North/West Battery Park City Resiliency Project Update

June 20, 2024

NEW YORK STATE OF OPPORTUNITY.

Battery Park City Authority



Agenda / Run of Show

1. **Discussion Topics and Boards: (5:00 - 6:30pm)**

2. **Presentation: (6:30 - 7:30pm)**

   a) **Why We're Here** (Raju Mann / Jordan Salinger)

   b) **South Battery Park City Resiliency Project Update** (Raju Mann)

   c) **North/West Battery Park City Resiliency Project Update** (Gwen Dawson, Rachel Wilkins, Lee Altman)

   d) **North/West Battery Park City Resiliency Construction Strategy** (Gwen Dawson)

   e) **Next Steps** (Gwen Dawson)

3. **Q&A: (7:30 – 8:00pm)**

4. **Discussion Topics and Boards, Continued: (8:00 – 8:30pm)**

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Why We're Here

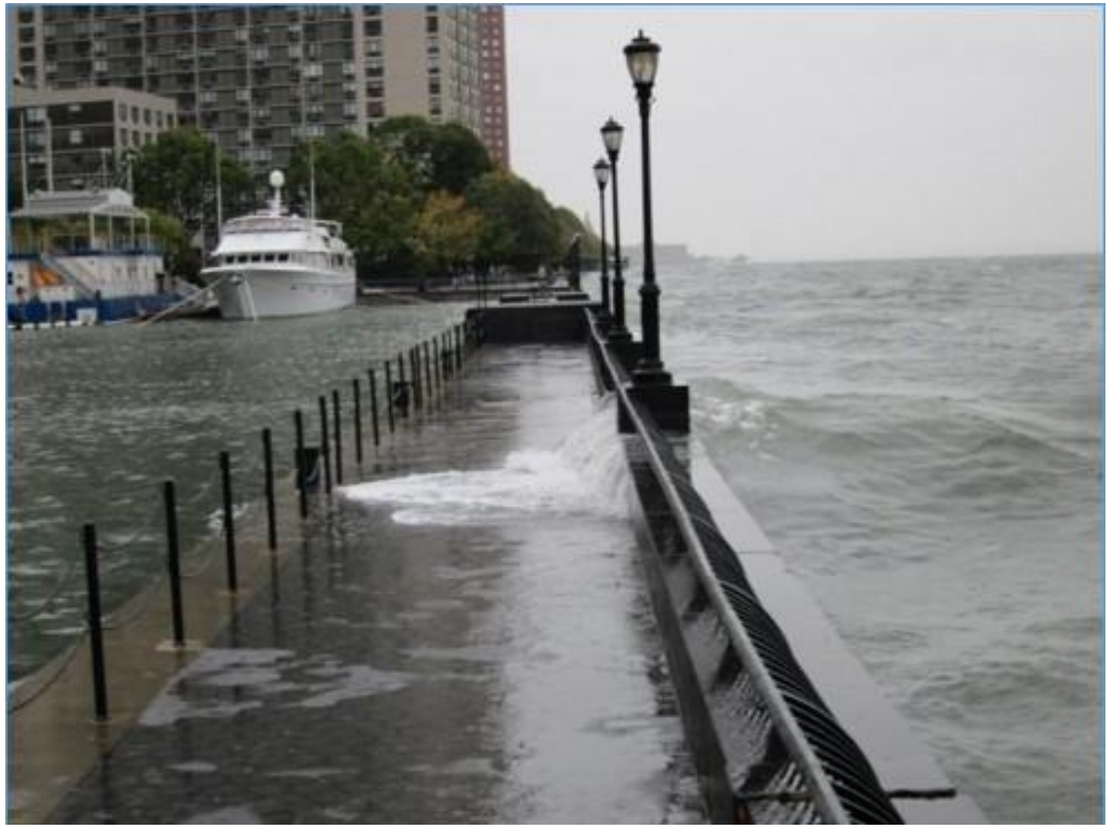
Why We're Here

- Superstorm Sandy resulted in **44 fatalities** and billions in property damage in New York City, with the frequency and intensity of storms only increasing

- By the 2050s, **37% of buildings in Lower Manhattan and supporting infrastructure** will be at risk from storm surge

- By the 2050's, **Heat waves projected to be 250% more frequent and 50% longer**

- More frequent heavy rain and cloudburst events in recent years have highlighted the **urgent need to improve interior drainage** in Lower Manhattan

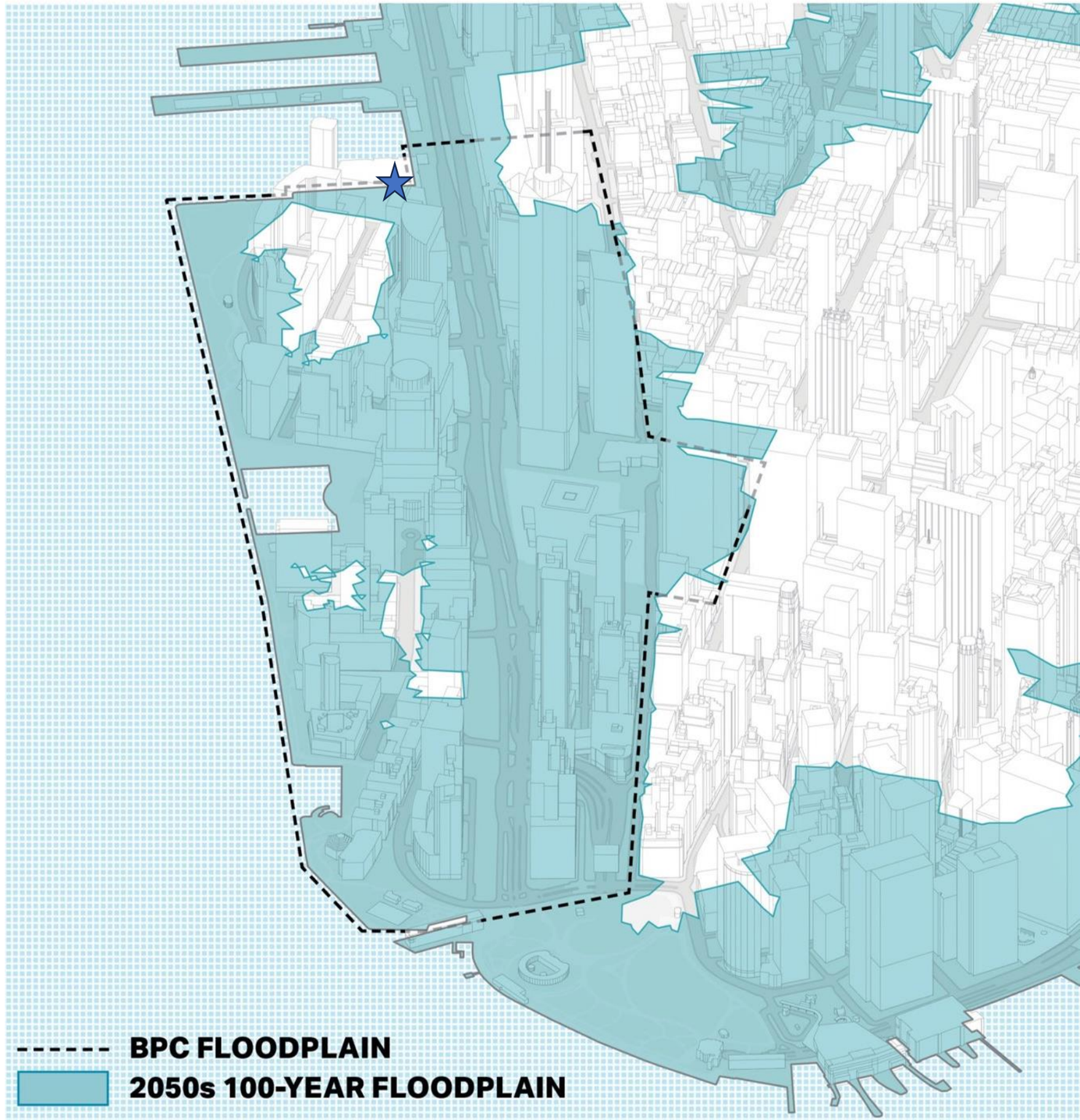


Data Source: Lower Manhattan Climate Resilience Study (2019)

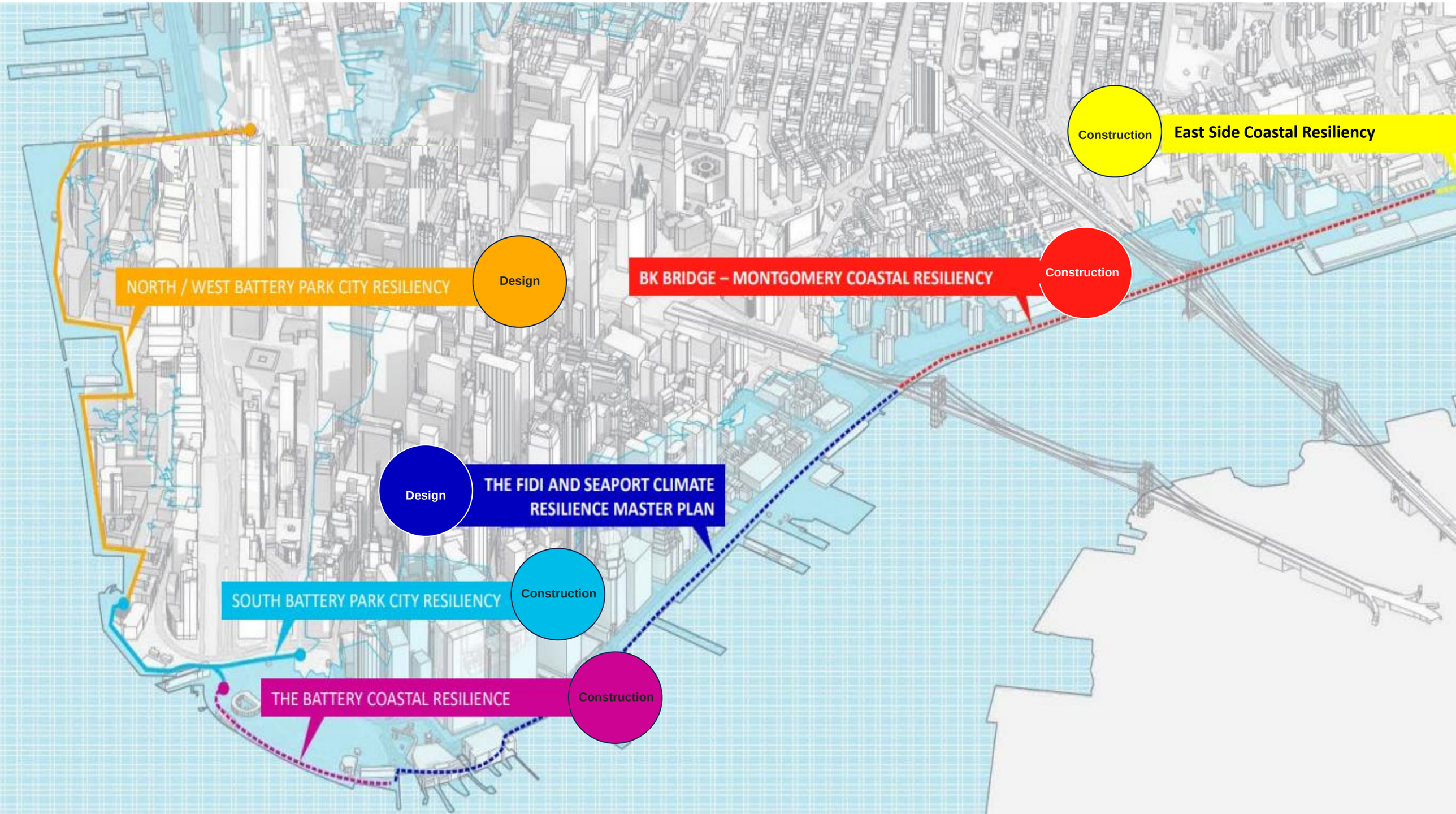
Why We're Here

The floodplain protected by Battery Park City's resiliency work contains:

- 120 buildings
  - 74 Residential
  - 25 Commercial
  - 21 Public
- 25,000 Residents
- 61,000 Jobs
- $13.8B in property value
- WTC transit hub and key regional infrastructure
- Borough of Manhattan Community College
- Museum of Jewish Heritage, WTC Memorial and Museum, and other cultural institutions



Why We're Here: **Lower Manhattan Coastal Resiliency**



Why We're Here: **Resiliency in Battery Park City**

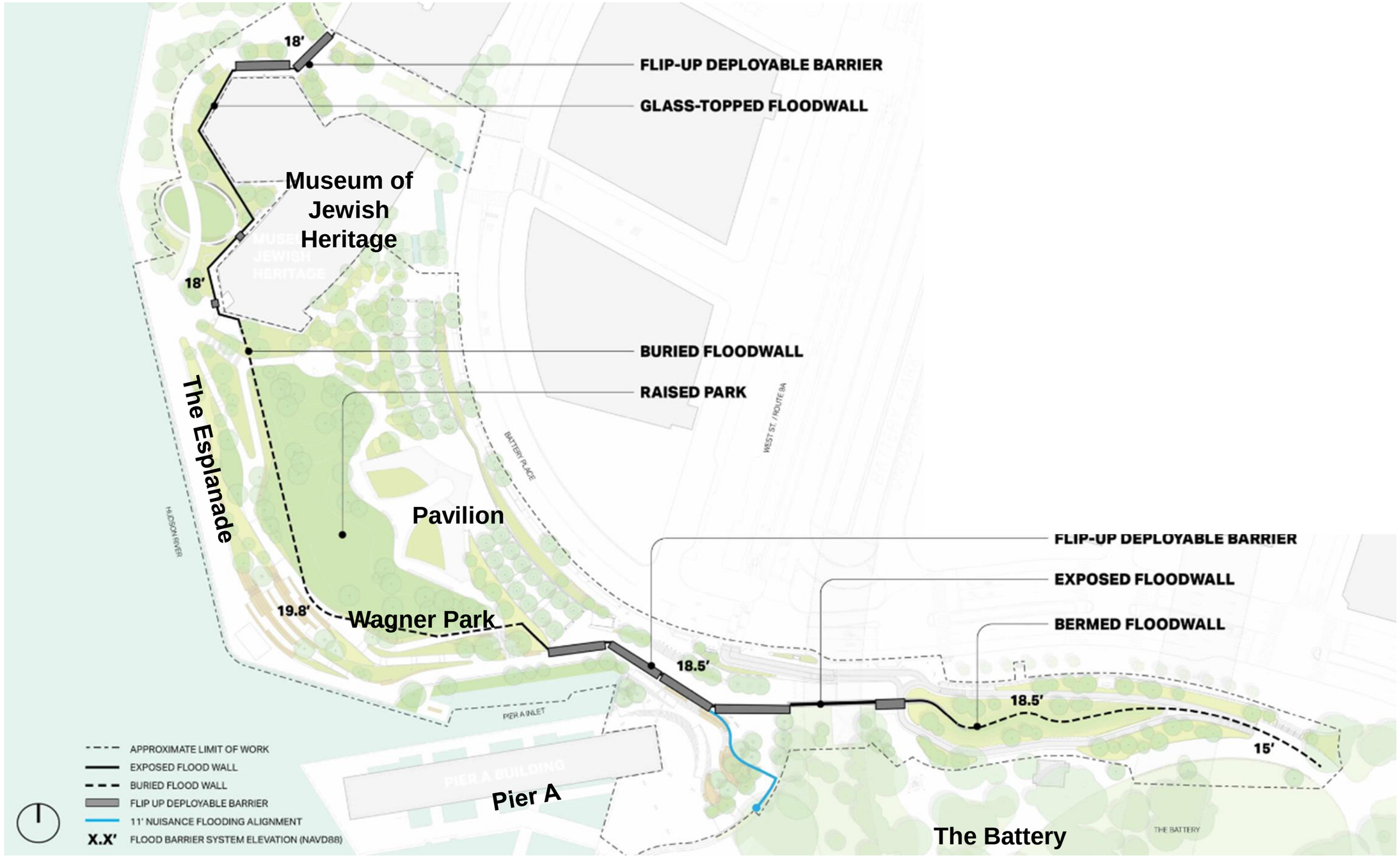
- The **BPC Ball Fields & Community Center Project** – **COMPLETE**.
  - American Society of Civil Engineers Metropolitan Section's Sustainability Project of the Year (2023)

- The **South Battery Park City Resiliency Project** – **UNDERWAY**; to be completed next year. Provides protection for southern Battery Park City and surrounding areas of Lower Manhattan.
  - SBPCR has earned the prestigious Waterfront Edge Design Guidelines (WEDG) Verification for its resilient, ecological, and accessible waterfront design

- The **North/West Battery Park City Resiliency Project** – **IN DESIGN**; will provide flood protection for the balance of Battery Park City, and portions of Lower Manhattan and Tribeca – including WTC site, BMCC, thousands of residents and workers.
  - NWBPCR designs incorporate public feedback received over the course of dozens of public meetings, workshops, walking tours, and small group discussions

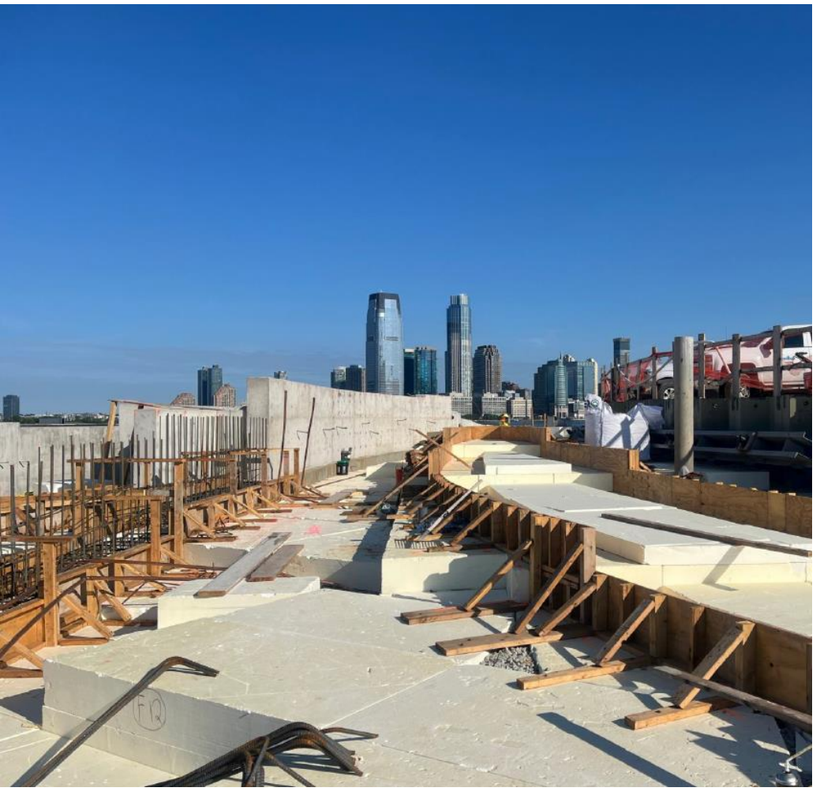
South Battery Park City Resiliency Update

South Battery Park City Resiliency: **Alignment**



South Battery Park City Resiliency: **Milestones**

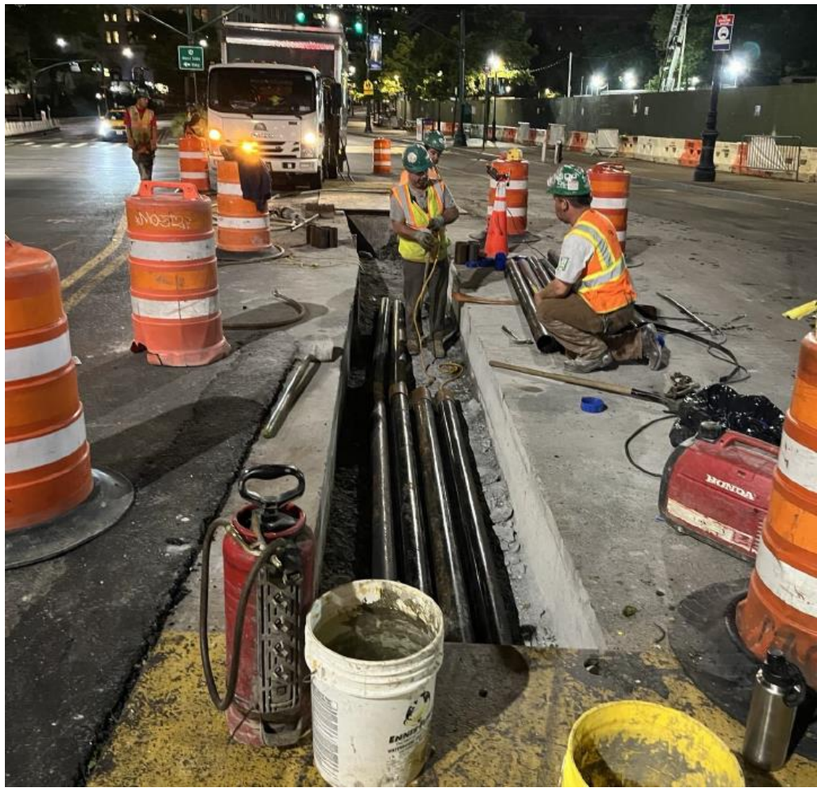
- **Wagner Park / Park Pavilion Demolition, Site Salvage:** 2023
- **Wagner Park/ MJH Floodwall / Pavilion Construction:** 2023/2024
- **The Battery/Pier A Plaza: Demo, Site Salvage and Utility Work**: 2023/2024
- **The Battery/Pier A Plaza: Floodwall Construction/Site Work**: 2024/2025
- **Substantial Completion:** Early Summer 2025



Geofoam Placement at Esplanade

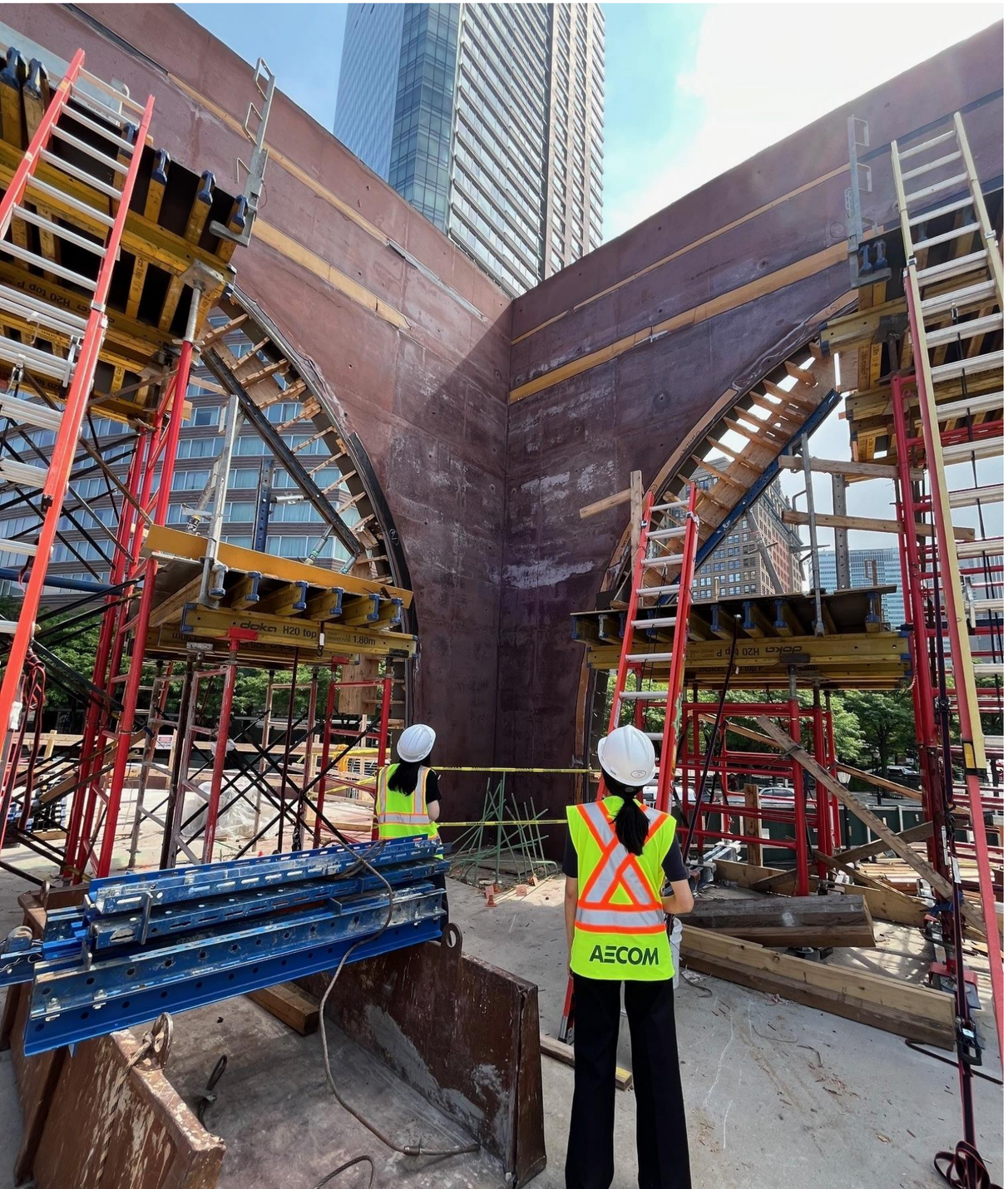


Pavilion Progress

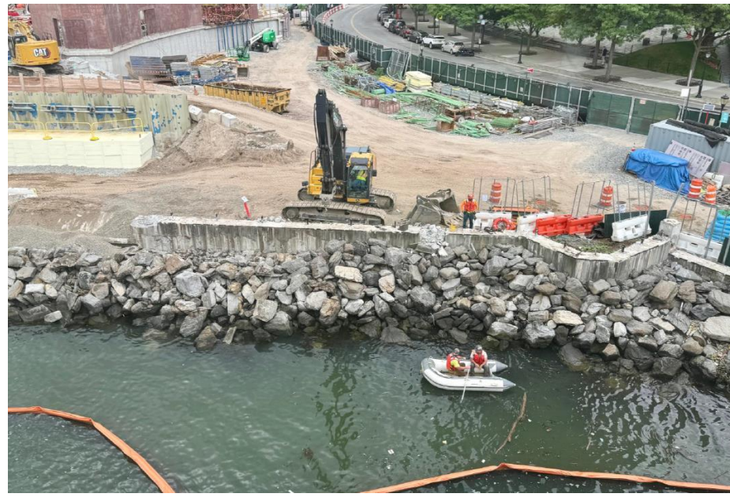


Battery Place Electrical Work

South Battery Park City Resiliency: **In Construction**









North/West Battery Park City Resiliency Update

Project Team

CLIENT TEAM:

CLIENT:

NEW YORK STATE OF OPPORTUNITY. | Battery Park City Authority

ADVISORS:

AECOM one architecture

CONSULTANTS:

AKRF

EIS CONSULTANT

DESIGN-BUILD TEAM:

PRIMARY CONTRACT:

Turner | CRUZ

CONSTRUCTION

CONSULTANT:

ARCADIS

CIVIL / STRUCTURAL ENGINEERING

SUB-CONSULTANTS:

BIG

URBAN DESIGN

SCAPE

LANDSCAPE ARCHITECTURE

WSP

GEOTECHNICAL

Community Engagement Highlights

- 7 Large Public Meetings
- 7 “Site Walks”
- 6 CB1 Presentations
- 4 Reach-Specific Workshops
- Dozens of smaller meetings with stakeholders throughout
- More info: bpca.ny.gov



The Benefits

- **Flood Risk Reduction** responsive to 2050s 100-year storm, including 2.5 feet of projected sea level rise, additional **cooling capacity** during heat events, and **prevention of ponding** of more than 1’ depth during rain events in Battery Park City.

- **Reduction of Homeownership Costs:** FEMA’s removal of BPC from the current flood zone will eliminate homeowners’ need to purchase flood insurance for federally-backed mortgages.

- **Enhancement of Public Space** with universal accessibility, remediated circulation pinch points, and increased and improved seating.

- **Increased Landscaping:** Over 30% increase in total planting coverage within the project area, including 2x near the Ferry Terminal.

- **Increased Native Plantings** to better support birds and pollinators with new planted areas that shorten existing gaps in habitat corridors.

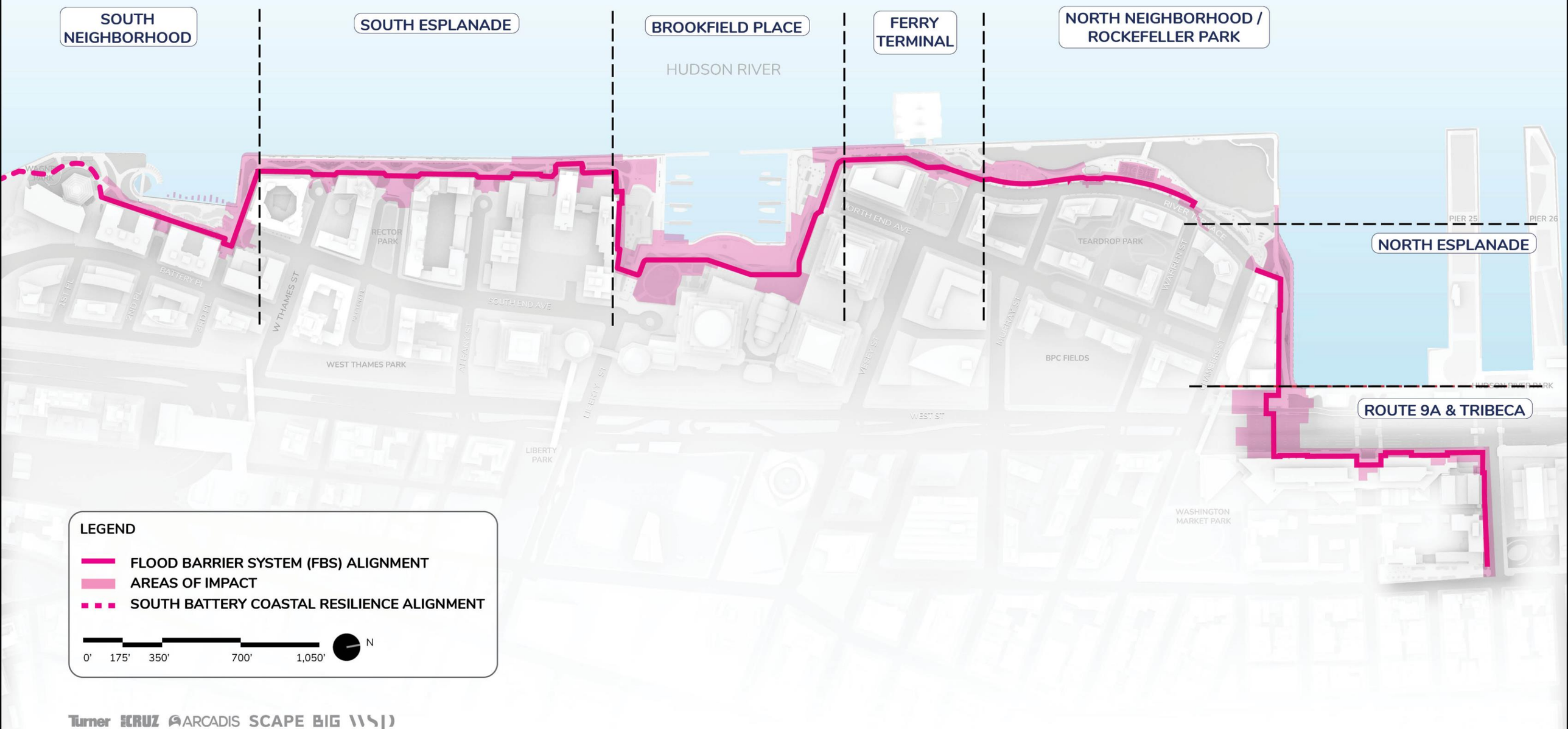
- **Improved In-Water Habitats:** Approximately 1,200 linear feet of reconstructed bulkhead designed to provide environments that support marine life.

Progress Updates from 40% to 60% Design

- **Greater level of detail** in alignment, engineering and constructability
- **Materials and plantings**
- **Design advancement** in particular for:
  - Tribeca/ Rt. 9A
  - North Esplanade
  - Brookfield Place and Pumphouse Park
  - South Esplanade Street Ends
  - South Cove



Flood Barrier System Alignment



N Moore St. | Plan

Proposed

LEGEND
- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING TREES
- LIMIT OF WORK

N

0' 25' 50' 100'

West St. / 9a

Citi Headquarters

Citi Headquarters Park

Wall Height: 9.6’ from sidewalk (DFE +16')

N. Moore St.

Wall Height: 2.5’ from sidewalk (DFE +16')

+7'6" +10' +12' +14’

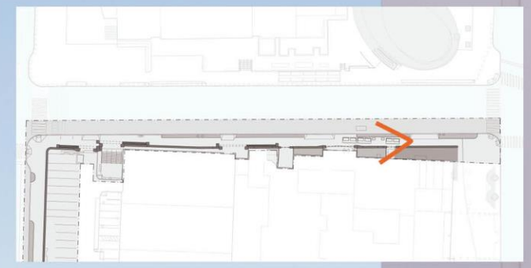
Borough of Manhattan Community College

Independence Plaza

Greenwich St.

N Moore St. | View toward HRP

Proposed



Entrances Maintained Through Use of Deployables

Planters Integrated Along FBS

FBS Wall

Wall Height: 2.5’ from Sidewalk (DFE +16’)

Planting Along Street Edge Provides Protected Pedestrian Experience

+ 13.00’

Con Ed Utilities

Route 9a and Tribeca | Plan

Proposed

Pier 25

NORTH/WEST BATTERY PARK CITY RESILIENCY PROJECT

LEGEND

- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREES
- NEW TREES
- LIMIT OF WORK

N

0' 25' 50' 100'

Hudson River Park-Estuarine Sanctuary

Hudson River Park

AREA UNDER DEVELOPMENT

Bikeway / Walkway

West St. /9a (South-Bound)

West St./9a (North-Bound)

Wall Height:
9.6' from sidewalk
(DFE +18')

+8'8"

+8'6"

+8'6"

+8'3"

+8'6"

Harrison St.

Borough of Manhattan
Community College

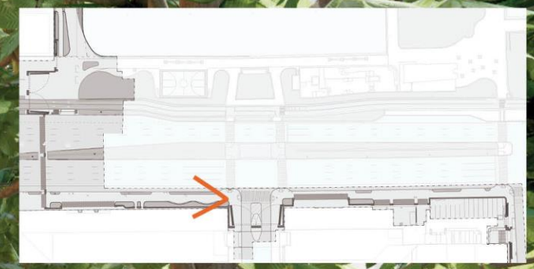
N. Moore St.

Turner CRUZ ARCADIS SCAPE BIG WSP

Route 9a and Tribeca | View looking South

Proposed

Borough of Manhattan Community College



FBS Wall

Wall Height: 9.5’ from Sidewalk (DFE +18’)

New Planters and Precast Concrete Seating integrated Along FBS

Wood Tops On Seating Elements

Planting Along Street Edge Provides Protected Pedestrian Experience

West St./ 9a

+ 8.5

Turner | CRUZ | ARCADIS | SCAPE | BIG | WSP

North Esplanade | Plan

Proposed

NORTH/WEST BATTERY PARK CITY RESILIENCY PROJECT

Hudson River Park

Hudson River Park-Estuarine Sanctuary

AREA UNDER DEVELOPMENT

West St./9a

12’

11’

12’

15’

12’

14.5’

+10.0’

Wall Height: 4.5’ from path (DFE +16.5')

Wall Height: 1.5’ from path (DFE +16.5')

Rockefeller Park

Tribeca Pointe

Stuyvesant High School

Chambers St.

River Terrace

LEGEND

- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREES
- NEW TREES
- LIMIT OF WORK

N

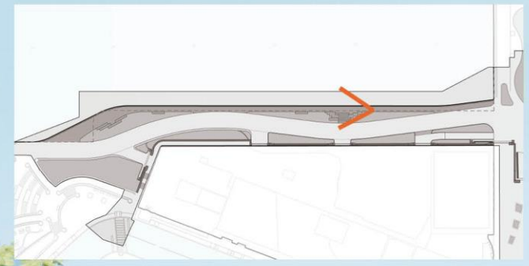
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Turner · ECRUZ · ARCADIS · SCAPE · BIG · WSP

North Esplanade | View from Esplanade

Proposed

NORTH/WEST BATTERY PARK CITY RESILIENCY PROJECT



Integrated Wheelchair Spaces

New Seating at Waterfront Edge

New Planting and Trees

+ 12'

Turner BOHLIN CRAVEDI SCAPE BIG HR&A

Rockefeller Park | Plan

Proposed

Ball courts reconfigured at existing location

+9.5’

Wall height 3.5’ from sidewalk (DFE +16.5’)

Ball courts

+11.5’

+13’

+14’

No change to handball courts

+9’

Minor impacts to lawn

Rockefeller Park

Wall height 1.5’ from sidewalk (DFE +16.5’)

45’ Opening with Stop Logs

River Terrace

+15.5’

New ball court seating feature

LEGEND

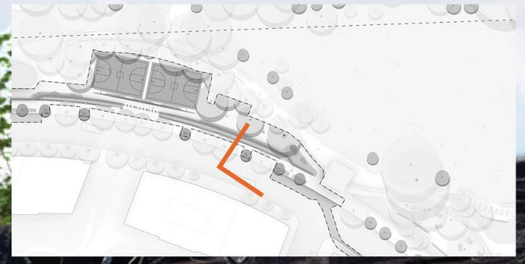
- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREE TO REMAIN
- NEW TREE
- NEW TREE OUTSIDE OF LIMIT OF WORK
- LIMIT OF WORK

0’ 25’ 50’ 100’ N

Turner CRUZ ARCADIS SCAPE BIG WSP

River Terrace | View toward North Lawn

Proposed



FBS Wall offset from existing stone wall location, new planting along sidewalk

FBS Wall

Wall Height varies 1.3’-3.5’ from Sidewalk (DFE +16.5’)

1.3’

+15.20

Playground | Plan

Proposed

Rockefeller Park

+10’

Lily Pond

Wall height 4.5’ from sidewalk (DFE +16.5’)

Rockefeller Park Playground

+11’

+12’

Wall height 4’ from sidewalk (DFE +16.5’)

45’ Opening with Swing Gates

+13’

+12.5’

Refurbished Play Equipment

River Terrace

LEGEND

- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREE TO REMAIN
- NEW TREE
- LIMIT OF WORK

0’ 10’ 20’ 50’ N

Lily Pond | Plan

Proposed

+9.5’

New immersive landscape with seating areas

+10’

Existing Lily Pond remains

Wall height 4’ from esplanade (DFE +16.5’)

+12.5’

Wall height 3.5’ from plaza (DFE +16.5’)

Lily Pond

+10’

+13’

Playground

Expanded planting area and reduced hardscape

50’ Opening with Roller Gate

+12’

Irish Hunger Memorial

River Terrace

LEGEND

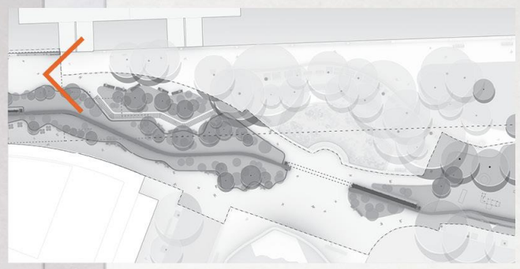
- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- PLATFORM RECONSTRUCTION AREA
- EXISTING TREE TO REMAIN
- NEW TREE
- LIMIT OF WORK

0’ 10’ 20’ 50’ N

Ferry Terminal | View from South

Proposed

NORTH/WEST BATTERY PARK CITY RESILIENCY PROJECT



New immersive landscape area with secondary path

New expanded planting area

Wall Height 4’ from path (DFE +16.5’)

FBS Wall

+ 10.00’

Turner KRUZ ARCADIS SCAPE BIG WSP

Brookfield Place | Plan

Proposed

Hudson River

Wall Height:
4’ from Esplanade
(DFE +16.5’)

+12.5’

+9.5’

Esplanade
Plaza

Belvedere Plaza

300 Vesey St.

North Cove Marina

+12’

North End Ave.

Kowsky Plaza

+14.3’

Gateway Plaza

+11.5’

+9.8’

250 Vesey St.

Vesey St.

Pumphouse Park

+14.0’

Wall Height:
2.5’ from Upper Plaza
(DFE +16.5')

+14.0’

Waterfront
Plaza

South End Ave.

Winter Garden

LEGEND

- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREES
- NEW TREES
- LIMIT OF WORK
- BRIDGING STRUCTURE

N

0’ 25’ 50’ 100’ 200’

Brookfield Place | Axonometric

Proposed

250 Vesey St.

300 Vesey St.

Seating and New Access From Upper to Lower Esplanade

Re-imagined Stepped Seating Elements

Universal Accessibility Provided

Dining Areas Preserved

Framed Lobby Entrance with Seating and Greenery

Wall Height: 2.5' from Waterfront Plaza (DFE +16.5')

Winter Garden

Waterfront Plaza

+ 14.00'

New Softscape and Seating

Increased Shade and Greenery

FBS Wall

+ 12.00'

+ 9.80'

Pump House Park

Wall Height: 4' from Esplanade (DFE +16.5')

Belvedere Plaza

+ 12.50'

+ 9.50'

Kowsky Plaza

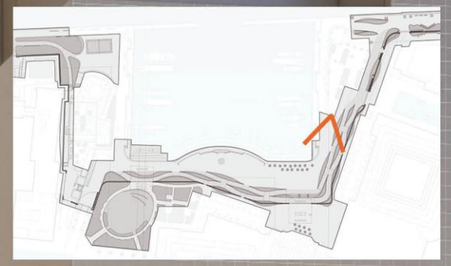
Maintain Flexible Community Use

Re-designed Step Down to Increase Greenery and Seating

Turner CRUZ ARCADIS SCAPE BIG WSP

Brookfield Place | View toward Winter Garden

Proposed



New Sculptural Seating

Universal Access Throughout

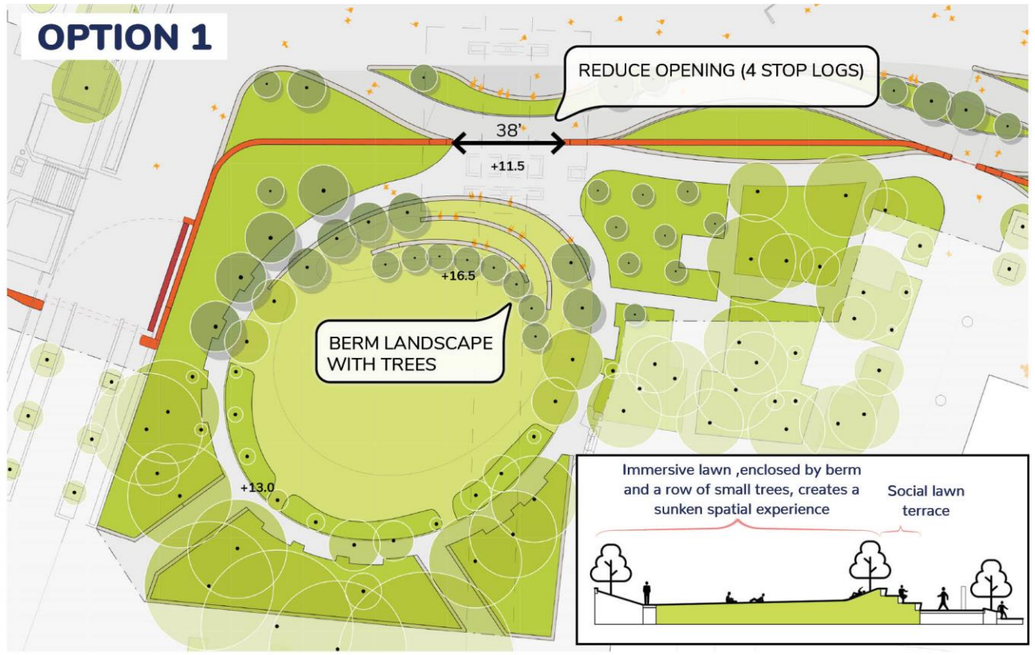
New Access From Upper to Lower Esplanade

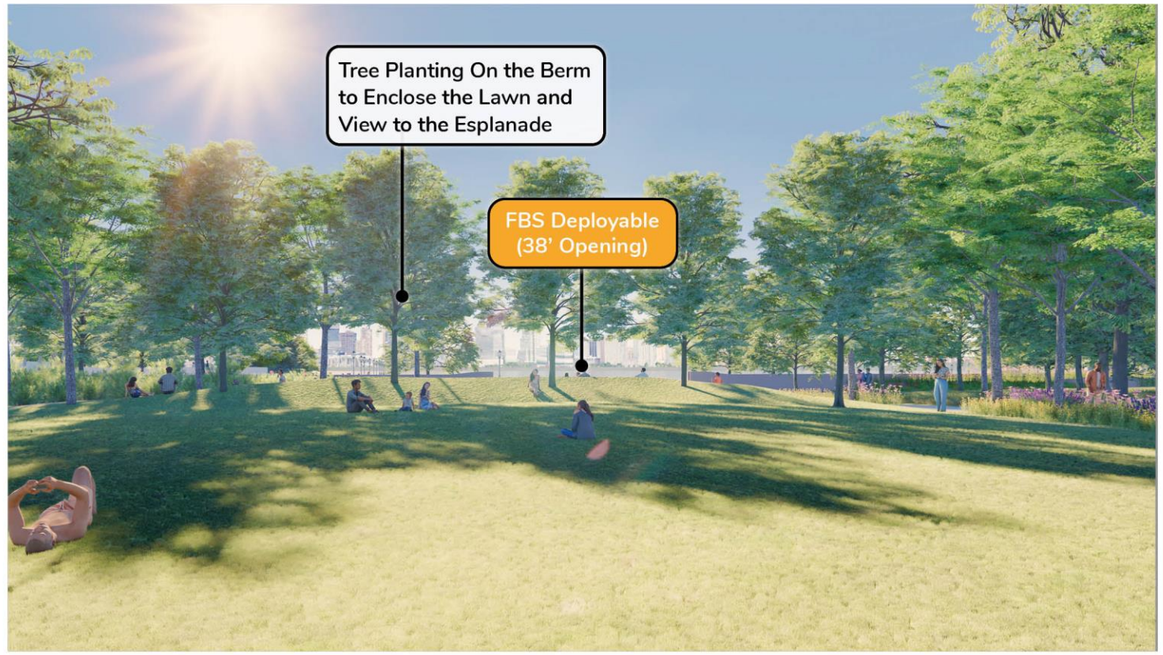
FBS Wall

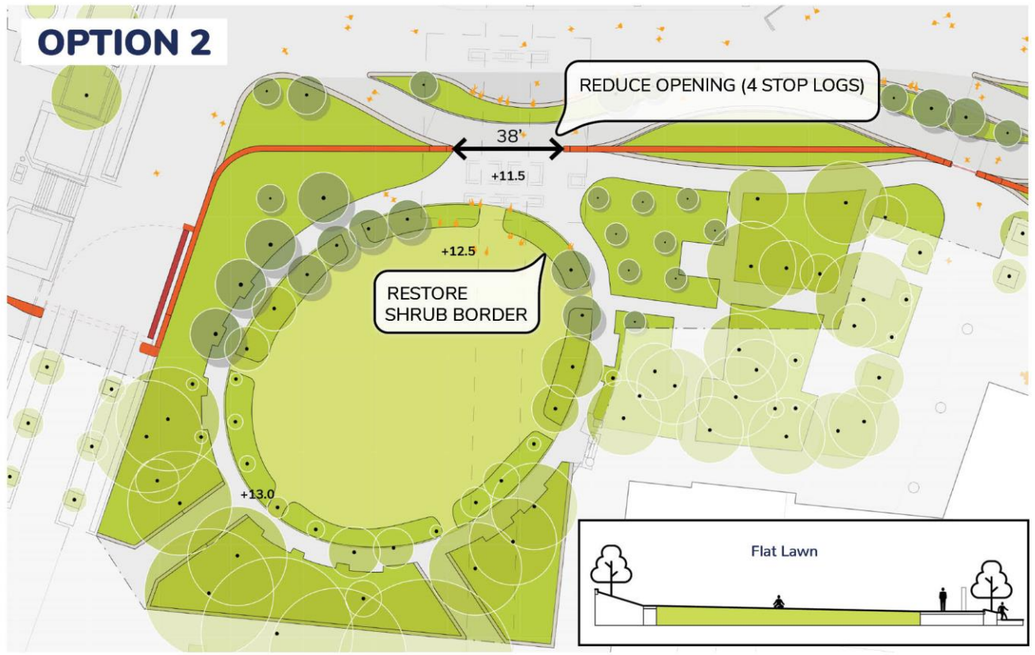
New Trees and Planting and Shade

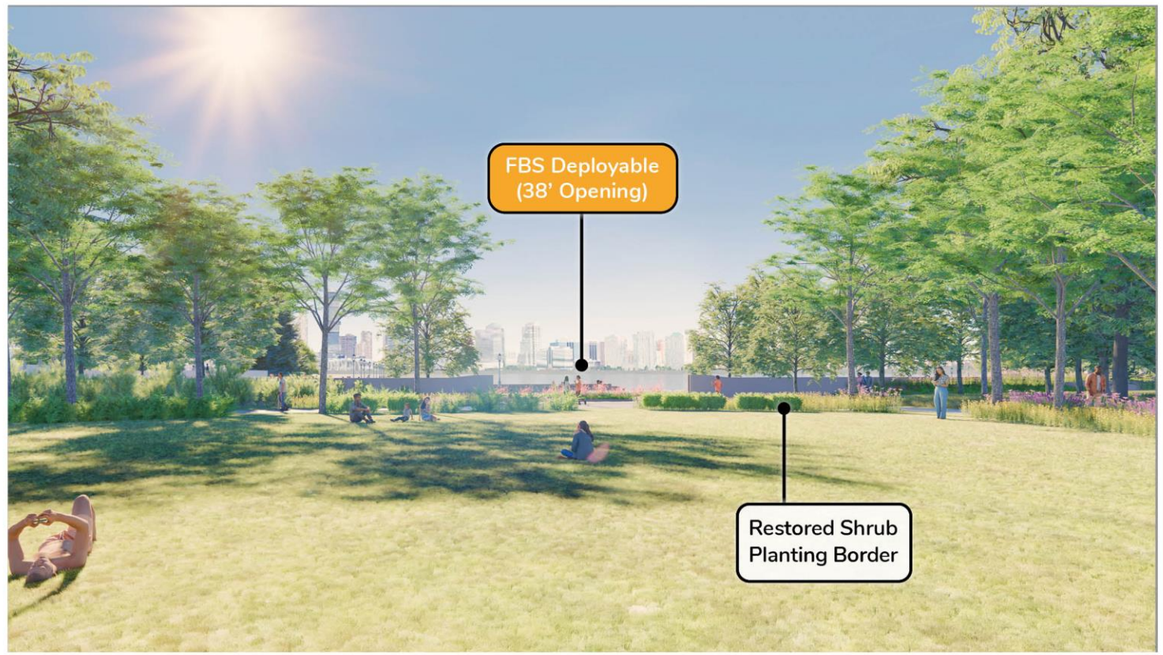
+ 9.80'

Brookfield Place | Pumphouse Park









South Esplanade | Plan

Proposed

LEGEND
- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- EXISTING TREES
- NEW TREES
- LIMIT OF WORK

0' 20' 50' 100' 200' N

Hudson River

+9.51' +9.5' +9.54' +9.5' +9.61' +9.5' +12' +9.5'

+11.5' +11.5' +11.5'

Wall Height: 9.5' from Forest Walk (DFE +19.5')

Wall Height: 8.5' from Forest Walk (DFE +19.5')

Wall Height: 10' from Forest Walk (DFE +19.5')

Liberty Terrace Residences

Hudson Tower Residences

Esplanade Plaza

+14.5'

Kowsky Plaza

Regatta Residences

W Thames St.

Rector Park

Albany St.

Gateway Apartments

South End Ave

Turner CRUZ ARCADIS SCAPE BIG WSP

South Esplanade | Forest Path

Proposed



FBS Wall

Wall Height:
8.5’ from Forest Walk
(DFE 19.5’)

Forest Walk
Seating Spaces

Integrated
Wheelchair Spaces

+ 11.00’

Increased Planting

Meandering Forest Walk

South Esplanade | View from Esplanade

Existing



FBS Wall

Meandering Forest Walk

Increased Planting

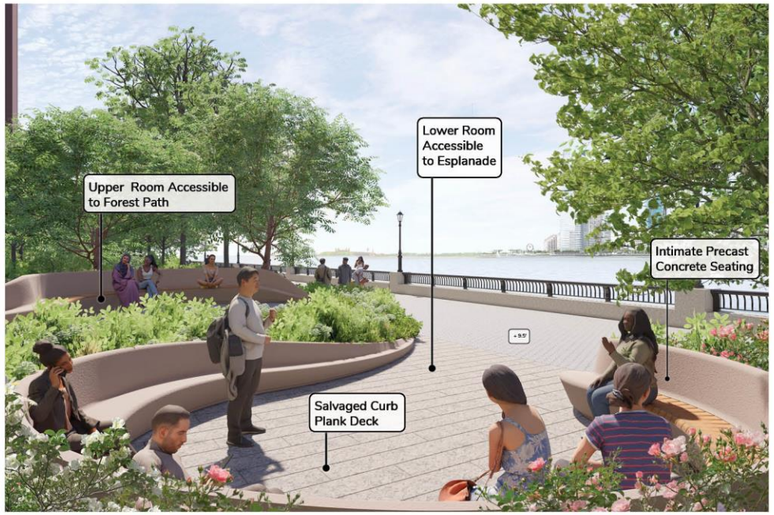
Existing Trees (Preserved)

+ 9.62'

Existing Esplanade Preserved

South Esplanade | Street End Nodes

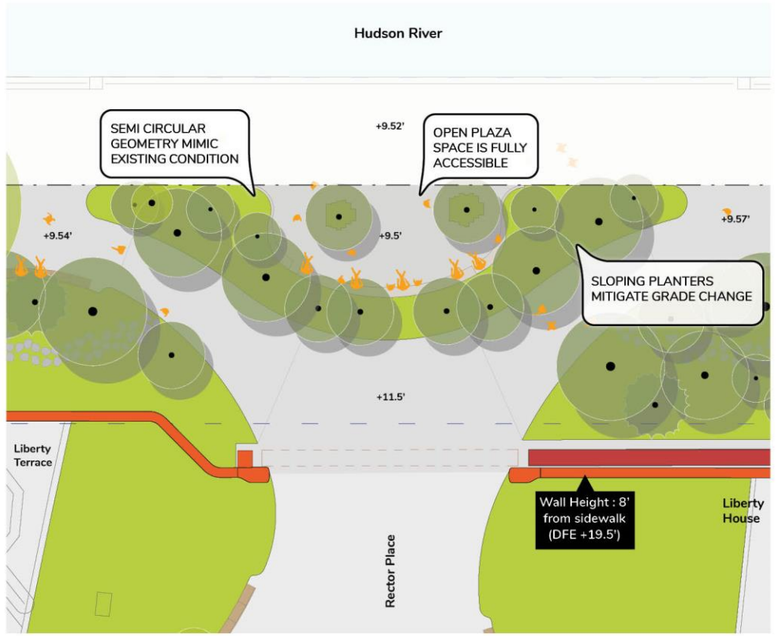
ALBANY STREET | "THE OUTLOOK"





RECTOR PLACE | "CONVERSATION ROOM"





WEST THAMES STREET | "ART GARDEN"





South Neighborhood / South Cove | Plan

Proposed

Tie-In to South BPC Resilience Project

SOUTH COVE

Existing landscape, steps, and edge to remain

In-water habitat enhancements

Existing pergola partially preserved

+9.5'

Wall height 10' from esplanade (DFE +19.5')

Partial Height 8' Openings with Slide-Up Gates

+7.0'

Regatta Condominium

Wall height 8' from path (DFE +18')

+12'

South Cove Plaza Building

1ST PLACE

Note: Wall heights measured from public esplanade

+13.5'

50' Flip-Up Gate (No. SG703)

SOUTH END AVE

24' Opening with Roller Gate

Wall height 5.5' from path (DFE +16.5')

Wall height 3' from sidewalk (DFE +16.5')

20' Opening with Swing Gate

+13'

2ND PLACE

Riverwatch Building

3RD PLACE

Cove Club Building

LEGEND

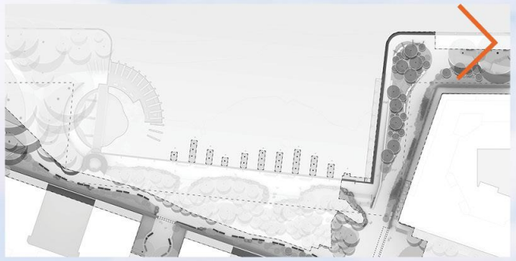
- FLOOD BARRIER SYSTEM (WALL)
- FLOOD BARRIER SYSTEM (DEPLOYABLE)
- EXISTING RELIEVING PLATFORM
- PLATFORM RECONSTRUCTION AREA
- EXISTING TREE TO REMAIN
- NEW TREE
- LIMIT OF WORK

0' 10' 20' 50' N

Turner CRUZ ARCADIS SCAPE BIG WSP

South Esplanade | View South

Proposed

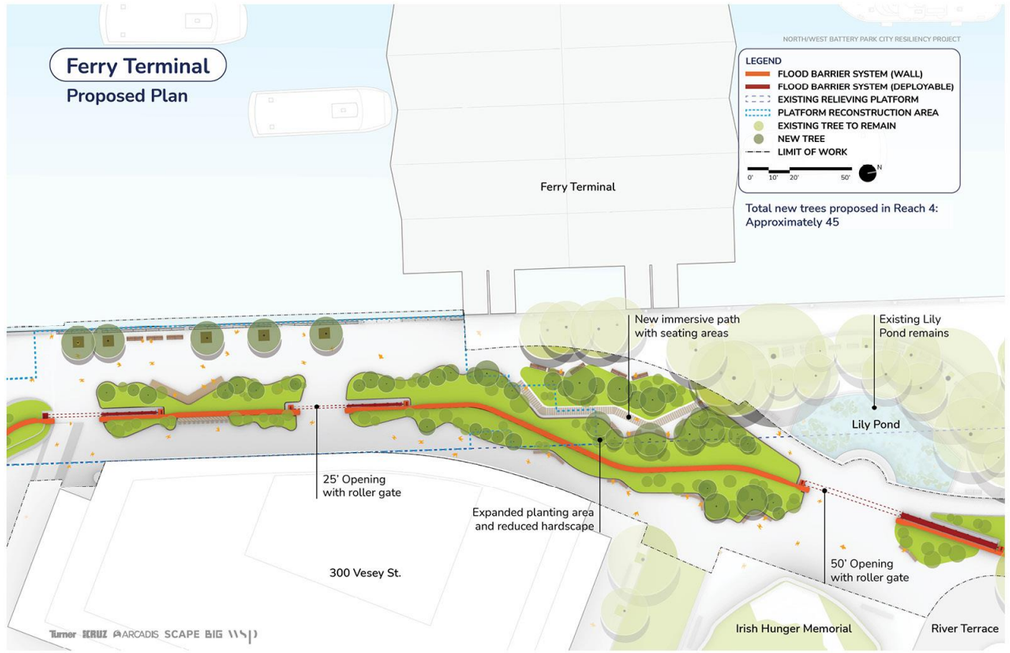


Existing pergola partially preserved

Report-Out: Tree Impact Table





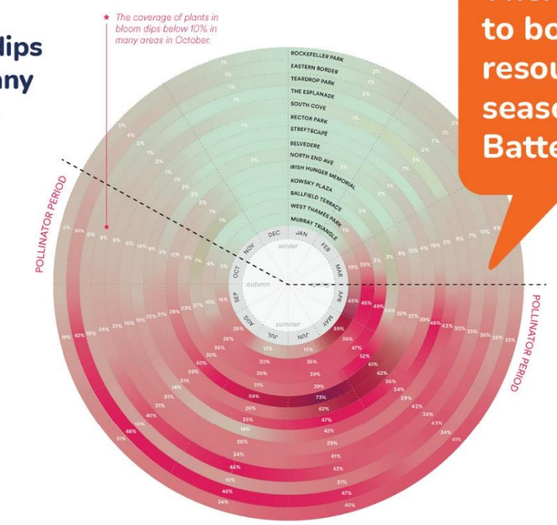




Report-Out: Biodiversity & Green Infrastructure Table

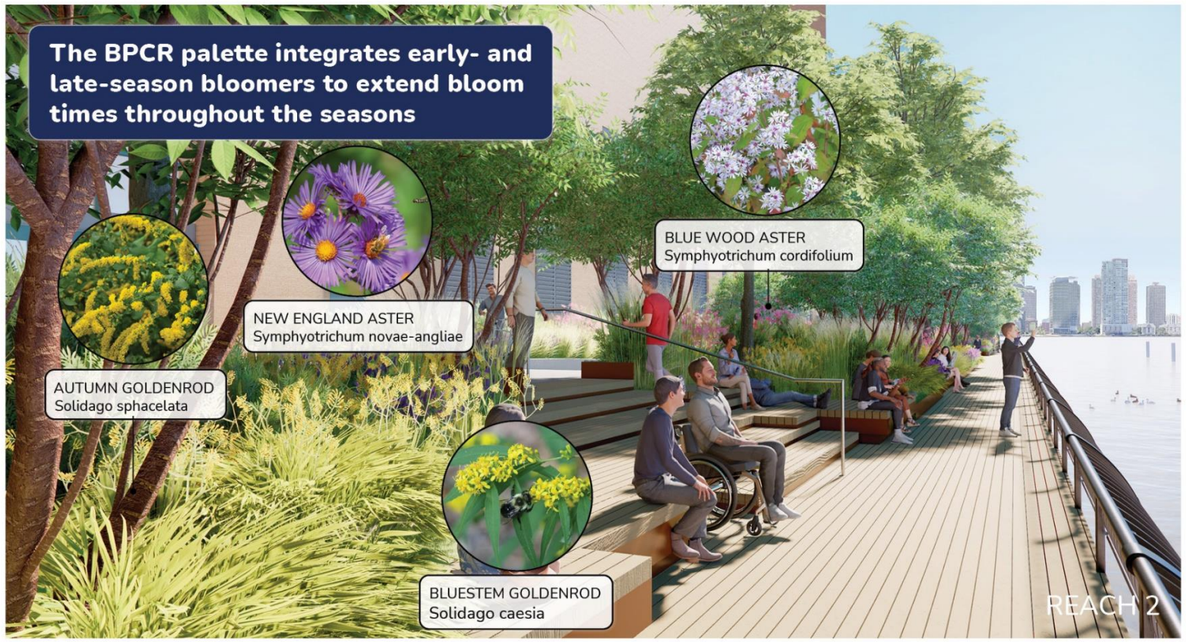
BLOOM PERIOD

The coverage of plants in bloom dips below 10% in many areas in October.

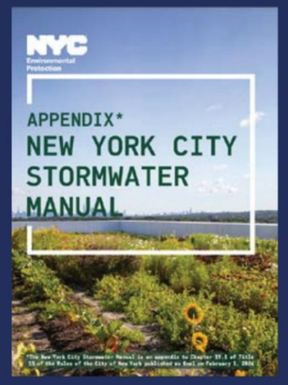


There are opportunities to bolster pollinator resources and add late season blooms throughout Battery Park City.

Source: 2023 Urban Tree Canopy Assessment & Biodiversity Audit

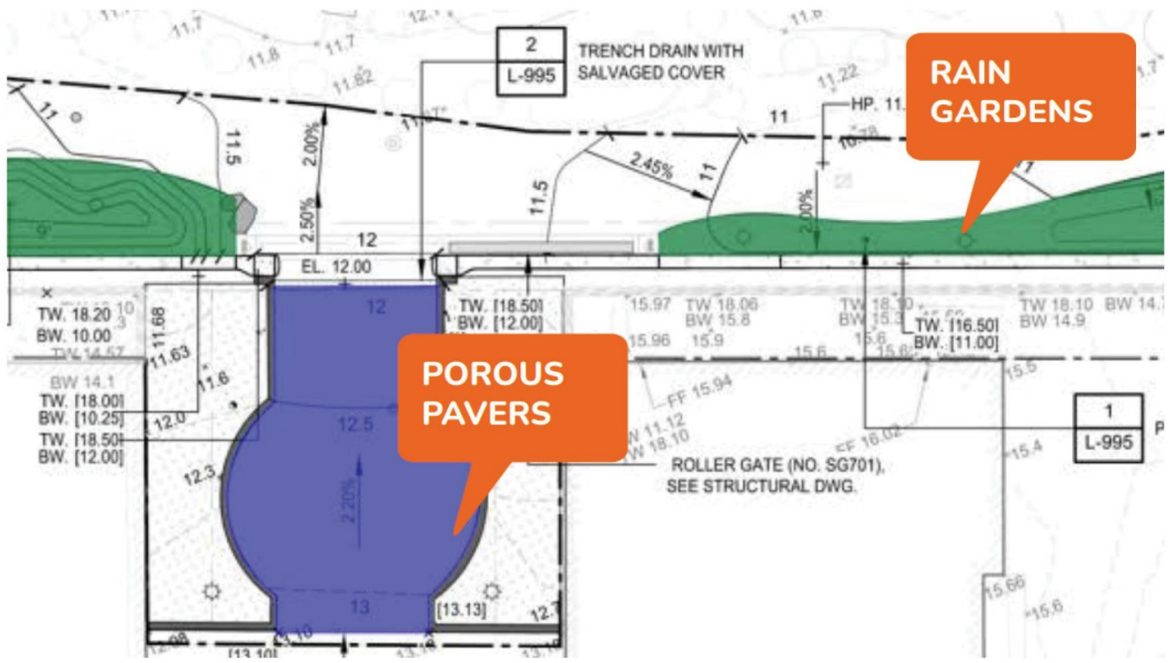


GREEN INFRASTRUCTURE



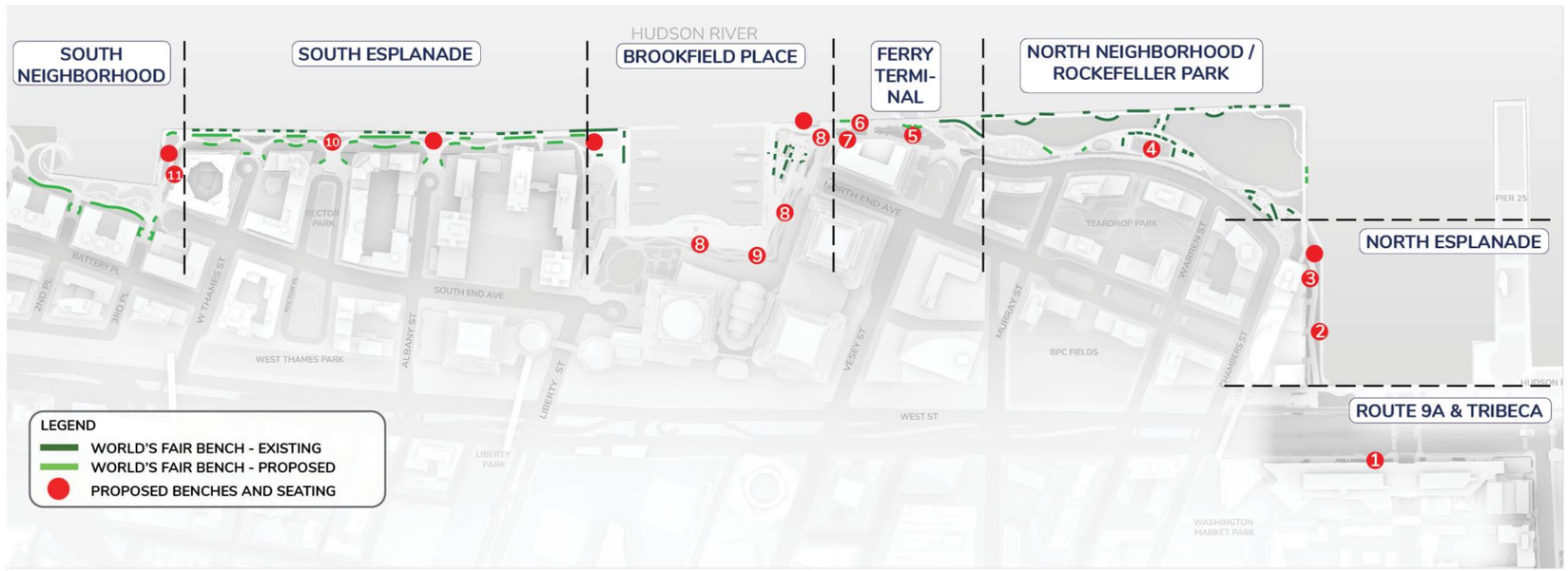
NYC REGULATIONS

- Project will meet NYC's new Unified Stormwater Rule (2022).
- Aim to decrease frequency of combined sewer overflow, improve water quality of the rivers, and reduce stress on DEP infrastructure
- Capture and treat runoff from 1.5in rainfall event
- Required treatment volume is 53,500 ft^3 or 400,000 gallons



Report-Out: Furniture and Materials Table

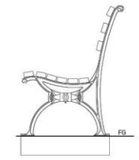
SITEWIDE SEATING



WORLD'S FAIR BENCH | EXISTING DESIGN

Site wide seating

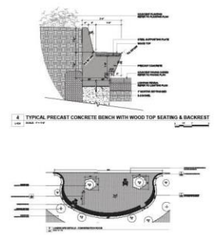




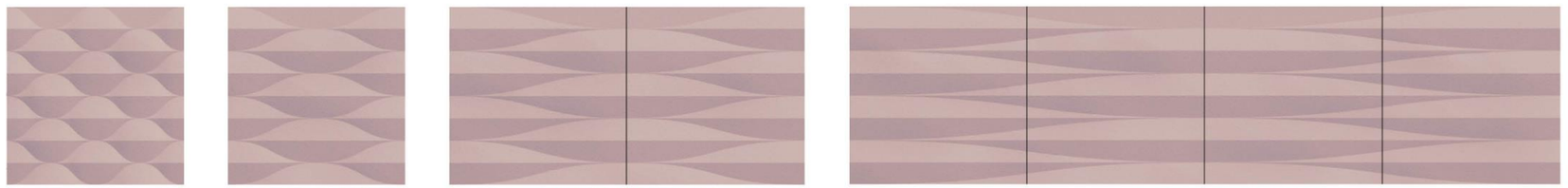
SOUTH ESPLANADE

Rector Pl. "Conversation Room" Precast Concrete Communal Bench





FLOOD BARRIER SYSTEM



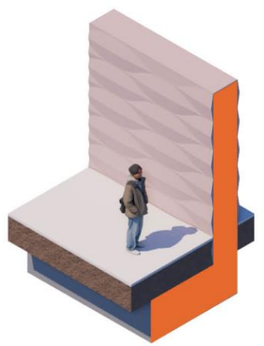
SMALL MODULE
4' PATTERN

MEDIUM MODULE
8' PATTERN

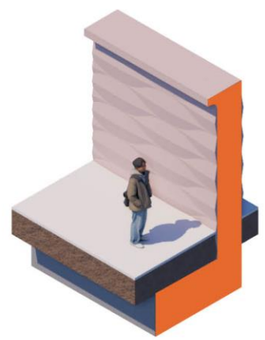
LARGE MODULES
16' PATTERN

EXTRA LARGE MODULES
32' PATTERN





TYPICAL



TYPICAL WITH RECURVE

Post 60%- Ongoing Design Work

- Awaiting Agency **comments on 60% Design**

(NYC DOT, NYS DOT, NYC DEP, NYS DEC, NYC SBS, NYS OGS, HRPT, PANYNJ, FDNY, NYPD, NYC DCP, USACE, NYC DPR, CUNY)

- Incorporating suggestions from **OMB Value Engineering effort**

- Developing/refining **construction phasing plan**

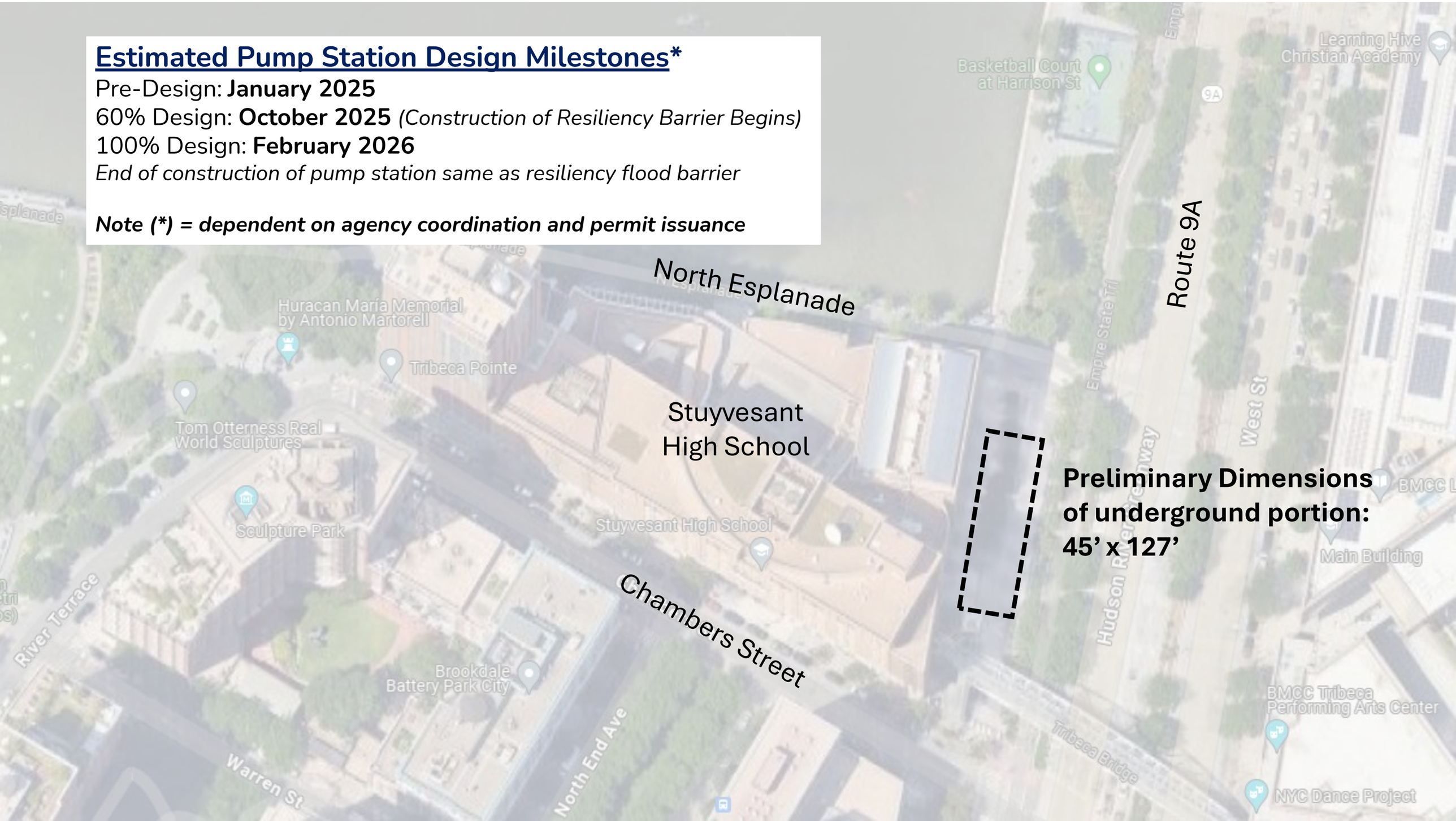
- **Route 9A Crossing** – NYC & NYS DOT feedback needed to finalize

Proposed Pump Station

Estimated Pump Station Design Milestones*

Pre-Design: **January 2025**
60% Design: **October 2025** *(Construction of Resiliency Barrier Begins)*
100% Design: **February 2026**
End of construction of pump station same as resiliency flood barrier

Note (*) = dependent on agency coordination and permit issuance



North/West Battery Park City Resiliency Construction Strategy

Construction Objectives

- **Complete the project as quickly as possible with as limited disruption as possible**
  - Avoid delay in achieving flood protection
  - Shorten the overall duration of construction impacts to the community
  - Contain project costs by avoiding escalation costs

- **Begin construction of N/W after Wagner Park has reopened**

- **Provide meaningful open spaces** throughout construction.

- **Sequence construction** to accelerate protection of highest risk areas and continuous stretches of space that can be reopened soonest.

- **Communicate** consistently with the community throughout construction.

Major Challenges and Constraints

1. **Bridging Structures:** Time-intensive construction over PANYNJ tunnels, minimize impact to Brookfield Place

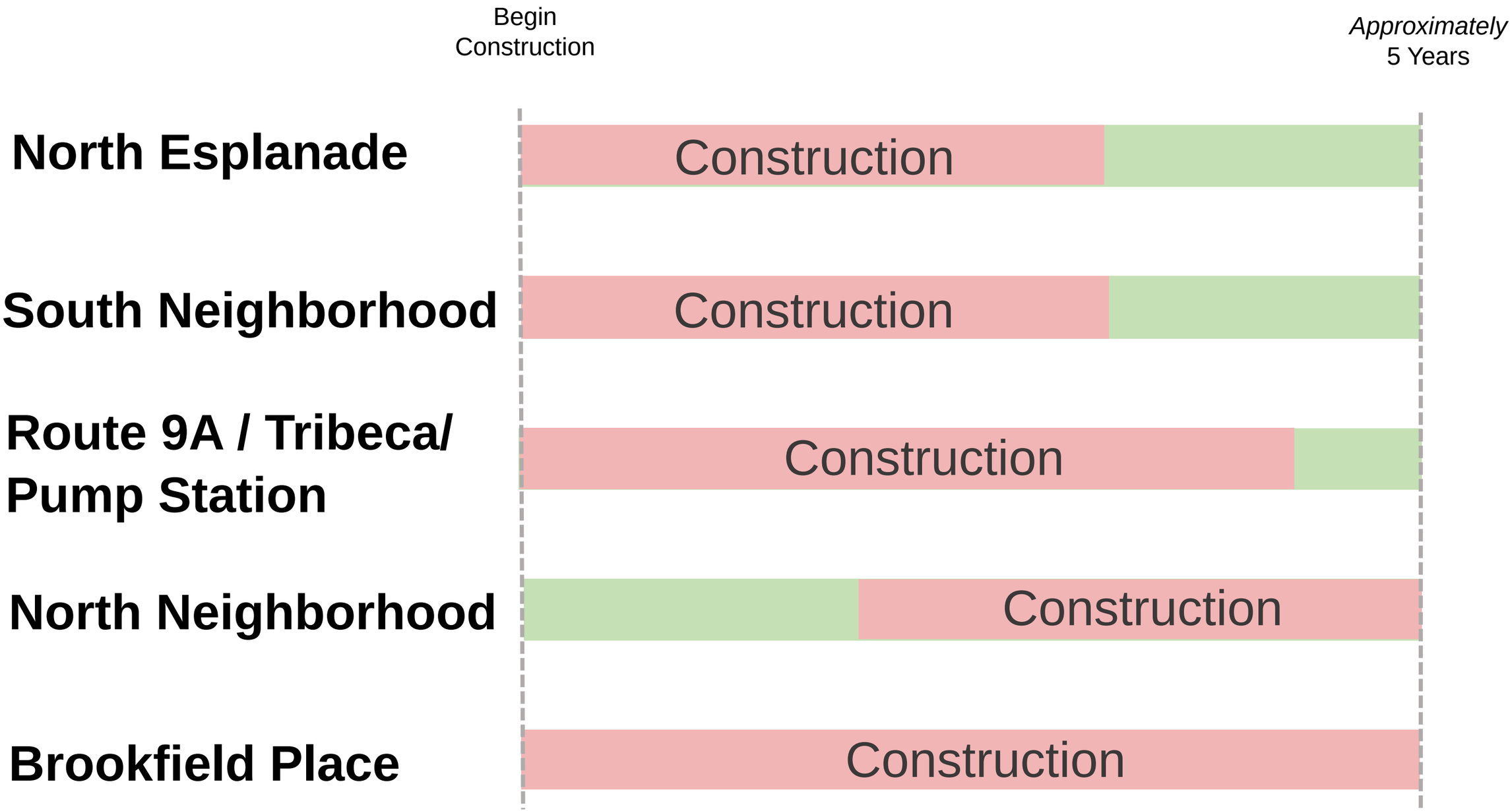
2. **Route 9A:** Vulnerable area, heavily trafficked, with safety and urban design considerations

3. **Gateway Plaza:** Cantilever over existing platform, constructability issues and accommodating retail use

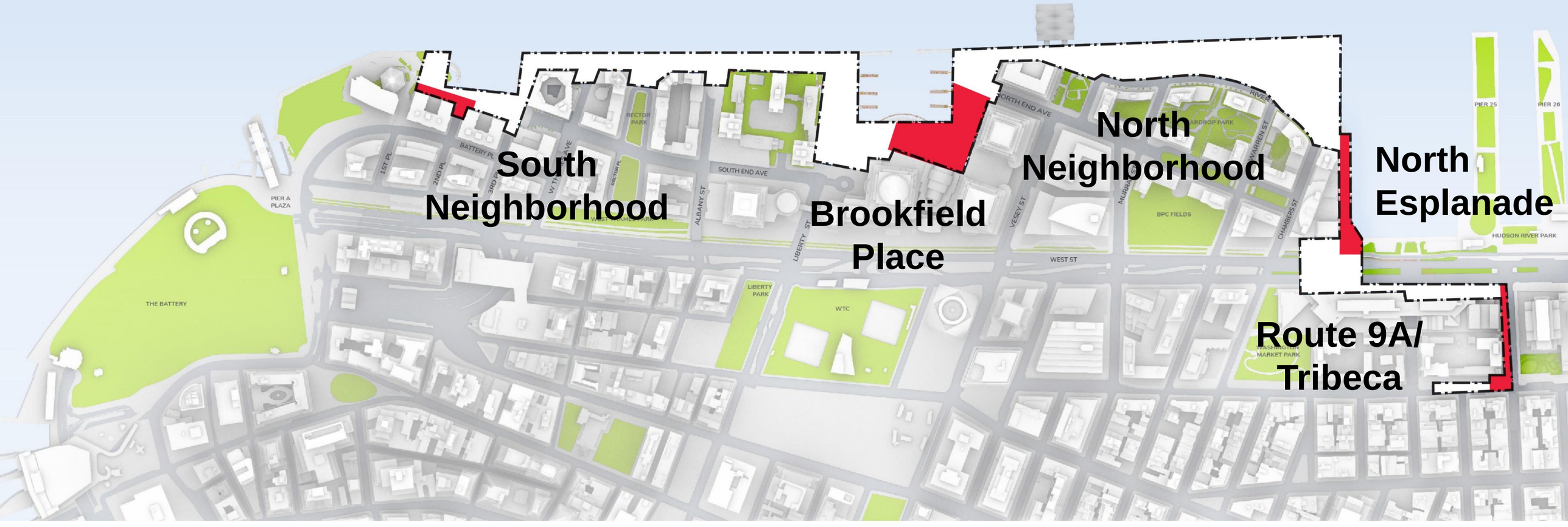
4. **Limited Space to Stage and Work:** Accommodate pedestrian access and minimize impact to public realm

5. **Pump Station Construction:** Minimize above-ground expression and impacts to pedestrians, bicyclists, and Stuyvesant High School

Construction Durations



Progress of Completion: **Start of Year 1**



Progress of Completion: **Start of Year 2**



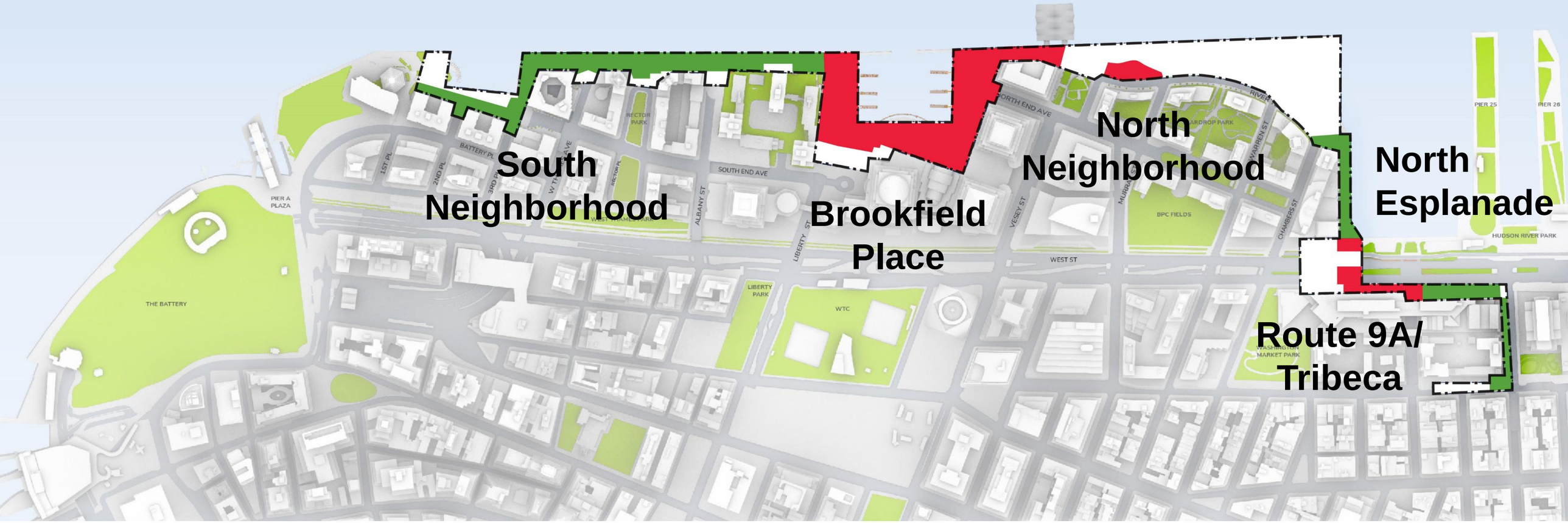
Progress of Completion: **Middle of Year 2**

- **South Cove** – **MOSTLY RE-OPENED**



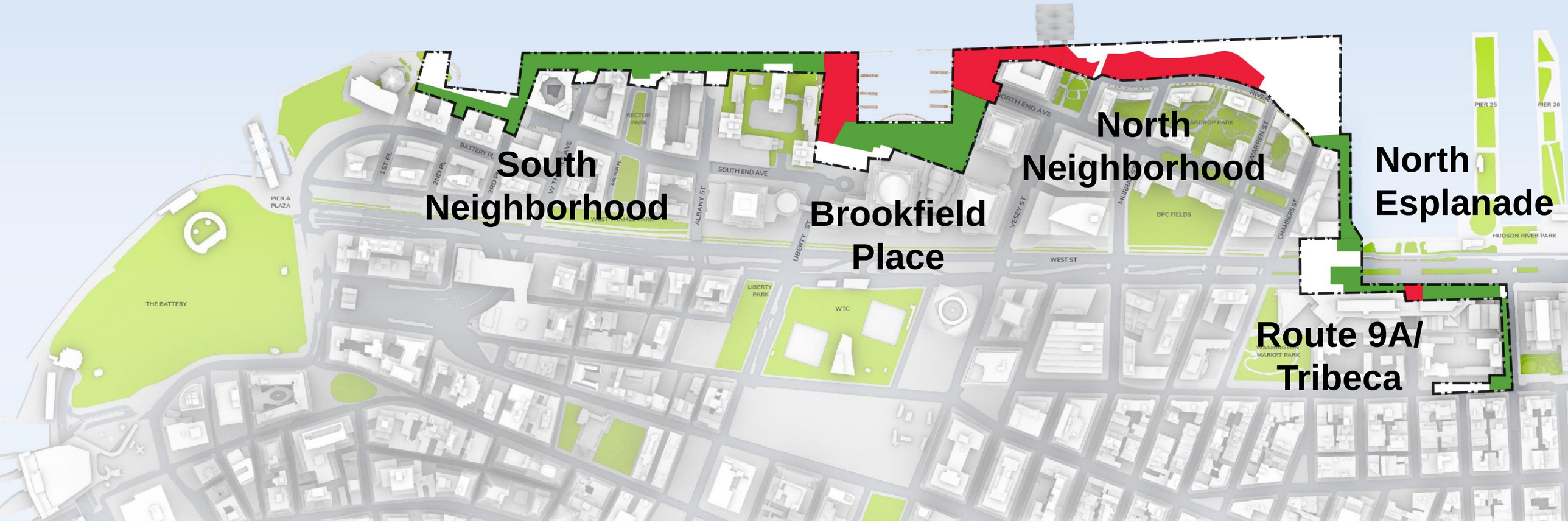
Progress of Completion: **Beginning of Year 4**

- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and east side of Route 9A - **RE-OPENED**
- **North Esplanade** – **RE-OPENED**



Progress of Completion: **Beginning of Year 5**

- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and east side of Route 9A plus North Esplanade extension.– **RE-OPENED**
- **Brookfield Place –** east and north sides of Brookfield Place – **RE-OPENED**



Progress of Completion: **End of Year 5**

- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and east side of Route 9A plus North Esplanade extension.– **RE-OPENED**
- **Brookfield Place –** all of Brookfield Place – **RE-OPENED**
- **North Neighborhood –** all of the North Neighborhood – **RE-OPENED**
- **Pump Station –** Pump Station at West Street and Chambers – **RE-OPENED**



Open Spaces During Construction

- Wagner Park – OPEN
- BPC Ball Fields – OPEN
- Rector Park – OPEN
- Teardrop Park – OPEN
- West Thames Park – OPEN
- Rockefeller Park North Lawn – OPEN

ALSO:

- The Battery – OPEN
- Hudson River Park – OPEN
- Washington Market Park – OPEN
- Liberty Park – OPEN



Ongoing Construction Coordination & Communication

- Prior to the start of construction BPCA will **set up a process for more detailed on-going communication** on construction activity

- **Construction briefings** will include:
  - Representatives for the elected officials offices
  - Any key agency partners (eg NYS DOT when relevant for instance on Route 9A
  - Representatives from any adjacent residential/commercial/educational buildings and relevant members from the CB1

- The goal is to **inform the community about on-going plans** and troubleshoot any items of concerns

Report-Out: Temporary Space Opportunities

https://bit.ly/NWBPCRJune2024boards



Pop-up Parks



Seating



Open Streets



Installations

5

Next Steps

Buildings Adjacent to Flood Barrier System



Upcoming Public Engagement Opportunities

- 60% Design Public Meeting – Today
- DEIS Hearing – September 2024
- Public Design Commission Review – Fall 2024
- Solicit Community Input for Temporary Open Space Concepts – Summer/Fall 2024
- Advance Design of Pump Station – 2024/2025
- Meetings with Individual Buildings – Ongoing
- LMCR Quarterly Updates – On-going
- Agency Permitting – On-going
- Pre-Construction Engagement – 2025

Q&A