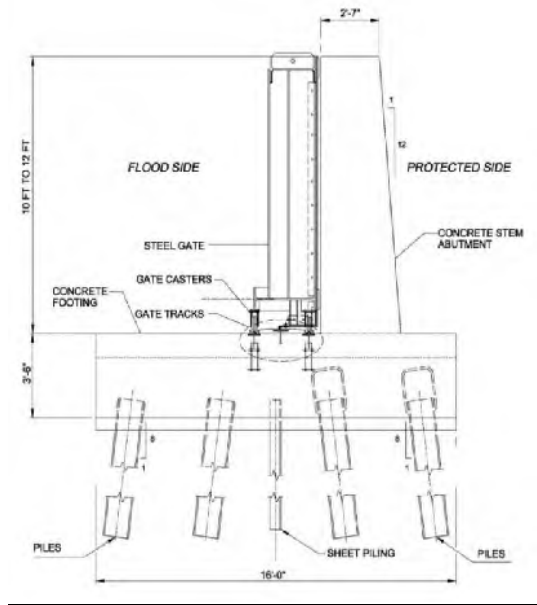


Swing Gate in the Open Position

Swing Gate in the Closed Position

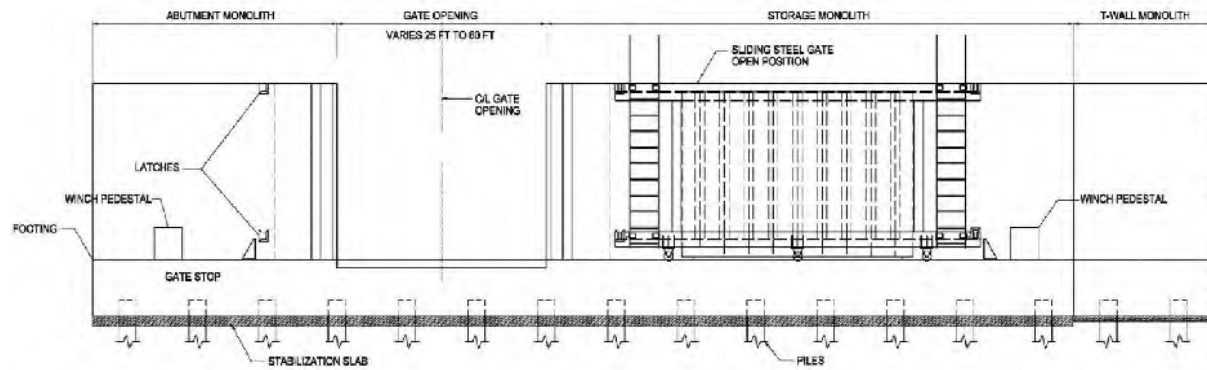


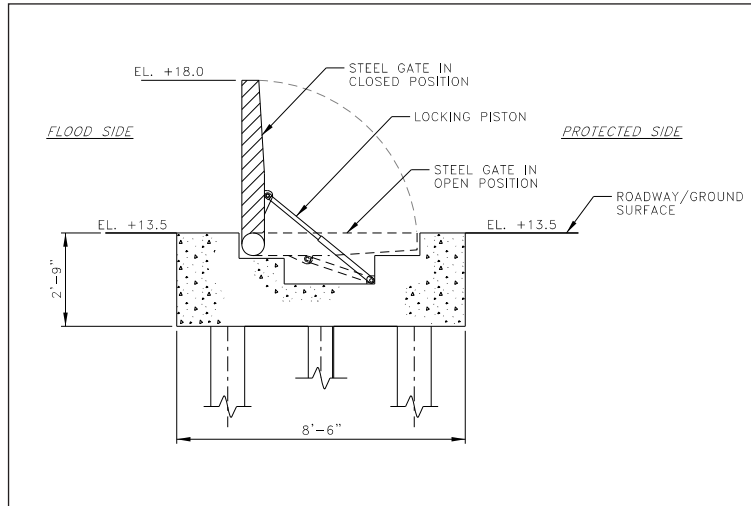
Typical Section



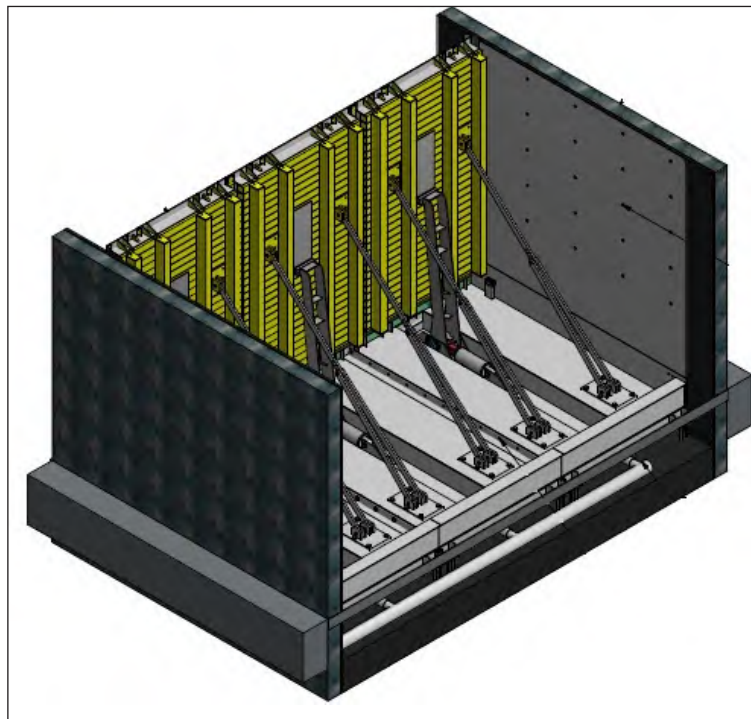
Steel Roller Gate in the Closed Position

Steel Roller Gate in the Open Position

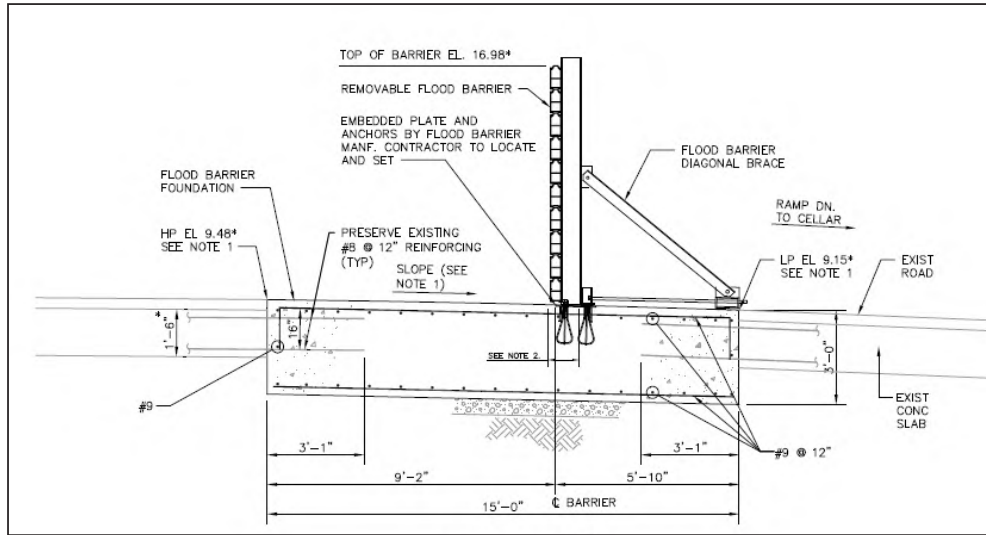




Typical Section



Crest Gate in Closed Position



Typical Section



Typical Example

of parallel conveyance conduits, installation of a new in-line pump station, and/or construction of underground storage tanks and above-grade head house within East River Park.

The Proposed Action would also require water main, sewer, and utility relocations, an operations and maintenance plan, utility and lighting plans, connections to other flood protection structures (e.g., the protection systems at the Con Edison East River Generating Facility and the VA Medical Center on East 23rd Street), and the repair and replacement of parkland and streets affected by construction. Construction activities may also require improvements of waterfront structures, temporary mooring facilities, and limited dredging along the East River to provide barge access during construction.

Each of the following alternatives propose varying configurations and combinations of the coastal flood protection systems described above. The alternatives could meet the project objectives to respond quickly to the need for reliable coastal flood protection and resiliency; improve access to and enhance open space resources along the waterfront; and achieve implementation milestones. The alternatives vary in the degree by which the coastal flood protection system is integrated with the park landscape enhancements and improvements to neighborhood connections. It is expected that each of the design alternatives could start construction in mid-2017 and be completed in 2022.

6.2.3 ALTERNATIVE 2 – BASELINE FLOOD PROTECTION SYSTEM

The Baseline Flood Protection System Alternative meets the project objectives by providing the required flood protection using a combination of berms and floodwalls with a reconstructed shared use path (bikeway/walkway) along the west side of East River Park. Under this alternative, the park and street improvements currently proposed as separate capital projects by DPR and NYCDOT, including the improvements proposed at Pier 42 and the Houston Street overpass, are also assumed to be completed. In Project Area One, depending on the design reach, the essential design features in East River Park primarily include floodwalls with periodic berms that avoid or minimize impacts to existing recreational facilities and other park features, minimally improved park-side bridge landings at three of the five elevated pedestrian crossings (e.g. at Delancey Street, East 6th Street, and East 10th Street) to integrate with the floodwall and berm elements and modestly enhanced passive recreation and landscaped spaces including a reconstructed bikeway and walkway. In Project Area Two, portions of Stuyvesant Cove Park could be raised as a landscaped berm. Outside of Stuyvesant Cove Park, this alternative would be composed primarily of floodwalls along the FDR Drive, potentially along Murphy's Brother's Playground at Avenue C, with deployable systems along East 23rd Street (with an alternative alignment along East 25th Street) and also at crossings under the FDR Drive. Also assumed in this alternative are connections to the flood protection systems at the Con Edison East River Generating Facility and the VA Medical Center on East 23rd Street. See **Figures 13a** and **13b** for a preliminary alignment and schematic of this alternative in Project Area One and Project Area Two.



- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- Proposed Project Design Reaches
- Approximate Limits of Alternative 2 Design
- Existing Open Space
- Proposed Open Space (No-Action Project)
- Design Study Area
- Existing Con Ed Floodwalls

NOTE: Based on Preliminary Draft Design Concept

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Project Elements

NOTE: Based on Preliminary Draft Design Concept

- Proposed Floodwall
- █ Proposed Engineered and Landscape Berms
- - - Proposed Deployable Systems
- ⋯ Proposed Reconstructed Shared Use Path

6.2.4 ALTERNATIVE 3 – FLOOD PROTECTION SYSTEM WITH PARK AND NEIGHBORHOOD CONNECTION IMPROVEMENTS

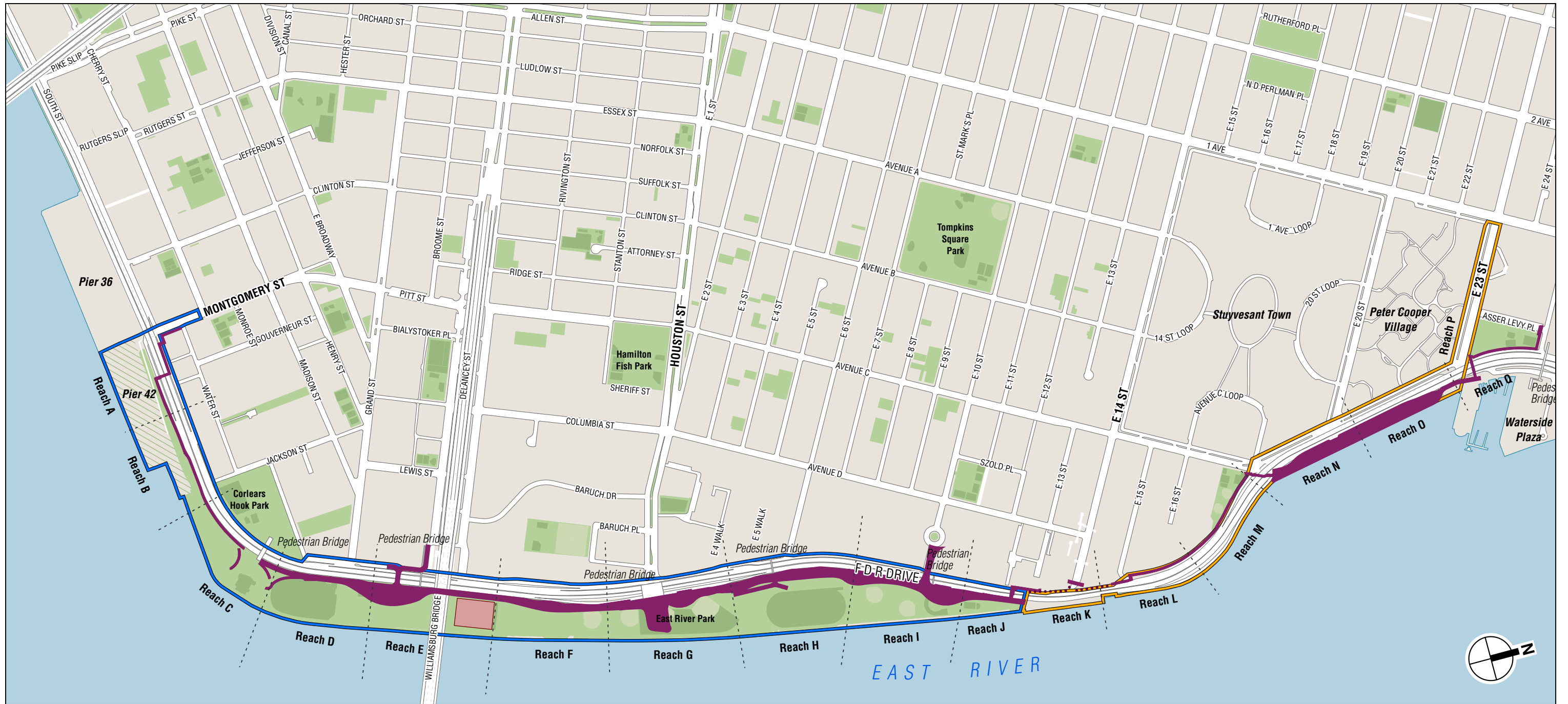
The Flood Protection System with Park and Neighborhood Connection Improvements Alternative would similarly achieve the flood protection objectives of the Proposed Action, but would provide enhanced neighborhood connections and targeted park upgrades, including a meandering bikeway and walkway, redesign of several pedestrian bridges to provide both enhanced access and flood protection, and more extensive landscaped features in East River Park. A key feature of this alternative that distinguishes it from Alternative 2 is the proposed enhancement and potential realignment of the existing pedestrian bridges at Delancey, East 6th, and East 10th Streets. Similar to Alternative 2, in Project Area Two, portions of Stuyvesant Cove Park would be raised as a landscaped berm. Outside of Stuyvesant Cove Park, this alternative would be composed primarily of floodwalls along the FDR Drive, potentially along Murphy’s Brother’s Playground at Avenue C, with deployable systems along East 23rd Street (with an alternative alignment along East 25th Street) and also at crossings under the FDR Drive. Also assumed in this alternative are connections to the flood protection systems at the Con Edison East River Generating Facility and the VA Medical Center on East 23rd Street. See **Figures 14a** and **14b** for the proposed alignment and schematic of this alternative.

6.2.5 ALTERNATIVE 4 - FLOOD PROTECTION SYSTEM WITH INTEGRATED PARK FACILITY RESILIENCY MEASURES

This alternative would examine a design concept that provides flood protection for the inland neighborhood comparable to the systems provided in Alternative 3, while integrating treatments to enhance and increase the resiliency and usability of park and recreation features within East River Park.

6.2.6 ADDITIONAL ALTERNATIVES

In addition to Alternatives 2, 3, and 4 described above, other alternatives that would implement the Proposed Action and meet its objectives will continue to be developed and refined during the EIS scoping process, which will include input from and consultation with local, State, and federal agencies that are either involved, interested, or cooperating in this environmental review process. These agencies include, but are not limited to, DEP, NYCDOT, NYSDOT, NYSDEC, and USACE. Input provided by non-agency stakeholders and the general public will also inform the ongoing development of alternatives. It is expected that the alternatives ultimately selected for analysis in the DEIS will include the essential coastal flood protection measures described in Section 6.2.2 above, in differing configurations, and with alternative approaches to managing drainage, park enhancements, and resiliency measures, infrastructure, urban design, and neighborhood and open space connectivity. These alternatives may include different approaches to employing deployable systems and flood protection alignments that may be considered when providing flood protection along a street right of way that would be developed in coordination with NYCDOT as an involved agency in this environmental review process.



- Project Area One
- Project Area Two
- Proposed Project Design Reaches
- Approximate Limits of Alternative 3 Design
- Existing Open Space
- Proposed Open Space (No-Action Project)
- Existing Con Ed Floodwalls
- Approximate Footprint of Drainage Improvement

NOTE: Based On Preliminary Draft Design Concept

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Project Elements

NOTE: Based On Preliminary Draft Design Concept

- Proposed Floodwall
- Proposed Engineered and Landscape Berms
- Proposed Deployable Systems
- Proposed Reconstructed Shared Use Path
- Proposed Bridge Improvements
- Reconfigured Fields and Plantings

6.3 OTHER ALTERNATIVES CONSIDERED, BUT NOT ADVANCED FURTHER

This DEIS section will describe the alternatives that were considered, but not carried forward into the DEIS. This will include a description of those alternatives, and the rationale for elimination of those alternatives from further analysis.

6.4 ANALYTICAL FRAMEWORK

This chapter will discuss the framework for the DEIS technical analyses. It will identify the analysis year (2022 for the Proposed Action) and describe the affected environment that will be assessed in the DEIS for each evaluated alternative. The DEIS will consider both the short-term (construction) and long-term (operational) impacts for each alternative.

Each alternative will be evaluated for potential impacts during typical (no coastal flood event) operational conditions for all relevant potential environmental impact categories. As appropriate, the following impact categories will warrant analysis for impacts during typical operational conditions: land use, zoning, and public policy; socioeconomic conditions; open space; historic and cultural resources; urban design and visual character; natural resources; hazardous materials; water and sewer infrastructure; transportation; public health; neighborhood character; construction; and environmental justice.

Based on current information, operation of the alternatives in typical conditions would not result in new structures or additions to existing structures greater than 50 feet, or located adjacent to, or across from, a sunlight-sensitive resource; alter, displace, or overcrowd community facilities and services such as schools, libraries, child care facilities, healthcare facilities, or fire and police protection; generate any mobile or stationary sources of noise; increase or redistribute traffic, create any other mobile sources of pollutants, add new users near mobile sources, create new stationary sources of pollutants; significantly affect the transmission or generation of energy; propose power generation (not including emergency backup power) or result in development of 350,000 square feet or greater; or result in the generation of 50 tons per week or more of solid waste. Therefore, based on the guidance of the *CEQR Technical Manual*, the following impact categories do not warrant analysis for impacts during typical operational conditions: shadows; community facilities and services; noise; air quality; energy; greenhouse gases; and solid waste and sanitation services.

In addition, alternatives may impact the human and natural environment under coastal flood event (100-year flood event for the FEMA-designated flood hazard area) operational conditions. The DEIS will qualitatively evaluate the potential for impacts during coastal flooding conditions for relevant impact categories. As appropriate, the following impact categories may warrant a high-level analysis and evaluation of potential impacts during coastal flood event conditions: open space; urban design and visual character; water and sewer infrastructure; and transportation. Based on current information, it is expected that the following impact categories do not warrant analysis for impacts during coastal flood event operational conditions: land use, zoning, and public policy; socioeconomic conditions; community facilities and services; shadows; historic and cultural resources; natural resources; hazardous waste; solid waste and sanitation services; energy; air quality; greenhouse gas emissions; noise; public health; neighborhood character; and environmental justice.

Each impact category will discuss the existing conditions (affected environment) and conditions in the future for each evaluated alternative. The technical analysis and identification of potential

significant adverse impacts (environmental consequences) will be focused on the incremental change to the affected environment that the Proposed Action would create as compared with the No Action Alternative. The No Action Alternative will include a discussion of projects expected to be completed independent of the Proposed Action and in addition to the baseline growth from the affected environment for each applicable technical area.

6.5 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section of the DEIS will include descriptions of the project area, surrounding study area, and more detailed activities that would occur within the project area, including construction and operational activities. All impact categories not screened from the analysis will be evaluated in this manner. As noted in Section 6.4, each alternative will be evaluated at an equal level of detail under each resource category identified below.

6.5.1 LAND USE, ZONING, AND PUBLIC POLICY

A land use analysis characterizes the uses and development trends in the area that may be affected by a Proposed Action and determines whether that action is compatible with those uses and trends. Similarly, the analysis considers the Proposed Action's compliance with and effect on, the area's zoning and other applicable public policies, as the Proposed Action may result in temporary and/or permanent changes to the study area that corresponds to the area to be protected by the Proposed Action (see **Figure 15**).

This analysis will examine the following:

- Map and describe existing land uses, zoning, and recent land use and zoning trends in the study area.
- Identify and describe predominant land use and zoning patterns in the study area based on existing information included in geographic information systems (GIS) for the area, compiled field surveys, and aerial photograph, as appropriate.
- Describe any known potential acquisition, easements, and mapping changes that may be included in an application submission for review under ULURP.

As the Proposed Action is a project led by City agencies, an assessment will be conducted to consider the Proposed Action's consistency with relevant sustainability goals or initiatives outlined in City policy documents. More specifically, the DEIS will describe the Proposed Action's consistency with the City's initiatives to protect neighborhoods and infrastructure from future climate events as outlined in *OneNYC* and *A Stronger, More Resilient New York* report.

Since the project area is located within the City-managed Coastal Zone, the Proposed Action's compliance with the following policies will be assessed:

- Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §§1451-1464);
- New York State Coastal Zone Management Program; and
- New York City's Waterfront Revitalization Programs (WRP) including preparation of the City's WRP Consistency Assessment Form (CAF).

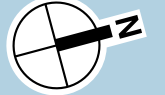
The Proposed Action's consistency with zoning and other public policy initiatives will also be assessed.

Source: NYC Dept. of City Planning MapPLUTO v. 14v2, edited by AKRF, 2015.



- | | | | |
|---|-----------------------------------|------------------------------------|----------------------------|
| Project Area One | Commercial and Office Buildings | Parking Facilities | Transportation and Utility |
| Project Area Two | Hotels | Public Facilities and Institutions | Vacant Land |
| Alternative Flood Protection System Alignment | Industrial and Manufacturing | Residential | Vacant Building |
| Land Use Study Area | Open Space and Outdoor Recreation | Residential with Commercial Below | Under Construction |
| Proposed Open Space (No-Action Project) | | | |

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6.5.2 SOCIOECONOMIC CONDITIONS

6.5.2.1 POTENTIAL FOR INDIRECT DISPLACEMENT ANALYSIS

Principal issues of concern with respect to socioeconomic conditions are whether the Proposed Action could result in significant adverse environmental impacts due to: (1) direct displacement of a residential population; (2) direct displacement of businesses and employment associated with those businesses; (3) indirect displacement of a residential population due to project-generated changes in market conditions that, in turn, lead to increased residential rents; (4) indirect displacement of businesses due to changes in market conditions that lead to increased commercial rents; and (5) adverse effects on a specific industry. Indirect effects also may include the consideration of growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. The Proposed Action would not result in any direct residential or business displacement. Therefore, this assessment will focus on indirect residential and business displacement and potential adverse effects on specific industries. The DEIS will succinctly present the demographic and economic conditions in the study area that could be affected by the alternatives, and will describe whether any of the alternatives would adversely affect socioeconomic conditions.

The analysis will identify and describe existing socioeconomic conditions in the study area using available data from local and State agencies and other sources. This section will present data on residential populations and the local economy including businesses, critical infrastructure assets, recreational activities and tourism that may be impacted by the proposed alternatives within the study area. For each alternative, the analysis will identify future changes in the study area that could affect socioeconomic conditions in the analysis years (e.g., residential or commercial development, enhancement of existing recreational spaces). This will include a qualitative assessment of the potential effects of each alternative on residential populations and the local economy (including businesses, critical infrastructure assets, recreational activities and tourism). The assessment will consider whether and under what conditions the design alternatives could stimulate changes that would raise either property values or rents (residential and commercial), and if so, whether this would make existing categories of tenants vulnerable to displacement.

6.5.2.2 BENEFIT-COST ANALYSIS

A comprehensive analysis of benefits and costs for each alternative will be conducted in accordance with federal guidelines and published resources. Specific information to be provided will include: historical flood losses and damages; ground surface elevations and first floor elevations of assets and structures; useful life of the design alternatives; annual maintenance costs; and building and content replacement costs. Benefits will include expected losses avoided as a result of the project, as well as the economic, social, and environmental added value. Benefit and cost values under each alternative will be provided. The *2011 FEMA Benefit Cost Assessment (BCA) Reference Guide and Supplement* will include consideration of factors identified within HUD's National Disaster Resilience Competition Notice of Funding Availability, Appendix H.

6.5.3 OPEN SPACE

This section will assess the potential for direct and indirect impacts of the Proposed Action on publicly accessible open spaces in accordance with the methodologies of the *CEQR Technical*

Manual. Publicly accessible open spaces in the study area include East River Park, Stuyvesant Cove Park, Corlears Hook Park, and NYCHA housing complex grounds (see **Figure 16**). Direct impacts are defined as a change in public open space acreage or alterations of open space such that it may have different facilities and/or user populations. Indirect open space impacts are defined as added noise, air, shadows, or increased user demands.

For each alternative, the open space analysis will consist of the following:

- Collect data on the total population in the study area.
- Map and describe existing publicly accessible open spaces in the study area.
- Collect detailed information on each open space within the study area including name and address, ownership, acreage, percent of area dedicated to active and passive uses, and open space features.
- Conduct field surveys of publicly accessible open space within the study area between May and September to identify location and size of parks access points, assets/amenities, use, general duration and frequency of use, and age group of users.
- Identify and describe predominant open space patterns and recreational activities in the study area (e.g., ball fields, bike paths, unprogrammed recreational space) based on existing information included in GIS for the area and compiled field surveys. In addition, identify and describe open space and recreational areas utilized by temporary construction closures.
- Identify future development projects in the study area that could affect open space and recreational activity patterns and trends in the analysis years (i.e., Pier 42 Park) including specific development projects, plans for public improvements, and pending actions within the study area. Based on these changes, future open space and recreational conditions in the No Action Alternative will be assessed and described.
- Assess and describe the compatibility with open space and recreation, relevant trends in the study area, water and sewer drainage changes within East River Park, and the consistency of the alternative with recognized plans. The open space analysis will describe any direct impacts to ball fields, shared use paths, unprogrammed park space, or recreational activities due to each alternative.

Section 6(f)

The portion of the East River Park stretching from East 6th Street to East 10th Street includes two basketball courts, a playground and a portion of the East River Promenade, was previously improved through a grant provided by the Land and Water Conservation Fund Act (“LWCFA”), 16 USC §§ 4601-4 to 4601-11. The DEIS will analyze potential impacts of any action or activities that may be required under the LWCFA as a result of the Project.

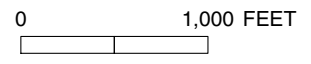
6.5.4 HISTORIC AND CULTURAL RESOURCES

Historic and cultural resources include both archaeological and architectural resources. These include National Historic Landmarks (NHL); properties listed on the State and National Registers of Historic Places (S/NR) or formally determined eligible for S/NR listing (S/NR-eligible), or properties contained within a S/NR listed or eligible historic district; properties recommended by the New York State Board for listing on the S/NR; designated New York City Landmarks (NYCL) and Historic Districts; properties calendared for consideration as NYCLs by the New York City Landmarks Preservation Commission (LPC) or determined eligible for



- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- Open Space Study Area (Half-Mile Study Area Radius)
- Recreational Fields
- Tracks, Courts, and other features
- Parks, Gardens, and other Open Space
- Proposed Open Space (No-Action Project)
- Existing Bike Route

- Approximate Limits of Land and Water Conservation Fund Boundary
- Census Tracts



NYCL designation (NYCL-eligible); and potential historic resources (i.e., properties not identified by one of the programs listed above, but that appear to meet their eligibility requirements). **Figure 17** shows a preliminary identification of known historic and cultural resources in the immediate vicinity of the project area.

The historic and cultural resources assessment will be prepared in accordance with Section 106 of the 1966 NHPA, since funding is being sought from a federal agency, HUD, to undertake the Proposed Action. Section 106 mandates that federal agencies consider the effect of their actions on any properties listed on or meeting the criteria for listing on the National Register. Compliance under Section 106 fulfills the requirements of Section 14.09 of the New York State Historic Preservation Act. The historic and cultural resources analysis will also be prepared in consultation with SHPO and LPC.

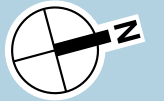
In May 2013, a Programmatic Agreement was executed among FEMA, SHPO, the New York State Office of Emergency Management, the Delaware Nation, the Delaware Tribe of Indians, the Shinnecock Nation, the Stockbridge-Munsee Community Band of Mohicans, LPC, and the Advisory Council of Historic Preservation (ACHP) as a result of Hurricane Sandy.¹ This Programmatic Agreement ensures that federal disaster assistance programs in the State of New York are administered in accordance with certain stipulations to satisfy FEMA's Section 106 responsibilities. Other federal agencies providing financial assistance for the type of disaster assistance programs covered by the Agreement may, with the concurrence of ACHP, FEMA, and SHPO, satisfy their Section 106 responsibilities by accepting and complying with the terms of the Agreement. As described above, HUD is disbursing CDBG-DR Funds for the East Side Coastal Resiliency project, with the City of New York as the grantee. OMB has assumed HUD's environmental responsibilities as the Responsible Entity for New York City and has agreed to accept the terms and conditions of the Programmatic Agreement via Appendix D to the Programmatic Agreement and to take into account the effects of its undertakings and satisfy its Section 106 responsibilities for the CDBG-DR program for activities in New York City.²

6.5.4.1 ARCHAEOLOGICAL RESOURCES

Since the Proposed Action will require ground disturbance, the Lead Agencies (OMB and DPR) are consulting with LPC and SHPO to request their preliminary determination of the project area's potential archaeological sensitivity. Supporting information including historical maps and information from any previous archaeological investigations of the site or surrounding areas will be submitted to the reviewing agencies as necessary as part of the initial consultation. If the site is not determined to be archaeologically sensitive, no further work will be required with respect to archaeological resources. If LPC and/or SHPO determine that any portion of the project area has the potential to contain significant archaeological resources that may be impacted by the Proposed Action, archaeological studies, such as an Archaeological Documentary Study or a Topic Intensive Archaeological Documentary Study will be prepared. Consultation with LPC and SHPO and any required archaeological studies will be summarized in the DEIS. If the archaeological documentary study determines that potentially archaeologically sensitive areas may be impacted by the Proposed Action, and LPC and SHPO concur, then archaeological field testing will be needed. If that work determines that potentially significant archaeological

¹ The Programmatic Agreement was amended in November 2014.

² Appendix D to the Programmatic Agreement was amended in December 2014.



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- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- 400-Foot Area of Potential Effect
- Secondary Area of Potential Effect
- Proposed Open Space (No-Action Project)

Preliminary Identification of Known Historic and Cultural Resources

- Lower East Side Historic District and Extension (S/NR)
- FDR Drive (S/NR-eligible)

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 St. Augustine's Chapel (NYCL) 2 263-267 Henry Street, 281 East Broadway (NYCL) 3 Gouverneur Hospital Dispensary (S/NR-eligible, NYCL-eligible) 4 Gouverneur Hospital (S/NR) 5 PS 97 (Bard HS) (S/NR-eligible) | <ul style="list-style-type: none"> 6 Asser Levy Public Baths (NYCL) 7 235 East 22nd Street (S/NR-eligible) 8 NYPL, Epiphany Branch (S/NR-eligible) 9 Williamsburg Bridge (S/NR-eligible) 10 East River Bulkhead (S/NR-eligible) |
|--|---|

resources are present and may be impacted by the proposed work, and LPC and SHPO concur, then mitigation measures, which may include full archaeological excavation, must be developed and implemented. If such work is not possible, then this would be considered an impact that cannot be mitigated.

6.5.4.2 ARCHITECTURAL RESOURCES

The architectural resources analysis will consider whether construction of the Proposed Action would be likely to affect any architectural resources either directly through construction activities or indirectly through alteration of the context or visual environment of these resources.

For each alternative, the following tasks will be undertaken as part of this assessment:

- Define and map the Area of Potential Effect (APE) for architectural resources. This includes the area in which the Proposed Action may directly or indirectly affect architectural resources. Identify and describe any designated architectural resources within the APE. There will be two APEs for the Proposed Action: a primary 400-foot APE in which construction and operation of the proposed project may directly or indirectly effect historic properties; and a secondary APE that corresponds to the area to be protected by the Proposed Action (see **Figure 17**).
- Conduct a field survey of the primary APE by an architectural historian to identify any potential architectural resources that could be affected by the Proposed Action. Potential architectural resources include properties that appear to meet S/NR eligibility criteria as set forth in 36 CFR Part 63 and NYCL criteria according to the New York City Landmarks Law. Map and briefly describe any potential architectural resources within the APE. The impact analysis will consider effects of each alternative on architectural resources. Tasks will include:
 - Assess any potential physical, contextual, or visual impacts on architectural resources that would result from the Proposed Action in consultation with SHPO and LPC.
 - Where appropriate, develop measures to avoid, minimize, or mitigate any adverse effects on historic architectural in consultation with SHPO and LPC, as appropriate.
 - Implement the Section 106 process in coordination with involved federal agencies and any appropriate outreach with the public and consulting parties.
 - Assess compliance with applicable federal acts and executive orders including the NHPA 36 CFR 800, Archaeological Resources Protection Act of 1970 (ARPA) 43 CFR Part 7, Historic Sites Act of 1935, and Executive Order (EO) 13007 Indian Sacred Sites.
 - Assess compliance with applicable portions of the New York City Landmarks Law [Charter of the City of New York §§ 3020 et seq. and the Administrative Code of the City of New York §§25-301 et seq.]

6.5.5 URBAN DESIGN AND VISUAL RESOURCES

According to the methodologies of the *CEQR Technical Manual*, if a project requires actions that would result in physical changes to a project area beyond those allowable by existing zoning and which could be observed by a pedestrian from street level, an assessment of urban design and visual resources should be prepared. Given the nature of the Proposed Action, which proposes the installation of vertical flood protection measures, including a berm, floodwalls, and

other features that would affect the pedestrian experience, this section of the DEIS will assess changes in urban design patterns and visual resources of the study area as a result of the Proposed Action. The assessment will be prepared following *CEQR Technical Manual* methodologies and in conformance with NYSDEC guidance for visual assessments.

The urban design and visual resources assessment will draw on information from field visits to the project area and surrounding study area and visual materials prepared for the Proposed Action and will present, as warranted, sketches or renderings of the Proposed Action for existing views; bird's-eye views of the Proposed Action; and elevations and sections. The urban and visual resources study area is shown in **Figure 18**. As the project area is largely public open space located along the East River waterfront, the assessment will include longer inland views to the waterfront, views from the Williamsburg Bridge and Brooklyn waterfront, and long views from within the project area itself, including views to historic resources such as the Asser Levy Baths. A preliminary identification of existing inland views to the waterfront to be considered in the assessment is shown on **Figure 18**. Based on field visits, the assessment will describe and illustrate with photographs the urban design and visual character of the project area and the surrounding area and the inland locations that provide views of the waterfront. The assessment will describe the potential changes that could occur to urban design and visual resources with the Proposed Action in comparison to the No Action Alternative, focusing on the changes that could negatively affect a pedestrian's experience of the area. In conformance with NYSDEC guidance, the assessment will evaluate visual and aesthetic impacts using viewshed and line-of-sight profile analyses. If adverse impacts are identified, mitigation measures to avoid or reduce potential significant impacts will be identified.

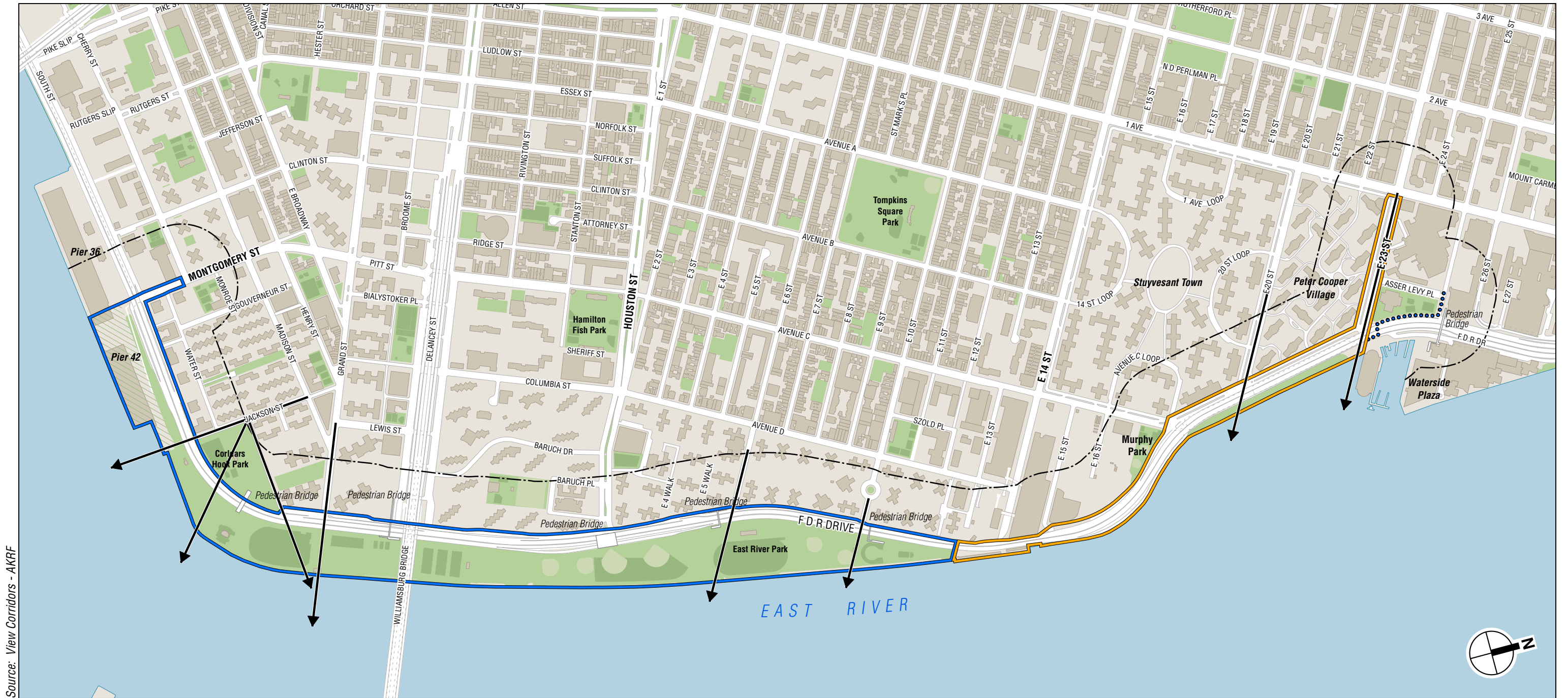
For each alternative, this component of the assessment will include a concise narrative of the project area and a surrounding study area, and will consider longer view corridors beyond the study area. The narrative will address the components of urban design as defined in the *CEQR Technical Manual*: streets, buildings, visual resources, open space, and natural resources. It will also identify and describe aesthetic resources as defined in NYSDEC's guidance document, *Assessing and Mitigating Visual Impacts*. The narrative will be supported with the following items: photographs; birds-eye views; area maps including a viewshed and those showing existing view corridors and access to visual resources; and line-of-sight profiles. A key focus of this analysis will be view corridors within the project area and inland view corridors to the waterfront along major streets (e.g., Grand, East Houston, East 14th, and East 23rd Streets).

6.5.6 NATURAL RESOURCES

While the project area is highly developed, it is located on the East River waterfront and includes large waterfront open spaces (e.g., East River Park and Stuyvesant Cove Park). The Proposed Action may affect natural resources and water quality, including tidal wetlands, vegetation communities, and aquatic fauna and terrestrial fauna in the study area.

For each alternative, this section will include a description of the natural resources setting within the study area, including identification of any potential natural resources that may be directly or indirectly affected by the Proposed Action. The following tasks will be undertaken to define the affected environment for natural resources:

- Gather baseline vegetation and wildlife data for the study area based on available habitat maps, published literature, and field surveys;

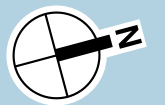


Source: View Corridors - AKRF

- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- Visual Resources Study Area (400-Foot Radius)
- Proposed Open Space (No-Action Project)

View Corridors to Waterfront

0 1,000 FEET



- Review the study area for the presence of wetlands. Executive Order 11990 (Protection of Wetlands) requires federal activities to avoid adverse impacts to wetlands where practicable. Describe wetlands and vegetation within and adjoining the study area;
- Describe depth of water and bathymetric data within the study area to inform the amount of fill required for the Proposed Action. Describe the depth of the East River within and adjoining the study area;
- Describe tree species, understory, and herbaceous layers. Describe tree composition based on tree inventory data acquired during field surveys. Other general species composition will be based on a field survey of the study area;
- On the basis of site reconnaissance, site specific data collection, and existing information on aquatic and terrestrial resources in the study area, including floodplains, essential fish habitats, wetlands, terrestrial resources, and threatened or endangered species from resource agencies such as USFWS, NMFS, and NYSDEC, characterize the existing aquatic resources of the East River within the study area, and the terrestrial resources within the potential areas of disturbance within the study area. Gather wildlife data from literature searches and field investigations. During field investigations, note all observed avifauna (birds), herpefauna (amphibians and reptiles), and mammals and any indirect observations thereof such as nests, tracks, and scat. Sources of existing information include USACE, NOAA, USEPA, and NYSDEC databases, among others. Specifically, field work may include:
 - Threatened and endangered species and migratory bird survey to document resident and migrating birds in the study area;
 - Vegetation (including tree survey): Identify, map and describe species (including noting invasive or native and any notable health issues) during the months of May through September; and
 - Wetlands: Determine presence of potential regulated wetland adjacent areas along the East River and identify any non-engineered sections of shoreline within the study area.
- Contact New York Natural Heritage Program (NHP) and NMFS, and consult the USFWS Information, Planning, and Conservation System for information on federally- and State-listed species, and significant habitats known to occur or identified as having the potential to occur within the study area;
- Conduct an Informal Section 7 Consultation with USFWS and NMFS that will confirm listed species, will include a biological assessment for each species for the respective regulating agency responsible for determining the effects the project may have on these species, and establish ways to minimize impacts to species as appropriate. These agencies will also decide whether there is sufficient need to enter into a Formal Section 7 Consultation;
- On the basis of existing regional and site-specific water quality information (e.g., DEP Harbor Survey, Interstate Environmental Commission, NYSDEC, USACE, and USEPA), characterize water quality conditions of the East River in the study area. This section will also describe the general hydrodynamic characteristics of the East River, including information on currents, tidal range, water quality classification, pollutant sources, and biological conditions; and

- Comply with Executive Order 11988 (Floodplain Management) and HUD's implementing regulations 24 CFR Part 55 because the study area is located within the 100-year floodplain, as identified on the FEMA FIRMs. Complete the §55.20 analysis (the 8-step process) to document noticing compliance, including identifying any alternatives to locating the Proposed Action in the floodplain, and any potential impacts associated with occupying the floodplain, along with proposed mitigation measures, as necessary.

For each alternative, this analysis would assess any potential natural resources and water quality impacts. Potential for impacts would account for any changes in the study area, including areas where physical disturbance would occur within the study area. The analysis will include maps of the areas where physical disturbance is proposed. Potential impacts on natural resources would be determined based on the following: the nature and extent of the physical alteration of the affected environment, including the acreage of affected vegetation, or changes in wetlands, and impacts on natural resources habitats (including any site-specific effects resulting from the loss of habitat and wildlife).

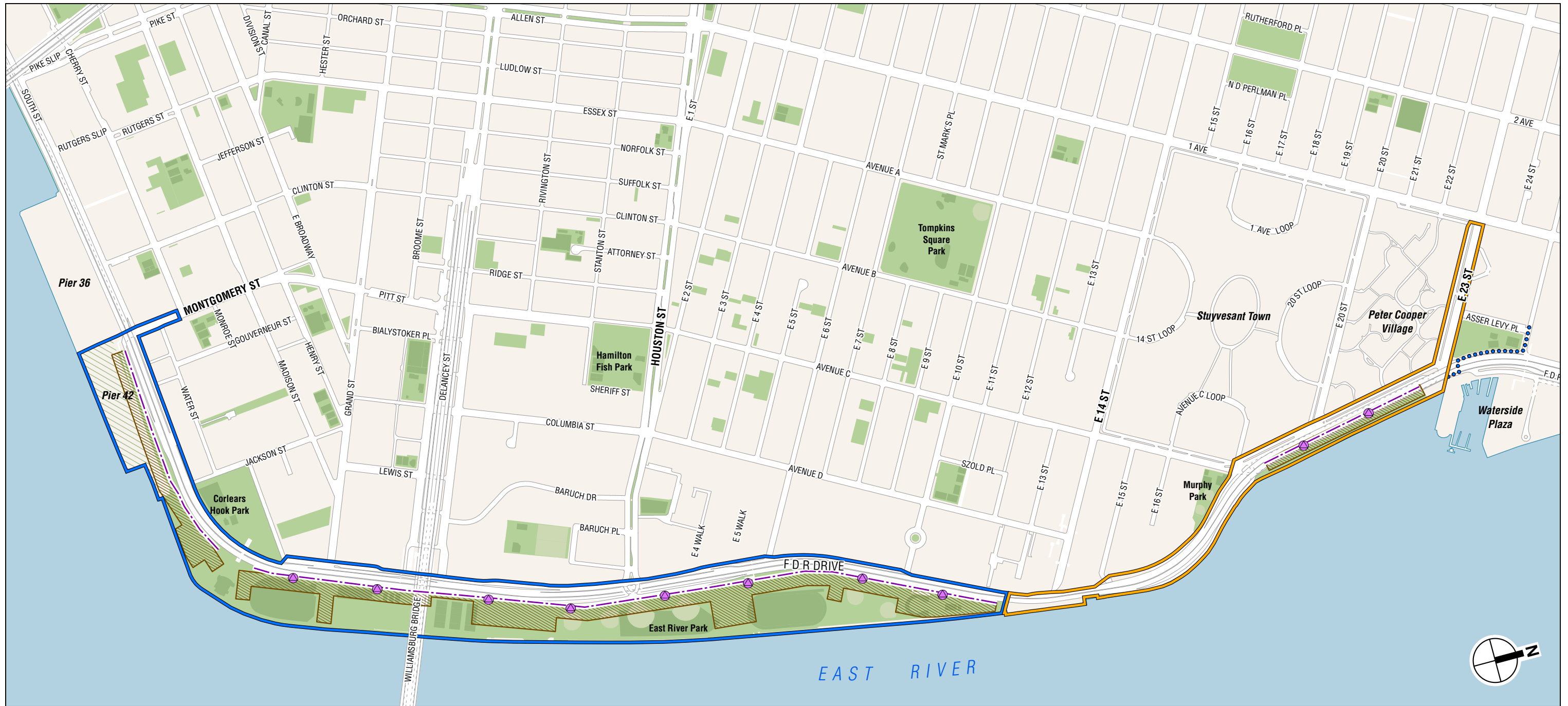
Specific tasks associated with this section of the analysis include:

- Assess potential effects to terrestrial and aquatic resources. Potential impacts to terrestrial and aquatic resources will be assessed by calculating and evaluating the amount of fill and/or dredging, and considering any tree-clearing activities, visual and noise disturbances to wildlife during operations, and benefits to wildlife that would result from each alternative.
- Assess compliance with the Endangered Species Act of 1973, as amended, and HUD's implementing regulations at 50 CFR Part 402. This will include consultation and coordination with USACE, USFWS, and NMFS to comply with the Fish and Wildlife Coordination Act, 16 U.S.C. § 661 et seq.
- Assess infrastructure and stormwater impacts and their potential indirect impacts on habitats, taking into account the design or modification of the stormwater management system and any effects on local surface water conditions.
- Assess consistency with other NEPA environmental review requirements related to natural resources, such as the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.), as amended, particularly Sections 7(b) and (c).

6.5.7 HAZARDOUS MATERIALS

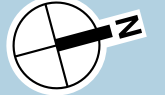
Soil and groundwater investigations undertaken for the study area will be summarized in the DEIS for each of the evaluated alternatives. **Figure 19** shows the approximate locations of soil and groundwater testing locations in the proposed project area. This section will summarize the result of that testing and disclose any soil or groundwater contaminations issues based on the testing results.

For each alternative, this section will also include a description of soil and groundwater disturbance and any associated remediation efforts, if any, undertaken to address existing hazardous materials. Also included will be a description of the soils and sources of materials that will be used in creating the project-related coastal flood protection systems.



- Project Area One
- Project Area Two
- Deep Boring Alignment
- Shallow Boring
- Alternative Flood Protection System Alignment
- Groundwater Sample Locations
- Proposed Open Space (No-Action Project)

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6.5.8 WATER AND SEWER INFRASTRUCTURE

The Proposed Action may impact water supply and sewer service infrastructure. Therefore, this section will evaluate the Proposed Action's potential to affect the management, service, and quality of potable water, stormwater runoff and sewage within the study area.

The following tasks will be undertaken to define the affected environment for water and sewer infrastructure:

- Describe existing infrastructure for water supply and combined sanitary sewer conveyance based on hydraulic drainage modeling analysis. This will include location and capacity of distribution and transmission lines and pipes in the vicinity of the study area and the current performance of the system.
- Describe projected demands on the water and combined sewer systems for the analysis years.

For each alternative, the analysis will evaluate effects on water and sewer infrastructure under various operational conditions. Tasks include:

- Assess compliance with the City's SPDES Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) requirements.
- Describe the proposed operations, capacity, and locations of water supply and combined sewer infrastructure modifications (e.g., installing gates on sewer interceptors, flood-proofing regulators and manholes, installing gates on outfalls, and other improvements to address drainage service) in the study area.
- Evaluate effects of the proposed modifications to the existing sewer system to be undertaken within the study area to reduce coastal flooding risks on the operation of the sewer system during a coastal flood event.

6.5.9 TRANSPORTATION

Major roadways in the study area include the FDR Drive, South Street, Avenue C, First Avenue, Montgomery Street, Grand Street, Delancey Street, Houston Street, East 20th Street, and East 23rd Street. The study area is serviced by the M8, M9, M14A, M14D, M21, M22, M23, and M34A bus routes.

Within the study area, the waterfront can be accessed at four at-grade intersections:

- Montgomery Street/South Street;
- Avenue C Loop/East 18th Street;
- Avenue C/East 20th Street; and
- Avenue C/East 23rd Street.

In addition, pedestrian access is provided at the following pedestrian bridges spanning the FDR Drive:

- Corlears Hook Park pedestrian bridge;
- Delancey Street pedestrian bridge;
- Houston Street pedestrian bridge;
- East 6th Street pedestrian bridge; and
- East 10th Street pedestrian bridge.

Within the East River Park, there is the north-south East River Promenade, a pedestrian promenade along the waterfront, and the north-south East River Bikeway, which is a shared pathway with DPR, NYCDOT, Con Edison, and emergency vehicles.

At the Con Edison pier the bikeway becomes a shared bicycle/pedestrian path, narrowing to approximately 30 inches wide between the FDR Drive and Con Edison pier. North of the Con Edison pier, the shared bicycle/pedestrian path widens and continues along Captain Patrick J. Brown Walk into Stuyvesant Cove Park, where the bikeway and pedestrian path separate.

6.5.9.1 TRAFFIC

A qualitative traffic impact assessment will be prepared using traffic data collected at the following locations:

Turning Movement Counts

- Montgomery Street/South Street
- Avenue C/East 20th Street
- Avenue C/East 23rd Street
- Avenue C Loop/East 18th Street

Automatic Traffic Recorder (nine-day continuous counts)

- Montgomery Street NB, North of South Street¹
- Montgomery Street SB, North of South Street
- South Street EB, West of Montgomery Street
- South Street WB, East of Montgomery Street
- Grand Street EB, West of FDR Service Road
- Grand Street WB, West of FDR Service Road
- SB FDR Service Road SB, North of Delancey Street
- Houston Street EB, West of FDR Service Road
- Houston Street WB, West of FDR Service Road
- Avenue C NB, South of FDR Drive/18th Street
- Avenue C SB, South of FDR Drive /18th Street
- 20th Street EB, West of FDR Drive/Avenue C
- 20th Street WB, West of FDR Drive/Avenue C
- FDR Drive/ Avenue C NB, South of 20th Street
- FDR Drive/ Avenue C SB, North of 20th Street
- 23rd Street EB, West of FDR Drive/Avenue C
- 23rd Street WB, West of FDR Drive/Avenue C
- FDR Drive/ Avenue C NB, South of 23rd Street

¹ NB = northbound; SB = southbound; EB = eastbound; WB = westbound

- FDR Drive/ Avenue C SB, North of 23rd Street
- FDR Drive SB Service Road, North of 6th Street

It is assumed that the Proposed Action would not generate any new traffic and would not result in any permanent changes in the geometry or pavement markings of the local streets. Therefore, no quantitative traffic impact analysis will be necessary. During coastal flood event conditions, there could be temporary road closures by implementing deployable flood protection measures. A qualitative assessment will be included describing the location of the deployables and the temporary detours due to road closures. This would include an assessment of the ramps leading to and from the Houston Street Overpass and other ramps and streets that may be affected during the operational phase.

6.5.9.2 TRANSIT

This analysis will examine the potential for any transit impacts due to the Proposed Action. The analysis will include text and graphics as necessary and will rely on data collected to inform the design of the alternatives to assess the potential for impacts associated with the Proposed Action on transit service or facilities.

6.5.9.3 PEDESTRIANS AND CYCLISTS

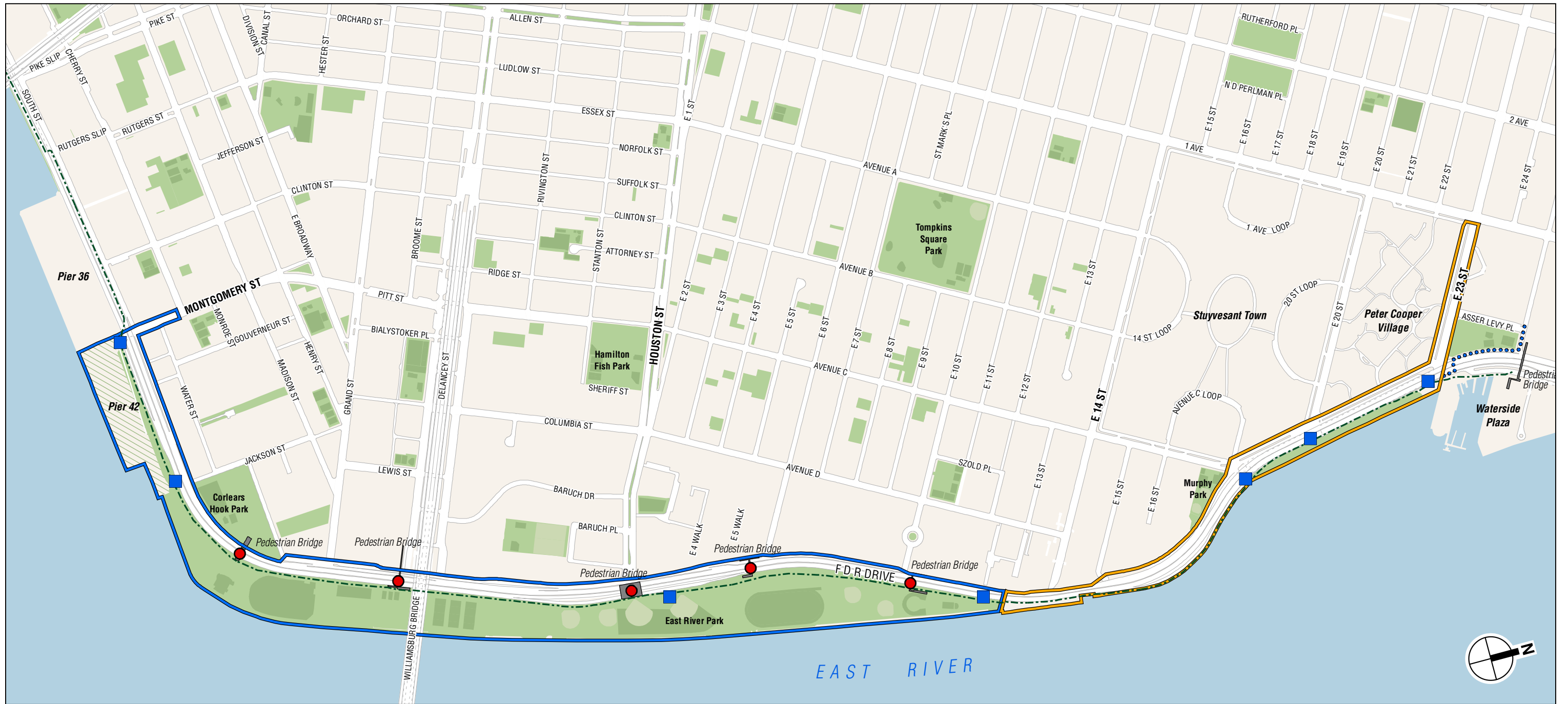
This analysis will examine the potential for any pedestrian impacts resulting from the Proposed Action. The analysis will include text and graphics as necessary and will rely on data and pedestrian and bicycle counts collected during the draft conceptual design process to assess the potential for impacts associated with the Proposed Action on pedestrian conditions, including the bikeway/walkway along the East River (see **Figure 20**). Pedestrian count data were collected during the development of the draft conceptual design at the following locations:

- Crosswalks and paths at the Montgomery Street/South Street intersection;
- Corlears Hook Park pedestrian bridge;
- Delancey Street pedestrian bridge;
- Houston Street pedestrian bridge;
- East 6th Street pedestrian bridge;
- East 10th Street pedestrian bridge;
- Crosswalks at East 18th Street/Avenue C Loop intersection;
- Crosswalks at East 20th Street/Avenue C;
- Crosswalks at East 23rd Street/Avenue C;
- Bicycle/pedestrian path at Con Edison building; and
- Bicycle/pedestrian path just north of Houston Street pedestrian bridge.

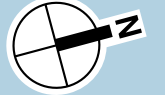
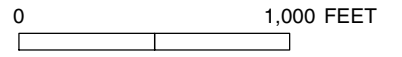
Each of the design alternatives will be examined for any potential impacts on pedestrian and bicyclist facilities, including these crosswalks, paths, bridges, and sidewalks in accordance with the requirements of the *CEQR Technical Manual*.

6.5.9.4 PARKING

This analysis will examine the potential for adverse impacts associated with the Proposed Action on parking facilities within the study area. The analysis will include an assessment of existing



- Project Area One
- Project Area Two
- Alternative Flood Protection System Alignment
- Proposed Open Space (No-Action Project)
- Existing Pedestrian Bridges
- Bikeway/Walkway Count Locations
- Pedestrian Bridge Count Locations
- Existing Bike Route



parking under the FDR Drive between East 20th Street and East 23rd Street and under the FDR Drive at Montgomery Street and any potential for impacts as a result of construction of the coastal flood protection barrier. Parking utilization rates at these locations as well as at other off-street parking lots located within ¼ mile of these two parking lots will be assessed. A qualitative analysis will be prepared to assess the potential for impacts on local on-street parking.

6.5.10 PUBLIC HEALTH

The goal of CEQR with respect to public health is to determine whether adverse impacts may occur as a result of each of the alternatives, and if so, to identify measures to mitigate them. According to the *CEQR Technical Manual*, public health is the organized effort by society to protect and improve the health and well-being of the general population through monitoring; assessment and surveillance; health promotion; prevention of disease, injury, disorder, disability and premature death; and reduction of inequalities in health status.

According to the *CEQR Technical Manual*, a public health assessment may be warranted if an unmitigated significant adverse impact is identified in the areas of air quality, water quality, hazardous materials, or noise. If unmitigated significant adverse impacts are identified in any of these areas and the Lead Agencies determine that a public health assessment is warranted, an analysis will be provided for that specific technical area.

6.5.11 NEIGHBORHOOD CHARACTER

The character of a neighborhood is established by numerous factors, including land use patterns, the scale of its development, the design of its buildings, the presence of notable landmarks, pedestrian experience, and a variety of other physical features that include traffic and pedestrian patterns, noise etc. The Proposed Action has the potential to alter certain elements contributing to the affected area's neighborhood character. Therefore, a preliminary assessment of neighborhood character will be provided in the DEIS to determine whether changes expected in other technical analysis areas—land use, zoning, and public policy; socioeconomic conditions; open space; historic and cultural resources; urban design and visual resources; transportation; and noise—may affect a defining feature of neighborhood character. This analysis will draw heavily from those assessments in determining the potential for impact to neighborhood character.

If the preliminary assessment determines that the Proposed Action could affect the defining features of neighborhood character, a detailed analysis will be conducted in accordance with the *CEQR Technical Manual* guidelines.

This section will describe the predominant factors that contribute to defining the character of the neighborhood. The assessment will be based on existing development within the study area, visual resources, historic resources, traffic, noise, and, if warranted, public health.

For each alternative, this section will summarize any planned development projects and public policy initiatives that may be expected to affect the character of the neighborhood.

This analysis will also assess whether each alternative would have the potential to affect defining neighborhood character features, either through potential for a significant adverse impact or a combination of moderate effects in relevant technical analysis areas. If the alternative has the potential to affect the defining features of the neighborhood, a detailed assessment of neighborhood character will be prepared consistent with the methodologies of the *CEQR Technical Manual*.

6.5.12 CONSTRUCTION

Construction impacts, although temporary, can have a noticeable and disruptive effect on surrounding communities. The construction analysis will begin with a description of the proposed construction plans that will be used to assess the potential for significant adverse construction impacts under each alternative. This analysis will include a detailed description of the expected construction activities for all project elements, including a conceptual construction schedule and logistics for major project components. This discussion will identify potential construction staging and parking areas, potential barging locations, truck routes to/from the construction locations including those within East River Park, truck access points, likely sequencing of activities, safety measures to protect the public, and expected construction work hours. This chapter will also describe the city, state, and federal regulations and policies that govern construction and provide estimates of construction workers and truck deliveries.

The construction analysis will then provide an assessment of the potential impacts of the construction activities associated with each alternative in accordance with the methodologies described below. Measures to avoid, minimize, and/or mitigate potential construction impacts will also be discussed, as needed.

6.5.12.1 CONSTRUCTION BENEFITS ANALYSIS

Economic benefits during construction will be analyzed for each alternative with estimates of the direct and indirect employment, wages and salaries, and total economic output associated with the construction and operation of the project using the IMPLAN (IMPact Analysis for PLANning) economic input-output modeling system. This analysis will include the following:

- Direct effects represent the initial benefits to the economy of a specific new investment; e.g., this would include direct construction cost and the resulting demand in employment and changes in employee compensation;
- Indirect effects represent spending impacts generated by inter-industry purchasing due to the direct investment; and
- Induced effects represent the impacts caused by increased income in a region.

The economic modeling for construction benefits will be based on construction cost estimates for each alternative. The assessment of project benefits also will qualitatively address the social and ecological benefits that would result from the Proposed Action.

6.5.12.2 OPEN SPACE

The open space analysis will assess the impacts of proposed construction activities for each alternative on open space. Construction activities may impact large areas of East River Park and Stuyvesant Cove Park, including the temporary closure or relocation of park assets or closure of access points to the park.

6.5.12.3 HISTORIC AND CULTURAL RESOURCES

The historic and cultural resources analysis will assess whether the proposed construction activities for each alternative would affect any archaeological or architectural resources in the proposed project area or the study area.

6.5.12.4 NATURAL RESOURCES

The natural resources analysis will assess the effects of the proposed construction activities for each alternative on natural resources. The assessment will include impacts of temporary increases in suspended sediment during in-water construction (such as dredging for barging and outfall installation), noise and other construction-related disturbances, and temporary loss of habitat; and long-term effects such as changes in water circulation, water quality, sediment transport and erosion.

6.5.12.5 HAZARDOUS MATERIALS

The hazardous materials analysis will assess the effects of the proposed construction activities for each alternative on hazardous materials, including the temporary disturbance, storage, and removal of potentially hazardous soils and sediments.

6.5.12.6 WATER AND SEWER INFRASTRUCTURE

The water and sewer infrastructure analysis will assess the effects of the proposed construction activities for each alternative on water and sewer infrastructure, including temporary closure or modification to infrastructure. This section will also include a description of all construction permits required for the temporary alteration or closure of water or sewer infrastructure (e.g., dewatering).

6.5.12.7 ENERGY

This energy assessment will include a qualitative discussion of energy demands and use during construction. The analysis will include a description of energy needs associated with any construction equipment (e.g., emergency generators, diesel fuel) and potential impacts on existing energy sources.

6.5.12.8 TRANSPORTATION

This section will consider temporary/partial closures of vehicular travel lanes, sidewalks, etc., during the various stages of construction; identify the increase in person and vehicle trips due to construction activities; identify truck routes to the project areas; describe and assess any temporary modifications to street operations if required; and analyze potential temporary impacts to the transportation systems serving the study area. This analysis will include Level-1 (Trip Generation) and Level 2 (Trip Assignment) screening assessments to determine if the analysis thresholds will be exceeded. If required, critical intersections near the project areas will be identified and analyzed for the potential of significant adverse traffic impacts during construction under the Proposed Action. Construction worker parking and truck delivery staging will also be addressed. It is expected that a portion of the materials for the Proposed Action will be delivered by barge and some construction work would occur in water. This section will also describe the number of barges/tugs/boats expected and discuss the effect of construction activities on marine traffic on the East River. The expected hourly construction truck and barge trip projections during peak construction, and the cumulative projections of both transportation modes, will be provided.

6.5.12.9 AIR QUALITY

Emissions from on-site construction equipment and on-road construction vehicles, as well as dust-generating construction activities, all have the potential to affect air quality. In general, much of the heavy equipment used in construction is powered by diesel engines—including

those on marine vessels such as barge cranes and tug boats— and produces relatively high levels of nitrogen oxides (NO_x) and particulate matter (PM). Fugitive dust generated by construction activities also contains PM. Finally, gasoline engines produce relatively high levels of carbon monoxide (CO). As a result, the primary air pollutants of concern for construction activities include nitrogen dioxide (NO₂), PM with an aerodynamic diameter less than or equal to 10 micrometers and 2.5 micrometers (PM₁₀ and PM_{2.5}), and CO. The assessment will include a determination of conformity with the Clean Air Act (CAA) during construction.

This section will also describe the intensity of construction and distance to sensitive receptors (e.g., residences). Depending on the intensity of activities during the peak construction period, the construction air quality impact assessment will either contain a detailed qualitative discussion of emissions or a quantitative analysis (i.e., predicted concentrations calculated using the AERMOD dispersion model).

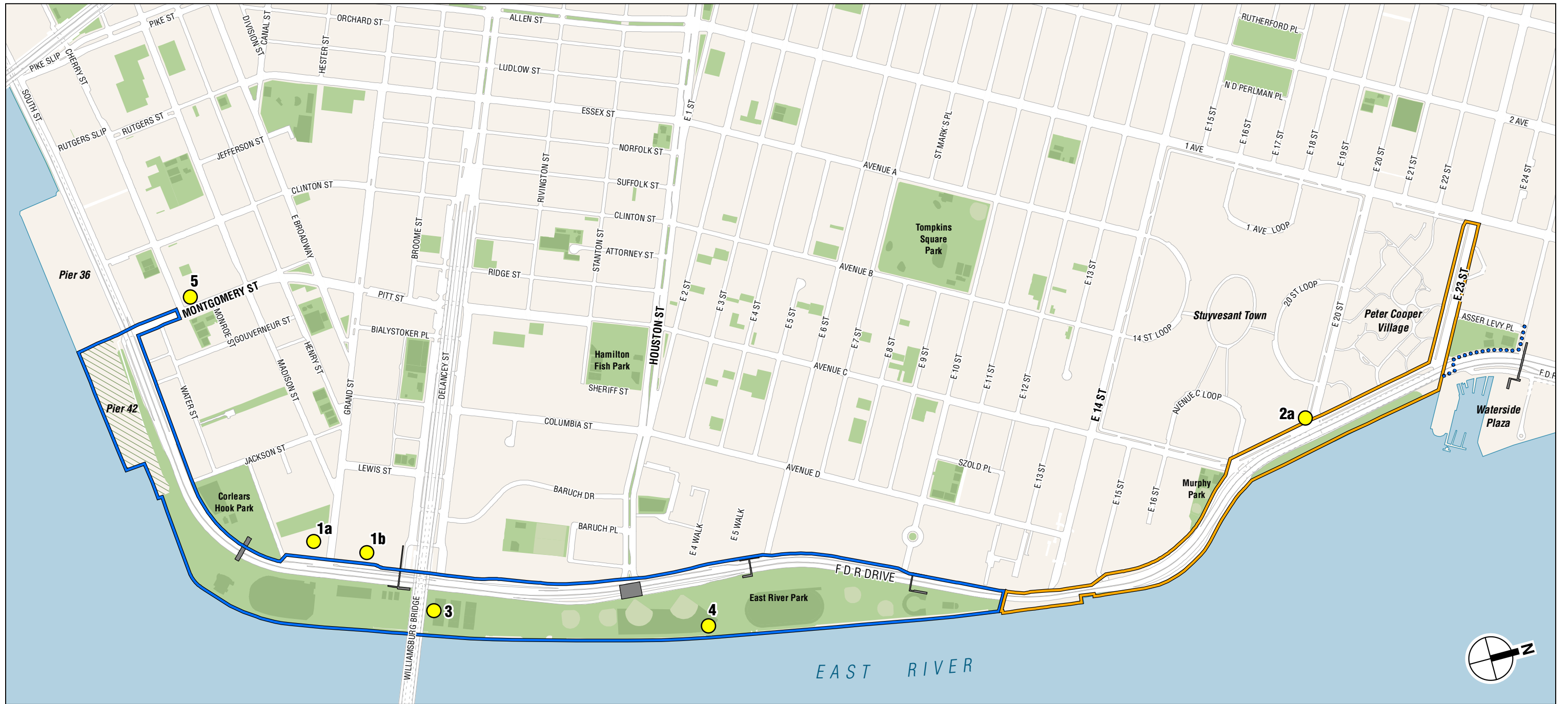
The detailed qualitative analysis will estimate fugitive dust emissions and the emissions from construction equipment. The analysis will then qualitatively review the projected activity and equipment in the context of emissions intensity, duration, and location relative to nearby sensitive receptors; and identify any project-specific control measures required to further reduce the effects of construction and to eliminate any significant adverse air quality impacts. Strategies to reduce impacts may include: diesel equipment reduction; clean fuel; best available tailpipe reduction technologies; utilization of equipment that meets specified emission standards; and fugitive dust control measures.

For the quantitative analysis, concentrations will be predicted using AERMOD to determine the potential for air quality impacts during on-site construction activities and due to construction-generated traffic on local roadways. Concentrations for each pollutant of concern—carbon monoxide, particulate matter, and nitrogen dioxide—due to construction activities at each sensitive receptor will be predicted during the most representative worst-case time period(s). The potential for significant adverse impacts will be determined by comparing modeled concentrations to National Ambient Air Quality Standards (NAAQS), and modeled increments to applicable *de minimis* thresholds.

In addition, CAA (42 U.S.C. 7401 et seq.), and in particular sections 176 (c) and (d), prohibits federal assistance to projects that are not in conformance with the State Implementation Plan (SIP). Therefore, this section will include a conformity analysis to determine the consistency of the proposed construction activities with the strategies contained in the SIP for the area. At any receptor sites where violations of standards occur, further analyses will be performed to determine what mitigation measures would be required to attain standards.

6.5.12.10 NOISE

The construction noise assessment will include a detailed qualitative discussion of noise levels from construction equipment, including mobile sources. The analysis will include a conservative estimate of intensity, duration, and location of noise emissions relative to nearby sensitive locations, based on projected construction activity and equipment. Estimated noise levels will be compared with existing levels measured during the expected hours of construction work (see **Figure 21** for collected noise measurement locations). If necessary, the analysis will identify project-specific control measures required to reduce the effects of construction and avoid or minimize any significant adverse impacts. Such measures may include noise barriers, equipment curtains or enclosures, quieter equipment, relocation of equipment, acoustically rated windows, and alternate means of ventilation.



- ▬ Project Area One
- ▬ Project Area Two
- Alternative Flood Protection System Alignment
- ▨▨▨▨▨ Proposed Open Space (No-Action Project)

● Collected Noise Level Measurement Locations

- Site 1a** - East Yard of 453 FDR Drive
- Site 1b** - Rooftop of 475 FDR Drive
- Site 2a** - East 20th Street at FDR Drive
- Site 3** - East River Park north of Williamsburg Bridge
- Site 4** - East River Park east of East 4th Street
- Site 5** - Montgomery Street at Cherry Street

0 1,000 FEET

If the detailed qualitative construction assessment indicates the need for further analysis, a quantitative analysis (i.e., modeling of noise levels using the Federal Highway Administration's [FHWA's] Roadway Construction Noise Model [RCNM] and CadnaA model) will be conducted to determine the potential for noise impacts during on-site construction activities and due to construction-generated traffic on local roadways. During the most representative worst-case time period(s), noise levels due to construction activities at each sensitive receptor will be modeled, and the feasibility, practicability, and effectiveness of measures to avoid or minimize any significant adverse construction noise impacts will be examined, as needed.

6.5.13 ENVIRONMENTAL JUSTICE

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires federal agencies to consider whether actions they might fund or approve may have any disproportionately high and adverse environmental or human health effects on low-income or minority populations. Since the Proposed Action will require federal approval from HUD subject to review under NEPA, the DEIS will consider the Proposed Action's potential for disproportionately high and adverse effects on minority and low-income populations following the guidance and methodologies outlined in the Council on Environmental Quality's *Environmental Justice Guidance under the National Environmental Policy Act* (December 1997). The environmental justice analysis will also be used by NYSDEC in its environmental permit review process associated with the proposed permit actions and its application of SEQRA, and is required under CP-29, "Environmental Justice and Permitting," which is the NYSDEC's policy on environmental justice. This analysis will also rely on the other technical analyses included in the DEIS for a determination of impacts, recognizing that the impacts within minority or low-income populations may be different from impacts on the general population.

For each alternative, this environmental justice analysis will identify and describe existing demographic data in the study area using available data from local and State agencies and other sources. Data collection will include compilation of race and ethnicity and poverty status data for the study area and identification of minority or low-income communities. To identify minority and low-income populations in the study area, data will be gathered from the U.S. Census Bureau's *Census 2010* and *2009–2013 American Community Survey (ACS)*, respectively, for all census block groups substantially within the study area. For comparison purposes, data will be aggregated for the study area as a whole, and compiled for Manhattan and the other four boroughs of New York City.

The environmental justice analysis will identify any disproportionately high and adverse effects on minority or low-income communities associated with the No Action Alternative within the study area. For each alternative, the environmental justice analysis will also involve the following steps:

- Identify the potential for significant adverse effects on minority and low-income communities within the study area as a result of the Proposed Action.
- Evaluate the overall potential significant adverse effects associated with the Proposed Action on minority and low-income communities to determine whether any potential significant adverse effects on those communities would be disproportionate and, therefore, disproportionately high and adverse.

- Summarize the public participation efforts associated with each alternative and specifically any targeted outreach to minority or low-income populations.

6.6 MITIGATION

Where significant project impacts are identified in the analyses discussed above, measures will be identified and assessed to mitigate those impacts. Where impacts cannot be practicably mitigated, they will be described as unavoidable adverse impacts. This task will provide the supporting technical analyses to address mitigation and will summarize the findings.

6.7 CUMULATIVE EFFECTS

The cumulative effects of the each of the alternatives, considered in conjunction with other projects being constructed and/or operated within the same vicinity and time frame, will be assessed in this section of the DEIS. Projects to be included in this analysis will include, but not be limited to, the following:

- Con Edison remediation program;
- Con Edison long-term resiliency program;
- Pier 42;
- Improvements to East River Park (i.e., East 6th Street Field, tennis courts);
- Rehabilitation of Houston Street Overpass;
- Hospital Row resiliency investments (Bellevue Hospital and VA Medical Center New York);
- Security improvements to Williamsburg Bridge;
- NYCHA resiliency improvements;
- Lower East Side Ecology Center compost center and constructed wetland;
- Solar One Initiative;
- Citywide Ferry Service;
- East 26th Street Department of Sanitation garage;
- Additional resiliency projects in and around the study area; and
- Private developments.

6.8 SUMMARY CHAPTERS

Several summary chapters will be prepared, focusing on various aspects of the EIS, as set forth in the regulations and the *CEQR Technical Manual*. They are as follows:

1. *Executive Summary*. Once the EIS technical sections have been prepared, a concise executive summary will be drafted. The executive summary will utilize relevant material from the body of the EIS to describe the proposed development and actions, their environmental impacts, measures to mitigate those impacts, and alternatives to the proposed development and actions.
2. *Unavoidable Adverse Impacts*. Those impacts, if any, that could not be avoided and could not be practicably mitigated, will be listed in this chapter.

3. *Growth-Inducing Aspects of the Proposed Project.* This chapter will focus on whether the Proposed Action has the potential to induce new development within the surrounding area.
4. *Irreversible and Irretrievable Commitments of Resources.* This chapter focuses on those resources, such as energy and construction materials, that would be irretrievably committed if the project is built.

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Appendix A



Alyssa Cobb
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City of New York
Parks & Recreation

The Arsenal
Central Park
New York, NY 10065
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POSITIVE DECLARATION

NOTICE OF INTENT TO PREPARE A DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROJECT: East Side Coastal Resiliency Project New York, New York CEQR: 15DPR013M	LEAD AGENCIES: NEPA: New York City Office of Management and Budget 255 Greenwich Street, 8th floor New York, NY 10007 SEQRA/CEQR: New York City Department of Parks & Recreation The Arsenal, Central Park 830 Fifth Avenue New York, New York 10065
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DATE ISSUED: October 28, 2015

TYPE OF ACTION: Type I

PROJECT IDENTIFICATION:

In order to address flood hazard vulnerability for an approximately 2.4 mile stretch of Manhattan's East River waterfront, the City of New York is proposing to construct an integrated flood risk reduction system called the East Side Coastal Resiliency (ESCR) Project. The proposed project area extends between Montgomery Street on the south and East 23rd Street (and in one alternative East 25th Street) on the north, and also includes inland segments along these streets. The proposed project area is within Manhattan Community Districts 3 and 6. To implement the proposed project, the City of New York is proposing to enter into a grant agreement with the U.S. Department of Housing and Urban Development (HUD) to accept \$335 million in Community Development Block Grant-Disaster Recovery (CDBG-DR) Funds. These funds would be provided by HUD to the City's Office of Management and Budget (OMB) for use in project implementation. Thus, OMB has been designated as the project's "Responsible Entity" in accordance with HUD regulations and is the Lead Agency for the environmental review pursuant to the National Environmental Policy Act (NEPA). Additionally, implementation of the proposed project requires multiple City and state actions and involves substantial activities in City parkland. Thus, the New York City Department of Parks & Recreation (DPR) is the Lead Agency in fulfilling the environmental review requirements of the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR).



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PROJECT DESCRIPTION:

The proposed integrated flood risk reduction system may be comprised of a combination of berms (or "bridging berms"), floodwalls, and deployable elements that would be located within existing City parkland and streets and potentially into non-City-owned property. The proposed project responds to the urgent need for increased flood protection and resiliency within this Federal Emergency Management Agency (FEMA)-designated flood hazard area. In doing so, the proposed project is intended to safeguard commercial and residential properties, and critical energy, infrastructure, and transportation systems against coastal flooding, and make related improvements to City infrastructure while simultaneously improving public open space and enhancing the accessibility and quality of waterfront open space in East River Park and Stuyvesant Cove Park. If all approvals are issued, project construction is anticipated to commence in summer 2017 and be completed in 2022.

REQUIRED APPROVALS

Implementation of the Proposed Action would involve federal, State, and City approvals, and is subject to NEPA, SEQRA, and CEQR and their implementing regulations. The federal, State, and City agencies that may potentially be involved in the environmental review and regulatory permitting processes are as follows.

FEDERAL

- U.S. Department of Housing and Urban Development (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 activities in Waters of the United States (Section 404 of the Clean Water Act) or structures within navigable waters (Section 10 of the Rivers and Harbors Act).
- U.S. Environmental Protection Agency (USEPA), 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.
- Federal Emergency Management Agency (FEMA) – Review of flood protection design and potential changes to Flood Insurance Rate Maps (FIRM).
- National Park Service (NPS) – Coordination and authorization for activities that may be necessary within parkland that was improved using federal Land and Water Conservation Funds (LWCF).

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



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incidental take is determined; permits related to the State Pollutant Discharge Elimination System (SPDES) program; approvals related to the handling and transport of hazardous materials and soils.

- Department of State (NYS DOS) – Review of Coastal Zone Consistency.
- Office of Parks, Recreation and Historic Preservation (OPRHP) – Liaison with the Federal government for purposes of administering the LWCF program, including monitoring compliance with LWCF requirements. 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 FDR Drive under NYSDOT jurisdiction.
- Subject to the review of additional design alternatives, the Proposed Action may also require an approval from the State Legislature to alienate portions of parkland within East River Park for non-park uses.

CITY OF NEW YORK

- Office of Management and Budget (OMB) – Disbursement of funds from HUD to City agencies and NEPA Lead Agency for the environmental review.
- Department of Parks & Recreation (DPR) – Review of and issuance of permits and approvals for project design and construction in City parkland and future 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 Action for client agencies.
- Department of Environmental Protection (DEP) – Review of design and advisory agency for activities and projects related to stormwater management, water and sewer infrastructure, and natural resources.
- Department of Transportation (NYCDOT) – Review of flood protection design and permits related to activities along, adjacent to and within FDR Drive and Williamsburg Bridge footings, and the local street network.
- New York City Housing Authority (NYCHA) – Approval for activities on NYCHA property.
- 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 (EDC) – Coordination and approval for activities on EDC-leased property, including Stuyvesant Cove Park and Solar One.
- Small Business Services (SBS) – Coordination and approval for activities on SBS-owned property, including Stuyvesant Cove Park and adjacent parking lot. Issuance of



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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 & Development (HPD) – Review and approval for the disposition of NYCHA property.
- Mayor’s Office of Sustainability (MOS) – 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.

STATEMENT OF SIGNIFICANT EFFECT:

In accordance with NEPA and Executive Order 91 of 1977, as amended, and the Rules of Procedure for CEQR, found at Title 62, Chapter 5 of the Rules of the City of New York, OMB and DPR, as Lead Agencies, have determined that the proposed project may potentially have a significant impact on the environment in the following areas:

- (1) Land use, zoning, and public policy, due to land use disturbances and requirements for a consistency determination with the New York City Waterfront Revitalization Program;
- (2) Open space resources, as the proposed project area encompasses both East River Park and Stuyvesant Cove Park and requires modifications of existing recreational facilities as well as park and street trees;
- (3) Historic and cultural resources, due to the introduction of new structures and subsurface disturbance that could affect archaeological and architectural resources;
- (4) Urban design and visual resources, due to the introduction of new structures that could affect the urban design setting of the project and waterfront view corridors;
- (5) Natural resources, including the aquatic resources and water quality of the East River, due to site disturbance and the potential modification of the area’s stormwater management system;
- (6) Hazardous materials, due to subsurface disturbance and the potential for new pathways of human exposure to contaminated materials;
- (7) Water and sewer infrastructure, due to potential effects on the City’s infrastructure for water supply and combined sanitary sewer conveyance; and
- (8) Construction-related impacts that may include potential impacts on transportation systems, sensitive receptors due to air and noise emissions, and public health due to disturbances to hazardous materials.

Accordingly, OMB and DPR have determined that an EIS should be prepared in accordance with the requirements of NEPA and the implementing regulations of HUD as



NYC Parks

well as SEQRA, 6 NYCRR 617.9(b), and Sections 6-08 and 6-09 of Executive Order No. 91 of 1977, as amended.

PUBLIC SCOPING:

The first step in the environmental review process is Public Scoping. Public Scoping is when the public is invited to comment on the Draft Scope of Work proposed to be used in preparing the Draft EIS (DEIS). A Draft Scope of Work has been prepared outlining the proposed content and analysis to be used in preparing the DEIS. To that end, a Public Scoping Meeting to accept oral and written comments on that Draft Scope of Work is scheduled for December 3, 2015 at 7:00 PM at:

Bard High School Early College
525 East Houston Street
New York, NY 10002

A copy of the Draft Scope to Prepare the DEIS can be obtained online at <http://www.nyc.gov/html/cdbg/html/home/home.shtml> or by contacting:

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Written comments can also be sent to the above mailing address, fax, or email address. Written comments will be accepted by the Lead Agencies through December 21, 2015.

This Positive Declaration has been prepared in accordance with Article 8 of the Environmental Conservation Law.

Alyssa Cobb Konon, Assistant Commissioner
New York City Department of Parks & Recreation