

South Battery Park City Resiliency Project

Environmental Impact Statement Final Scoping Document

Battery Park City Authority

AECOM Project Number: 60579231
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1 Introduction

1.1 Overview

The Battery Park City Authority (BPCA), as lead agency, determined that the proposed South Battery Park City Resiliency (SBPCR) Project (the “SBPCR Project” or Proposed Action) may have a significant impact on the environment requiring the development of an Environmental Impact Statement (EIS).

This Scoping Document sets forth the content of the Draft EIS (DEIS) that the BPCA shall prepare for the proposed SBPCR Project. The Scoping Document provides: a general description of the State Environmental Quality Review (SEQR) requirements; a general description of alternatives to be evaluated in the DEIS, including the No-Action Alternative; identification of all resources to be addressed; and methodologies for assessing environmental impacts (based on SEQR and City Environmental Quality Review (CEQR) 2021 Technical Manual guidelines). This Scoping Document has been prepared in accordance with the requirements of 6 NYCRR Part 617 implementing regulations to Article 8 of the Environmental Conservation Law (SEQR).

1.2 Background and Description of Proposed Action

During Superstorm Sandy in 2012, coastal surge inundated Lower Manhattan on its western side through low elevation points near Pier A and in or adjacent to other parts of Battery Park City, damaging, destroying and/or negatively impacting significant components of Lower Manhattan’s critical and civic infrastructure. In response to the devastating impact of Superstorm Sandy in Lower Manhattan and in anticipation of future severe storm activity related to global climate change, the SBPCR Project has been developed by BPCA as an integrated coastal flood risk management project in Lower Manhattan (**Figure 1-1**). The SBPCR Project represents one of several projects within the overall Lower Manhattan Coastal Resiliency (LMCR) Master Plan.

The SBPCR Project Area (Project Area), the area of direct physical disturbance, extends from 1st Place and the Museum of Jewish Heritage, through Robert F. Wagner Park (Wagner Park or the Park), across Pier A Plaza, and then along the north side of the Battery Bikeway in The Battery to higher ground near the intersection of Battery Place and State Street. The SBPCR Study Area (Study Area), which extends beyond the Project Area, varies by resource but is generally defined as the area within 400 feet of the SBPCR Project improvements (see **Figure 1-1**).

The SBPCR Project is being designed to provide flood risk reduction within the Project Area for the current 100-year flood, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise. It is one of three (3) resiliency projects being undertaken by BPCA to address flood risk reduction throughout Battery Park City’s ninety-two (92) acres. The other two (2) projects are the Battery Park City Ball Fields and Community Center Resiliency Project, and the North/West BPC Resiliency Project (see **Figure 1-2**). The SBPCR Project is also being designed with adaptability for the 2050 100-year storm event at such time as the North/West BPC Resiliency Project is completed, and a tie-in between the two (2) projects is created (see **Figure 1-2**).

The flood alignment is composed of multiple different integrated features such as flip-up deployable gates (flip-up deployables), glass-topped floodwalls, buried floodwalls underneath terraced slopes, exposed

floodwalls, and bermed floodwalls. The term “flood alignment” is used to differentiate the combination of flood control measures represented by the SBPCR Project from a traditional freestanding floodwall for risk reduction. In addition, interior drainage improvements are proposed for the SBPCR Project, including the isolation of the existing underground sewer manholes and connected chambers. For more information on these improvements see Section 3.2.6 (Interior Drainage Improvements) and **Figure 1-1**.

On a separate but related note, New York City’s The Battery Coastal Resilience Project, the Financial District and Seaport Climate Resilience Project, the Brooklyn Bridge-Montgomery Coastal Resiliency (BMCR) Project, and the East Side Coastal Resiliency (ESCR) Project are intended to individually and collectively serve to reduce Lower Manhattan’s flooding exposure (see **Figure 1-3**).

Battery Park City was planned and developed according to a Master Plan adopted in 1979 and is partially situated upon landfill generated by construction of the World Trade Center between the late 1960s and the early 1970s. Wagner Park was collaboratively designed by landscape architecture firm, Hanna/Olin, architecture firm, Machado and Silvetti, and public garden designer, Lynden Miller. It was built between 1994 and 1996 and offers panoramic views of the New York Harbor and the Statue of Liberty. It includes a pavilion, consisting of two structures connected by a rooftop walkway, two ornamental gardens, an esplanade, a central lawn, and various pieces of public art. The Museum of Jewish Heritage, which opened in Battery Park City in 1997, is located immediately north of Wagner Park.

BPCA has proactively guided the process for the design of the SBPCR Project, which is necessitated by the need to elevate the topography of Wagner Park to achieve the required design flood elevation (DFE). The redesign of Wagner Park has retained as many aspects as possible of the original design intent and site organization for the Park. To this end, BPCA found that four (4) of the original eight (8) principles from the 1979 Master Plan remain relevant to the redesign of the Park, as well as certain additional portions of the Project Area and that they are pertinent to an understanding of BPCA’s approach to the SBPCR Project design:

- Principle 1: Battery Park City should not be a self-contained new-town-in town, but a part of Lower Manhattan;
- Principle 2: The layout and orientation of Battery Park City should be an extension of Lower Manhattan’s system streets and blocks;
- Principle 3: Battery Park City should offer an active and varied set of waterfront amenities; and
- Principle 5: Circulation should reemphasize the ground level.

Figure 1-1: SBPCR Project Area and Study Area



Legend

- | | | |
|--|---|---|
|  Project Area Sites | Flood Alignment |  NSI Elements |
|  Study Area |  Exposed Floodwall |  Tidegate |
| |  Buried Floodwall |  Isolation Valve |
| |  Glass Topped Floodwall | |
| |  Flip-Up Deployable Gate | |
| |  Fixed Column | |

South Battery Park City Resiliency Project

Figure 1-2: Battery Park City Resiliency Projects

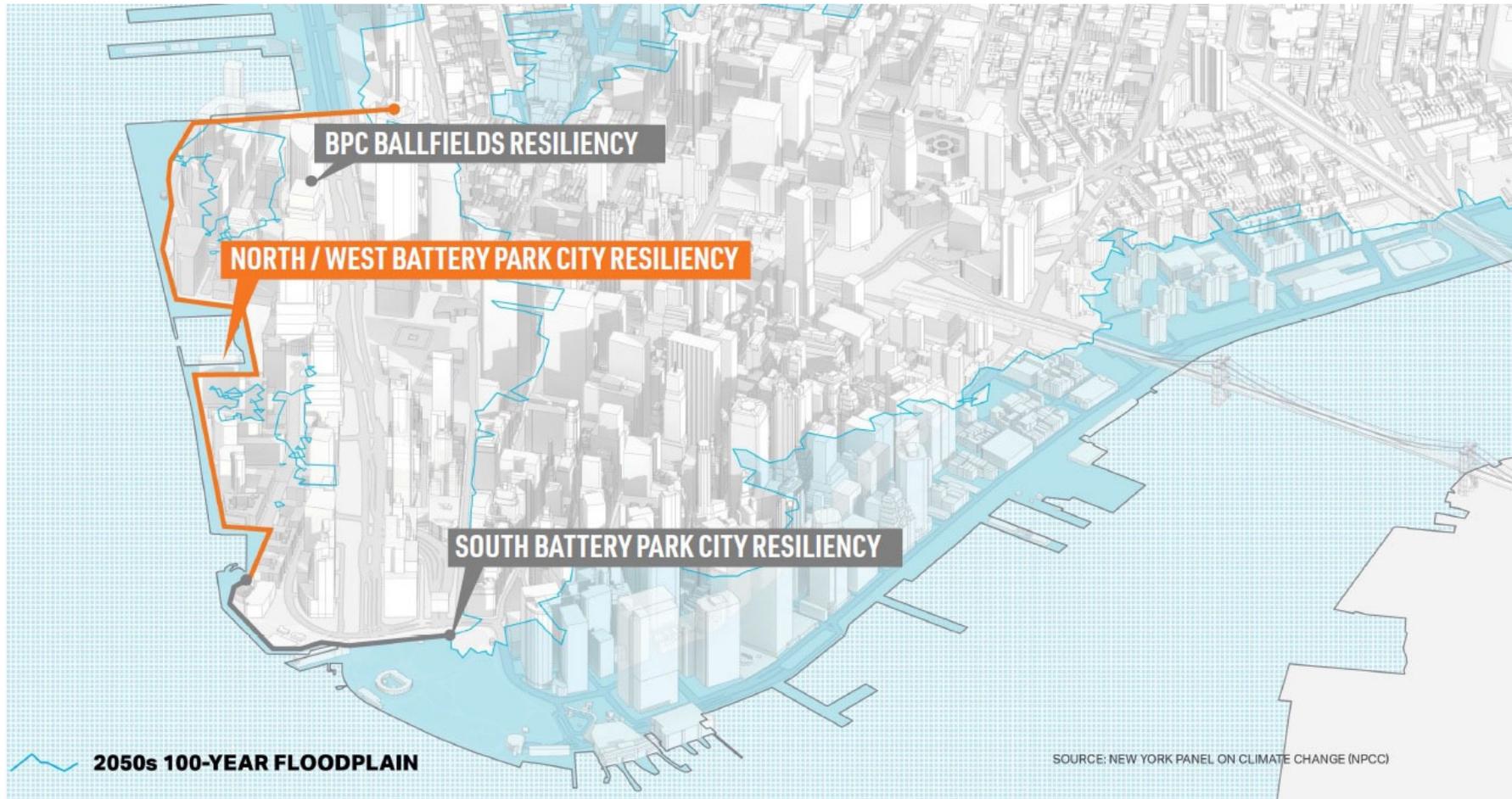


Figure 1-3: Lower Manhattan Coastal Resiliency Projects



1.3 Purpose and Need

During Superstorm Sandy in 2012, storm and coastal surge inundated portions of Lower Manhattan on its western side through areas in or adjacent to northern Battery Park City and Pier A Plaza south of Wagner Park. Water also found its way onto One World Trade Center and the Hugh L. Carey Tunnel (formerly known as the Brooklyn-Battery Tunnel) and impacted much of Lower Manhattan's critical infrastructure.

The SBPCR Project's primary goal is risk reduction in the southern extremes of Battery Park City. This would be accomplished through implementation of integrated flood risk measures, while meeting the design criteria for a 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge and predicted sea level rise. While the SBPCR Project would provide immediate risk reduction for the 100-year storm, it would also provide ready adaptability to the DFE for the 2050 100-year storm at such time as the North/West BPC Resiliency Project is constructed and a tie-in between the two (2) systems is created. The SBPCR Project is expected to be accredited by the Federal Emergency Management Agency (FEMA). Accreditation requires a FEMA review of as-built plans and verification that the flood system meets all pertinent requirements and achieves acceptable risk reduction in practice.

The purpose of the SBPCR Project is to:

- Provide a reliable coastal flood control system to provide risk reduction to property, residents and assets within the vicinity of South Battery Park City in response to the design storm event;
- Protect and preserve to the maximum extent practicable, open space resources and opportunities to view and interact with the Manhattan waterfront, particularly in Wagner Park, Pier A Plaza and The Battery; and,
- Avoid or minimize disruption to existing below and above-ground infrastructure (i.e., water and sewer infrastructure, subways, tunnels, utilities, etc.) from flood events.

Specific objectives of the SBPCR Project are to:

- Provide a reliable coastal flood control system that minimizes risk and the need for operational interventions by relying primarily on passive flood control technology as opposed to mechanical "deployable" flood control technology;
- Construct and operate the project in an environmentally responsible manner;
- Preserve to the greatest extent practicable the character and design aesthetic of the community and its interface with the BPC waterfront and access to coastal viewsheds, particularly views of the harbor and Statue of Liberty; and
- Utilize cost-effective solutions to maximize capital investment over the lifespan of the SBPCR Project.

2 State Environmental Quality Review (SEQR) Process

The New York SEQR process provides for the consideration of potential significant adverse environmental impacts in the early planning stages of the approval, funding, or permitting process for proposed actions. By incorporating a systematic interdisciplinary approach to environmental review, impacts can be identified and projects can be modified, as needed, to avoid or minimize potential adverse impacts to the environment to the maximum extent practicable. All discretionary decisions of a state, regional, or local agency to approve, fund, or directly undertake an action that may affect the environment are subject to review under SEQR. It is the intent of SEQR that protection and enhancement of the environment and community resources be balanced with social and economic factors in the decision-making process.

2.1 Classification and Lead Agency Designation

In accordance with 6 NYCRR Part 617, the Proposed Action is classified as a Type 1 action, as section 617.4(b)(10) includes “any Unlisted action, that exceeds 25 percent of any threshold in this section, occurring wholly or partially within or substantially contiguous to any publicly owned or operated parkland, recreation area or designated open space, including any site on the Register of National Natural Landmarks pursuant to 36 CFR part 62.” One such threshold is the physical alteration of 10 acres of land. As the SBPCR Project will result in the physical alteration of more than 2.5 acres of land occurring wholly or partially within or substantially contiguous to any publicly owned or operated parkland, this threshold is met. On March 18, 2021, the BPCA initiated a Coordinated Review of the Proposed Action to request Lead Agency designation and to solicit comments from all Involved and Interested Agencies.

In accordance with 6 NYCRR Part 617.7, the BPCA considered the potential environmental impacts of the proposed action and determined that this action may result in significant adverse environmental impacts and that a DEIS must be prepared.

2.2 Purpose of the Scoping Process

To ensure that the DEIS will address all potentially significant environmental impacts identified by the Lead Agency in Parts 2 and 3 of the Environmental Assessment Form (EAF) and the Positive Declaration, and pursuant to 6 NYCRR Part 617.8(a) of the implementing regulations of SEQR, a formal scoping process will take place to focus the DEIS on potentially significant adverse impacts, and to eliminate consideration of those impacts that are irrelevant or not significant. Therefore, this Draft Scoping Document has been prepared pursuant to 6 NYCRR 617.8(b) to outline the topics and analysis of potentially significant environmental impacts related to the proposed action that will be addressed in the DEIS. This scoping process has eight objectives:

- 1) focus the DEIS on the potentially significant adverse environmental impacts;
- 2) focus on the relevant environmental impacts;
- 3) eliminate irrelevant impacts or issues;
- 4) identify the extent and quality of information needed;
- 5) list available sources of information;
- 6) specify methods or models to be used to generate new information;
- 7) identify the range of reasonable alternatives to be discussed; and
- 8) specify possible measures for mitigation of potential impacts.

As part of the scoping process, and in accordance with SEQR, the Draft Scoping Document was made available for agency and public review and comment via posting on BPCA's website. A notice of scoping was published in the New York State Department of Environmental Conservation's (NYSDEC) Environmental Notice Bulletin (ENB), which announced the public comment period and the date for the virtual Scoping Meeting. Based on agency and public comments, this Final Scoping Document was developed and will shape the content of the DEIS (see Appendix A for Agency and Public Comments). Similarly, after the DEIS is circulated for public review and comment, a Public Hearing will be conducted to receive comments. There will also be the opportunity to comment on the DEIS following the close of the Public Hearing. Following the DEIS public comment period, the BPCA will prepare responses to the comments, develop the Final EIS, and issue SEQR Findings.

2.3 Potential Regulatory Permitting, Approvals and Coordination

Implementation of the Proposed Action would require federal, state, and local approvals involving the following agencies:

FEDERAL

- 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 and 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 federal permitting process focusing on activities that affect wetlands, water quality, protected plant and wildlife species, and essential fish habitat.
- Federal Emergency Management Agency (FEMA) – Review of flood protection design and potential changes to Flood Insurance Rate Maps (FIRM).

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); permits related to the State Pollutant Discharge Elimination System (SPDES) program; and approvals related to the import of fill material requiring Beneficial Use Determination.
- Department of State (NYSDOS) –Coastal Zone Consistency Determination.
- Office of Parks, Recreation and Historic Preservation (OPRHP) – State Historic Preservation Office (SHPO) leading the Section 14.09 of the New York State Historic Preservation Act (SHPA) review for designated and protected properties on the State and National Registers of Historic Places and properties determined eligible for such listing; and the federal review process pursuant to Section 106 of the National Historic Preservation (NHPA) for the Pier A inlet improvements.
- Department of Transportation (NYSDOT) –Design coordination as needed and construction permits for work within the Right-of-Way (ROW).
- New York City Transit Authority (NYCTA) – Coordination regarding impacts to bus routes/stops on Battery Place.

- MTA – Triborough Bridge and Tunnel Authority (TBTA) – Approval of alignment crossing over Brooklyn -Battery Tunnel.

CITY OF NEW YORK

- Department of Parks & Recreation (NYC Parks) – Tree Work Permits for tree removals, and restitution payments and Capital Construction Permit for any construction on NYC Parks property. A Maintenance and Operation Agreement will be required between NYC Parks and BPCA.
- Department of Environmental Protection (NYCDEP) – Design approval of project elements related to stormwater management, water and sewer infrastructure, coordination with respect to potential hazardous materials and natural resources impacts, as well as air quality and noise/vibration analyses.
- Department of Transportation (NYCDOT) – Design approval of bike lane, lighting, and other work in NYCDOT ROW, as well as coordination/review of transportation analyses. Revocable consent would be required for construction in the ROW.
- Department of City Planning (DCP) – Consistency determination under the Local Waterfront Revitalization Program.
- Small Business Services (NYCSBS) – Coordination and approval for activities on NYCSBS-owned property. Revocable consent would be required for construction on NYCSBS-owned property.
- Landmarks Preservation Commission (NYCLPC) – Advisory agency for activities on or near sites of historic or archaeological value.
- New York City Police Department (NYPD) – Approval for bollard and security design.
- New York City Fire Department (FDNY) – Coordination of access requirements and impact to FDNY facilities and conduits within the ROW.
- Public Design Commission – Design approval for permanent structures, landscape architecture, and art proposed on City-owned property.

3 Description of the Proposed Action

3.1 Proposed Action Location

The Proposed Action is located in Lower Manhattan just west of the point where the Hudson River and East River diverge. The SBPCR Project flood alignment spans an area from 1st Place and the Museum of Jewish Heritage, through Wagner Park, across Pier A Plaza, and then along the north side of the Battery Bikeway in The Battery to higher ground near the intersection of Battery Place and State Street as shown in **Figure 3-1**. In addition, the following interior drainage improvements are proposed: a near surface isolation (NSI) system along West Street between Battery Place and Albany Street; tide gates at 1st Place near the Museum of Jewish Heritage, Rector Place near the Hudson River, as well as in Pier A Plaza; and two (2) isolation valves in The Battery portion of the Project Area (see **Figure 1-1**).

3.2 Proposed Action Elements

This section describes the elements of the flood alignment across five SBPCR Project segments, and associated interior drainage improvement areas, moving from west to east. The SBPCR Project segments are defined as 1st Place, Museum of Jewish Heritage, Wagner Park, Pier A Plaza and The Battery. In addition to the flood protection measures, an important element of the SBPCR Project is the inclusion of sustainable design measures. Construction is expected to begin in July 2022 and conclude in July 2024. **Figure 3-1** provides the type of flood alignment infrastructure proposed for each project segment and identifies the DFE. The DFEs and Height of Intervention (HOI) vary across the Project's flood alignment. The HOI for a project location is calculated by subtracting the elevation of the existing grade from the proposed DFE.

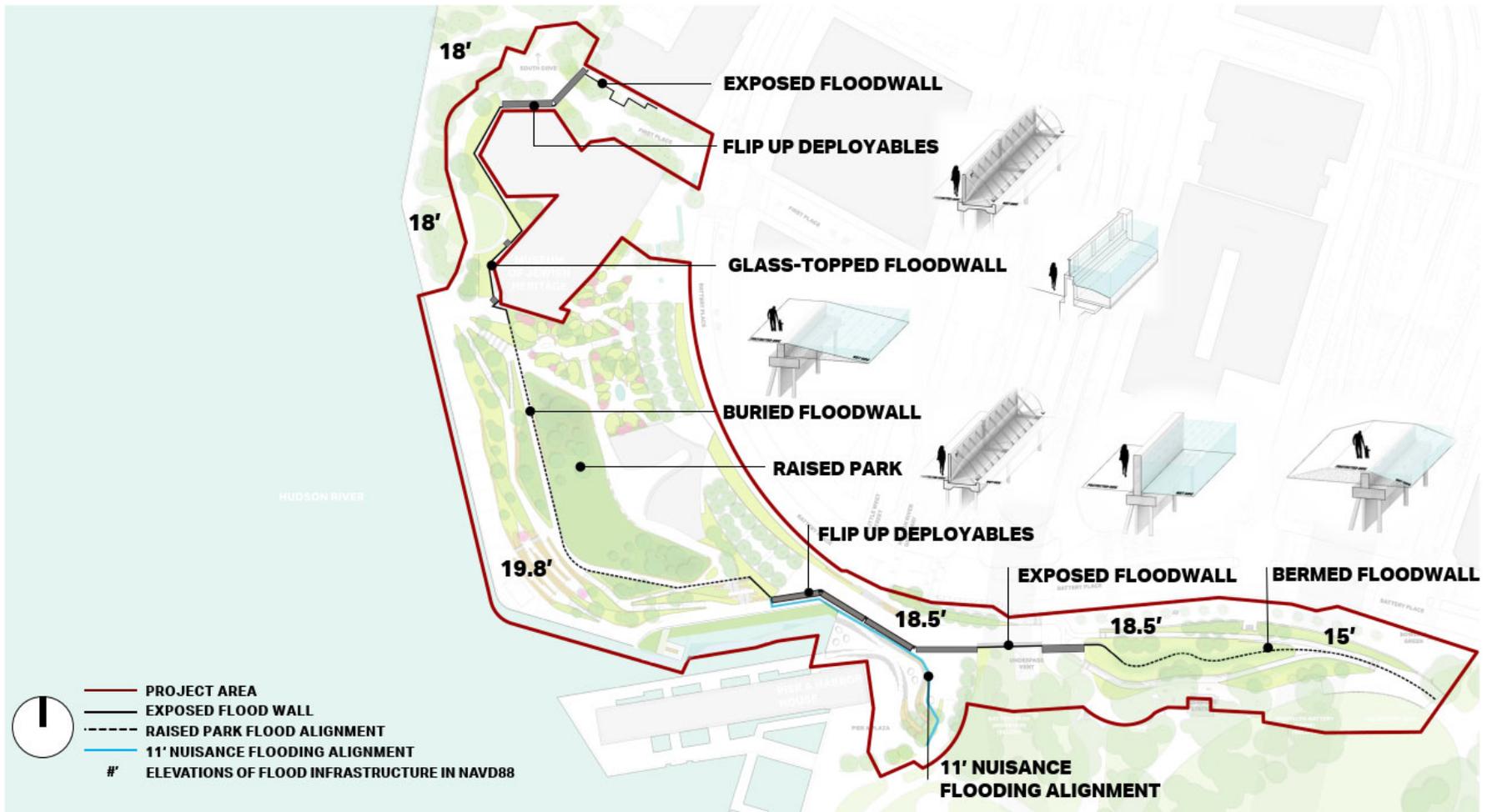
3.2.1 1st Place

The flood alignment begins on the north side of 1st Place, where it ties into an existing, natural 11-foot flood contour at a point where the DFE required to achieve FEMA certification is also 11 feet. It then extends south across 1st Place as a flip-up deployable, which would seal against permanent columns when deployed. The flip-up deployables across 1st Place would be installed to lie flat when not in use. 1st Place would not be altered in any material way beyond the installation of flip-up deployables in the street bed, with columns framing their edges. Grade changes to the street and ROW would be avoided. The DFE in this area is 18 feet, and the HOI is 7 feet.

3.2.2 Museum of Jewish Heritage

At the southwest end of 1st Place, the flood alignment runs west across the north facing landscaped courtyard of the Museum of Jewish Heritage. The DFE in this location is 18 feet, and the HOI ranges from 7 to 8 feet. Flip-up deployables are planned for this section of the flood alignment, maintaining visual and physical access to the Museum and connecting to the flip-up deployables that span 1st Place. Existing landscape planters adjacent to the north façade of the Museum would be reconstructed and replaced after the installation of the flip-up deployables.

Figure 3-1: SBPCR Project Flood Alignment and DFEs



The flood alignment then extends southeast along the west side of the Museum. This portion of the flood alignment is composed of flood-proof glass-topped floodwalls that would be integrated into terraced landscape planters. The floodwall would be screened from the existing garden pathways and lawn by rebuilding terraced planters that match the existing aesthetic of the landscape. In order to minimize visual impact and maintain views from the first floor of the building to the Hudson River, the top of the floodwall would be constructed of flood-proof glass, set within a metal frame. The glass-topped floodwall continues around the western perimeter of the Museum, until the flood alignment connects with Wagner Park. Flip-up deployables would be used to maintain egress at the existing fire exit doors.

3.2.3 Wagner Park

The flood alignment through Wagner Park would be constructed as a buried floodwall connecting to the glass-topped floodwall at the Museum of Jewish Heritage. The DFE for this portion of the flood alignment is +19.8 feet, and the HOI is 7.8 to 9.8 feet. To meet projected DFEs for coastal surge, Wagner Park would be elevated 10 to 12 feet, and the buried floodwall would be constructed beneath the raised park, maximizing the amount of protected open space within the park, while maintaining views to the waterfront. The buried floodwall also allows users to fully occupy the lawn, garden, and public park, in contrast to a traditional floodwall design which would bisect the space. At the connection between Wagner Park and Pier A Plaza, the flood alignment would resurface and manifest as a short segment of exposed floodwall that would extend to meet the flip-up deployables being used through Pier A Plaza.

Five design principles helped to guide the proposed plan for Wagner Park:

- Elevate the site to maximize the protected area;
- Organize the site around the central lawn and axis to the Statue of Liberty;
- Move the building closer to Battery Place to maximize continuous waterside lawn area;
- Align building and approach with allées and establish central connector space; and
- Provide universal access throughout the park.

With the five principles shaping the redesign, key features of Wagner Park include ornamental gardens, a central lawn, a stormwater reuse cistern, an infiltration gallery underneath the Battery Park City Esplanade, and performative gardens along the waterfront pedestrian esplanade (see **Figure 3-2**). The edges of Wagner Park would be gently sloped and terraced to allow for universal access to the raised park areas and the new Pavilion described below (see **Figure 3-2**). Furthermore, the design of Wagner Park has been developed to comply with the Waterfront Edge Design Guidelines (WEDG) through innovative and integrated landscape, architectural, and engineering site planning. WEDG is a rating system and set of guidelines to create resilient, ecological and accessible waterfronts. The plantings on the water side of the Wagner Park flood alignment would tolerate salt spray and temporary inundation, reduce maintenance costs and provide ecological benefits. Planting designs in some of the terraced planters that transition down to the Esplanade would serve as rain gardens for capturing and filtering precipitation. Stormwater from planters and hardscape would be routed to an infiltration gallery located underneath the Esplanade, to reduce the point source discharge of stormwater to the Hudson River. The layout reduces risk of coastal flood hazards while enhancing waterfront access and providing a newly continuous waterfront walkway experience that improves Battery Park City's connection to the Pier A Plaza and The Battery. On the "dry"

side of the flood alignment, a reuse cistern would capture stormwater generated during rain events. Reuse measures include site washdown, drip irrigation, and pavilion flush fixtures. Water captured by the cistern would be treated via a proprietary treatment system and distributed throughout the Park.

The SBPCR Project enhances Wagner Park's programmatic diversity and provides an opportunity for a new waterfront marine habitat educational area along the Pier A inlet. The Pier A inlet design converts a concrete relieving platform and rip-rap edge to a terraced condition that improves habitat opportunities. An observation deck is proposed along the Pier A inlet as shown in **Figure 3-3**. The construction of the deck would remove a portion of the relieving platform and replace it with a metal grate platform, which would allow 50 percent of available light to pass through.

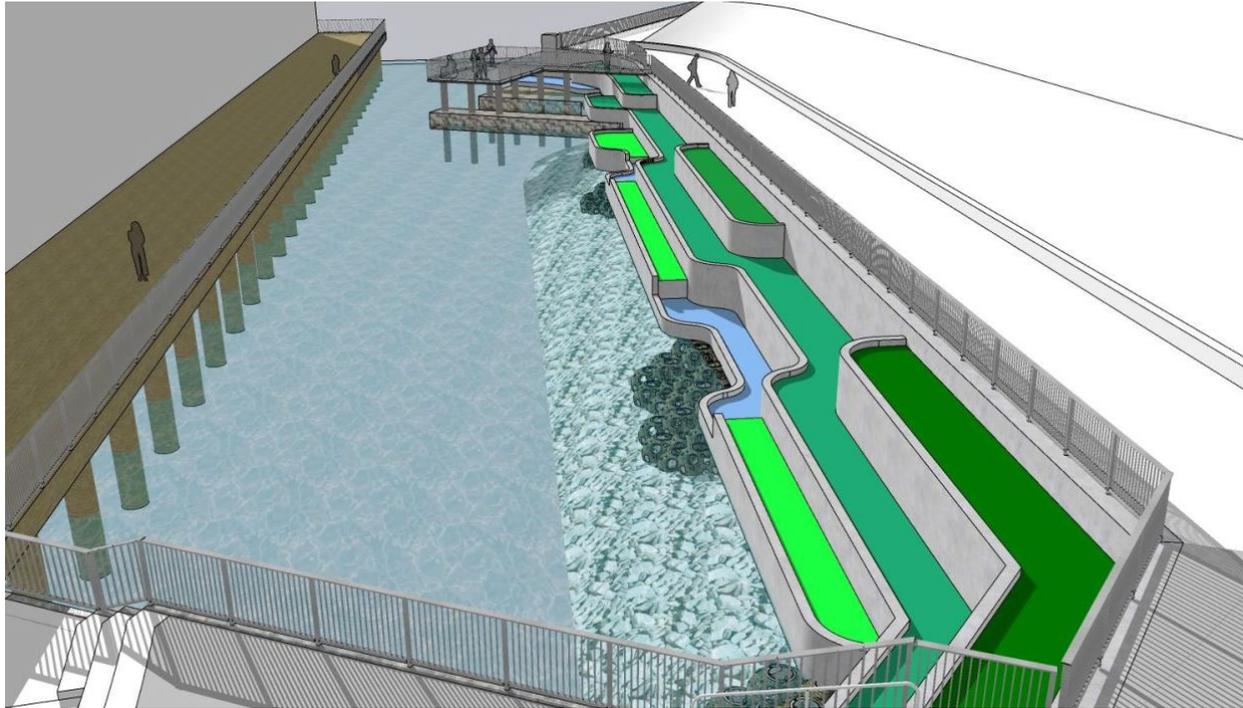
The SBPCR Project's design calls for assessing all materials, including existing site stone, wood, trench drains, trees, shrubs and plants for salvage. A select amount of materials has been targeted to be reused within the SBPCR Project site. The remaining materials would be recycled or reused offsite where possible. Paving color and material selections are carefully calibrated to increase the Park's solar reflectance index (SRI), reducing the Park's urban heat island contribution. Site lighting carefully follows dark sky principles to reduce glare and enhance nighttime viewing of the New York Harbor and Statue of Liberty. Wagner Park's carefully designed planting plan is organized around four (4) regional plant communities including tidal estuary, maritime meadow, maritime forest, and upland woodland. The landscape's design use of native plants reduces water consumption and reduces maintenance labor while significantly boosting local biodiversity and habitat support. The SBPCR Project's turfgrass areas make use of subsurface irrigation to reduce water consumption by more than 30 percent.

Figure 3-2: Proposed Pavilion for Wagner Park

Following the Wagner Park design principles, the north and south allées of trees along Battery Place would be recreated along two (2) ramps which connect the northern and southern arrival points of Wagner Park with the raised park and the new Pavilion.

The design of the proposed Pavilion targets International Living Future Institute (ILFI) Zero Carbon certification which requires reduction of operational and embodied carbon. In addition, the SBPCR Project is being designed to exceed the ILFI target of 25 percent reduction of energy use intensity (EUI). The SBPCR Project would exceed this target with energy reduction of 38 percent and 25 percent over the baseline via a geothermal loop and a Variable Refrigerant Flow (VRF) heat recovery system, respectively and many other energy conservation measures in selection of building systems. Highly efficient, low carbon insulation, high recycled content rebar, low carbon concrete, low emitting materials, triple glazing with low-E coating and bird deterrence are among the many sustainable features of the design.

The location of the proposed Pavilion would be similar to the existing structure, but with a slightly smaller footprint elevated approximately 11 to 12 feet above ground level, set back closer to Battery Place, as shown in **Figure 3-2**. The Pavilion would have three (3) levels: a ground, first and second level. The ground level would include maintenance, programming and storage space for the BPCA Parks Department and a kitchen to support the restaurant operating at the first level. The first level (at the Park level) would include public bathrooms, a new community/educational center, and a restaurant with both indoor and outdoor seating. The second level (roof level) would feature a green roof and provide additional public open space, while also accommodating the storage of mechanical equipment. The total square footage of the building would be 18,235.

Figure 3-3: Proposed Pier A Inlet Observation Platform

3.2.4 Pier A Plaza

Pier A Plaza (or the Plaza) is at the lowest elevation in the Project Area. The flood alignment would consist of a newly raised segment of Pier A Plaza in combination with flip-up deployables and a short section of exposed floodwall. The DFE in this area is 18.5 feet, and the HOI ranges from approximately 8.5 to 11.5 feet. Flip-up deployables would seal up against new permanent columns to be located on the upper level of the Plaza. The columns are designed to complement the materials of Pier A Plaza, and would be placed to accommodate views to the water, circulation (pedestrian, biking, and vehicular), and the programmed use of the Plaza. The existing paving materials of Pier A Plaza would be retained, with new material added for seating and increased planting. The Plaza would allow for direct and universal access to Pier A and between the upper and lower levels of the Plaza, and would also maintain the bicycle connection from The Battery to the Hudson River Greenway, at the periphery of the Plaza. Provision of building-specific wet-waterproofing protection of Pier A has been previously addressed by BPCA and is not part of this Project scope.

To protect against accidental or intentional vehicle breaches of the pedestrian Plaza, physical site security measures are planned for the northern perimeter of the Pier A Plaza, adjacent to the flood alignment. A 40-inch high barrier is proposed along the southern sidewalk of Battery Place running from the end of the southern allée of trees in Wagner Park eastward along the northern line of Pier A Plaza, then turning south and terminating at the exposed floodwall above the Battery Park Underpass. This security barrier is to be supplemented with bollards at stairs and access points as needed. The exposed floodwall would also serve as a site security measure.

In order to address the greater flood vulnerability of the lower lying portions of Pier A Plaza that would be subject to daily tidal flooding in the future, the northern section of the Plaza would be raised by approximately four (4) feet, creating a two-level Plaza and reducing the required height of the flip-up deployables. In addition, the two-level Plaza design would allow NYC's Battery Coastal Resilience Project, which traverses The Battery along the water's edge, to tie into the SBPCR Project. The Battery Coastal Resilience Project would be implemented by New York City Economic Development Corporation (NYCEDC) on behalf of NYC Parks, and would consist of rebuilding The Battery Wharf to an elevation intended to address tidal flooding impacts associated with projected sea level rise.

3.2.5 The Battery

As the flood alignment continues east from Pier A Plaza, it extends into the Battery Bikeway on the north side of The Battery. The flood alignment is comprised of a combination of flip-up deployables, an exposed floodwall, and a floodwall beneath a landscaped berm. In this segment, the DFE ranges from 15 to 18.5 feet, and the HOI ranges from 9.5 to 0 feet, as the alignment follows the increasing natural elevation at the east end of the Project alignment. This concept reconfigures the existing bikeway and requires the relocation of the Peter Caesar Alberti Marker monument situated along the south side of the Battery Place sidewalk. This monument would be relocated as close to the current location as possible to be consistent with the NYC Park's Monuments Plan.

Although the grades in this portion of the Project Area are being elevated to meet required DFEs, the circulation, landscape architecture, use of the bikeway, and a landscaped public park edge would remain. As the flood alignment continues east towards State Street, which is on naturally higher ground, the DFEs and HOIs start to descend, affected by existing contours and increased distance from the Hudson River shoreline. Once the flood alignment reaches high ground in the easternmost section of the Project Area, which naturally aligns with the DFE, it terminates.

The physical site security measures described in Section 3.2.4 (Pier A Plaza) above would terminate in this segment of the SBPCR Project at the exposed floodwall above the Battery Park Underpass in this segment of the SBPCR Project. This would include the 40-inch high barrier supplemented with bollards at stairs and access points as needed.

3.2.6 Interior Drainage Improvements

The existing sewer infrastructure crossing underneath the SBPCR Study Area would have to be isolated to preclude the coastal surge from entering the Study Area. To accomplish this, an interior drainage management system would be implemented that includes:

- Installation of tidegates: Tidegates would be installed at two (2) existing separate municipal storm sewer (MS4) overflows – one at 1st Place and the second at Rector Street. A third tidegate would be installed on the combined sewer overflow line at Pier A Plaza southeast of Pier A.
- Installation of isolation valves: Two (2) isolation valves would be installed in The Battery. One (1) valve would be installed at the 12-inch diameter storm drain that collects runoff from The Battery,

approximately 50-feet east of the Battery Park Underpass structure underneath The Battery. A sanitary sewer isolation valve would be installed just north of The Battery comfort station. The valves would remain in the open position during non-coastal storm events. In advance of a major coastal storm event, the valves would be closed to prevent coastal waters from surging through the stormwater drain and the sanitary lines connected to the comfort station.

- **Near Surface Isolation:** The Near Surface Isolation system would consist of the installation of a gate within the existing regulator structures, M9, M8, and M7, which would be closed in a flood event to prevent the storm surge rising through the interceptor line from reaching the street level. Additionally, four (4) interceptor manholes along West Street between Battery Place and Albany Street would be pressure proofed and retrofitted to receive a cover that can be sealed shut and locked during a flood event to resist the pressure resulting from the surge rising through the interceptor line and the piping connecting the manholes to the interceptor. All proposed interior drainage improvements are shown in **Figure 1-1**.

4 Content of the Draft Environmental Impact Statement

The SEQR Regulations set forth the minimum content that should be included in a DEIS. The subject areas to be included in the DEIS are described in Section 4.6 (Affected Environment and Environmental Impacts) below.

4.1 Cover Sheet and Table of Contents

The cover sheet will identify all required information contained in applicable SEQR regulations in 6 NYCRR 617.9(b)(3), including the descriptive title of the Project, location of the Project, the name, address, and telephone number of the lead agency and its contact person, contact information for the preparer of the DEIS, the date of acceptance of the DEIS by the Lead Agency, and the date by which comments must be submitted. The table of contents will follow the cover sheet.

4.2 Executive Summary

The executive summary will present a brief overview of the DEIS in an easily accessible format, including the most pertinent information from the technical analyses.

4.3 Description of the Proposed Action

This section will describe the Proposed Action, including the following elements:

- Project location and setting;
- Project description (including proposed elements, changes to site, acreage developed, etc.);
- Purpose and objectives;
- Public needs and benefits;
- Required public actions and approvals; and
- SEQR process and chronology.

This description will also address all aspects of site development with graphics (site plans, renderings, photographs, cross sections, and maps), such as:

- Site layout and design;
- Architectural design of the Wagner Park Pavilion and flood wall design elements in the context of the site and the buildings in the surrounding areas;
- Landscaping, lighting, and signage;
- Parking and loading areas for the Wagner Park Pavilion and Museum of Jewish Heritage;
- On-site traffic, pedestrian, and bicycling circulation;
- Utilities and stormwater management facilities;
- Site access;
- Specific uses to be included in the Proposed Action;
- Proposed hours of operation, including delivery times for the Wagner Park Pavilion; and
- Regulatory compliance, including zoning, permitting, and other approvals needed.

4.4 Reasonable Alternatives to the Proposed Action

Pursuant to 6 NYCRR Part 617, the DEIS must contain a description and evaluation of reasonable alternatives to the Proposed Action that would allow some or all of the adverse impacts to be avoided while generally satisfying BPCA's goals. Because of the unique characteristics of the Project Area and the agency jurisdictional boundaries within the Project Area, the Proposed Action was divided into five (5) sections for the purposes of evaluating alternatives. As the DEIS will analyze only the Proposed Action and the No Action Condition, the purpose of this section will be to identify other build alternatives that have been eliminated from further consideration.

4.4.1 No Action Condition

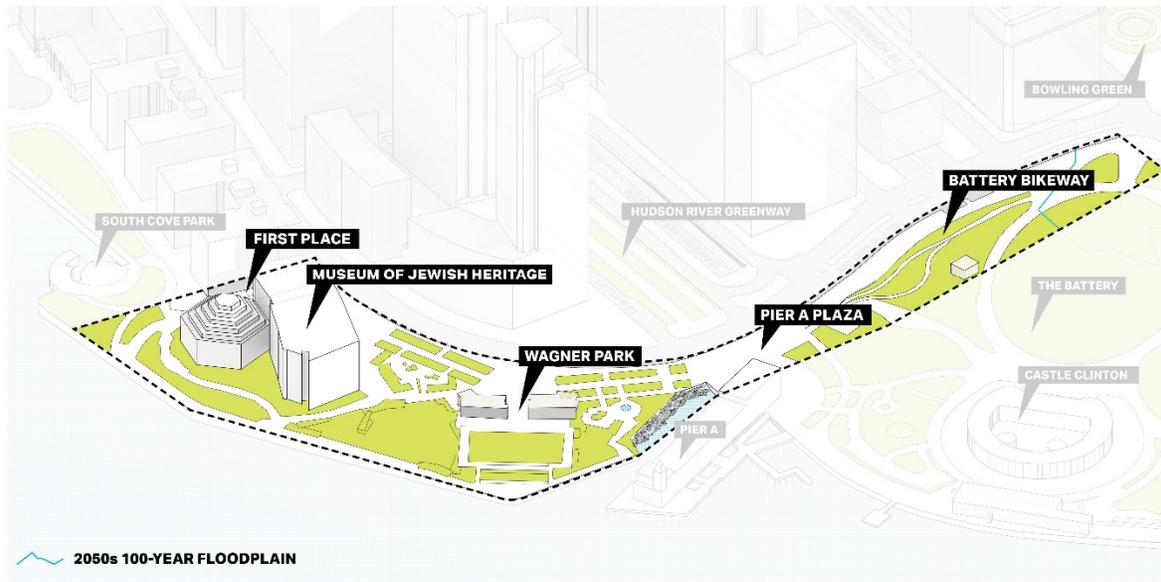
This section will include an evaluation of the potential impacts that would result by the build year if the Proposed Action was not undertaken. Within the Study Area, there are two (2) projects that will be constructed regardless of whether the SBPCR Project moves forward. These include The Battery Coastal Resilience Project (by NYCEDC) and the Battery Park Underpass and West Street Underpass Project (by NYCDOT).

4.4.2 Action Alternatives Considered

This section will identify alternatives considered for the five (5) segments of the Project Area, individually due to their differing characteristics, as well as interior drainage alternatives. These five (5) segments are shown in **Figure 4-1** and include:

- 1st Place;
- Museum of Jewish Heritage;
- Wagner Park;
- Pier A Plaza; and
- The Battery.

Figure 4-1: SBPCR Project Segments



4.4.3 1st Place

The area around 1st Place is under the jurisdiction of the BPCA, and the ROW of 1st Place itself is under the jurisdiction of NYCDOT. Due to the limited size of this section, the necessity for the Proposed Action to follow the 100-year floodplain contours, provide FEMA certification and to maintain emergency access and egress, only one alternative is feasible for 1st Place (as described in Section 3.2.1 (1st Place)).

4.4.4 Museum of Jewish Heritage

This segment runs along the landscaped courtyard of the Museum of Jewish Heritage, connecting with the southern end of the 1st Place segment. The park area around the Museum of Jewish Heritage is under the jurisdiction of the BPCA. The Museum of Jewish Heritage itself is owned and operated privately. Two alternatives were considered for this segment: Museum Alternative 1; and Museum Alternative 2.

Museum – Alternative 1

Museum Alternative 1 proposes a flood mitigation landscape integration on the water side of the Museum. The flood alignment would be integrated into the landscaped areas along the building but just outside of the building façade. The alignment would connect with the alignment at 1st Place and extend around the Museum of Jewish Heritage with a series of flip-up deployables and glass-topped floodwalls.

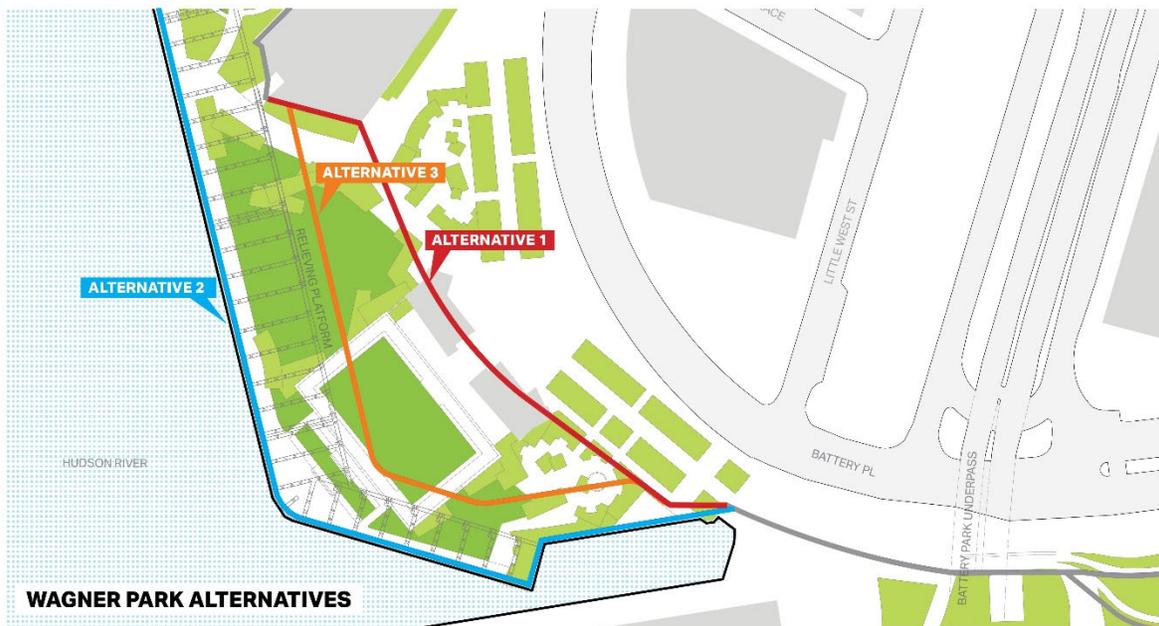
Museum - Alternative 2

Museum Alternative 2 proposes flood mitigation built into the façade of the Museum. This alternative would dry-floodproof the existing building. Existing windows and doors would be protected using deployable floodproof panels. To provide floodproofing, the existing cladding would be removed and replaced with a thickened wall section supported by the foundation of the existing building or supported on an independent pile foundation.

4.4.5 Wagner Park

Wagner Park is owned by and under the jurisdiction of the BPCA. Three (3) alternatives were considered for this segment of the Proposed Action (see **Figure 4-2**).

Figure 4-2: Wagner Park Alternatives



Wagner-Park - Alternative 1 (Inland Alternative)

Under Alternative 1 – Inland Alternative, as proposed in the 2017 South BPC Study, the flood alignment would be constructed furthest from the waterfront, and closer to Battery Place. The alignment in this location would bisect Wagner Park. The flood alignment was based upon on a target DFE of 16.5 feet and would require the installation of two (2) types of flood risk reduction systems: a recommended new pavilion designed to function as a barrier against storm surge, flanked by flip-up deployables stowed below ground in chambers that would measure approximately 26 feet deep and 25 feet wide. The freestanding supportive columns that would support the flip-up delpoyables would be designed as decorative elements for Wagner Park, and possibly incorporate other park amenities such as lighting or

charging stations for mobile devices. The new pavilion would have to be built at a height sufficient to act as a barrier to storm surge.

Wagner–Park - Alternative 2 (Waterfront Edge)

Under Alternative 2, the flood alignment would be constructed on the edge of the waterfront along the Battery Park City Esplanade. The DFE would be 21 feet to 24.5 feet (higher than Alternatives 1 and 3, as there is no intervening land to buffer the storm). This section of the Project Area has an existing relieving platform, which was constructed on piles when Battery Park City was built, as a support system for the Battery Park City Esplanade. The subsurface relieving platform coincides with a load-restricted zone of 750 pounds per square foot (psf). Two (2) options were considered for flood protection, an exposed floodwall and a flip-up deployable. In either option, the existing relieving platform would need to be reconstructed to support the additional load. Such reconstruction would also increase the elevation of the relieving platform to protect against future sea level rise.

Exposed Floodwall Option

An exposed floodwall option was considered for the waterfront edge. This option involved constructing an exposed floodwall along the waterfront, creating a permanent visual barrier, obstructing views to the harbor from within Wagner Park.

Flip-up Deployable Floodwall Option

A flip-up deployable option was also considered for the waterfront edge. The foundations for the flip-up deployables would be constructed on top of the existing relieving platform. As flip-up deployables are subject to mechanical and human error, this alternative would require a one-way lane for maintenance to allow emergency vehicles to raise the deployables in the event that they could not deploy mechanically. While the flip-up deployables would only be visible while deployed during a flood event or during maintenance, they would be supported by permanent square columns that measure approximately 12 feet high and a minimum of 5 feet-wide. These columns would be spaced 40 feet apart to support the deployables along the waterfront edge.

Wagner–Park - Alternative 3 (Buried Floodwall)

Under Alternative 3, a buried floodwall would be constructed beneath the park. The DFE would be 19.8 feet, the HOI would be 7.8 to 9.8 feet. Wagner Park would be raised 10 to 12 feet, thereby maximizing the amount of continuous lawn space, maintaining views to the waterfront, and preserving the elevation of the existing Battery Park City Esplanade. The buried floodwall also allows users to occupy the lawn, garden and public park as continuous open space, in contrast to a traditional exposed floodwall design that would effectively bisect the space. At the connection between Wagner Park and Pier A Plaza, the flood alignment would be resurfaced and exposed as a short segment of floodwall where it would meet the flip-up deployables being used through Pier A Plaza.

Pavilion Alternatives

For the Wagner Park Pavilion, three (3) alternatives were considered for replacing or maintaining the existing Pavilion that is located within the Park.

Alternative 1 – Elevated In-Place Pavilion

In order to meet the 19.8 foot DFE above the project datum for the 100-year storm, the existing Pavilion would need to be raised by over 10 feet from its existing elevation. Raising the Pavilion in-place to meet the new elevation would markedly hamper the flexibility and usability of the Park's waterside lawn area, as access to the Pavilion would require much of this area to be composed of significantly sloped surfaces, rising from the waterfront Esplanade elevation to the new elevated structure. This would significantly decrease the flat area of the park and reduce its functionality and appeal.

Alternative 2 – Elevated Inland Pavilion

The Project Team also evaluated the possibility of shifting the existing Pavilion further inland to accommodate the elevation of the Park. This option, if feasible, would have the dual benefits of both lessening the degree of slope required to connect the waterfront Esplanade to the Pavilion and maximizing the area of contiguous waterside lawn and garden space within the Park. However, moving the existing Pavilion presented a variety of risks related to engineering, safety, and cost. Additionally, moving the existing structure towards Battery Place would require modifications to the Park design including the allées; the staircases would intrude onto the public sidewalk; and ADA and universal accessibility requirements would be compromised.

Alternative 3 – New Pavilion

For this alternative, a new Pavilion was proposed. To accommodate the buried floodwall, the existing Pavilion would be replaced with a Pavilion in a manner that is sensitive to, and in overall harmony with, the elements of the 1995 Wagner Park design:

- Preserves views to the Statue of Liberty;
- Maintains views to the waterfront;
- Maintains a central gathering space; and
- Enhances procession from street to park level.

The location of the proposed Pavilion would be similar to the existing structure, but with a slightly smaller footprint and elevated approximately 11 to 12 feet above ground level, and set back closer to Battery Place.

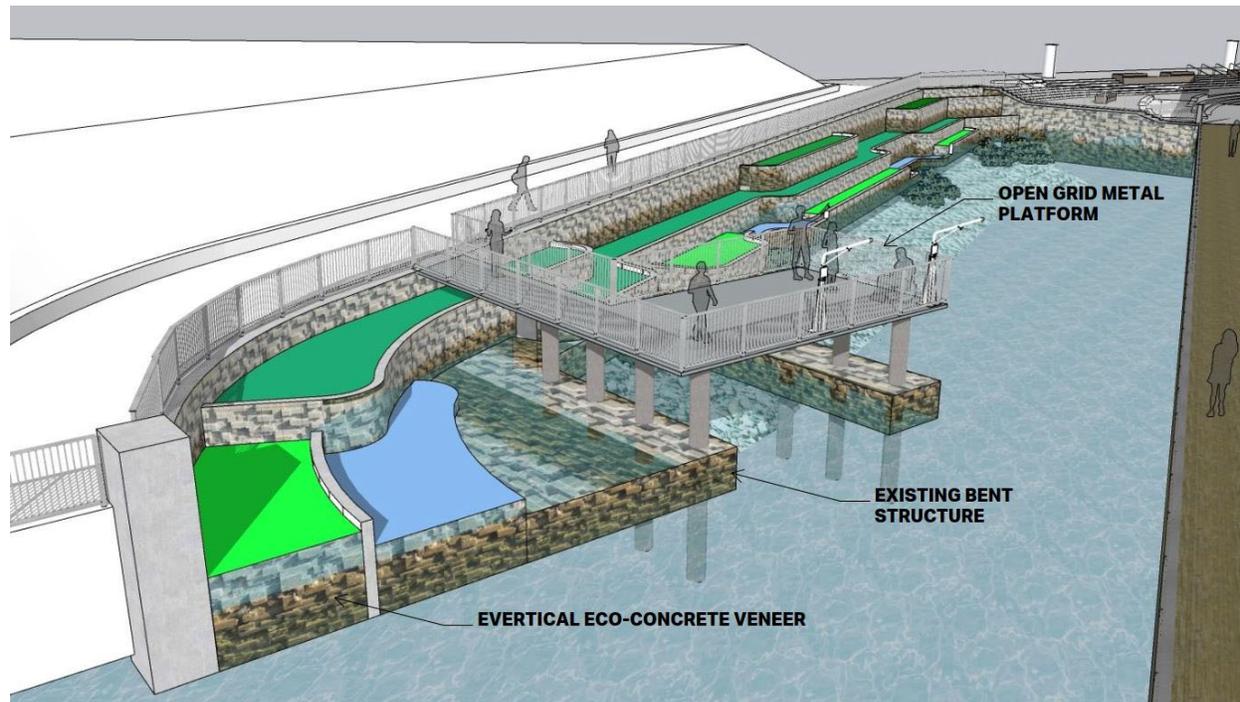
Pier A Inlet

Pier A inlet is the body of water between Wagner Park and Pier A Plaza. The shoreline along Wagner Park consists of approximately 225 feet of rip rap. Two options were considered to enhance the shoreline and improve the ecological habitat. The original design for the Pier A inlet consisted of a large, cantilevered

metal platform over the water. A ramp down and a lower observation platform would bring users closer to the water while incorporating bench seating on the bulkhead, shown in **Figure 4-3**. For the second option, the design team downsized the metal platform focusing on a smaller area where fill from the relieving platform could be removed and replaced with a metal grate so as to daylight the shoreline below the existing structure. Along the current rip-rap slope, the design team proposed a series of terraces to be activated by flood surges and tidal action throughout the life of the project. Three (3) distinct levels were proposed consisting of: tidal pools and habitat shelves made from an eco-enhanced concrete; a grass planting bed 5 feet above the water line and designed around flood inundation; and a shrub and tree planting bed adjacent to the new esplanade to provide shade and frame views of the area and adjacent sites, as shown in **Figure 4-4**.

Figure 4-3: Pier A Inlet – First Option



Figure 4-4: Pier A Inlet – Second Option

4.4.6 Pier A Plaza

Within this section, Pier A Plaza is under the jurisdiction of the BPCA, NYCSBS, and NYCEDC. Pier A Plaza is at the lowest elevation in the Project Area. Two (2) alternatives were evaluated for the Pier A Plaza.

Pier A Plaza – Alternative 1 (Deployable)

The existing grade of the Plaza is the lowest through the entire Project Area and therefore would require the tallest HOI. Alternative 1 would not disturb the existing condition, including the elevation and would preserve the existing design and aesthetic of the Plaza. The alignment would run along the upper Plaza closer to Battery Place and consist of flip-up deployables at the existing elevation. The flip-up deployables would be approximately 12.5 feet high and seal up against permanent columns that would be spaced approximately 60 feet apart.

For the segment connecting Wagner Park and Pier A Plaza, two (2) flood system technology options were evaluated: a horizontal sliding deployable gate and a free-standing floodwall.

- Horizontal sliding deployable gates – This technology consists of steel gates on wheels that could be stored behind a wall during non-storm conditions and then slid into place to provide a continuous barrier. This would require walls or columns on either side of the opening for the gate to seal against.
- Free-standing floodwall - A free-standing floodwall would consist of a solid wall that would serve as a barrier to storm surge and flooding.

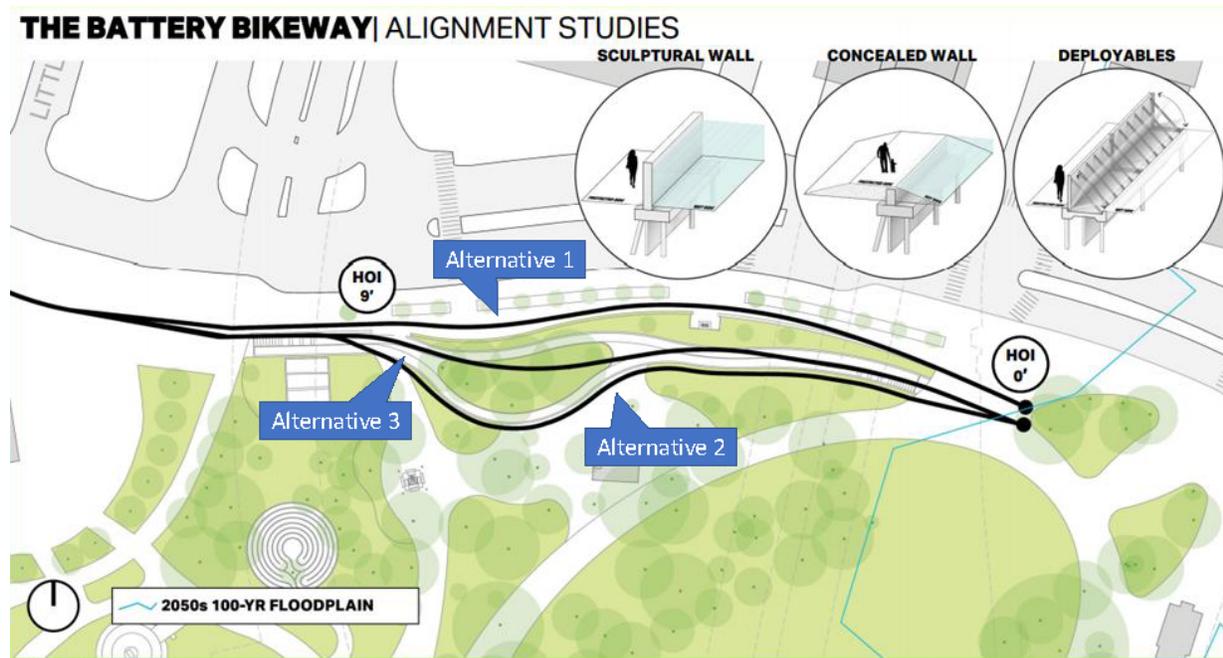
Pier A Plaza – Alternative 2

Alternative 2 is similar to Alternative 1 in terms of location of the alignment and the flood technologies considered. Alternative 2 includes an exposed floodwall for the short segment connecting to Wagner Park. It also includes flip-up deployables that seal up against permanent columns. However, this alternative varies from Alternative 1 by raising the grade of the northern portion of the Plaza by approximately four (4) feet placing the flip-up deployables on top of a raised platform. This alternative results in a two-level design that provides seating, bicycle and pedestrian connectivity to The Battery and universal access, while providing an additional dimension of flood protection. The creation of an elevated portion of the Plaza (the “Upper Plaza”) four (4) feet above the existing Plaza elevation allows the design to address frequent tidal flooding also referred to as nuisance flooding. Additionally, the two-level Plaza design allows The Battery Coastal Resilience Project to tie into the southeastern portion of the Plaza.

4.4.7 The Battery

The Battery is owned by the City of New York and under the jurisdiction of NYC Parks. The subsurface conditions in The Battery include the Battery Park Underpass of the FDR Drive, Brooklyn Battery Tunnel, MTA Subway lines for the 1 Train, the Bowling Green Subway Station for the 4 and the 5 Trains, as well as other utilities. Three (3) alternatives were evaluated for this segment as shown in **Figure 4-5**.

Figure 4-5: The Battery Alternatives



The Battery - Alternative 1

Alternative 1 considered a floodwall alignment within The Battery, located at the northern edge of the park area, parallel to Battery Place. This option evaluated using a combination of raised grade with deployables and floodwalls on top. The raised grade was intended to function to integrate areas of vegetation, access and seating.

The Battery - Alternative 2

Alternative 2 considered a floodwall alignment within The Battery that runs through the park area parallel to the southern bikeway. This was imagined as a freestanding sculptural wall that would weave through the site, to minimize impact to the existing park landscape and trees. This alignment requires minimal reconfiguration of the western end of the existing bikeway.

The Battery - Alternative 3

Alternative 3 considered placement of the flood alignment between the alignments for Alternatives 1 and 2. The flood alignment is comprised of a combination of flip-up deployables, exposed floodwall, and buried floodwall beneath a landscaped berm. This concept reconfigures the existing bikeway. The design of the flood alignment that transitions from Pier A Plaza through the northern side of The Battery had to account for a range of existing and complex subsurface infrastructure conditions. As a result of these conditions, the flood alignment across the northern portion of The Battery from west to east consists of an exposed concrete floodwall over the Battery Park Underpass. As the alignment moves further east the flood technologies include a flip-up deployable, a partially exposed floodwall, and a buried floodwall beneath a landscaped berm.

Three flood system technologies were evaluated to avoid impacts to the existing Battery Park Underpass tunnels:

- Free-standing floodwall - See definition in Section 4.4.2 (Action Alternatives Considered).
- Flip-up deployable gates on a raised concrete sill – Flip-up deployable gates would lay flat against the ground during non-storm conditions. The deployables would require permanent columns that would be spaced in-between each deployable segment. During a storm event, the deployables would be deployed to create a continuous wall. The deployables would be placed on a raised sill, similar to a raised platform to provide further protection from flooding.
- Horizontal sliding deployable gates – See definition in Section 4.4.2 (Action Alternatives Considered).

4.4.8 Interior Drainage Improvements

As described in Section 3.2.6 (Interior Drainage Improvements), interior drainage improvements are required to prevent storm surge from entering the Study Area. Two (2) alternatives were considered to manage storm surge through the interior drainage systems.

Interior Drainage – Alternative 1 (Interceptor Gate Chambers and Buildings)

For Alternative 1, two isolation gates (IG) in conjunction with the flood alignment were considered. Each IG would require construction of an underground chamber along the existing combined sewer interceptor, and an above-ground building to house mechanical equipment that controls operation of the underground interceptor gate. The underground chambers would be approximately 27 feet deep and have approximate dimensions of 24 feet by 22 feet. The above-ground buildings would be located within 200 feet of the underground chambers, and would be approximately 11 feet high, 12 feet wide, and 60 feet long. Pedestrian access would be maintained around the buildings.

Interior Drainage – Alternative 2 (Near Surface Isolation System)

Alternative 2 considered a NSI system to prevent storm surge from entering the Study Area. The NSI system would consist of the installation of a gate within the existing regulator structures, M9, M8, and M7, located along West Street between 1st Place and Albany Street, which would be closed in a flood event to prevent the storm surge from rising through the interceptor line and reaching street level. The regulator chambers access points at street level would be retrofitted with pressure tight covers. A sanitary overflow chamber on West Thames Street would be subject to the same access point pressure proofing. Additionally, four (4) interceptor manholes along West Street between Battery Place and Albany Street would be pressure proofed and retrofitted to receive a cover that can be sealed shut and locked during a flood event.

Other Interior Drainage Improvements

Additional interior draining improvements include tidegates and two isolation valves. Tidegates would be installed at two existing separate municipal storm sewer overflows, one at 1st Place and the second at Rector Street. The third tidegate would be installed on the combined sewer overflow line at Pier A Plaza. Additionally, two isolation valves would be installed at the Battery. The existing sewer infrastructure crossing underneath the SBPCR Study Area would have to be isolated to preclude the coastal surge from entering the Study Area.

4.5 Analysis Framework

This section will describe the framework for the DEIS technical analysis and identify the analysis year (2024) for the Proposed Action. The DEIS will document the affected environment and environmental impacts for future conditions with and without the Proposed Action for the following technical resources: land use, zoning and public policy, socioeconomic conditions, community facilities, open space, shadows, historic and cultural resources, urban design and visual resources, neighborhood character, natural resources, hazardous materials, water and sewer, solid waste and sanitation services, energy transportation, air quality, greenhouse gas emissions (GHG), noise and vibration, public health and construction. Both the long term (operational) and short term (construction) impacts will be evaluated for each technical resource.

Of the technical analyses that will be evaluated in the DEIS, socioeconomic conditions, community facilities and services, solid waste and sanitation services, and public health technical disciplines have

screened out and will not require detailed analysis in the DEIS. The following summarizes why each of those technical resources did not meet the criteria for a detailed analysis.

Socioeconomic Conditions

According to the *CEQR Technical Manual* there are six (6) guidelines for determining whether a socioeconomic assessment is required. They are related to the following:

- Displacement of residential population;
- Displacement of more than 100 employees;
- Business displacements;
- New development that is markedly different from existing land uses;
- New or improved retail development; and
- Effects on a specific industry.

As the Proposed Action requires no residential, employee or business displacements, includes no retail development, does not create land uses markedly different from existing conditions and does not affect a specific industry, no further socioeconomic assessment is required.

Community Facilities and Services

As the Proposed Action would not physically impact or displace any community resources, nor result in any increases in resident population, nor have any impact on public schools, healthcare facilities, publicly funded group early childhood programs, libraries or local police and fire facilities, no detailed assessment of community facilities is required.

Solid Waste and Sanitation Services

According to the *CEQR Technical Manual*, further analysis would be conducted if the project:

- Exceeds 50 tons per week or more of solid waste generation;
- Involves the construction, operation, or closing of any type of regulated solid waste management facility, New York City Department of Sanitation (DSNY) district garage, or borough repair shop;
or
- Involves a change to the public or private waste collection.

As operation of the Proposed Action does not meet any of these criteria, no further assessment is required.

Public Health

According to the *CEQR Technical Manual*, assessment of public health impacts would be required if there are significant unmitigated adverse impacts associated with the Proposed Action. Long term operation of the SBPCR Project would not have any unmitigated air quality, noise, hazardous materials or natural resource impacts, therefore, no further assessment is required.

4.6 Affected Environment and Environmental Impacts

4.6.1 Land Use, Zoning, and Public Policy

This section will examine the potential for the Proposed Action to impact land use, zoning and public policy. As recommended by the *CEQR Technical Manual*, a 400-foot Study Area from the proposed flood alignment will be used for the analysis. The analysis will describe land uses, zoning regulations, and applicable policies within the Study Area, and then will assess the potential land use impacts and compliance with zoning regulations and policies.

Land use refers to the activity that is occurring on land and within the structures that occupy it. Types of uses include residential, retail, commercial, industrial, vacant land, and parks. According to the *CEQR Technical Manual*, the appropriate study area for land use and zoning is related to the type and size of a proposed action, the location and context of the area that could be affected by the project, and other factors, such as natural and man-made geographic boundaries. Land uses in the Study Area will be determined through a review of New York City Department of City Planning (NYCDP) Primary Land Use Tax Lot Output (PLUTO) data (21v4).

The New York City Zoning Resolution (ZR) dictates the use, density and bulk of developments within the City. The ZR is divided into two parts: zoning text and zoning maps. The zoning text establishes the zoning districts within New York City and dictates the zoning regulations governing land uses and developments, while zoning maps show the boundaries of the City's zoning districts. Zoning designations in the Study Area will be determined through a review of New York City Department of Planning Zoning Map 12b (effective date March 20, 2013) and through a review of the City's online Zoning Resolution (as updated through January 6, 2021).

Various public policies can affect the allowable land uses on a project site. Officially adopted and promulgated public policies also describe the intended use applicable to an area or particular sites in the City. Some public policies have regulatory status, while others describe general goals that can help define the existing and future context of the land use and zoning of an area. Policies may also change over time to reflect the evolving needs of the City, as determined by appointed and elected officials and the public. The DEIS will include an analysis of the No Action and Proposed Action's impact of land use, zoning and public policies.

4.6.2 Open Space

This section will examine the potential for the Proposed Action to impact open space directly or indirectly in the Study Area by reducing or changing open space. According to the *CEQR Technical Manual*, open space is defined as "publicly or privately owned land that is publicly accessible and available for leisure, play, or sport, or is set aside for the protection and/or enhancement of the natural environment." Public open space is available "to the public on a constant and regular basis, including for designated daily periods." Examples of public open space in the Study Area include, but are not limited to, City parks, Wagner Park, the Battery Park City Esplanade, and waterfront piers with passive or active recreational

uses. Private open space is “not publicly accessible or is available only to limited users and is not available to the public on a regular or constant basis.”

Direct effects include those in which a project reduces or limits access to open space. In addition, a direct effect could occur “if the facilities within an open space would be so changed that the open space no longer serves the same user population.” Indirect effects could result from projects that generate residential or commercial population, and that additional population “overtaxes the capacity of existing open space so that their service provided to existing and future populations in the area would be substantially or noticeably diminished.”

The purpose of the assessment is to determine if the Proposed Action would have a direct effect on open space. The assessment would analyze if the Proposed Action would result in a physical loss of public open space either by encroaching or displacing open space; change the use of an open space so that it can no longer serve the same user population; limit public access to an open space; or cause increased noise, air pollutants, odor or shadows on public open space that would affect its function, usability or enjoyment, on a permanent or temporary basis.

4.6.3 Shadows

This section examines the potential for the Proposed Action to produce incremental shadows long enough to cover all or portions of publicly-accessible sunlight-sensitive resources. Public open spaces, architectural resources, natural resources, and greenstreets are resources that depend on sunlight either for their enjoyment or to maintain their natural condition. The incremental shadow is the additional, or added, shadow cast onto a sunlight-sensitive resource by the Proposed Action. A significant adverse impact of this incremental shadow is determined if it “falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public’s use of the resource or threatening the viability of vegetation or other resources.”

The *CEQR Technical Manual* outlines a tiered screening assessment designed to identify sunlight-sensitive resources within the study area, measure the incremental shadows on the sunlight-sensitive resources added by the Proposed Action, and determine the impacts of those incremental shadows. A shadow assessment is required for projects that would “either (a) result in new structures (or additions to existing structures including the addition to rooftop mechanical equipment) of 50 feet or more or (b) be located adjacent to, or across the street from, a sunlight sensitive resource.” The Tier 1 screening assessment involves mapping the sunlight-sensitive resources within the longest shadow area, which “encompasses the site of the Proposed Action and a perimeter around the site’s boundary with a radius equal to the longest shadow that could be cast by the proposed structure, which is 4.3 times the height of the structure and occurs on December 21, the winter solstice.”

If there are sunlight-sensitive resources within this longest shadow study area, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the path of the sun in the northern hemisphere. The Tier 2 screening assessment assesses sunlight-sensitive resources determined to be within the longest shadow study area and within the path of the sun in the

northern hemisphere. Within the northern hemisphere, the path of the sun will not cast shadows in a triangular area south of any project; and the specific areas in New York City where no shadows can be cast “lie between -108 and +108 degrees from true north.”

A Tier 3 screening assessment should be conducted only for projects in which all or a portion of a sunlight-sensitive resource is within the longest shadow study area and outside the triangular area south of the project that will not experience shadows. The Tier 3 screening assessment further refines the area that could be reached by project shadows by looking at specific representative days in each season and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text. The DEIS will include a detailed analysis of the No Action and Proposed Action’s impact on shadows.

4.6.4 Historic and Cultural Resources

This section examines the potential for the Proposed Action to impact historical and cultural resources with the Study Area. The historical and cultural resources analysis will be prepared in accordance with the SEQRA and Section 14.09 of the New York State Historic Preservation Act (SHPA) (Section 14.09). In addition, because a federal permit will be sought from the USACE for the proposed improvements in Pier A inlet, the project must also comply with Section 106 of the National Historic Preservation Act (NHPA). The USACE Section 106 review will be limited to the effects of the Pier A inlet improvements, while the Section 14.09 review will consider the entirety of the Proposed Action.

Section 14.09 of the SHPA of 1980 was established as a counterpart to the federal NHPA of 1966, and declares historic preservation to be the public policy of, and in the public interest of, the state. The SHPA created the State Register, the official list of resources significant in the history, architecture, archeology or culture of the state, its communities, or the nation. The act requires State agencies to consult with the commissioner of NYS Office of Parks, Recreation, and Historic Preservation (OPRHP) if it appears that any project which is being planned may or will cause any change, beneficial or adverse, in the quality of any historic, architectural, archeological or cultural property that is listed on the National Register or property listed on the State Register or that is determined by the commissioner to be eligible for listing on the State Register of Historic Places. It requires State agencies, to the fullest extent practicable, consistent with other provisions of the law, to avoid or mitigate adverse impacts to such properties, to fully explore all feasible and prudent alternatives and to give due consideration to feasible and prudent plans which would avoid or mitigate adverse impacts to such property. It establishes agency preservation officers for the purpose of implementing these provisions.

A required step in the Section 106 process is the identification of the Area of Potential Effect (APE). Section 106 defines the APE as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if such properties exist” (36 CFR § 800.16[d]). The APE is influenced by the scale and nature of an undertaking and may vary for different kinds of effects caused by the undertaking. Archaeological and historic architectural APEs have been delineated to take into account potential direct effects of the proposed action on archaeological resources, and potential direct and indirect effects of the proposed flood control system on historic architectural resources.

Archaeological Resources

Archaeological resources are concerned with direct effects caused by subsurface disturbances to previously undisturbed soils or minimally disturbed soils associated with the execution of project actions. The Archaeological APE includes two components: the horizontal APE, which is the footprint of proposed ground disturbance; and the vertical APE, which is considered as the depth to which the proposed ground disturbance is anticipated to extend.

The proposed actions for the SBPCR Project include alterations to 1st Place, Wagner Park, Pier A Plaza, the area traversed by the Battery Bikeway in the northern portion of The Battery, and along West Street, namely through installation of the utility relocations and drainage improvements. The project actions would create varying levels of ground disturbance, each of which could directly impact potential archaeological resources. As part of the DEIS analysis, a Phase 1A Archaeological Study will be conducted to determine the potential effects on archaeological resources caused by subsurface disturbance. The DEIS will include an analysis of the No Action and Proposed Action’s impact to archaeological resources.

Architectural Resources

The historic architectural APE for the SBPCR Project includes all areas where the action may cause changes to land or structures and their uses, including the area of ground disturbance caused by the action, and locations from which elements of the undertaking may be visible. The Project Area includes both parkland and a dense urban fabric, which includes historic and contemporary commercial and residential buildings. The historic architectural APE forms a 400-foot buffer around the Project Area and flood alignment.

According to *CEQR Technical Manual* guidelines, historic resources study areas are generally defined as the project site plus a 400-foot radius around the Proposed Action site. Therefore, the 400-foot APE is adequate to take into account potential direct effects of the proposed flood alignment, extends through the southern portion of Battery Park City, spanning from existing high points near 1st Place and the Museum of Jewish Heritage, through Wagner Park and abutting Pier A Plaza, and along the north side the Battery Bikeway in The Battery, to the higher ground near the intersection of Battery Place and State Street. It also takes into account the proposed location of the interior drainage improvements, including the near surface isolation system along West Street between Battery Place and Albany Street, the tide gates on Rector Street and 1st Place in Battery Park City, and outside Battery Park City at Pier A Plaza; and an isolation valve in The Battery, south of the flood alignment along West Street. The proposed APE also takes into account indirect visual effects, premised upon the concept that views toward the Statue of

Liberty, and New York Harbor, would be preserved. Twenty-six (26) architectural resources have been identified within the architectural APE. The DEIS will include an analysis of the No Action and Proposed Action's impact on architectural resources.

4.6.5 Urban Design and Visual Resources

This section examines the potential for the Proposed Action to impact urban design and cultural resources with the Study Area. Based on *CEQR Technical Manual* guidance, the urban design and visual analysis considers a 400-foot Study Area around the Project Area where the Proposed Action would most likely be visible and affect the pedestrian experience and the viewsheds of aesthetic and visual resources. Due to the dense urban environment of Lower Manhattan, the Project Area is generally not visible from longer distances. However, this analysis will consider longer views from the Project Area to surrounding visual resources that are beyond the Study Area, primarily the Statue of Liberty National Monument. This analysis will address the urban design and visual resources of the Study Area for existing conditions, the no action condition, and the future with the Proposed Action. To prepare this analysis, information will be collected through field visits, visually sensitive locations and viewer groups will be identified, and duration of views will be assessed to determine any potential effects.

In compliance with NYSDEC guidelines, aesthetic resources will be identified, and a visual assessment will be conducted. Utilizing visual modeling techniques, the conditions that would be present for the Proposed Action will be assessed as to their relative visual effects from specific viewpoints and distances. This modeling will be conducted to provide some indication as to whether any specific viewpoint might be associated with obvious positive or negative visual effects.

In assessing the significance of a visual resource impact, key considerations include "whether the project obstructs important visual resources and whether such obstruction would be permanent, seasonal, or temporary; how many viewers would be affected; whether the view is unique or do similar views exist; or whether it can be seen from many other locations." According to the *CEQR Technical Manual*, a detailed analysis would be required if the preliminary assessment shows that changes to the pedestrian environment could be significant and adverse. This determination would happen if the following was determined:

- When the project partially or totally blocks a view corridor or a natural or built visual resource, and that resource is rare in the area or considered a defining feature of the neighborhood; or
- When the project changes urban design elements so that the context of a natural or built visual resource is altered.

The DEIS will include an analysis of the No Action and Proposed Action's impact on urban design and visual resources.

4.6.6 Neighborhood Character

This section examines the potential for the Proposed Action to impact the neighborhood character within the Study Area. Under the *CEQR* guidance, neighborhood character assessments consider how elements

of the environment combine to create the context and feeling of a neighborhood and how a Proposed Action may affect that context and feeling. To determine a Proposed Action's effects on neighborhood character, the elements that contribute to a neighborhood's context and feeling are considered together. As defined by the *CEQR Technical Manual*, neighborhood character is considered to be a combination of the various elements that give a neighborhood its distinct "personality." These elements may include a neighborhood's land use, urban design, visual resources, historic resources, socioeconomics, traffic, and/or noise.

An assessment of neighborhood character is generally recommended when a Proposed Action has the potential to result in significant adverse impacts in any, or moderate effects on several, of the following technical areas that define a neighborhood's character: land use, zoning, and public policy; socioeconomic conditions; open space; historic and cultural resources; urban design and visual resources; shadows; transportation; and noise. A "moderate" effect is generally defined as an effect considered reasonably close to the significant adverse impact threshold for a particular technical analysis area. When considered together, there are elements that may have the potential to significantly affect neighborhood character.

Since many of the relevant components of neighborhood character are considered in other sections of this DEIS, this section will be coordinated with those analyses. The DEIS will include an analysis of the No Action and Proposed Action's impact on neighborhood character.

4.6.7 Natural Resources

The assessment of Natural Resources includes ground water, soils, geologic features, natural and human-created aquatic and terrestrial habitats, and areas used by wildlife. This assessment will be undertaken in accordance with SEQRA and the *CEQR Technical Manual*.

The natural resources assessment will document the existing conditions or presence of the following: terrestrial ecosystems, aquatic ecosystems, habitats, wetlands, submerged aquatic vegetation, water quality, essential fish habitat and threatened and endangered species. Evaluation of the identified resources will determine if any resources will be significantly impacted, and if so, mitigation to minimize those impacts will be identified. The DEIS will include an analysis of the No Action and Proposed Action's impact on natural resources.

4.6.8 Hazardous Materials

The section examines the potential for environmental concerns associated with construction of the Proposed Action. A Phase I Environmental Site Assessment (ESA) and a Phase II Limited Site Investigation (SI) were conducted to assist in the initial evaluation of potential environmental concerns associated with the Proposed Action. The scope of these evaluations included the work associated with construction of the flood alignment, from the Museum of Jewish Heritage, through Wagner Park, across Pier A Plaza, and along the northern border of The Battery. The Phase I ESA was conducted in accordance with the scope and limitations of ASTM Standard Practice Designation E 1527-13 for ESAs. The Phase II Site investigation was performed in accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation

(DER-10). The DEIS will include an analysis of the No Action and Proposed Action's impact on hazardous materials.

4.6.9 Water and Sewer Infrastructure

This section assesses the potential for the Proposed Action to impact the infrastructure, treatment and demand for sewer and water service in the Study Area. The section provides an overview of the sewer and water service areas where the project is located, as well as the potential for the Proposed Action's impact on the physical components or the treatment/demands on these sewer and water systems. Since the Proposed Action is located within an area of the City that is served by a combined sewer system, the potential for effects on stormwater drainage are also discussed. The *CEQR Technical Manual* indicates significant effects on water and sewer infrastructure would be expected when an action results in physical changes to the infrastructure or in situations where an action will increase demands for these services or affects treatment capacities. As the Proposed Action includes changes to the drainage infrastructure, the DEIS will include an analysis of the No Action and Proposed Action's impact on water and sewer infrastructure.

4.6.10 Energy

This section examines the potential for energy impacts from the Proposed Action on existing utility infrastructure in the Study Area. According to the *CEQR Technical Manual*, the analysis of energy "focuses on a project's consumption of energy and, where relevant, potential effects on the transmission of energy that may result from the project. The assessment evaluates energy sources typically used in a project's operation (HVAC, lighting, etc.) and includes electricity, fossil fuels (oil, coal, gas, etc.), nuclear power, hydroelectric power, and occasionally, miscellaneous fuels like wood, solid waste, and other combustible materials." The purpose of the analysis is to determine if the Proposed Action would result in a significant impact on energy supply and to ensure the City's power supply and transmission systems have the capacity to meet future demand. The DEIS will include an analysis of the No Action and Proposed Action's impact on energy infrastructure.

4.6.11 Transportation

This section examines the potential for impacts to the transportation operations including traffic, parking, transit and pedestrian facilities during the operation of the Proposed Action. According to the *CEQR Technical Manual*, interrelationships between the key technical areas of the transportation system – Traffic, Parking, Transit, and Pedestrians – should be taken into account in any assessment. Furthermore, the individual technical areas should be separately assessed to determine whether a project has the potential to adversely and significantly affect a specific area of the transportation system. The *CEQR Technical Manual* states that a preliminary trip generation assessment should be prepared to determine whether a quantified analysis of any technical areas of the transportation system is necessary. Except in unusual circumstances, a further quantified analysis would typically not be needed for a technical area if the proposed development would result in fewer than the following increments:

- 50 peak hour vehicle trips;
- 200 peak hour subway/rail or bus transit riders; or
- 200 peak hour pedestrian trips.

The *CEQR Technical Manual* also states that if the threshold for traffic is not surpassed, it is likely that further parking assessment is also not needed.

In its post-construction, fully operational phase, the Proposed Action is not expected to generate the minimum CEQR threshold of vehicular, transit and pedestrian volumes, and parking demand that would require detailed analyses. A Transportation Planning Assumptions (TPA) Memorandum documenting the assumptions regarding the proposed Traffic, Parking, Pedestrian and Transit assessment during the permanent, post-construction state of the proposed flood resiliency measures (i.e., During Operations) was prepared and submitted to NYCDOT on October 16, 2020. It was concluded in the TPA memo that no detailed Traffic, Parking, Pedestrian or Transit analyses would be required for the operational condition. NYCDOT concurred with these findings and conclusions.

Accordingly, no transportation analyses will be required for the operational phase, and no significant adverse impacts to transportation resources are expected to occur during deployment or operations of the proposed flood resiliency measures.

4.6.12 Air Quality

This section examines the potential for air quality impacts from long term operation of the Proposed Action. The air quality assessment determines if the Proposed Action affects ambient air quality, which is the quality of the surrounding air.

Pollutant sources that could affect air quality include mobile and stationary sources. Mobile sources are related to vehicular traffic or other moving sources, such as vehicles, airplanes, trains, or boats. Mobile sources are generally linked to projects that add vehicles to an area or “change traffic patterns by diverting vehicles.” Long-term operation of the Proposed Action will not generate mobile sources, therefore no analysis will be required. Stationary sources are pollutants that are fixed in a location and can include “exhaust stack(s) used for the heating, hot water, ventilation, and air conditioning (HVAC) systems of a building” amongst other manufacturing or industrial processes.

It is standard practice to utilize National Ambient Air Quality Standards (NAAQS) to measure the effects of pollutant sources in ambient air. In order to protect public health and welfare from the adverse effects associated with pollutants in the ambient air, as required under the Clean Air Act (CAA) (42 USC § 7401 et seq.), the United States Environmental Protection Agency (USEPA) has established NAAQS for seven contaminants, referred to as criteria pollutants (40 Code of Federal Regulations (CFR) part 50). The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter with diameters up to 10 µm (PM₁₀), particulate matter with diameters up to 2.5 µm (PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). The criteria pollutants of primary concern related to the SBPCR Project are vehicle and/or construction equipment-related CO, PM₁₀ and PM_{2.5}, and O₃ precursors (nitrogen oxides (NO_x) and volatile organic compounds (VOCs)).

The CAA requires geographic areas to be designated according to their ability to attain the NAAQS, and these areas are categorized for each criteria pollutant as:

- Attainment Area – Areas where no exceedance of NAAQS for a specific criteria pollutant occurred.
- Nonattainment Area – Areas where exceedance of NAAQS for a specific criteria pollutant occurred.
- Maintenance Area – Areas that have previously been designated as a nonattainment area but are still in need of efforts to maintain the improved conditions in the future. Most of the CAA rules for nonattainment areas are still applicable to a maintenance area.

If an area is designated as nonattainment for a criteria pollutant under the NAAQS, state governments must develop a State Implementation Plan (SIP) and implement control plans to reduce the emission level of that pollutant.

For stationary sources, an air quality impact screening analysis will be conducted to assess the potential effects of HVAC systems at the new pavilion. This screening assessment will include a comparison of the HVAC system screening threshold charts included in the *CEQR Technical Manual*. It is anticipated that a detailed impact modeling analysis will not be warranted. The DEIS will include an analysis of the No Action and Proposed Action's impact on air quality.

4.6.13 Greenhouse Gas Emissions and Climate Change

This section evaluates the greenhouse gas (GHG) emissions that would be generated by the Proposed Action and its consistency with the citywide and statewide GHG reduction goals under PlaNYC, New York City's long-term sustainability program, and the new state law, Climate Leadership and Community Protection Act (CLCPA), signed in July 2019.

GHG emissions are gas emissions that trap heat in the atmosphere. Under Section 202(a) of the Clean Air Act (CAA), the USEPA has recognized potential risks to public health or welfare and signed endangerment findings regarding GHG emissions. These findings reveal that the current and projected concentrations of six key, well-mixed GHG emissions in the atmosphere, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), threaten the public health and welfare of current and future generations. The dominant GHG gas emitted by manmade sources is CO₂, mostly from fossil fuel combustion.

According to CEQR, climate change is projected to have wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be felt at the local level.

According to the *CEQR Technical Manual*, although the contribution of a Proposed Action's GHG emissions to global GHG emissions is likely to be considered insignificant when measured against the scale and magnitude of global climate, it should still be analyzed to determine a project's consistency with the City's citywide GHG reduction goal "... of reducing citywide GHG emissions by 30 percent below 2005 levels by

2030.” This is currently the most appropriate standard by which to analyze a project under CEQR. The SBPCR Project would include one replacement pavilion building totaling no more than 10,000 square feet, well under the 350,000 square foot threshold requiring further GHG analysis. Therefore, the GHG consistency assessment will be qualitatively performed in the DEIS.

4.6.14 Noise and Vibration

This chapter examines the potential for noise and vibration from the operation of the Proposed Action to impact nearby sensitive receptors in the vicinity of the Study Area. In accordance with the *CEQR Technical Manual*, a noise and vibration assessment will be conducted to assess the potential for impacts during operation of the flip-up deployables.

The noise assessment will include a monitoring program to document baseline noise levels at the closest noise-sensitive receptors and a screening analysis to evaluate the potential for noise effects during operation of the flood gates. The DEIS will include an analysis of the No Action and Proposed Action’s long term (operational) impact on noise and vibration.

4.6.15 Construction

An assessment of the construction activities on the following resources will be conducted including a screening assessment of transportation, air quality, noise, open space, socioeconomic conditions, community facilities, land use and public policy, neighborhood character, historic and cultural resources, hazardous materials, natural resources, and water and sewer infrastructure. A preliminary assessment is conducted when construction activities are anticipated to be long-term, more than two years or when short term construction activities would directly impact a technical resource. The Proposed Action is anticipated to have a 24-month construction schedule and a preliminary assessment will be conducted.

The preliminary assessment will evaluate the Proposed Action’s construction activities impact on the above-mentioned technical resources. A detailed assessment is anticipated for transportation, air quality, noise and vibration. The detailed assessment methodology is summarized in the following sections.

Transportation

Since construction of the Proposed Action will exceed two (2) years, a screening assessment of Construction traffic was performed to determine if detailed traffic analyses “*During Construction*” will be required. The assessment included an estimation of additional construction-related vehicle trips that would be generated on the roadway system as a result of construction activities during the peak construction phase. Based on estimates of preliminary manpower distribution over the construction duration, the peak month of construction activity was determined. The “*During Construction*” traffic impact assessment was performed for a typical weekday during the peak construction month.

The result of the screening assessment is intended to indicate whether or not 50 or more vehicular trips are expected to occur at any intersection – the threshold for detailed analyses. If the threshold is not met, no further analysis of traffic during construction will be needed. If the threshold is met or exceeded,

detailed traffic analyses during construction may be required. Based on the Level 1 screening assessment described above, it was determined that the traffic volume threshold of 50 vehicles per hour will not be met or exceeded at any intersection during the AM peak arrival and PM peak departure hours during construction.

A Transportation Screening Assessment “During Construction” was prepared that supplements the October 2020 TPA memo. This assessment presents the results of a screening assessment that was performed to determine if detailed transportation analyses may be required During Construction. On March 19, 2021, NYCDOT agreed with this finding and conclusion that detailed traffic, parking, transit or pedestrian analyses during construction were not required for the Proposed Action.

Maintenance and Protection of Traffic (MPT) plans during construction will be prepared and submitted to NYCDOT, Office of Construction Management and Coordination (OCMC) for review and approval. These plans will identify any short-term lane closures and other measures such as temporary consolidation and/or relocation of bus stops and parking regulation changes that may be needed during construction. The Contractor will be responsible for implementing these OCMC-approved temporary measures during construction.

Air Quality

The construction of the Proposed Action is expected to span slightly over two years and the major tasks are expected to occur in close proximity to one another such that there is the potential for air quality impacts to nearby sensitive receptors. Therefore, a quantitative air quality impact assessment will be conducted.

On-site construction activities are considered stationary source activities. Because these activities would occur over multiple years between 2022 and 2024, the reasonable worst-case periods for the pollutants of concern (PM, CO, NO₂) will be determined throughout the duration of construction on an ‘annual average’ and a ‘peak day’ basis for PM_{2.5}. PM_{2.5} was selected for determining the worst-case periods, because the ratio of predicted PM_{2.5} incremental concentrations due to construction activities is higher than for other pollutants. Therefore, estimates of PM_{2.5} emissions throughout the construction years will be used for determining the worst-case periods for the analysis of all pollutants.

The types and number of units of construction equipment will be identified based on the construction activity schedule established for the Proposed Action. Emission factors for NO_x, CO, PM₁₀, and PM_{2.5} from on-site construction engines from both nonroad equipment and trucks will be estimated using the latest EPA’s Motor Vehicle Emission Simulator (Version MOVES2014b) associated with default New York County model input parameters provided by the NYSDEC. Fugitive dust emissions from construction operations (e.g., excavation, grading, and transferring of excavated materials into dump trucks) will be estimated based on EPA procedures provided in AP-42 Sections 13.2.1 and 13.2.2.

The refined dispersion model (the EPA/AMS AERMOD dispersion model) will be used to predict the reasonable worst-case condition of PM, CO, and NO₂ concentrations during the construction period at

the sensitive receptors located within the 400-foot radius impact area of the main construction sites located within the Study Area.

The highest predicted concentrations will be compared with the National Ambient Air Quality Standards (NAAQS) and the NYC *de minimis* thresholds particularly for PM_{2.5} as shown below:

- Predicted increase of more than half the difference between the background concentration and the 24-hour NAAQS; and
- Annual average PM_{2.5} concentration increments which are predicted to be greater than 0.3 µg/m³ at a discrete receptor location (elevated or ground level).

If the worst-case results show exceedances, the next level of annual and/or short-term period activities would be considered in the modeling in order to determine the duration and magnitude of potential impacts.

Noise and Vibration

Construction noise will be assessed using the prediction methods outlined in the Federal Highway Administration's (FHWA) Highway Construction Noise Handbook and codified in the FHWA Roadway Construction Noise Model (RCNM). The *CEQR Technical Manual* guidelines utilize the same construction equipment reference noise levels as the FHWA RCNM. These references include maximum noise emission levels (Lmax) and equipment usage factors, which are then used to predict Leq(1) noise levels at a given distance. As set forth in Chapter 22 of the *CEQR Technical Manual*, an assessment of noise from construction activities is warranted for the following reasons:

- The duration of the Proposed Action is expected to last longer than two years; and,
- Several noise-sensitive receptors are located near the proposed construction activities.

The Proposed Action is scheduled to take place during a time span of over two years for all stages of construction. Additionally, all of the major tasks are expected to occur in proximity to sensitive receptors. Therefore, a quantitative construction noise assessment will be conducted in accordance with *CEQR Technical Manual* Chapters 19 and 22 as well as the Rules of New York City Chapter 28. In accordance with *CEQR Technical Manual* Chapter 19, Section 410, operational noise criteria of 3-5 dBA over the No Action noise level were applied to all noise-sensitive receptors. This allowable increase in noise is based on the future cumulative hourly noise level (L_{eq(1)}) threshold of 65 dBA whereby:

- 5 dBA increase – No-Action levels are less than or equal to 60 dBA
- 4 dBA increase – No-Action levels are equal to 61 dBA
- 3 dBA increase – No-Action levels are greater than or equal to 62 dBA

Therefore, since the measured noise levels as part of the Existing Condition (or "No Action") are expected to be well above 65 dBA due to local traffic, project impacts during temporary daytime construction activities would be evaluated based on a 3 dBA change above existing [CEQR Chapter 19 Section 410]. No construction activities are proposed during the nighttime period (10:00 pm and 7:00 am).

Open Space

The impacts of construction on open space will be assessed. The purpose of the assessment is to determine if the Proposed Action would have a direct or indirect impact on open space during construction. The assessment would assess if construction the Proposed Action would result in a physical loss of public open space either by encroaching or displacing open space; change the use of an open space so that it can no longer serve the same user population; limit public access to an open space; or cause increased noise, air pollutants, odor or shadows on public open space that would affect its function, usability or enjoyment, on a permanent or temporary basis. In addition, the assessment would measure the change in the amount of open space available as a result of the Proposed Action compared to the No Action Condition. The *CEQR Technical Manual* states that the benchmark open space ratio for New York City is 2.5 acres of open space for every 1,000 residents. With the limitations of the urban environment throughout New York City, this open space ratio is considered a benchmark, not an “impact threshold.” In addition to open space ratio benchmarks, the *CEQR Technical Manual* provides an additional criterion of the percent decrease in the open space ratio from the No Action Condition to Proposed Action scenarios. For areas in which the existing open space ratio is 2.01 acres or greater, a decrease in open space ratio that “approaches or exceeds 5 percent” would be considered “a substantial change.” The DEIS will include an analysis of the No Action and Proposed Action’s direct and indirect impact on open space.

4.6.16 Unavoidable Adverse Impacts

This section will describe those impacts, if any, that could not be avoided and could not be practicably mitigated.

4.6.17 Growth Inducing Aspects of the Proposed Action

This section will focus on whether the Proposed Action has the potential to induce new development within the surrounding area.

4.6.18 Irreversible and Irretrievable Commitments of Resources

This section will focus on those resources, such as energy and construction materials, that would be irretrievably committed if the project is built.

4.7 Mitigation

If the Proposed Action would result in a significant adverse impact to any of the above referenced resources, measures will be identified and assessed to minimize the impacts. If any impacts cannot be mitigated, they will be identified as unavoidable adverse impacts. All proposed mitigation measures will be discussed in the DEIS.

5 Additional DEIS Contents

The SEQR regulations (6 NYCRR 617.9) establish the elements that must be contained in a DEIS. In addition to those discussed above, the following elements will be included in the DEIS.

5.1 References

The complete list of the reference documents used to prepare the technical sections and perform the analysis will be included in this section.

5.2 List of Acronyms

A list of acronyms referenced in the DEIS will be included in this section.

5.3 Appendices

Appendices will include all technical reports, project related correspondence and relevant forms and other documentation as appropriate.

APPENDIX A

Comments on Draft Scoping Document and Responses

South Battery Park City Resiliency Project

Appendix A

Comments on Draft Scoping Document and Responses

Battery Park City Authority (BPCA) released the Draft Scoping Document for the South Battery Park City Resiliency Project (the SBPCR Project) to the public on October 1, 2021. The public comment period was open until October 29, 2021. Written comments were accepted via email and mail and members of the public were able to provide oral comments at the public Scoping Meeting held on October 13, 2021. BPCA has considered all of the comments received on the Draft Scoping Document. This appendix summarizes and provides responses to the substantive written and oral comments received on the Draft Scoping Document.

The comments received on the Draft Scoping Document and responses are organized into the following sections:

- **Section 1: Responses to Public Comments**

The Responses to Public Comments section contains summaries of the substantive comments received from the public and the responses to those comments. Comments are organized by subject matter. When more than one commenter provided a similar comment, these comments were grouped and addressed together. In total, 5 commenters provided 16 comments. This section also includes a table with a list of commenters that identifies the comment/response numbers associated with the submitted comments.

- **Section 2: Responses to Agency Comments**

The Responses to Agency Comments section contains the summaries of the substantive comments received from the agencies and the responses to those comments. Comments are organized by agency. In total two agencies provided comments, New York City Parks and Landmarks Preservation Commission. The comments are summarized in Section 2 and the full comments are included in the appendix.

South Battery Park City Resiliency Project
Section 1: Responses to Public Comments
List of Commenters

Name	Date Comment Received	Comment/Response Number
Blank, Alice – Vice Chair of the Community Board 1 and head of the Environmental Protection Committee	10/13/2021 Oral Comments	C1-1, C4-1, C5-1, C10-1, C10-2, C12-1, C12-2,
Cuccia, Justine Battery Park City Committee Chair	10/13/2021 Oral Comments	C7-1, C8-1
Elkin, Jacob, Sabin Center for Climate Change Law	10/27/2021 Letter	C3-2
Meltzer, Tammy	10/13/2021 Oral Comments	C2-1
Schneck, Bob	10/13/2021 Oral Comments	C3-1, C6-1, C8-2, C9-1, C11-1

South Battery Park City Resiliency Project

Section 1: Responses to Public Comments

ALTERNATIVES

- C1-1 Commenter asked about the reasonable alternatives to the Proposed Action and when they would be available for review.
- R1-1 Section 4.4 of the Final Scoping Document describes the various alternatives that were identified and eliminated from further consideration. As noted in Section 4.4 of the Final Scoping Document, the DEIS will analyze only the Proposed Action and the No Action Condition. The DEIS will be published in May 2022.

BICYCLE AND PEDESTRIAN CIRCULATION

- C2-1 Commentor asked how the project was planning to address the needs of the bicyclists and pedestrians at the intersection of Battery Place and Little West Street and how traffic and transit impacts would be assessed.
- R2-1 The DEIS will assess potential transportation impacts during construction and operations, including impacts to bicyclists, pedestrians, traffic and transit.

CLIMATE CHANGE AND SEA LEVEL RISE MODELING

- C3-1 Commenter asked how adjacent resiliency projects are analyzed and their potential impact on each other. Commentor additionally questioned whether the various projects are designed to meet the same standards and modeling for storm surge and sea level rise.
- R3-1 Although the various resiliency projects in Lower Manhattan will ultimately connect to one another to provide complete protection to Lower Manhattan, the SBPCR Project is intended to independently protect the Project Area.
- C3-2 Commenter recommends that BPCA assess the climate-related risks facing Battery Park City for the expected life of the SBPCR Project in order to fully capture the benefits for enhanced resiliency in the area.
- R3-2 The SBPCR Project's primary goal is risk reduction in the southern extremes of Battery Park City. This would be accomplished through implementation of integrated flood risk measures, while meeting the design criteria for a 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge and predicted sea level rise. While the SBPCR Project would provide immediate risk reduction for the 100-year storm, it would also provide ready adaptability to the DFE for the 2050 100-year storm at such time as the North/West BPC Resiliency Project is constructed and a tie-in between the two systems is created. The detailed analysis requested by the commentor to assess the climate risks facing South Battery Park City for the expected life of the Project is beyond the scope of the review required under the New York State Environmental Quality Review (SEQR) and City Environmental Quality Review (CEQR) for this Project.

Section 1: Responses to Public Comments
South Battery Park City Resiliency Project

CONSULTANT TEAM

C4-1 Commenter asked who prepared the Draft Scoping Document and the EIS .

R4-1 The environmental documents, including the Draft and Final Scoping Documents and the Environmental Impact Statement, are being prepared by AECOM on behalf of BPCA.

PROJECT DESIGN – GREEN INFRASTRUCTURE

C5-1 Commenters asked to provide Community Board 1 with the details of the green infrastructure, NYC Department Environmental Protection (NYCDEP) programming, the stormwater management, Waterfront Edge Design Guidelines (WEDG) certification, solar conditions, the geothermal loop, the high efficiency materials in the Pavilion building, and the living shoreline.

R5-1 The details of the stormwater management, green infrastructure including WEDG certification, solar infrastructure, the geothermal loop, the living shoreline and the high-efficiency materials incorporated into the Project design will be detailed in the DEIS. The DEIS will be available for public review and comment in May 2022.

PROJECT DESIGN – INTERIOR DRAINAGE

C6-1 Commenter asked if the interceptor gate building had been shifted off of the Esplanade or the Grand Walk along West Street.

R6-1 The interceptor gates and associated buildings are no longer part of the proposed interior drainage design. The details of the stormwater drainage, including Near Surface Isolation system, are described in Section 3.2.6 of the Final Scoping Document and the potential environmental impacts will be analyzed in the DEIS.

PROJECT DESIGN – THE BATTERY

C7-1 Commenters asked about the final design for The Battery, including the wall proposed through The Battery.

R7-1 Renderings of The Battery and bermed floodwall that runs through the northern edge of The Battery will be included in the DEIS.

PROJECT DESIGN – WAGNER PARK PAVILION

C8-1 Commenters requested final renderings of the Wagner Park Pavilion.

R8-1 Section 3.2.3 of the Final Scoping Document provides a rendering of the proposed Wagner Park Pavilion. This section also describes details of the building, including the proposed energy improvements and sustainable design elements. The DEIS will include renderings of

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the final designs for Wagner Park and the Pavilion and will assess the visual impacts arising from the Proposed Project.

- C8-2 Commenter asked whether the standard chosen for the Pavilion meets the requirements of the New York State energy conservation code and the New York City energy conservation code.
- R8-2 The design of the proposed pavilion targets International Living Future Institute (ILFI) Zero Carbon certification, which requires reduction of operational and embodied carbon. In addition, the SBPCR Project is being designed to exceed the ILFI target of 25 percent reduction of energy use intensity (EUI). The Pavilion building will meet all applicable building code requirements. More details on the Wagner Park Pavilion infrastructure and energy standards will be provided in the DEIS. The DEIS will be published in May 2022.

PROJECT FUNDING

- C9-1 Commenter asked if the comprehensive budget would be available to the public for this project as well as for the adjacent resiliency projects.
- R9-1 The budget for the SBPCR Project is not included in the DEIS, nor is the budget for the adjacent resiliency projects.

PUBLIC ENGAGEMENT

- C10-1 Commenter asked when the next meeting will be held and if it could be held at CB1.
- R10-1 Once the DEIS is published, there will be an opportunity for public review and comment, including a public hearing on the DEIS. The public hearing is scheduled for May 19, 2022, at 6 PM and will be held virtually.
- C10-2 The commenter suggested having better coordination with the Environmental Protection Committee meetings at Community Board 1, to encourage greater public participation.
- R10-2 Commented noted.

REGIONAL PROJECT COORDINATION

- C11-1 Commenter asked if similar resiliency measures were being evaluated north of New York City towards Ossining and along the New Jersey coast.
- R11-2 Evaluating the broader environmental and engineering issues along the Hudson River and across to New Jersey are beyond the scope of work for this Project.

SCOPING MEETING LOGISTICS

- C12-1 Commenter asked for clarification on what the public was being asked to comment on during the Scoping Meeting.

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- R12-1 The purpose of the Scoping Meeting was to provide an opportunity for the public to review and comment on the Draft Scoping Document for the South Battery Park City Resiliency Project, which was made available to the public on the BPCA website.
- C12-2 Commenter asked how many people attended the Scoping Meeting.
- R12-2 29 members of the public attended the virtual Scoping Meeting.

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Section 2: NYC Parks, NYC LPC Comments

COMMENTS FROM NYC PARKS

- CA1 The scope mentions direct effects but presents a scope for assessing indirect effects. The assessment of the EIS chapter should focus on the potential for direct effect on open space in the study area to occur as a result of the proposed project. Potential impacts from the construction activities in the park should be discussed here as well.
- RA1 The Final Scoping Document has been updated to include scope for both direct and indirect effects (see Section 4.6.2. Construction) and direct impacts will be discussed in the DEIS.
- CA2 Similar to section 4.6.2, the Construction section should include a discussion of the extent and duration of the construction and assess the potential for impacts to open space as a result (both temporary and permanent).
- RA2 The impact on open space during construction and after Project completion will be discussed in the DEIS.
- CA3 The Battery is owned by the City of New York and is under the jurisdiction of NYC Parks.
- RA3 The Final Scoping Document has been revised accordingly.

COMMENTS FROM NYC LANDMARKS PRESERVATION COMMISSION

- CA4 The LPC is in receipt of the Scope of Work for EIS dated September, 2021. The document appears acceptable for historic and cultural resources.
- RA4 Comment noted.