

ES.0 Executive Summary

ES.0.1 Introduction

Climate change-induced sea level rise accompanied by more frequent, intense storm events and tidal surges pose a significant risk to coastal communities both now and in the future and in 2012 Superstorm Sandy and the resulting significant property damage and community impacts underscored the need for protection against coastal storm events in the New York City area. In response to these risks, the North/West Battery Park City Resiliency (NWBPCR) Project (the Proposed Project) has been proposed by the Battery Park City Authority (BPCA) for the purpose of implementing coastal protection against future severe storms for Battery Park City and adjoining upland areas. It is the purpose of the Proposed Project to establish a flood protection system comprised of a combination of floodwalls and deployable gates, along with drainage infrastructure improvements, that are designed to Federal Emergency Management Agency (FEMA) standards for flood protection, taking into consideration projections of sea level rise, while retaining community character and design features, minimizing community impacts, and, where possible, providing targeted urban design and open space enhancements. Moreover, this proposal is part of a broader integrated coastal flood risk management system proposed for Lower Manhattan comprised of several interconnecting projects that together are designed to reduce the vulnerability of Lower Manhattan to coastal flood events.

Since the Proposed Project is a major capital improvement project that is approximately 7,900 linear feet in length, it has been designed in reaches with assigned designations that extend between North Moore Street on the north (Reach 1) and South Cove on the south (Reach 7). In addition to providing organization to the design process, these reach designations were also used to organize the stakeholder/community engagement outreach and the analyses contained in this Draft Environmental Impact Statement (DEIS). At its southern end, the Proposed Project has been designed to connect with the South Battery Park City Resiliency Project (SBPCR Project) at approximately 1st Place. That project is currently projected to be completed in spring 2025. Assuming all required approvals are issued, the projected project construction duration is expected to begin construction in July 2025 and end in December 2030 for a total duration of 60 months.

BPCA, as the project sponsor is the Lead Agency for fulfilling the requirements of State Environmental Quality Review Act (SEQRA) and the analyses provided in this DEIS have been prepared to address the potential impacts of the Proposed Project in accordance with the methodologies of the Final Scope of Work to prepare a DEIS (see **Appendix A**) and the requirements and guidance of both SEQRA and City Environmental Quality Review (CEQR) procedures using the technical guidelines for impact analyses provided in the *CEQR Technical Manual* (2021).

ES.0.2 Purpose and Need for the Proposed Project

Many coastal communities like Battery Park City and the inland neighborhoods of Lower Manhattan face the significant challenge of identifying measures to address the current and future project community

impacts from both more frequent and intensive storm events and tidal surges while simultaneously prioritizing strategies that preserve and minimize impacts to urban design and community character.

The principal purposes of the Proposed Project are therefore to:

- Provide a reliable coastal flood barrier system that addresses the potential flooding impacts of the design storm event and reduces flood risk to residents, property, and assets within Battery Park City;
- Preserve, enhance, and protect to the maximum extent practicable the open spaces and waterfront cultural resources of Battery Park City;
- Preserve and enhance to the greatest extent possible the character, accessibility, including universal access, and design aesthetic of the neighborhood and its interface with the Battery Park City waterfront with access to coastal view sheds, particularly views of the Hudson River, New York Harbor, and the Statue of Liberty; and
- Avoid or minimize disruption to existing below and above-ground infrastructure (i.e., water and sewer infrastructure, tunnels, utilities, etc.) from both construction impacts and flood events.

Specific design objectives of the Proposed Project are to:

- Provide a reliable and adaptable coastal flood barrier system that minimizes flood risk by relying on passive flood control rather than operational interventions and mechanical “deployable” flood barrier systems;
- Reduce urban heat island effect and enhance outdoor thermal safety;
- Construct and operate the Proposed Project in an environmentally responsible manner; and
- Utilize cost-effective low-impact solutions to maximize capital investment over the lifespan of the Proposed Project.

The proposed design approach to addressing these goals is a flood barrier system that: (1) is integrated into the public space/realm with accompanying urban design and open space enhancements; and (2) meets the design criteria for a 2050s 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise of 2.5 feet (consistent with design parameters for other Lower Manhattan Coastal Resiliency [LMCR] projects).

It is BPCA’s objective that once installed the flood barrier system is accredited by FEMA which requires a final review of as-built plans and verification that the flood barrier system meets all pertinent requirements that can provide risk reduction. Once approved, FEMA accreditation would remove the protected area from the currently mapped flood zone and property owners in the area, including those who have a federally backed mortgage, would no longer be required to have federal flood insurance.

ES.0.3 Environmental Review Process

Implementing the Proposed Project requires a number of federal, state, and local discretionary approvals and those that may affect the environment are subject to review under SEQRA. It is the primary objective of SEQRA to disclose the potential significant impacts of a proposed project or action, measure necessary to mitigate those impacts and the alternatives considered. Since this project is proposed by BPCA, it will serve as the Lead Agency in this process and lead the preparation of the environmental impact statement (EIS) pursuant to SEQRA, and its implementing regulations at 6 NYCRR Part 617, using analysis guidelines established through the *CEQR Technical Manual*.

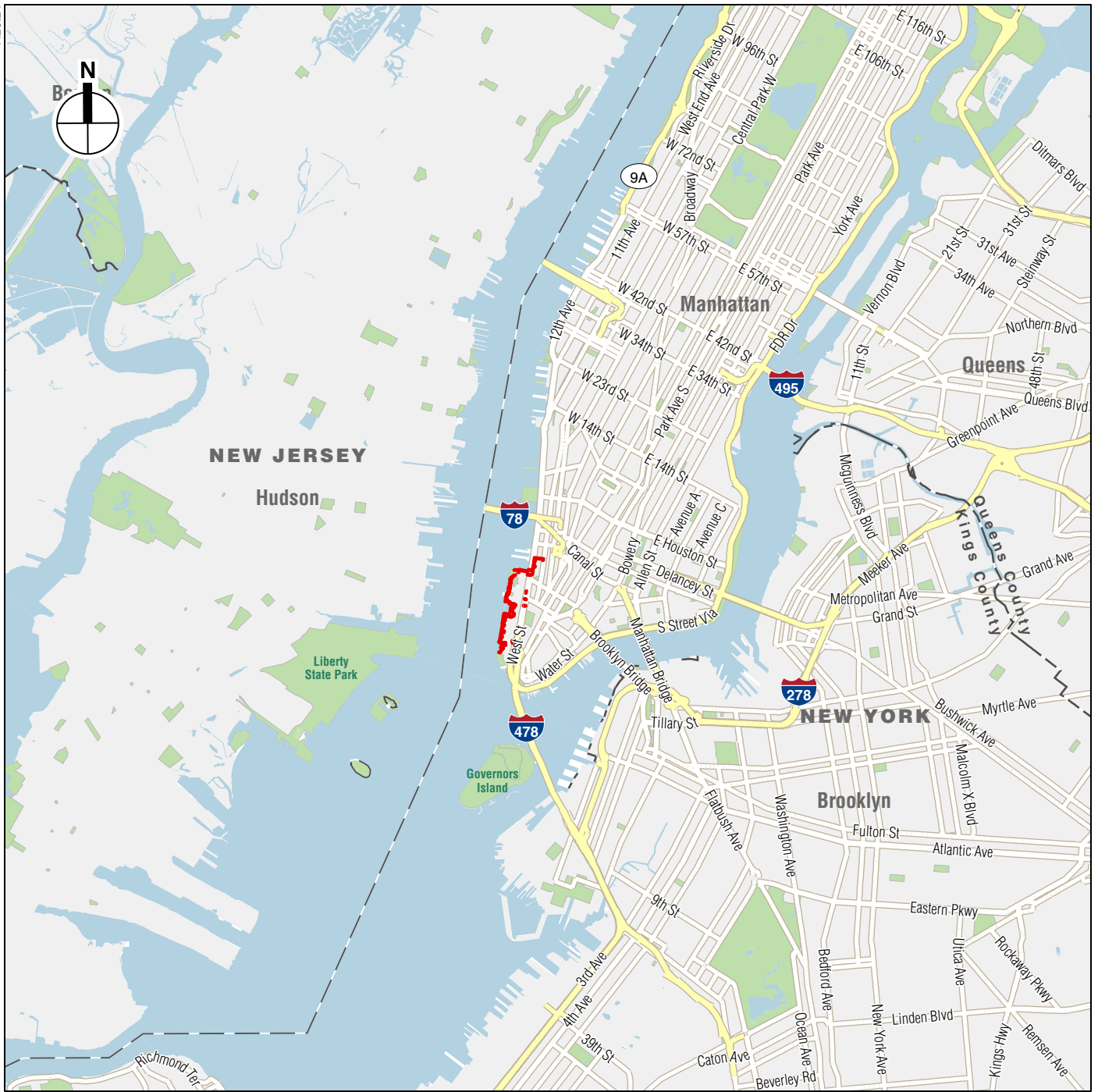
To develop a framework for the content and analysis of the DEIS, a Draft Scope of Work (DSOW) for the DEIS was published on October 19, 2022, with a public hearing held on November 16, 2022 and the period for submitting written comments remained open through December 31, 2022. A Final Scope of Work, which reflects public comments made on the DSOW is provided in Appendix A to this DEIS. Analyses in this DEIS are based upon the Final Scope of Work.

ES.0.3.1 Proposed Project Area

The Proposed Project area is along the west side of Lower Manhattan and involves the installation of a flood barrier system between North Moore Street on the north and 1st Place on the south (see **Figure S-1**). The Project Area includes the proposed flood barrier system, along with areas of grading and landscaping along the 7,900 linear foot alignment. As previously stated, the Project Area was organized during the project design phase into seven reaches (see Figure 1-4 and descriptions below). Beginning at the northern inland “tie-back” on North Moore Street just west of Greenwich Street in Tribeca (Reach 1) the proposed flood barrier system alignment extends along the south side of North Moore Street, turning south on Route 9A/West Street with a connection across Harrison Street and then crossing Route 9A/West Street before entering Battery Park City at the North Esplanade (Reach 2). From here, the alignment continues west along the North Esplanade before turning south through the Battery Park City North Neighborhood (Reach 3) and running parallel to and along the west side of River Terrace. The alignment continues southward along the waterfront (Reach 4) heading toward North Cove where it extends east, south, and west around North Cove (Reach 5) before turning southward and running parallel to and along the upper walkway and street ends at Albany, Rector Place and West Thames Streets (Reach 6). The southern terminus of the system is designed is aligned east and then south along the upland interior of South Cove (Reach 7) to complete the system and connect with the SBPCR Project at approximately 1st Place. Vertically, the foundations and supporting piles for the proposed flood barrier system are expected to extend as much as 50 to 90 feet below the existing surface grade.

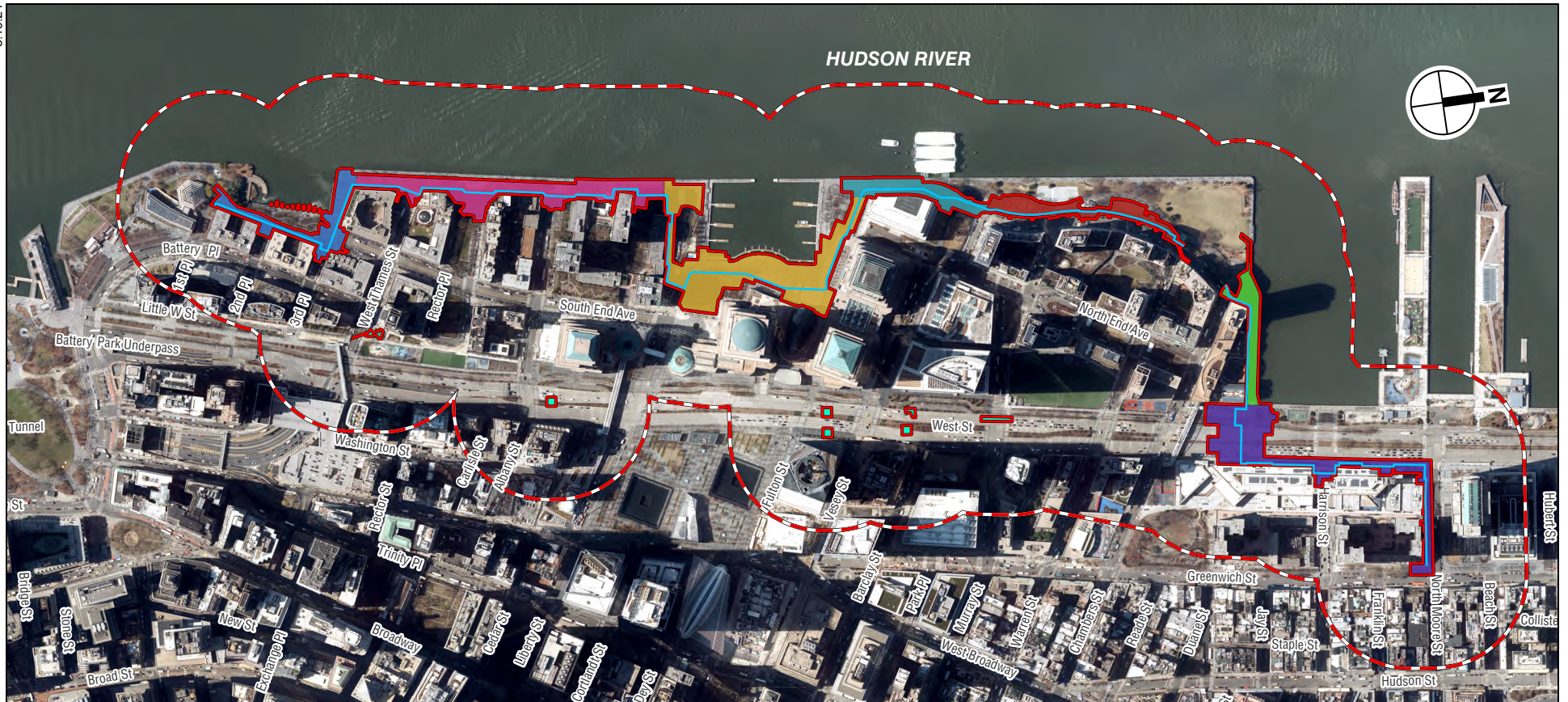
ES.0.3.2 Reach-by-Reach Area Descriptions

For the purposes of design development, structuring the stakeholder/community engagement outreach process and the DEIS impact analyses, the Project Area is organized into the seven (7) following reaches that are each named for their primary features including (see **Figure S-2**):



 Project Area

0 2 MILES



- | | |
|---|--|
|  Project Area |  Reach 4 - Lily Pond and Ferry Terminal |
|  Study Area (400-foot perimeter) |  Reach 5 - North Cove |
|  Flood Barrier System |  Reach 6 - South Esplanade |
|  Reach 1 - North Moore Street and West Street |  Reach 7 - South Cove |
|  Reach 2 - North Esplanade |  Interior Drainage Elements |
|  Reach 3 - Rockefeller Park and Playground | |

0 1,000 FEET

Project Area and Reaches
Figure S-2

- Reach 1 – Route 9A/Tribeca;
- Reach 2 – North Esplanade;
- Reach 3 – North Neighborhood/Rockefeller Park;
- Reach 4 – Ferry Terminal;
- Reach 5 – Brookfield Place;
- Reach 6 – South Esplanade; and
- Reach 7 – South Neighborhood

ES.0.3.3 Proposed Project Design Elements

This section describes the key design elements of the Proposed Project, with a reach-by-reach description of the proposed flood barrier system elements and interior drainage improvement measures.

ES.0.3.4 Design Flood Elevation

A coastal modeling report was prepared as the basis for determining the Design Flood Elevation (DFE) for the flood protection system. This modeling considered both elevated surface water elevations in the Hudson River during a coastal storm event as well as wind direction and the resulting height and angle of wave impacts. Given the length of the Proposed Project (approximately 7,900 linear feet) there are ranges of predicted wave height along the length of the proposed flood barrier system that determine the DFEs proposed in different reaches and at different points along the project alignment.

ES.0.3.5 Flood Barrier System Elements

Barrier and Gate Structures

The proposed flood barrier is comprised of passive floodwalls and deployable floodgates, both of which have above- and below-grade (foundational) elements. The proposed deployable flood barrier elements are comprised of flip-up-gates, roller gates, swing gates, and stop logs. Deployable systems involve either manual deployment prior to a storm event, which requires a minimum of approximately 8 feet of clearance, or mechanical deployment (e.g., the Route 9A/West Street gate crossing) which requires approximately 35 feet of clearance.

In-Water Elements

Several segments of the Proposed Project require deeper foundation pile supports that extend to bedrock (i.e., 50 to 90 feet below the ground surface). In addition, during design storm event surge the elevated water levels of the Hudson River are expected to result in a temporary elevation of inland groundwater, which would then recede after the storm event. Therefore, the Proposed Project also includes a seepage barrier to avoid adverse impacts on properties in the protected area from these storm-induced elevated groundwater levels, while also allowing groundwater to continue to naturally flow to the Hudson River under the more prevalent non-storm condition. The proposed seepage barrier is comprised of a

combination of steel sheeting supported by foundation piles within a low permeability soil mix that together would minimize flow inland and under the barrier during storm surge conditions. The Proposed Project is also considering in-water ecological enhancements that include supporting habitat on piles and in-water infrastructure.

ES.0.3.6 Proposed Flood Barrier System Design

The Proposed Project's flood barrier system, infrastructure upgrades and drainage improvements are described below for each reach.

Reach 1 – Route 9A/Tribeca

In this reach, the Proposed Project provides flood protection through a combination of passive and deployable structures with a “tie-back” that extends east along North Moore Street up to Greenwich Street. This reach also requires property use coordination with the New York City Department of Transportation (NYCDOT) and New York State Department of Transportation (NYSDOT), Hudson River Park Trust (HRPT), and the Borough of Manhattan Community College (BMCC).

Beginning at the northern inland “tie-back” on North Moore Street just west of Greenwich Street in Tribeca the proposed flood barrier system alignment extends along the south side of North Moore Street. At the intersection of Route 9A/West Street and North Moore Street, the alignment turns south and extends along in the east sidewalk (parallel to Route 9A/West Street) as it follows an alignment southward parallel to the BMCC property. At Harrison Street, the proposed alignment turns around the corner of the BMCC North building for a short distance with a swing gate crossing at Harrison Street. From here, the alignment then turns back west toward Route 9A/West Street (parallel to the BMCC South building) and at Route 9A/West Street it turns south and continues along the east side of Route 9A/West Street. At a point approximately opposite the Battery Park City North Esplanade, the proposed alignment turns west across Route 9A/West Street and the flood barrier system here is a large, deployable flip-up gate that is stored below the street grade (this is a deployable gate that is activated during a design storm event). The alignment then continues west where a swing gate is proposed at the crossing of the Hudson River Greenway. As part of the Proposed Project, all areas affected by construction outside of the proposed structure are to be restored with minor grade changes required to address transitions at the proposed flood barrier system structure.

As described above, in this reach there are segments of the Proposed Project along the public sidewalk that require minor reductions in sidewalk widths along North Moore, and Harrison Streets and Route 9A/West Street, to install the proposed flood barrier system as well as a planting buffer between the wall and sidewalk. With the Proposed Project, the sidewalk widths along North Moore Street, Route 9A/West Street, and Harrison Street would therefore be slightly reduced. NYSDOT has established a consistent urban design aesthetic within its ROW in the use of stainless-steel security bollards, decorative pavement, stone walls and street trees. The NYSDOT right-of-way (ROW) includes the bikeway/walkway, road, medians, and sidewalk to the east of the roadway. To the degree that the proposed project affects these features, they will be restored to their pre-construction conditions.

Trees proposed for removal in this segment are located along North Moore Street and Route 9A/West Street. Street trees are to be replaced in coordination with a New York City Department of Parks and Recreation (NYC Parks)-approved tree replacement plan, and restitution guidelines (see Section 1.3.9, below). Benches and other pedestrian amenities are to be replaced in their approximate existing locations as the updated design allows.

Drainage improvements proposed in Reach 1 include installing two below-grade slide gates within the existing combined sewer to prevent storm surge waters from backflowing into the protected area. One of these slide gates is proposed in the northbound lane of Route 9A/West Street just north of Chambers Street and the other in Harrison Street. Drainage improvements also include a Proprietary Treatment Device (PTD) for treating stormwater runoff with the removal of sediment and heavy pollutants. Tree pits to collect and percolate sidewalk drainage are also proposed.

Drainage improvements in Reach 1 also include the relocation of the existing 114-by-50-inch combined sewer overflow (CSO) and tide gate structure to allow the flood barrier system wall to bridge over the historic bulkhead near Stuyvesant High School and to provide added space for the proposed pump station (see the description below). It is important to note that only the existing CSO pipe is being relocated, not the outfall structure at the bulkhead. In addition, an overflow pipe for the BMCC parking lot is proposed to allow runoff to be rerouted south along Route 9A/West Street and into the proposed pump station.

Reach 2 – North Esplanade

This reach extends along the North Esplanade open space of BPC, west of the Hudson River Greenway and along the north façade of Stuyvesant High School and as the alignment approaches Reach 3, it turns southward just outside Tribeca Pointe’s western façade. In this reach, the design objective is to integrate the flood barrier system into a reconstructed Esplanade while maintaining and enhancing its important function as a connection between Hudson River Park and Rockefeller Park in north Battery Park City. To that end, the flood barrier system design is integrated into a terraced garden landscape treatment. The North Esplanade is also to be rebuilt at an elevation that varies from +12.5 feet at the eastern end, +15 feet toward the center, and +10 feet at the western end as a transition to the grade at Rockefeller Park.

As part of this reconstruction, it is also proposed to widen the North Esplanade by six feet. Widening this already narrow reach would provide additional deck area that is structurally supported to allow for future upgrades and adaptability of the flood barrier system, should that be needed. The widened platform is designed to provide a primary circulation space that is a minimum of at least 20 feet wide and in addition to accommodating emergency and maintenance vehicles, also provides for a separation of circulation space for cyclists and pedestrians in a more immersive experience at the water’s edge with added seating opportunities in a landscaped setting. Both the upper and lower circulation zones are separated and screened by a series of raised planters with lush vegetation. On the east where the Esplanade connects with the bulkhead, a gradual curve in the deck is introduced to enhance the transition zone with the Hudson River Park esplanade and on the west at Rockefeller Park, the existing plaza area is to be reconstructed with raised planting beds and new seating oriented along the water’s edge.

Access to the Stuyvesant High School building entrance/exit points is maintained under the proposed design through the use of deployable gates (specifically, the east doors and north emergency doors). While the Tribeca Pointe Apartment's main access is not affected by the flood barrier system, a roller gate is proposed to preserve access to the building's basement doors.

Plantings within the limit of work in this reach would be limited to replacement landscaping integrated to the design.

Drainage improvements proposed in Reach 2 include new catch basins and trench drains to capture stormwater runoff within the new platform and a PTD system to treat stormwater runoff prior to discharge to the Hudson River.

Reach 3 – North Neighborhood/Rockefeller Park

In Reach 3, the Proposed Project design is comprised of a passive structure that generally follows the existing retaining stone walls where Rockefeller Park meets River Terrace. It is a key project design objective to minimize impacts on Rockefeller Park with its large recreational lawn, the south meadow, the Esplanade, the terrace and its sculptures. To achieve this goal the floodwall is aligned along the existing wall at a height ranging from 3.5 feet above grade on the sidewalk side near the ball courts, to 4.75 feet on the sidewalk side near the playground, only 1 to 2 feet taller than the existing stone wall that is approximately at 2.75 feet above ground from the sidewalk side. Between Warren Street and the Irish Hunger Memorial area, it is proposed to remove the above ground portions of the existing stone wall and grading over the below-ground portion to create a new planting strip with the new floodwall aligned along a 3-foot offset to the west. This strategy allows the Proposed Project to protect many of the existing trees along River Terrace. At the Park House area and at the termination by the Pavilion the proposed floodwall replaces the existing stone wall. Installation of the Proposed Project would remove some sections of the existing stone wall along River Terrace, reconfigure the basketball courts in their existing location with new seating, and retrofit and reinstall the playground. The proposed design also includes a new planting strip along the sidewalk. The stone wall between Warren and Chambers Streets would remain where the topography in combination with the existing stone wall achieves the DFE here and therefore no floodwall is required in this location.

Open space and landscape preservation and enhancement are also primary design considerations in Reach 3, with the objective of minimizing impacts of the proposed flood barrier system on Rockefeller Park and the streetscape along River Terrace.

With the Proposed Project, the following landscaping enhancements are also proposed:

- Playground Reconstruction – with a design objective to preserve the current play experience.
- Basketball Court Improvements – replaced and resurfaced courts with an improved configuration and integrated seating.

The design of the sidewalk along River Terrace also includes a planting strip adjacent to the proposed wall alignment coupled with green infrastructure. Here the passive landscape is comprised of planting beds

and defined seating areas. Between Warren and Murray Streets the Proposed Project maintains the entrance to the basketball courts from River Terrace with a stop log deployable and swing gates are proposed at the Murray Street entrance.

Drainage improvements proposed in this reach are comprised of green infrastructure practices, such as the high-performance rain gardens along River Terrace to capture and treat stormwater runoff from the roadway.

Reach 4 – Ferry Terminal

In Reach 4, the key project design elements include a new elevated platform with an integrated flood barrier system. At this location, the building at 300 Vesey Street is in close proximity to the existing relieving platform which precludes the complete positioning of the flood barrier system off the existing platform structure. This subarea therefore involves platform reconstruction west of the building at 300 Vesey Street at an elevation above the existing platform and the installation of piles and a seepage barrier which provides the benefits of both wave attenuation and reducing the wall height. Under the proposed design, the Lily Pond is in this reach is unaffected and a new roller gate is proposed to maintain the southerly the entrance to Rockefeller Park in Reach 3 to the north. This proposed roller gate connects to the floodwall proposed along the eastern edge of the playground and a floodwall ranging in height from 3.5 to 4.75 feet that would run south from the entrance. At the southern end of Reach 4, the Proposed Project includes reconstructing the existing platform on the west side of the building at 300 Vesey Street with an expanded planting area, an immersive replacement landscape with seating, and a secondary path with a meandering alignment that is designed for universal accessibility across the platform. In addition, the proposed design includes removing curving granite walls in front of the building at 300 feet Vesey Street, raising the Esplanade by 3 feet to an elevation of 12.5 feet, and a 4-foot-high floodwall is aligned between the waterfront Esplanade and the inland plaza.

Key landscape design objectives for Reach 4 include preserving the existing Lily Pond while optimizing circulation space with new planted areas and an immersive path south of the pond to reduce pedestrian congestion in the vicinity of the ferry terminal, diversifying the park visitor experience, increasing habitat value and providing additional tree canopy, where possible. Drainage improvements in Reach 4 include introducing green infrastructure practices such as permeable paving to reduce runoff prior to discharge to the Hudson River. A new tide gate structure along the existing 96-inch CSO, in Vesey Street, is also proposed to prevent storm flows from entering the protected area during storm surge conditions. Additional drainage infrastructure such as PTD structures, trench drains and catch basins are proposed to improve the capture and conveyance of stormwater runoff.

Reach 5 – Brookfield Place

The proposed flood barrier design in this reach is a combination of passive structures integrated into terraced planting (inland from the bulkhead/water's edge) with deployable elements with the primary objective of maintaining pedestrian circulation between the upper and lower Esplanade levels. In this reach the flood barrier design system in the northwest at Belvedere Plaza continues approximately 50 feet east along the face of the Brookfield Place buildings at 300 and 250 Vesey Street, respectively. At the

230 Vesey Street building this distance is increased to approximately 65 feet. To maintain accessibility between the esplanade and Brookfield Place and the Winter Garden, the proposed flood barrier system alignment essentially follows the edge of the platform which minimizes the impact to the plaza, trees, and dining terraces. It is also a design objective for the plaza spaces to remain essentially in their current configuration for the continued purpose of hosting year-round events. Therefore, the grade transitions between the upper dining terraces at Brookfield place are designed with a series of interconnected switch-back ramps that also provide seating opportunities, shade, and pockets of trees and vegetation. The proposed alignment also is aligned along the frontage of Pumphouse Park before crossing Liberty Street to the east of the Battery Park City mechanical buildings adjacent to the Police Memorial. From there, it follows turns west and follows the façade of the Gateway apartments replacing the existing privacy wall.

In this reach, the Proposed Project alignment needs to straddle two Port Authority of New York and New Jersey (PANYNJ)/Port Authority Trans-Hudson Corporation (PATH) cooling water tunnels located beneath the platform. At these locations special bridging structures are required for the purposes of maintaining the tunnel functions of cooling water exchange. To address flood protection in the project design, the proposed bridging structures include butterfly valves that can be closed in a storm event and prevent the tunnels from acting as a conduit that conveys flood waters inland; these valves would otherwise remain open to maintain the current cooling water exchange.

This alignment includes limited tree removal in Belvedere Plaza and on the perimeter of Pumphouse Park.

Drainage improvements proposed in Reach 5 consist of stormwater treatment practices such as permeable pavers to reduce overland runoff prior to discharge to the Hudson River and PTD systems. A new 24-inch outfall in Belvedere Plaza is also proposed to redirect stormwater runoff from the plaza to the River. Additional drainage infrastructure such as trench drains and catch basins are also proposed to capture and convey stormwater runoff.

Reach 6 – South Esplanade

Along the South Esplanade in Reach 6, the flood barrier system is a passive structure that is aligned inland from the South Esplanade in an alignment that replaces the existing privacy walls and separates the ground and lower floors of the buildings from the South Esplanade. This proposed design alignment maintains the existing South Esplanade at the water's edge, while creating the opportunity for a winding secondary path inland to accommodate more leisurely meandering pedestrian flow through a design that discourages rapid pedestrian traffic modalities. Such a design also creates the opportunity for more tree planting and replacement. Also proposed are programmed amenities with ample seating along both the existing South Esplanade and the secondary winding walkway.

In addition to the passive system, this reach design includes roller gate deployables for the purposes of maintaining physical and visual access corridors at the end of Albany, Rector, and West Thames Streets as well as emergency vehicle access with three new programmatic nodes proposed where these streets open to the South Esplanade. Two of these nodes are designed to provide smaller, passive seating opportunities or “reading” and “conversation” rooms and will include the art piece “Sitting Stance” proposed is to be relocated from the West Thames Street street end.

Landscaping proposed along this reach is comprised of lush native plantings and tree replacement with the objective of providing shade, ecological habitat and a visual amenity.

Infrastructure improvements proposed in Reach 6 include two new tide-gate structures, with one parallel to the existing 18-inch stormwater outfall located at the end of Albany Street and another along the existing 96-inch CSO at the end of Rector Place with a lift station is proposed at West Thames Street to transport flow to the existing 84-inch CSO pipe.

PTDs are also proposed to treat stormwater runoff from impervious surfaces. Additionally, drainage improvements proposed within Gateway Plaza consist of installing sump pumps on the south side of the Gateway building to manage stormwater. When operating in a storm event, the pumped water would then be pumped downstream of the proposed tide gate structure.

Reach 7 – South Neighborhood

South Cove is the prominent open space feature in Reach 7 and the Proposed Project has been designed to avoid the cove and minimize to the greatest extent possible any impacts of the proposed flood barrier system on the public experience in South Cove and along the private courtyards that face the water, while providing the required flood protection. To achieve this objective, the proposed flood wall alignment runs parallel to the existing privacy walls of the Regatta Condominium, the Riverwatch, and South Cove Plaza to minimize impacts on the private courtyards of the adjacent buildings. This proposed design requires a small section of the wall to be installed using micropiles through the existing platform near the south-east corner of the Regatta Condominium. Also, along the Regatta Condominium, the Proposed Project includes a partial height wall with deployable gates to maintain some views and air circulation for the private outdoor space currently used by the childcare facility and the space associated with the corner retail. To minimize visual impacts, the privacy wall alignment on the eastern side of South Cove follows the upland topography and the existing privacy walls of the existing buildings. At the intersection of South End Ave and 3rd Place, some regrading is proposed to minimize the visual impact of the flood wall and gates are also proposed to maintain pedestrian access to South Cove and the South Esplanade from South End Avenue, 3rd Place, and 2nd Place.

In this reach, the proposed design also includes new immersive planting along the north side of South Cove and accessible seating and shade structures that parallel the flood barrier system with planting beds and seating areas proposed to enhance the use and enjoyment of this space and the waters of the Cove. Under the proposed design, circulation spaces include the Esplanade and paved paths with trees integrated in hardscapes and street/park furnishings at the three street ends. Along the north wall facing the cove it is also proposed to include a new waterside ecological experience using the face of the structural wall adjacent to the sloped path with landscape enhancements that support the local ecology and also provide educational opportunities. The proposed open space design is directed at maintaining the existing character and accessibility at the street ends while increasing the planting footprint. Under the proposed design the ramp leading to the lower-level Esplanade would need to be reconstructed to accommodate the proposed grades in the upper level; art in the lower Esplanade that is part of the South Cove art installation is outside the limit of work and would not be affected by the Proposed Project.

Drainage improvements proposed in this reach include green infrastructure practices such as three rain gardens proposed to treat stormwater runoff from impervious surfaces in South Cove. Additional drainage infrastructure, such as PTD structures, trench drains, and catch basins, are also proposed to capture and convey stormwater runoff.

ES.0.3.7 Interior Drainage Improvements

To address the need for enhanced drainage system protection and management in the protected area a number of measures are proposed that are comprised of below-grade improvements to the City sewer systems including installing tide gates at existing combined sewer and municipal separate storm sewer system outfalls, replacing existing slide gates, isolating the Protected Area from adjacent unprotected drainage areas, and Near Surface Isolation (NSI) measures that are comprised of flood-proofing approximately six existing access manholes at regulator chambers and eight sewer manholes along Route 9A/West Street. It was also determined through modeling that with the installation of these improvements to isolate the drainage system in the protected area from tidal storm surge, a pump station was also needed to address the impacts on interior drainage flows during a combined storm surge and rain event.¹ The selected location of the proposed pump station is in the northern portion of the Protected Area (i.e., east of Stuyvesant High School and near Reach 1) and during a storm event the station would be activated to pump combined flows collected in the protected area during the simultaneous high tide and rainfall storm event out to the Hudson River. The pump station mechanical equipment is proposed to be located below grade at the pedestrian plaza adjacent and to the east of Stuyvesant High School, just northwest of the intersection of Chambers Street and Route 9A/West Street.

The proposed pump station location and sizing was selected based on infrastructure modeling to the pumping demand and optimal siting for the facility. Consistent with FEMA certification guidelines, a number of storm conditions were modeled assuming various combinations of tidal design storm surge and rainfall intensity. These model simulations showed that the storm event closure of the tide gates at outfalls NCM-72 and NCM-73, is largely responsible for the potential interior drainage flooding. A siting study was then conducted to identify locations in the Protected Area and along the existing infrastructure grid where a pump station would yield the greatest benefit in addressing this flooding.

Based on this modeling and analysis and taking into account other design factors the proposed site was identified as the preferred location. This location is in the Protected Area upstream of the existing tide gates and proximate to CSO outfall NCM-73, which minimizes the length of force main pipe needed between the pump station and to the discharge location.

A concept design for the proposed pump station is based on four below-grade, 20-mgd submersible centrifugal pumps with grinders to intercept and reduce the anticipated debris and large floatables in incoming CSO storm flows. In addition to the pump station, a new flow diversion chamber is also proposed in the nearby 114- by 50-inch CSO outfall located between Route 9A/West Street and Stuyvesant High

¹ Appendix G: "Interior Drainage Report," May 10, 2024.

School. The pump station outflow would be handled by a 48-inch ductile iron force main approximately 100 linear feet in length that connects to the CSO-73 outfall pipe downstream of the tide gate before discharge to the Hudson River. The above-described elements of the proposed pump station are all below grade. At-grade access hatches are proposed to allow for maintenance and repair of the system.

In addition to the below grade elements, the proposed pump station requires an above grade structure to house and the electrical panel room and operational systems for the purposes of activating the pumps and related mechanical equipment when needed during the design storm event. Recognizing the space limitations in this area for such a facility, with the need to maintain circulation and access at the school and along the Greenway, three design options for this structure are under consideration each of which assumes a new structure to house operational systems.

Designs of the pump station and the related infrastructure improvements are being developed in consultation with the New York City Department of Environmental Protection (NYCDEP), a process that is expected to continue into 2026.

In addition to the above, improvements in the sanitary lines within the Battery Park City sewer system would reduce the risk of backups during storm surge conditions. These improvements include redirecting sanitary flows to the existing CSO system near Vesey Street on the north and near West Thames Street on the south with a proposed lift station.

ES.0.3.8 Open Space Designs and Planting

It is an objective of the Proposed Project to limit impacts on open space and trees to the minimum necessary to install the proposed flood barrier system and to restore the impacted landscaped with a design that includes a variety of native plants that together support the robust ecological communities of the BPC open spaces along the project corridor, with enhancements where appropriate. A description of the proposed open space design elements is provided below.

- In Reach 1 the proposed flood alignment is primarily inland. Therefore, impacts on trees in this reach are limited to those s along North Moore and Route 9A/West Street.
- In Reach 2, the flood protection system is aligned along the North Esplanade north of and adjacent to the northern boundary of Stuyvesant High School. The proposed North Esplanade design includes an upper and lower pathway, separated by new plantings and vegetation to provide aesthetic enhancement to the open space experience with improved pedestrian/cyclist circulation and a separated area with enhanced seating opportunities for waterfront viewing.
- In Reach 3, the proposed flood barrier system extends primarily along River Terrace parallel to the interior (eastern) edge of Rockefeller Park following the current alignment of the street wall which is an alignment that provides flood protection with the least disturbance to the lawned open space. In addition to reinstalling the refurbished playground equipment, the Proposed Project includes resurfacing the basketball courts and improving the layout while integrating public seating. The Proposed Project design also includes a planting strip parallel to the flood

alignment and the outside edge of the River Terrace sidewalk to create more space between the existing street trees and proposed floodwall and protect trees from clearing, where possible.

- In Reach 4, the proposed design protects and preserves the existing Lily Pond while adding a newly planted area and immersive pedestrian path provided immediately to the south to enhance access. Overall, design in this reach involves targeted upgrades in seating, planting, and optimizing access for pedestrian circulation.
- Along Reach 5, the proposed design integrates the flood barrier system into a targeted plaza redesign that has as its objective maintaining open space with targeted access improvements. As a result, modifications proposed to these existing open spaces are minimal with no impact on the primary functions as a public gathering, recreational and event space, supported by maritime features in and around the marina and public views of the water. To facilitate public use and universal access, additional landscaping and switchback ramps are proposed between the Esplanade and Brookfield Place, while also increasing seating opportunities with shade and pockets of trees and vegetation.
- Along Reach 6, the Proposed Project aligns the flood barrier system along a stretch of new and redesigned open spaces adjacent to the existing privacy walls. Under the proposed design, the South Esplanade at the water's edge is unaffected with a new secondary, meandering path that introduces a separation of space and allows for more leisurely pedestrian strolling. This secondary path is proposed to be landscaped with tree plantings and the opportunity to provide more shaded seating. Also proposed for this reach are redesigned open spaces at the street ends of Albany, Rector, and West Thames Streets.
- In Reach 7, the proposed flood protection system alignment runs along the existing privacy walls which minimizes impacts to the public spaces in the South Cove. With this proposed alignment, the existing lower Esplanade with no change in the total open space acreage and only targeted design enhancements along the upper Esplanade that include providing lush planting along the north flood barrier system with new seating and shade structures. The proposed design also includes reconstructing the existing Esplanade ramp to account for changes in the proposed upper level walkway grades. The Proposed Project also includes using the face of the wall adjacent to the sloped path for targeted ecological and educational enhancements.

Tree Removal and Replacement

Although the Proposed Project has been designed to minimize tree clearing to the extent possible while integrating the proposed flood barrier system within existing streets and open spaces, an estimated 420 trees need to be cleared with 390 new tree plantings and 17 tree transplants. For City street trees under the jurisdiction of NYC Parks (i.e., those street trees along North Moore and Route 9A/West Street), the Proposed Project would comply with the requirements of Chapter 5 of Title 56 of the Rules of the City of New York (NYC Parks Rules) and Local Law 3 of 2010, and BPCA would implement a final tree clearing, protection, and replacement plan that is approved by NYC Parks. In accordance with City regulations, all street tree clearing and protection measures must be approved by NYC Parks before construction activities can proceed and these activities are also subject to a NYC Parks construction permit that includes

a final tree clearing, protection and replacement plan comprised of a pre-construction inventory of the trees to be cleared; specifications for trees to be protected and pruned; and a tree replacement plan that includes post-construction monitoring of growth.

Based on U.S. Army Corps of Engineers (USACE) guidance for flood walls (EP 1110-2-18, “Engineering and Design Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures, Department of the Army, Corps of Engineers [USACE], May 1, 2019), which are accepted by FEMA as part of the flood protection system accreditation process, a 15 foot (minimum) clear zone is to be provided on both sides of a flood barrier structure for the purposes of avoiding damage from tree limbs and roots and to provide a clear zone for inspections and repairs. The Proposed Project designs described in this DEIS reflect adherence to the USACE Guidance. As part of the final design process, the BPCA in coordination with its design team will continue to review the proposed designs with the objective of maximizing tree replacement and finding locations along the project corridor where it may be acceptable to FEMA through its variance procedures to plant trees and enhance environmental values without compromising the flood barrier system functionality, safety or the necessary maintenance, inspection and repair of the proposed flood barrier. Also being explored are opportunities within Battery Park City for additional tree replacement plantings along public street corridors and open spaces.

Urban Heat Reduction - Design Elements

The Proposed Project would reduce contributions to urban heat through an abundant use of planting and, where hardscape is needed, a reliance on high-albedo and pervious materials. The proposed design will increase the total planting coverage over what exists today by an approximately 30 percent increase, throughout the Project Area. In some areas, such as in Reaches 4 (Ferry Terminal) and 7 (South Neighborhood), there would be a 50 percent increase in planting over existing conditions. The planting design throughout the Reaches employs a multi-layered approach, incorporating groundcover, tall perennials, shrubs, understory trees, and canopy trees to provide maximum evapotranspiration and to protect the ground from drying out or absorbing heat. Over 75 percent of the proposed paved areas will be made of high-albedo materials (such as light-colored stone and concrete), which reflect more light, cool the surrounding air, and serve to reduce urban heat as compared to materials that absorb and increase heat, like asphalt.

ES.0.3.9 System Operations and Maintenance

The Proposed Project, once installed, would require regular maintenance and inspections that are performed in accordance with an approved Operation and Maintenance (O&M) manual, and an Emergency Response Plan for use during storm surge events. At a minimum, the O&M manual is to provide the procedures for regular testing, routine maintenance and repair work, inspection and reporting requirements for the agencies with these responsibilities. Performing these maintenance obligations is essential for the operational reliability of those elements of the flood barrier system that are considered critical to providing the perimeter storm surge protection and interior drainage.

ES.0.3.10 Property Jurisdiction

While much of the Project Area alignment is within the jurisdiction of BPCA, Reach 1 is primarily aligned along City- and state-owned street right of way including lands along North Moore and Harrison Streets which are under City jurisdiction and the Route 9A/West Street corridor, which is shared jurisdiction between the State and City of New York Departments of Transportation. There are sections of the project segment along North Moore Street that require use of property within Independence Plaza (which is privately owned) and lands adjacent to BMCC (under the jurisdiction of the Dormitory Authority of New York [DASNY]). The portion of the Project Area that is west of Route 9A/West Street includes lands (and lands underwater) managed by the State of New York through NYSDEC and HRPT. Land along the marginal street, wharf, or place between the Route 9A/West Street right-of-way and the North Esplanade (i.e., the location of the proposed pump station) is under the jurisdiction of the New York City Department of Small Business Services (SBS). In addition, access agreements are expected to allow temporary construction access for properties fronting the Proposed Project corridor as well as access to properties for the long-term inspection, monitoring, and maintenance of the flood barrier system.

ES.0.4 Regulatory Permitting, Approvals, and Coordination

Implementation of the Proposed Project requires federal, state, and local approvals involving the following agencies:

ES.0.4.1 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).
- As part of the USACE permitting process, coordination with the 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.
- U.S. Coast Guard (USCG) – Coordination and authorization, as needed (e.g., temporary siting of construction barges).
- Federal Emergency Management Agency (FEMA) – Letter of Map Revision (LOMR) revising the current Flood Insurance Rate Maps (FIRM) to show changes in the flood hazard area with the implementation of the proposed flood barrier system.

ES.0.4.2 State of New York

- New York State Department of Environmental Conservation (NYSDEC) – Permits related to activities in tidal wetlands (Article 25), 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.

- New York State Department of State (NYSDOS) – Coastal Zone Consistency Determination.
- New York State Office of Parks, Recreation and Historic Preservation (OPRHP)/New York State Historic Preservation Office (SHPO) – Consultation on federal and state review process pursuant to Section 106 of the National Historic Preservation Act (NHPA) and/or Section 14.09 of the State Historic Preservation Act (SHPA) with respect to designated and protected properties on the State and National Registers of Historic Places and properties determined eligible for such listing.
- New York State Department of Transportation (NYSDOT) – Design coordination as needed, a Highway Use and Occupancy Agreement and construction permits for work within the NYSDOT-owned right-of-way (ROW) within Route 9A/West Street.
- Dormitory Authority of the State of New York (DASNY) – Coordination for proposed work affecting BMCC and easements for construction and maintenance activity on DASNY-owned property (BMCC).
- New York State Office of General Services (NYSOGS) Bureau of Land Management – Coordination on Joint Application for USACE and NYSDEC permits.
- Hudson River Park Trust (HRPT) – Design coordination for work within and along the Park, at the southern boundary of the HRPT jurisdiction adjacent to BPCA’s North Esplanade property. Construction work permits from HRPT for work within the HRPT’s boundary and access rights from HRPT or the State for any permanent structures within Hudson River Park.

ES.0.4.3 City of New York

- New York City Department of Environmental Protection (NYCDEP) – Review of the proposed pump station design as well as stormwater management and project elements that require modification of the City sewer system.
- New York City Department of Transportation (NYCDOT) – Coordination/review of the proposed flood barrier system and other project elements related to work in NYCDOT ROW (e.g., bike lanes, street lighting), including a revocable consent for flood barrier elements in the public ROW.
- New York City Department of City Planning (NYCDCP) – Consistency determination under the Waterfront Revitalization Program and any future Uniform Land Use Review Procedure (ULURP) actions, as needed.
- New York City Landmarks Preservation Commission (NYCLPC) – Advisory agency for activities on or near sites of potential historical or archaeological significance.
- New York City Transit (NYCT) and the Metropolitan Transit Authority (MTA)– For any temporary relocation of bus routes/stops in the Project Area during construction. As currently proposed, no NYCT bus stops or routes are anticipated to be affected and one MTA bus stop (at North Moore and 9A/West Street) would be temporarily relocated during construction.
- New York City Police Department (NYPD) – Review by counterterrorism unit for conformance with security requirements.

- New York City Fire Department (FDNY) – Plan review and coordination on access requirements and impacts to FDNY facilities (e.g., fire hydrants) and conduits.
- New York City Department of Parks and Recreation (NYC Parks) – Permit for street tree pruning and removal and construction near street trees.
- New York City Department of Buildings (NYCDOB) – Plan review for elements of flood barrier system on privately owned property.
- New York City Department of Small Business Services (SBS) – Review of design, plan approval, and work permit for project elements on SBS-managed property (the pedestrian plaza adjacent to Stuyvesant High School).
- New York City Public Design Commission (PDC) – Design review of project elements within City street rights-of-way and City-owned land.
- New York City Department of Education (NYCDOE)/School Construction Authority (SCA) – Coordination and review of project elements that may affect Stuyvesant High School including construction coordination.

ES.0.4.4 Regional Agencies

- Port Authority of New York and New Jersey (PANYNJ) – Approval for alignment crossings over the PATH tunnels and phasing of construction work related to pedestrian access to/from the Battery Park City Ferry Terminal.

ES.0.5 Analytical Framework

ES.0.5.1 Organization of the Environmental Impact Statement

This EIS examines both the short-term (construction) and long-term (operational) effects of implementing the Proposed Project and identifies the potential significant adverse environmental impacts in accordance with the *CEQR Technical Manual* as well as the applicable state and federal guidelines.

ES.0.5.2 Environmental Impact Analyses Technical Areas

Based on the guidance of the *CEQR Technical Manual*, it was determined that detailed analyses of socioeconomic conditions, community facilities and services, shadows, solid waste and sanitation services, energy, operational air quality, operational noise, and public health were not required, but the following technical areas were to be examined in detail in the DEIS for potential environmental impacts: land use, zoning, and public policy; open space, historic and cultural resources; urban design and visual resources; natural resources; hazardous materials; water and sewer infrastructure; transportation; greenhouse gas emissions and climate change; neighborhood character, and construction. **Appendix A** provides the Final Scope of Work that guided the preparation of the DEIS.

ES.0.5.3 Impact Analysis Methodology

Each technical area analyzed in this EIS follows a methodology that includes a description of existing conditions (i.e., the affected environment) and conditions in the future both without and with the proposed project. The increment between the future without the proposed project, (or the 2030 No Action condition) and the 2030 proposed project condition presented in Chapter 3.0, “Affected Environment,” is the degree of impact that is then assessed for significance.

ES.0.5.4 Analysis Year

The environmental settings for the technical analyses presented in this EIS are the conditions expected at the projected completion of construction in 2030 which is also referred to as the “analysis year,” when a proposed project is projected to be operational. It is expected that project construction would take approximately 5 years, commencing in July 2025 with completion in late 2030.

ES.0.5.5 No Action Conditions

In the future without the Proposed Project (the No Action condition), it is assumed that there would be no flood barrier system installed and the Protected Area would remain at risk from major storm surges. Therefore, the goal of providing comprehensive coastal flood protection for the Protected Area would be unmet and the proposed Protected Area would continue to experience significant flood risk and potential impacts to human health and safety, as well as damage to property and assets. Over time, absent the Proposed Project, flooding risk within the Protected Area would worsen and may result in land use and socioeconomic impacts.

ES.0.6 Affected Environment and Environmental Effects

The sections below summarize the principal conclusions for each DEIS technical analysis including land use, zoning, and public policy, open space, historic and cultural resources, urban design and visual resources, natural resources, hazardous materials, water and sewer infrastructure, transportation, greenhouse gas, and neighborhood character. The analysis of construction related effects included the following technical areas: open space, natural resources, transportation, air quality, greenhouse gas, noise and vibration, and neighborhood character.

ES.0.6.1 Operational Impacts

Land Use, Zoning, and Public Policy

The Proposed Project is primarily aligned inland from the bulkhead/water’s edge and is integrated into the existing street corridors and open spaces. In addition to the flood barrier system, the Proposed Project includes interior drainage improvements to manage stormwater runoff flooding in the Protected Area that address a simultaneous tidal and rainstorm event; these improvements are to be integrated into the City’s existing infrastructure system and include near surface isolation installations along Route 9A/West Street with below-grade tide gates and the proposed pump station.

With the Proposed Project there are no changes in land use along the Project Area or along the waterfront, nor would the adjacent inland residential, commercial, and institutional uses be impacted. Implementing the Proposed Project does not require any zoning actions and the Proposed Project would not conflict with the Project Area zoning. Based on a review of the applicable policies, it has also been determined that the Proposed Project is consistent with public policies including the City's Waterfront Revitalization Program (WRP) and the policies of BPCA with respect to resiliency and sustainability. In sum, the Proposed Project provides resiliency and protection against design storm events and the effects of sea level rise while preserving public access to the waterfront with no significant impacts on historic or visual resources. Therefore, it is concluded that the proposed project does not result in any significant adverse impacts or conflicts with respect to land use, zoning or public policy.

Open Space

The Proposed Project would not result in any potential significant adverse impacts or conflicts with open space resources. Under the proposed design, once constructed, the overall acreage and availability of open space resources in the Project Area would remain largely unchanged, with a slight expansion in Reach 2 with the widened esplanade adding 0.05 acres. The Proposed Project would also support the protection of existing open space resources in the Protected Area that would otherwise continue to be subject to storm flooding. Therefore, it is concluded that the Proposed Project would not result in any potential significant adverse impacts to open spaces.

Historic and Cultural Resources

Archaeological Resources

To assess the potential impacts of the proposed on archaeological resources, the Area of Potential Effect (APE) is the area expected to be disturbed horizontally, or the footprint of proposed ground disturbance, and vertically, or the proposed depth of ground disturbance. To assess the potential for impacts within the Archaeological APE, a Phase 1A Archaeological Documentary Study of the Project Area was prepared and reviewed by SHPO and LPC and it was recommended that a Phase 1B Archaeological Investigation, including a geomorphological investigation and archaeological monitoring would be performed to confirm the presence or absence of archaeological resources within identified areas of potential archaeological sensitivity. All subsequent investigations including the Phase 1B Archaeological Investigation of the identified areas of potential archaeological sensitivity are to also be performed in consultation with SHPO and LPC, as well as the Section 106 Consulting Parties (including Indigenous Nations). With the implementation of the Phase 1B Archaeological Investigation and all subsequent analyses determined to be necessary based on continued consultation with LPC, SHPO, and the Section 106 Consulting Parties, it is concluded that the Proposed Project would avoid any significant adverse impacts on archaeological resources.

Historic Architectural Resources

An analysis of potential impacts on Historic Architectural Resources was undertaken in accordance with Section 14.09 of the New York State Historic Preservation Act (NYSHPA) and Section 106 of the National Historic Preservation Act of 1966 (NHPA), as implemented by federal regulations. For this analysis the APE

for historic architectural resources (the “Historic Architectural APE”) was defined as the area within 400 feet from the Project Area, which accounts for potential direct impacts from construction vibration (i.e., properties within 90 feet of the Project Area) and potential indirect impacts (visual and contextual). There are a number of resources within the 90-foot-wide study area including South Cove, which SHPO has been determined to be eligible for listing on the State and National Registers of Historic Places (S/NR-eligible), the Shearwater (S/NR), Hudson River Bulkhead (S/NR-eligible), New York World Telegram Building (S/NR-eligible), Barclay-Vesey Building (New York City Landmark [NYCL], S/NR), 90 West Street (NYCL, S/NR), Lamppost 79 (NYCL) and a portion of the Tribeca West Historic District (NYCL, S/NR-eligible) along Greenwich Street. Therefore, pursuant to Sections 14.09 and 106 a, BPCA, in consultation with LPC and SHPO, would develop and implement construction protection plans (CPPs) for these historic architectural resources to avoid inadvertent construction-period damage from ground-borne vibrations, falling debris, dewatering, subsidence, or any other potential impacts during the construction period. With these protection plans in place it is concluded that the Proposed Project would avoid any adverse impacts to historic architectural resources.

In Reach 1 a small portion of the buried Hudson River Bulkhead may be removed to install the proposed roller gate, as the upper portion of the buried bulkhead would conflict with the track for the gate. This impact, however, is expected limited to a small section of granite block at the top of the bulkhead at this location and the majority of the historic bulkhead would remain unaffected by the Proposed Project. Therefore, it is concluded that this limited direct effect to a small section of historic material would not result in a significant adverse effect to the historic resource. BPCA will also evaluate the potential to salvage the removed bulkhead materials with LPC and SHPO.

It is also not expected that the Proposed Project would result in any contextual impacts on historic architectural resources in the Project Area or in the Historic Architectural APE. The Proposed Project design would not alter the scale, visual prominence, or visual context of any building, structure, object, or landscape feature; screen or eliminate publicly accessible views; or introduce new shadows or lengthened shadows on an historic landscape or an historic structure that is sunlight dependent.

Finally, in Reach 7 the Proposed Project design would also not directly impact South Cove (S/NR-eligible) since the proposed flood protection alignment and related improvements are limited to the edges of South Cove and the main contributing features of the landscape would be unaffected.

For the above reasons, it is concluded that the proposed project would not result in any significant adverse impacts on historic architectural resources.

Urban Design and Visual Resources

The Proposed Project would not result in any significant adverse urban design impacts to urban design and visual resources. While the floodwalls and deployable systems are new features introduced to the public realm, they are largely proposed to be installed in locations where there are existing fences and walls or adjacent to building façades. In addition, the Proposed Project would maintain the visual connectivity between the waterfront and the adjacent inland portions of Battery Park City and from the neighborhoods east of Route 9A/West Street. All of the street-end entrances to the Battery Park City

Esplanade and adjoining parks, as well as the additional entrance to Rockefeller Park between Murray and Warren Streets, are designed with deployable systems that remain in the open position except in a storm condition. While the Proposed Project would reconstruct sections of the Battery Park City Esplanade and adjoining parks, it would maintain or enhance their character and the reconstructed spaces would respect and complement the design of the existing Esplanade and parks through the use of materials and landscaping. While the connecting segments of the floodwall would also partially extend into the view corridors at some of locations, views to the waterfront and Hudson River would be largely be maintained and no views would be fully blocked. The proposed landscaping while minimizing the visual impact and presence of the flood barrier system and would partially obscure some of these views to the waterfront, but these changes in views would vary by season and are not concluded to be significant impacts. Finally, all views from locations on the waterside of the proposed flood barrier system would remain open and unaffected.

The Proposed Project would result in a temporary adverse effect from the removal of approximately 420 existing trees throughout the Project Area. However, the proposed design also includes the planting of at least 390 new trees throughout the Project Area and transplanting of existing trees to avoid impacts, where feasible. The BPCA will also continue to explore opportunities for additional tree planting in the area.

For the above reasons, it is concluded that the proposed project would not result in any significant adverse impacts on urban design and visual resources.

Natural Resources

Floodplains

Once the Proposed Project is installed, it would improve the resilience of Battery Park City and inland properties (i.e., the Protected Area) to design storm events and sea level rise, thereby reducing the risk of loss from flooding. It is also proposed that the flood barrier system be accredited by FEMA, which would remove the portion of the Study Area and the Protected Area landward of the flood barrier system from the current flood zone. Therefore, it is concluded that the Proposed Project would not result in any significant adverse impacts to floodplains.

Groundwater

The Proposed Project would not adversely affect groundwater resources. Groundwater is not used as a potable water source in Manhattan and the Proposed Project would not involve any use or drawdown of groundwater during its operation.

Essential Fish Habitat, Significant Coastal Fish and Wildlife Habitat, and Hudson River Park Estuarine Sanctuary

Because the Proposed Project would not result in significant adverse impacts to aquatic biota, water quality, or sediment quality, it would not result in any significant adverse impacts to aquatic habitat, including those associated with designated Essential Fish Habitat (EFH), or the defining characteristics of

the Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat (SCFWH) or the Hudson River Park Estuarine Sanctuary.

Terrestrial Resources

The Proposed Project's planting palette will include a variety of native plants that are designed to enhance the diversity of ecological communities within the Project Area which is consistent with the Battery Park City Sustainability Plan² and would benefit terrestrial resource habitats. Replaced and transplanted trees, as well as newly planted shrubs and herbaceous plants would provide habitat and foraging opportunities for wildlife and implementation of the flood barrier system would protect terrestrial resources in the Protected Area in the Study Area during future storm events when compared to the No Action condition. Therefore, it is concluded that the Proposed Project would not result in any significant adverse impacts to terrestrial resources.

Threatened, Endangered, and Special Concern Species

The proposed project would not impact significant habitats for monarch butterfly (*Danaus plexippus*; federal candidate species), willow oak (*Quercus phellos*; state-listed endangered) or northern long-eared bat (*Myotis septentrionalis*; federally and state-listed endangered). Because the post-construction landscape design would replace existing trees, shrubs, and herbaceous plants disturbed by the installation of the flood barrier system with native and adapted plants, the Proposed Project would not result in any significant impacts to habitats when compared to the No Action condition. Therefore, the Proposed Project would not have the potential to adversely impact these species.

While the Proposed Project would result in modification to critical habitat for Atlantic sturgeon associated with the permanent loss of 0.5 acres of soft bottom habitat and shading of 4,404 square feet (0.1 acre) of water column, this represents a small area relative to the thousands of acres of available foraging habitat suitable for sturgeon in the Hudson River. Additionally, most of these impacts would be located beneath existing overwater platforms within the Project Site and the proposed project would also include a monitoring plan to avoid impacts during construction.

Wetlands

The proposed in-water elements of the project are comprised primarily of new piles, construction of precast concrete and sheet pile seepage barriers, concrete bridging structures, and placement of low permeability clean fill as part of the flood barrier system. In total, the permanent in-water elements of the Proposed Project would result in the permanent loss of 21,504 square feet (0.5 acres) of benthic habitat and 7,892 cubic yards of water column below spring high waters (SHW). This would result in a minimal impact on NYSDEC littoral zone tidal wetlands.

² Battery Park City Sustainability Plan. September 2020. Available from: <https://bpca.ny.gov/nature-and-sustainability/sustainability/>

Given the absence of sites within or near Battery Park City to provide wetland mitigation, the proposed mitigation for this impact is the purchase of tidal wetland mitigation bank credits at the Saw Mill Creek Wetland Mitigation Bank (Staten Island, New York). Acquisition of the necessary tidal wetland mitigation bank credits and the installation of in-water onsite ecological enhancements would be completed prior to the Proposed Project completion in 2030. With these measures and the erosion and sediment control Best Management Practices described in Chapter 3.11, "Construction," it is concluded that the Proposed Project would not result in any significant adverse impacts to wetlands.

Separate from the proposed wetland mitigation, in-water ecological enhancements are being considered in conjunction with the platform reconstruction. These in-water ecological enhancements may be comprised of ecological enhancements to the bulkhead face, or along the existing or proposed piles, or both. Once a final enhancement design is completed, it is to be implemented prior to the anticipated project completion at the end of 2030.

Aquatic Resources

The above-described impacts of the proposed project on benthic habitat and the water column and overwater shading would result in a minimal change in foraging habitat for striped bass and other fish species when compared to the extent of similar habitat available in the lower Hudson River and is not concluded to be a significant adverse impact on aquatic biota. Given that the proposed overwater deck extension in Reach 2 is only 6 feet, there is a limited potential for this incremental increase to result in shading effects on aquatic habitat. In addition, there is no submerged aquatic vegetation (SAV) at this location (or in the Study Area), so the increase in shading would not impact or inhibit SAV growth.

The excavation or displacement of sediment in Reach 5 required for installing the bridging structures over the PANYNJ PATH tunnels would also not result in any significant adverse impacts to benthic habitat.

Improvements to stormwater management with the Proposed Project, including increased storage capacity and the implementation of green infrastructure, would also reduce the potential for impacts from stormwater runoff on water quality and aquatic resources.

Therefore, it is concluded that the Proposed Project would not result in any significant adverse impacts to aquatic resources.

Hazardous Materials

The Proposed Project involves demolition and excavation activities that would have the potential to disturb hazardous materials in existing structures and the subsurface. However, with the implementation of the proposed appropriate protection measures the potential for these significant adverse effects is avoided. By implementing these protection measures and complying with all City, state, and federal procedures and regulations governing the handling, excavation, stockpiling and transport of contaminated or hazardous soil, the management of groundwater and solid waste, the handling of construction-related materials and chemicals, and implementing BMPs and response measures, the Proposed Project would not result in any significant adverse impacts with respect to contaminated or

hazardous materials during construction. There would also be no impacts during the operational phase of the Proposed Project.

Water and Sewer Infrastructure

The Proposed Project would not generate any added water supply or wastewater treatment demands that would overburden the existing capacity of the combined and separate stormwater sewer systems serving the project area. The Proposed Project would, however, install a flood barrier system to meet the flood protection goal and doing so requires some modifications of the sewer system to prevent inflow of coastal storm surge into the Protected Area through the sewer system. These measures include upgrades to tide gates and near surface isolation measures at manholes to green infrastructure to avoid the inflow of stormwater into the sewer systems as well as the above-described pump station. Therefore, with these infrastructure improvements in place, it is concluded that the Proposed Project would not result in any significant adverse impacts to the City's infrastructure system with the benefit of resiliency upgrades in the system.

Transportation

The proposed flood barrier structure would not reduce traffic capacity, displace any on-street parking. As part of this assessment analyses of potential impacts were performed where the Proposed Project would narrow pedestrian and bicycle pathways. This was conducted for pedestrian elements at several locations in Reach 1 including North Moore and Harrison Streets and along Route 9A/West Street. These assessments were also conducted for shared pedestrian and bicycle facilities in Reaches 4 through 7 including in the vicinity of the Lily Pond, Pumphouse Park, Gateway Plaza, and the street ends at West Thames and Albany Streets as well as in the vicinity of South Cove. Based on these detailed analyses, it was concluded that the Proposed Project would not result in any significant adverse impacts on pedestrian elements or shared pedestrian and bicycle facilities.

Greenhouse Gas Emissions and Climate Change

The Proposed Project would not introduce any substantial new buildings or other uses that require generate emissions or require energy or fuel consumption. While the Proposed Project includes a permanent pump station to prevent flooding on the dry side of the flood barrier system, it would operate only during storm events and would not represent a substantial increase in energy demand.

The total fossil fuel use in all forms associated with construction of the Proposed Project would result in up to approximately 44,442 metric tons of CO₂e emissions. A number of potential emission reduction measures during project construction are under consideration and may include the use of biodiesel, expanded use of recycled steel and aluminum, as well as expanded construction waste reduction.

Based on the above, it is concluded that the proposed project would not result in any significant adverse impacts with respect to greenhouse gas emissions.

Neighborhood Character

The Proposed Project would not adversely alter defining features of the neighborhood or result in a significant adverse impact or a combination of impacts that would adversely impact neighborhood character. Rather, the Proposed Project would provide neighborhood benefits through the proposed flood protection system while improving the resiliency of the waterfront and sustainability in Battery Park City, as well as broader Protected Area in Lower Manhattan. Completion of the Proposed Project would also provide design storm protection from coastal surge events and sea level rise while enhancing access to and usability of open space. The Proposed Project also includes increased landscaping to support the pedestrian experience within BPC coupled with widened pedestrian paths. Additionally, the Proposed Project has been designed to minimize obstructions to visual corridors and key features of the Study Area. Therefore, it is concluded that the Proposed Project would not result in any substantial changes to neighborhood character and would promote resiliency and sustainable development in the neighborhood.

ES.0.6.2 Construction Impacts

Description of Construction Activities

It is expected that construction of the proposed project would commence in July 2025 with early works which would then proceed in phases by reach through the last quarter of 2030. For the purposes of assessing the potential construction impacts of the proposed project a preliminary construction schedule was developed based on this build-out schedule and then used to analyze the range of potential impacts anticipated during construction.

The primary construction activities related to the proposed project include installing erosion and sediment control measures; demolition of existing structures (i.e., walls and platforms), drilling shafts and pile installation; installing new platforms and walls and pouring concrete; grading and landscaping; installation, replacement, and relocation of water and sewer infrastructure including the proposed pump stations; delivery and installation of gates; and final landscaping (seeding and planting) and installation of park amenities and equipment. Upon completion of construction, site restoration and decommissioning of construction protection measures would commence, including the removal of barriers and signage, replacing or reinstalling fences and other temporarily removed street furniture.

The Proposed Project includes restoring all Battery Park City open spaces once the flood barrier system is installed which would involve landscaping such as final grading, , as well as benches and lighting that had been temporarily removed and a landscaping replacement plan to replace all impacted vegetation with a variety of native plantings that support ecological communities with enhancements in all areas affected by construction. In addition to replanting trees, seeding and planting activities may also include installing temporary erosion control or slope stabilization measures in some areas as the vegetation reestablishes.

For activities within City streets all work must be performed in accordance with applicable means and methods approved by NYCDOT and NYC Parks. Any required temporary lane and road closures would be coordinated with NYCDOT and NYSDOT to ensure compliance with the appropriate restrictions and in accordance with an approved Maintenance and Protection of Traffic (MPT) plan, which is expected to

include flaggers to assist with traffic management at key entry and exit points. Any clearing or pruning of street trees would also require the approval of NYC Parks. The proposed project would also require temporary construction access agreements at a number of properties (e.g., Hudson River Park, SBS, NYSDOT, and properties fronting the Proposed Project corridor) to allow site and property access during construction.

Project construction activities are expected to involve the use of numerous types of equipment and vehicles. Each reach is expected to require the use of excavators, loaders, and dump trucks with cranes, hydraulic press-in hammers, concrete mixers, and concrete pumps to install the project's primary structural components. Delivery trucks would be utilized throughout the construction period to support a variety of construction activities from structural installation to landscaping. Barges are proposed for waterside work including delivery and removal of materials and pile installation.

Construction Open Space

Construction of the Proposed Project is expected to begin in July 2025 and conclude by the end of 2030. While the Proposed Project would be constructed over a period of 60 months, the peak construction year for open space impacts is 2028, which is when the greatest area of open space in the Project Area would be temporarily closed for construction. During the construction period there would be a temporary significant adverse impact to open space resources in the Nonresidential Study Area due to the closure of open spaces; however, in the Residential Study Area, these impacts would not rise to the level of significance in later years (2029 and 2030) as the waterfront open spaces in BPC begin to reopen to the public. In the No Build Condition, in addition to the completion of the SBPCR Project and the reopening of that open space in 2025, the Battery Coastal Resilience Project is expected to be completed elevating the waterfront Esplanade at The Battery. Phase 1 of that project is expected to be completed by August 2025 and will reopen that open space, while Phase 2, which includes reconstructing the eastern portion of the wharf and adjacent areas, is scheduled to begin after Phase 1 concludes and is targeted to reopen in 2026.

With the temporary construction period closure of open spaces along the Project Area it is expected that open space user demands and needs would divert to other Study Area open spaces, thereby resulting in potential temporary indirect impacts on the Study Area open space ratios.

In the ¼-mile Nonresidential Study Area during the peak construction year of 2028, the passive open space ratio is anticipated to be 0.25 acres per 1,000 nonresidents with the Proposed Action which is a decrease from 0.32 acres per 1,000 nonresidents from the No Action condition (or about a 15 percent decline). While there is a temporary construction period decline in this ratio it would continue to be above the *CEQR Technical Manual* guideline of 0.15 acres per 1,000 nonresidents and is a temporary closure of open spaces that would be phased with project area open spaces reopening as construction in Reach 7 (South Cove) is projected to be completed in 2027, just before the 2028 peak open space impact year when six of the project reaches and the associated open spaces would be under some phase of construction. Reaches 2 and 6 are projected to wrap up construction in 2028, followed by completion of Reach 1 in 2029. The remaining Reaches 3, 4, and 5 are projected to be completed in the first half of 2030.

In the ½-mile Residential Study Area, the active open space ratio would decrease slightly from 0.48 to 0.47 acres per 1,000 residents and the total and passive open space ratios would temporarily decrease from 1.76 to 1.63 and 1.29 to 1.16, respectively. The total and active open space ratios would continue to be below City guidelines; however, the passive open space ratio would remain above the City guidelines. For active spaces, the Proposed Project would result in the temporary closure of the Esplanade and diversions of biking and jogging, as well as the Rockefeller Park playground, basketball and handball courts and a number of other recreational features between 2025 and 2030, that would reduce by 0.5 acres the Residential Study Area's existing 36.68 acres of active open space.

While there would be a construction period open space impact over the full construction period that would peak in 2028, the project has been phased to minimize these impacts to the maximum extent practicable, recognizing that the flood protection system is largely aligned along the public open spaces of Battery Park City. In addition, Rockefeller Park would remain open throughout construction and there would be a diversion route for north/south bikers, joggers and walkers while the segments of the esplanade are closed.

While the temporary closure of park space in the Project Area would result in the indirect use of other nearby open space resources, there are a number of large, publicly accessible park spaces that provide active and passive uses that are in close proximity to the Proposed Project. For example, the analysis takes into account that the SBPCR Project that are currently closed will be completed and Wagner Park and the adjacent sections of the Battery Park City South Esplanade and Pier A Plaza are proposed to be reopened prior to the construction within the proposed project open spaces commencing in the last quarter of 2025.

The user demand during the temporary construction period closure of open spaces can be addressed by several of the open space resources in the study area. For example, the Hudson River Greenway would remain open as would Teardrop Park which is within the Battery Park City north neighborhood and the northern portion of this park includes plantings, nature play areas, a children's slide, grass lawns, and benches, while the southern portion of the park is dedicated to passive open space with additional winding paths, benches, a small amphitheater, and plantings. Part of the Battery Park City open space system are the ballfields to the east. Also to the east, just across Route 9A/West street is the Washington Market Park which offers a variety of active and passive spaces. Adjacent and to the north, there are also several active spaces in Hudson River Park including the esplanade for jogging, basketball and sports courts recreational piers, in-water activities, such as kayaking and rowing, as well as passive spaces such as natural habitats, with educational viewing and seating opportunities. To the southeast there is also ferry access from the Battery Maritime Building to the large open spaces at Governor's Island, a 172-acre open space with ball fields, lawns, playgrounds, and miles of pedestrian pathways and bike lanes. These open spaces would continue to serve the community throughout the construction of the Proposed Project.

At project completion, there would also be the open space benefits of enhanced accessibility by improving pedestrian circulation, elevating platforms and pathways, and creating switchbacks and winding pathways to enhance passive open spaces in the Project Area. Additionally, the Proposed Project would protect open space resources upland and within the Protected Area from future storm events. Open spaces west

of the flood barrier system would also be updated with drainage improvements and green infrastructure enhancements, like high-performance rain guards.

Construction Natural Resources

An assessment of potential construction period impacts by each natural resource technical area is summarized below.

Groundwater. Groundwater pumping is expected to be necessary for certain construction activities that require excavation below surface grading such as water and sewer main construction. Given the project location near the river and the relatively shallow groundwater conditions, it is expected that groundwater pumping will require NYSDEC permits for pumping and discharges to surface waters (the Hudson River), and/or a NYCDEP permit for discharges to the City sewer system. In either case, residual groundwater from dewatering operations would be treated in accordance with either NYSDEC or NYCDEP permitting requirements prior to discharge. These permit approvals would need to be in-place before the construction activities that require dewatering approvals can proceed.

Floodplains. Construction of the Proposed Project would not adversely affect floodplain hydrology, nor would it exacerbate flooding conditions. In addition, the construction zones would be protected from flooding in the event of storm event.

Natural Resources. All construction activities are proposed to be performed in accordance with the applicable permits that minimize and avoid impacts to natural resources. To that end, to avoid impacts to littoral zone tidal wetlands associated with turbidity increases from suspended sediment during in-water construction best management practices would be implemented through a Stormwater Pollution Prevention Plan (SWPPP) for the purpose of avoiding the discharge of materials to the Hudson River littoral zone tidal wetlands. In addition, to minimize resuspension of bottom sediment during in-water construction, containment booms and full-length turbidity curtains would be installed around work areas to contain any potential impacts from sediment resuspension. Any sediment resuspended during in-water work such as pile drilling and sheet pile installation would therefore have only a minor, short-term and localized effect on water quality. The use of bubble curtains around all pile installation activities would also reduce the intensity of underwater noise on aquatic species and would minimize temporary increases in underwater noise levels such that would not exceed the threshold for physiological injury to fishes. Therefore, with these measures in place, it is concluded that the Proposed Project would avoid significant adverse impacts to aquatic resources, including water and sediment quality, aquatic biota, and essential fish habitat.

Terrestrial Communities. Terrestrial ecological communities in the Study Area are limited to previously anthropogenic and landscaped communities along the waterfront of BPC. Temporary construction impacts to these communities would not result in any significantly adverse ecological impacts given its predominantly urban setting and the affected areas would be restored as part of the final landscaping plan. Where possible, trees along the Project Area would be retained and protected during construction with a tree replacement plan.

Avian Wildlife. It is expected that project construction activities would result in minor short-term impacts to terrestrial wildlife. Therefore, species that are present either as transients or nesting would be temporarily displaced due to increased noise and human activity during construction, but are expected as urban generalist to relocate to suitable habitat that is available within Battery Park City or the greater NYC area and flyway.

Protected Species. Construction of the Proposed Project would not result in any significant adverse impacts to state or federally listed threatened, endangered, or candidate species. There is no essential breeding habitat for monarch butterfly (i.e., milkweed plants) along the project corridor or in the Study Area and any monarch butterflies that may be present are expected to be occasional migratory individuals rather than breeding populations. Peregrine falcons are known to have nest sites throughout southern Manhattan and have been documented by the New York Natural Heritage Program (NYNHP) as nesting within 0.5 miles of the Project Site. However, any falcons in the project area are expected to avoid the Study Area during active construction and would return. Migration of shortnose sturgeon, Atlantic sturgeon, and sea turtles through the Hudson River during spring and early fall would not be obstructed by project construction which would only result in increased noise within a relatively small aquatic zone in the Hudson River. Because impacts associated with the in-water construction activities would be localized, including resuspended sediments and elevated noise levels, the deeper channel habitat typically used by sturgeon would not be adversely impacted during project construction. The temporary loss of potential foraging habitat due to avoidance of the Study Area would not result in any significant adverse impacts to sturgeon or sea turtles, as similar suitable habitat would continue to be available nearby and they would be expected to return to the Study Area following construction.

In addition, construction of the Proposed Project would not adversely impact water or sediment and would not significantly affect habitat for aquatic biota, including striped bass, and would therefore not result in significant adverse impacts to the Lower Hudson Reach, which is designated as significant coastal fish and wildlife habitat, or to the Hudson River Park Estuarine Sanctuary.

Construction Transportation

Traffic

Traffic conditions were evaluated at 14 intersections for the Peak Construction Analysis for the construction weekday AM and PM peak hours. Based on that analysis, during project construction significant adverse traffic impacts were identified at two intersections during the construction weekday AM peak hour and four intersections during the construction weekday PM peak hour. **Table S-2** summarizes these projected significant adverse traffic impacts.

Table S-2

Summary of Peak Construction Analysis Significant Adverse Traffic Impacts

Intersection		Weekday AM Peak Hour	Weekday PM Peak Hour
NB/SB Street	EB/WB Street		
North End Avenue	Vesey Street		SB-LT
Route 9A/West Street	Murray Street		EB-L
			WB-LT
Route 9A/West Street	Laight Street	WB-L	
Route 9A/West Street	Liberty Street		EB-DefL
		NB-L	NB-L
Route 9A/West Street	Albany Street		EB-LTR
Note: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound			

Transit

The incremental subway, PATH and bus trips generated during project construction are well below the respective *CEQR Technical Manual* thresholds. Therefore, detailed transit analyses were not warranted and the Proposed Project would not result in any significant adverse transit impacts.

Citywide Ferry Service

The the Proposed Project is not expected to generate any incremental trips on the Citywide Ferry Service during construction. Therefore, an analysis of ferry facilities was not warranted, and the Proposed Project would not result in any significant adverse ferry impacts.³

Pedestrian

The incremental pedestrian trips generated from construction workers are projected to be well below the *CEQR Technical Manual* analysis threshold of 200 pedestrians per hour at any one location. Therefore, a detailed pedestrian analysis is not warranted, and the Proposed Project would not result in any significant adverse pedestrian impacts for the Peak Construction Analysis.

An evaluation of the proposed construction barriers and the MPT was also performed. To determine the impacts of narrowed sidewalks and sidewalk closures, pedestrian conditions were evaluated at eight sidewalks, four corners, and two crosswalks for the commuter weekday AM, midday, and PM and Saturday peak hours. Based on this analysis, significant adverse pedestrian impacts during construction were identified at five pedestrian elements during the weekday AM peak hour, two elements during the weekday midday peak hour, five elements during the weekday PM peak hour, and two elements during the Saturday peak hour. **Table S-3** summarizes these projected significant adverse pedestrian impacts and the potential mitigation measures are summarized below under “Mitigation.”

³ While project worker trips originating New Jersey may also use NY Waterway, these trips were conservatively assumed in the vehicle or transit modes.

Table S-3**Summary of Construction MPT Analysis Significant Adverse Pedestrian Impacts**

Pedestrian Element	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
West Sidewalk along Route 9A/West Street between Harrison Street and Chambers Street	Impacted		Impacted	Impacted
East Sidewalk along Greenwich Street between North Moore Street and Franklin Street	Impacted		Impacted	
Greenwich Street and Franklin Street Northeast Corner	Impacted	Impacted	Impacted	Impacted
Greenwich Street and North Moore Street South Crosswalk	Impacted		Impacted	
Greenwich Street and Franklin Street North Crosswalk	Impacted	Impacted	Impacted	

Parking

The Proposed Project would generate a daily parking demand of 104 vehicles during peak construction activities that could be fully accommodated by nearby off-street facilities within ¼ mile of the Project Area. Therefore, the Proposed Project would not result in any potential significant adverse parking impacts.

Construction Air Quality

Measures are proposed to minimize air emissions from construction equipment and to ensure compliance with all applicable laws, regulations, and construction codes and practices. These include the use of ultra-low sulfur diesel (ULSD) fuel, dust suppression measures, idling restrictions, diesel equipment reduction, and use of best available technology (i.e., equipment meeting the U.S. Environmental Protection Agency's [USEPA] Tier 4 emission standard). A pollutant dispersion modeling analysis was conducted that incorporated these project commitments to emission reduction measures for both non-road and on-road sources. It was the conclusion of that analysis that particulate matter (PM_{2.5} and PM₁₀), annual average nitrogen dioxide (NO₂), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds or National Air Quality Ambient Standards (NAAQS), respectively. Therefore, it is concluded that project construction would not result in significant adverse air quality impacts.

Construction Greenhouse Gas Emissions and Climate Change

Construction of the Proposed Project would involve the use of both stationary source (nonroad) construction equipment and on-road (mobile source) vehicles, both of which have GHG emissions. It was determined that project construction would result in up to approximately 40,385 metric tons of CO₂ emissions associated with fossil fuel use in all forms. Potential measures for reductions of emissions from construction of the Proposed Project are under consideration and may include the use of biodiesel, expanded use of recycled steel and aluminum, as well as expanded construction waste reduction.

Therefore, it is concluded that project construction would not result in significant impacts with respect to greenhouse gas emissions.

Construction Noise and Vibration

Construction-generated noise would result in significant adverse effects at multiple sensitive receptors. The noise level increments resulting from construction would be due primarily to noise generated by on-site construction activities (rather than construction-related traffic). The construction noise analysis examined the reasonable worst-case peak hourly noise levels resulting from construction in each reach and is therefore conservative in predicting increases in noise levels; typically, the loudest hourly noise level would not persist throughout the entire construction period.

The construction noise analysis predicted that noise levels would exceed the construction noise impact criteria including levels that would be noticeable and potentially intrusive during the most noise-intensive construction activities at some receptors. While the highest levels of predicted construction noise would not persist throughout construction, and noise levels fluctuate resulting in increases that are intermittent, these impacted locations would experience construction noise levels of a magnitude and duration that constitutes significant adverse impacts under CEQR.

Construction noise is regulated by the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) and the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28). These requirements mandate that: construction equipment and motor vehicles meet specified noise emission standards; construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. Therefore, on the limited occasions when weekend or after-hour work may be necessary (e.g., overnight work in Stage 1E along Route 9A/West Street or Saturday activity for deliveries or weather catch-up), permits would be required, as specified in the New York City Noise Control Code. As required under the New York City Noise Control Code, a site-specific Construction Noise Mitigation Plan for the Proposed Project would also be developed and implemented prior to the start of work. Additional measures that may be implemented to mitigate impacts are summarized below under “Mitigation.”

With respect to vibration, it was determined that based on an analysis of project construction methods that construction activities may produce noticeable vibration levels (i.e., vibration levels exceeding 75 VdB) at adjacent structures during pile installation; however, this activity would only be experienced for limited periods at certain locations. Consequently, it is concluded that construction vibration would not result in any significant adverse impacts.

Construction Neighborhood Character

Since the Proposed Project would result in temporary significant adverse open space, traffic, and noise impacts during construction and these are defining features of neighborhood character it was concluded that the Proposed Project would have the potential for temporary significant adverse neighborhood character impacts during construction.

ES.0.6.3 Mitigation

In addition to the mitigation and impacts avoidance measures described above for wetlands, archaeological and historic resources, the Proposed Project has the potential to result in temporary significant adverse impacts during construction on open space, traffic, noise, and neighborhood character. Potential mitigation measures for each of these technical area significant impacts are discussed below.

Construction Open Space

To continue to provide public programs and events during construction that have traditionally taken place at various park spaces throughout the Esplanade, such as the Irish Hunger Memorial Plaza, Pumphouse Park, Belvedere Plaza, and South Cove, among others, BPCA would temporarily relocate all of the programs and events in affected areas to parks and open spaces within Battery Park City for the duration of the proposed construction.

In addition, provided below is a list of temporary open space mitigation opportunities that may be provided by the BPCA within Battery Park City during project construction:

- Play areas
- Parklets and street seats
- Pop-up parks
- Seating
- Open Streets

The feasibility of these measures and other potential open space mitigation options will continue to be investigated between this DEIS and the FEIS. However, even with these replacement temporary open spaces, the impacts to open space during construction would not be fully mitigated. As described above it is anticipated that the temporary closure of open space resources along the Battery Park City Esplanade, including Belvedere Plaza, Kowsky Plaza, and North and South Coves during construction would create demand for programmed activities in other open spaces in the study resulting in a temporary significant adverse impact on these open spaces from the added demand.

Construction Transportation**Peak Construction Analysis: Traffic**

Based on the Peak Construction Analysis scenario, the following five intersections would experience temporary significant adverse traffic impacts:

- North End Avenue and Vesey Street (PM peak hour)
- Route 9A/West Street and Murray Street (PM peak hour)
- Route 9A/West Street and Lighthouse Street (AM peak hour)

- Route 9A/West Street and Liberty Street (AM and PM peak hours), and
- Route 9A/West Street and Albany Street (PM peak hour)

Standard traffic mitigation measures (i.e., signal timing changes) that are subject to the approval of NYCDOT would fully mitigate the significant adverse impacts at three of the five intersections. The weekday PM peak hour significant adverse traffic impacts at Route 9A/West Street with Murray Street and Liberty Street would remain unmitigated.

MPT Construction Analysis: Traffic

Analyses conducted under the MPT Construction Analysis scenario identified potential significant adverse traffic impacts at two intersections and total of five peak hours along Route 9A/West Street at Harrison Street (AM peak hour) and North Moore Street (midday, PM, construction PM, and Saturday peak hours). With the implementation of standard traffic mitigation measures (i.e., signal timing changes) that are subject to the approval of NYCDOT, the significant adverse traffic impacts at both intersections could be mitigated in all five peak hours.

MPT Construction Analysis: Pedestrians

According to analyses conducted under the MPT analysis, potential significant adverse pedestrian impacts could result at the following five pedestrian elements - two sidewalks, one corner, and two crosswalks:

- West sidewalk of Route 9A/West Street between Harrison Street and Chambers Street during the weekday AM and PM and Saturday peak hours;
- East sidewalk of Greenwich Street between North Moore Street and Franklin Street during the weekday AM and PM peak hours;
- Northeast corner of Greenwich Street and Franklin Street during the weekday AM, midday, PM and Saturday peak hours;
- South crosswalk of Greenwich Street and North Moore Street during the weekday AM and PM peak hours; and
- North Crosswalk of Greenwich Street and Franklin Street during the weekday AM, midday, and PM peak hours.

The majority of these significant adverse pedestrian impacts could not be mitigated. However, the significant adverse pedestrian impacts on the east sidewalk of Greenwich Street between North Moore Street and Franklin Street could be mitigated by the removal of street planters and the LOS on the northeast corner of Greenwich Street and Franklin Street could be improved by removing the trash receptacle from the corner reservoir area (partially mitigated), but would still result in an unmitigated impact. The remaining one sidewalk and two crosswalks could not be mitigated in any peak hour.

Construction Noise

Impact Summary

A detailed analysis of project-generated construction noise identified significant impacts along the seven reaches, including noise levels that would be noticeable and intrusive during the most noise-intensive construction activities. While the highest levels of predicted construction noise would not persist throughout construction, and noise levels would fluctuate with construction intensity resulting in noise increases that are intermittent, many locations would experience construction noise levels where the magnitude and duration constitute significant adverse impacts under CEQR.

While some of the buildings where impacts have been identified feature modern façade construction, including insulated glass windows and an alternative means of ventilation that would allow for the maintenance of a closed-window condition, it is not possible to definitively determine the presence of these features at all receptors that would have the potential to experience construction noise impact.

For impacted open space areas and buildings with outdoor terraces, no practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the CEQR threshold. Consequently, construction activities would result in noise levels at these receptors that would constitute a significant adverse noise impact that is unavoidable.

Recognizing that the proposed project is a large multi-year capital project with an approximately 5-year construction duration, periods of substantially and significantly elevated construction noise are unavoidable. It is therefore the objective of the BPCA working with its selected construction team to minimize construction noise impacts on the community to the extent feasible, while facilitating project completion. While noise impacts for a project of this scale in close proximity to residences and open spaces cannot be fully mitigated, measures will be taken to minimize the impact to the extent feasible.

To that end, the following measures are part of the project's preliminary noise emission control and mitigation approach.

Source Controls

As stated above, project construction is required to comply with the noise mitigation rules of the City of New York and the requirements of the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113) for construction noise control measures. Specific noise control measures that would be incorporated in the projects noise mitigation plan(s) that are required under the New York City Noise Control Code would include a variety of source and path controls, as follows:

- Using equipment that meets the sound level standards specified in Subchapter 5 of the New York City Noise Control Code would be utilized from the start of construction;
- Conversions from diesel- or gas-powered equipment to electrical-powered equipment (e.g., water pumps, bench and table saws) as early as possible;
- Enclosures for diesel or gas-powered generators and pumps to the extent feasible and practicable;

- Where feasible and practicable, the construction site is to be configured to minimize back-up alarm noise;
- Minimizing truck idling to 3 minutes;
- Proper maintenance of all equipment and noise attenuation measures such as mufflers;
- Path controls (e.g., placement selection and enclosure of equipment, barriers) and siting noisier equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, at the maximum operational distance away and shielded from sensitive receptor locations;
- Noise barriers to provide shielding (e.g., a minimum 8-foot-tall barrier around the construction perimeter);
- Enclosures and acoustical fencing including an 8-foot-high temporary fence with acoustical blankets and recurves (i.e., angled tops) to provide some level of noise protection for high elevations with sound blankets hung next to the construction operation;
- Sound-absorptive “blankets” mounted on the work side of each site-perimeter noise barrier;
- Noise path control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents);
- Minimizing construction activities outside standard work hours (the 7AM to 3:30 PM workday), with some workdays extended until 6PM to complete a task and for the crossing of Route 9A/West Street);
- Minimizing the impacts of the most impactful construction activities, such as jackhammers and hoe rams, saw cutting for the platform demolition and no “impact pile driving” (i.e., the less noise-intensive method of drilled shafts with vibratory sheet pile installation); and
- All noise emitting equipment is to comply with all City, State and Federal noise emission regulations and will be inspected regularly to ensure proper maintenance and operation.

The following specific noise source attenuation measures are also proposed to be implemented for specific operations:

- Crane operations. Cranes will be equipped with well-maintained, manufacturer-recommended exhaust mufflers to mitigate noise escapes with diesel exhaust;
- Pile Installation. During pile installation, noise originates not only from the crane engine, but also from the methods used to install the pile. Therefore, as stated above the proposed method of pile installation is drilled shafts for longer piles and micropiles with vibratory sheet pile installation for the remainder (no impact pile driving);
- Limiting use of vacuum excavators to activities around critical infrastructure, utilities, and/or for sensitive tree root protection;
- Utilizing low noise compressors (i.e., no greater than 70 dBA at a distance of 50 feet);

- Utilizing low noise landscaping excavators (noise emission of 78 dBA at a distance of 50 feet);
- Manufacturer-recommended mufflers will be used on jackhammers.

Feasibility of Additional Potential Noise Reduction Measures

To ensure that the Proposed Project includes the full range of both current and future feasible measures. BPCA will direct the construction team to continue to investigate additional measures to minimize noise emissions from equipment that will include, but not be limited to, those known at the start of construction in July 2025 and those that may evolve or become available during the course of construction (e.g., 2025-2030).

Project Coordination and Community Liaison

Project construction is to be closely coordinated with all stakeholders taking into consideration the overall project schedule, school calendars, open space needs and seasonal requirements for working adjacent to utilities, performing utility relocations, and coordination with NYCDOT and NYSDOT. To this end, BPCA will specify that the contractor have a Community Engagement Manager (CEM) who will be the primary point of contact for all public involvement related interfaces between the contractor and local stakeholders during the entire construction period and will serve as a point of contact for the community and local representatives for the purposes of addressing concerns, problems and issues that arise during large multi-phase construction projects such as the proposed BPCA resiliency project.

ES.0.6.4 Alternatives

Alternatives to the proposed project that were considered include:

- A No Action Alternative (required by SEQRA/CEQR);
- Design Alternatives, including Pump Station Location Alternatives
- A No Unmitigated Significant Adverse Impact Alternative

The No Action Alternative is to provide the Lead and Involved agencies with an assessment of the expected environmental consequences of no action on their part. Under the No Action Alternative, there would be no discretionary actions requiring environmental review and the related impacts that are summarized above. However, there would also be no coastal storm protection system installed in the Project Area and, as a result, the Protected Area would remain at risk of flooding from rainfall and storm surges during major storm events.

Design alternatives focused on those that were considered during the project design process including inboard and outboard alignments of the flood barrier system and the pump station siting. It was the conclusion of the alignment analysis that although many of the flood barrier system design options that were evaluated for each reach were considered practicable from a constructability standpoint, the project alignment best meets the project Purpose and Need and overall community objectives, while also resulting in the least impact to regulated marine resources and other natural, cultural, and built features that comprise the Project Area.

As part of the design process for the proposed pump station three locations were considered: 1) the BPCA ballfields; 2) the schoolyard of PS/IS 289; and the plaza area east of and adjacent to Stuyvesant High School. The latter site was ultimately chosen and is considered in this EIS as it provides an optimal location for such a facility with the least disruption to public open space and the shortest distance to the outfall discharge location. There are three alternative design options under consideration by NYCDEP and BPCA for the above-grade electrical room structure. In each option, the at-grade footprint of the structure remains within the plaza area adjacent to the school and there would continue to be plaza circulation space with no structure in the bikeway/walkway corridor (Hudson River Greenway). In each of the scenarios, the above-ground elements of the pump station are to be designed with the objective of minimizing effects on pedestrian circulation in this public space and avoiding interference with the emergency entrance/exit at the high school. Final exterior finishes are to enclose all equipment and achieve design compatibility with the aesthetic context of the adjacent school and bridge. Selection of a final design option be determined by BPCA in coordination with NYCDEP, SCA and NYCDOT.

To identify the No Unmitigated Significant Adverse Impact Alternative, the unavoidable impacts identified for the Proposed Project were considered to determine the avoidance measures that would be required for the different types of impacts. The Proposed Project would result in unmitigated or potentially unmitigated significant adverse impacts temporarily during the construction phase, due to construction activity impacts on open space, transportation, noise, and neighborhood character. The No Unmitigated Significant Adverse Impact Alternative examines changes to the Proposed Project and/or the construction thereof specifically to avoid the unmitigated significant adverse impacts associated with the Proposed Project. Overall, to eliminate all significant adverse impacts, the Proposed Project would have to be modified to a point where the principal goals and objectives would not be realized.

ES.0.6.5 Unavoidable Adverse Impacts

Unavoidable significant adverse impacts resulting from the Proposed Project have been identified during the construction phase and include impacts on open space, transportation, noise, and neighborhood character.