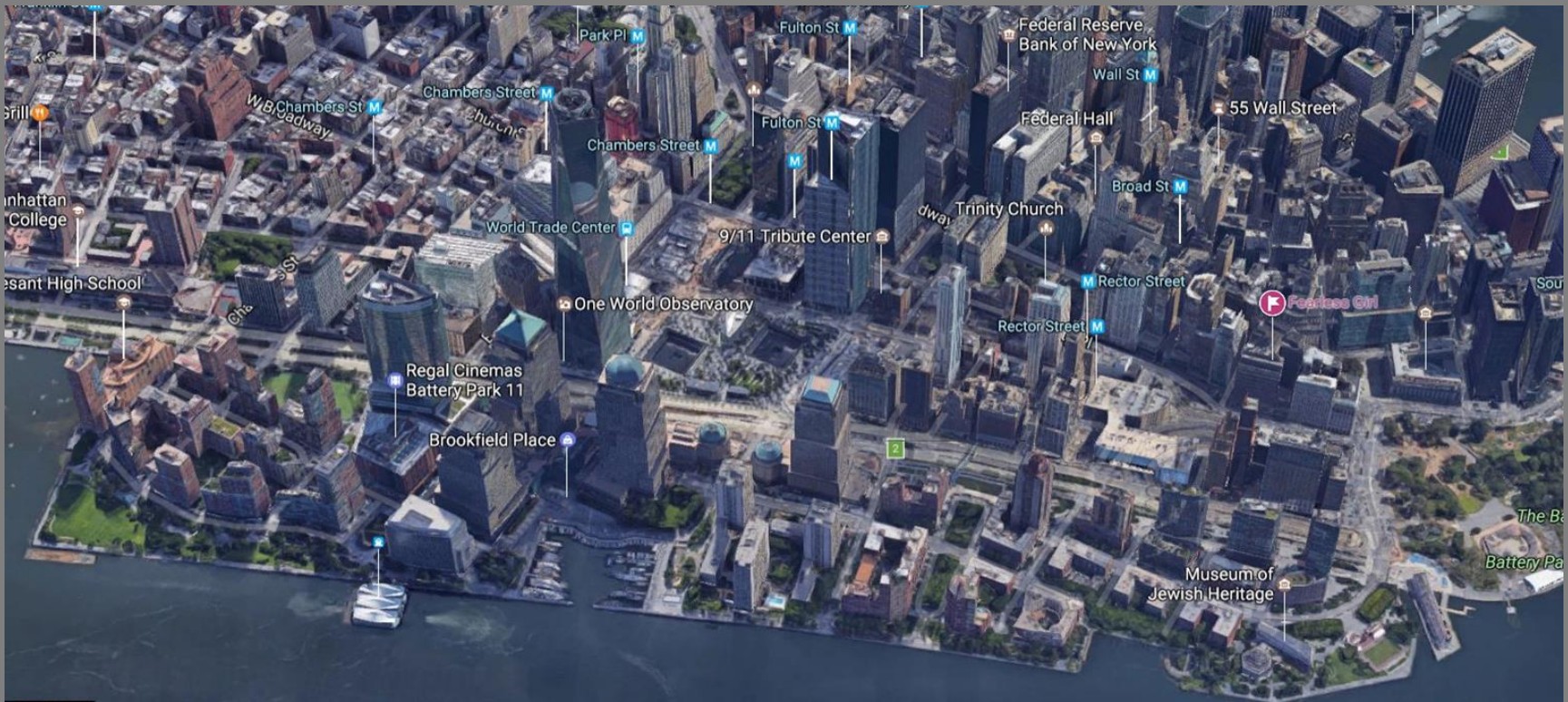


Battery Park City

Resiliency Assessment Overview



Preparing for the Future

Battery Park City

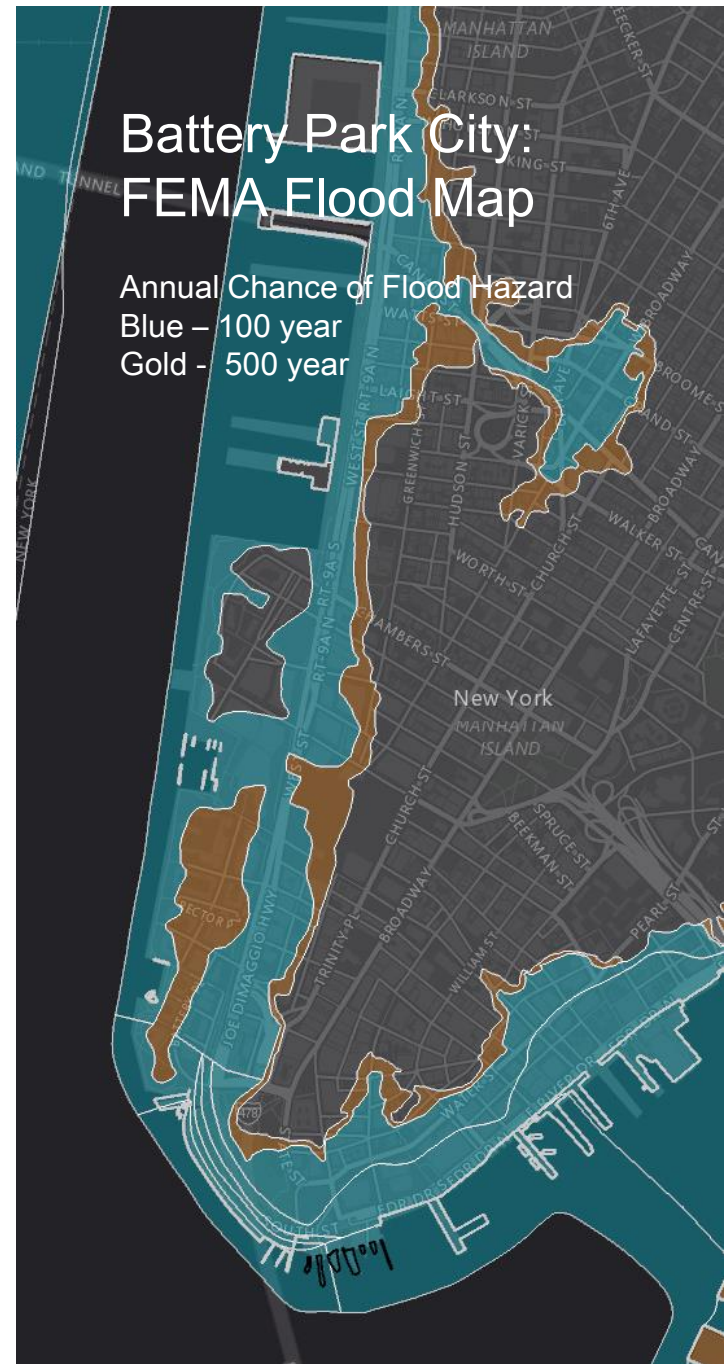
Resiliency Assessment Overview

Purpose

Identify BPC vulnerabilities to future storm events specifically a 100 year storm combined with sea level rise due to climate change in the year 2065

Risk Assessment

- FEMA Flood Map, Adjusted for SLR 2065 (Elevation 16.5 NAVD)
- West Street Flooding
 - North Esplanade inundation point
 - Wagner / Pier A inundation point
- Waterfront Flooding



Resiliency Assessment Overview

Methodology

- Based on FEMA & the Lower Manhattan Coastal Resiliency Project
- Identify Area Protection Options and options for point protection of key facilities and infrastructure
- Evaluate option based on:
 - Effectiveness
 - Functionality
 - Aesthetics
 - Benefit Cost Analysis

Design Considerations

- Maintain existing neighborhood and park character including esplanade / park access points
- Develop aesthetically pleasing solutions
- Minimize implementation / construction cost

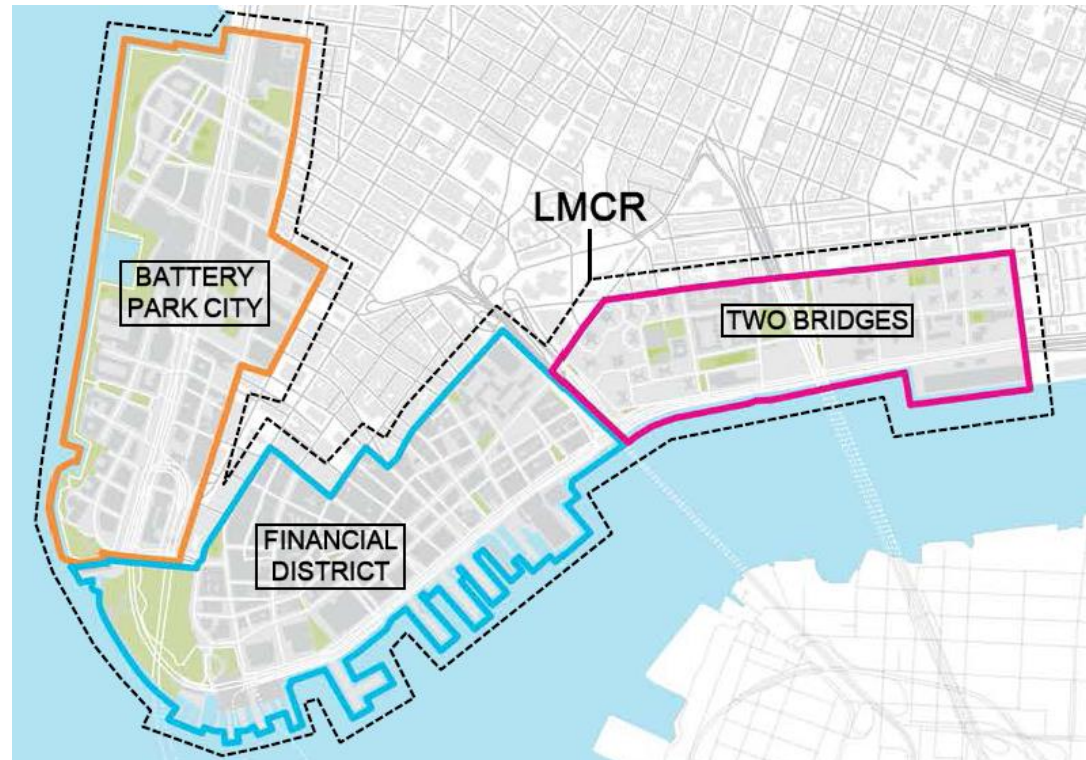
Resiliency Assessment Overview

Area context

NYC Lower Manhattan Coastal Resiliency (LMCR)

■ The LMCR Project

- Reduce flood risk due to coastal storms and sea level rise from Manhattan's Two Bridges neighborhood through Battery Park City
- Planning in process under direction of Mayors Office of Recovery and Resiliency
- Partial funding secured for Two Bridges and Manhattan Tip, no funding secured for Battery Park City



Battery Park City

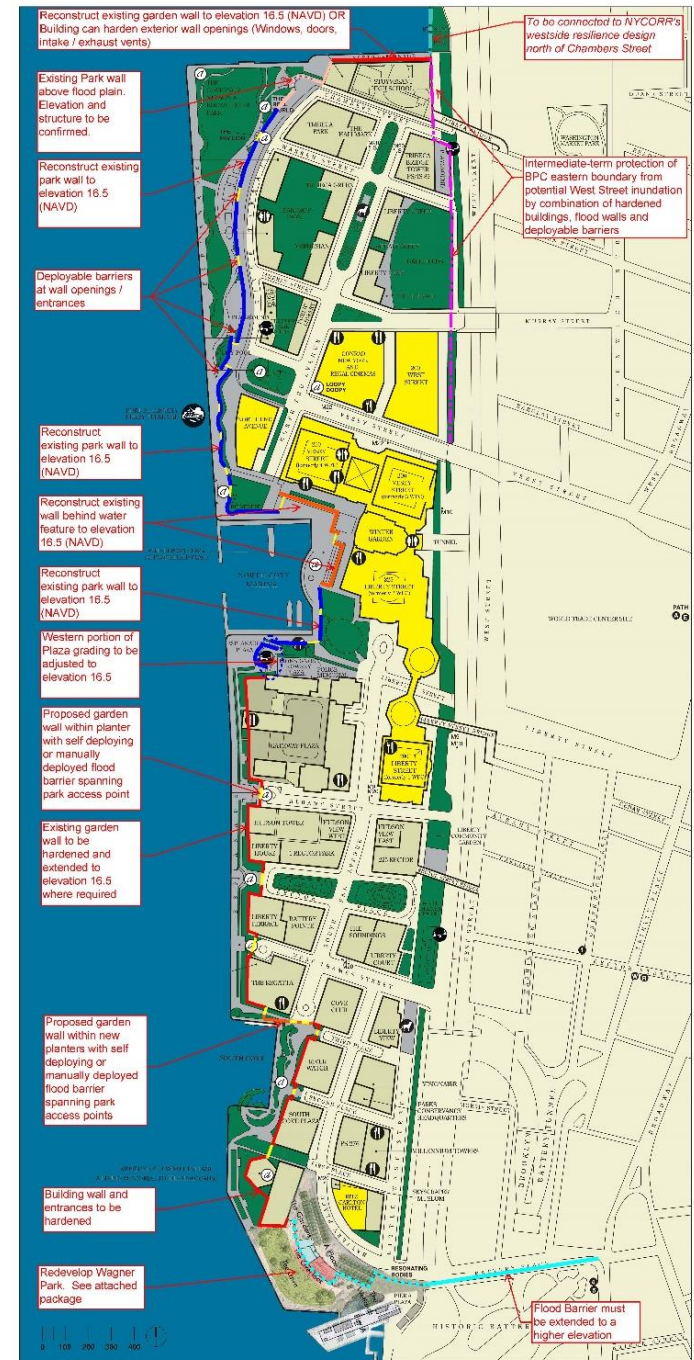
Resiliency Assessment Overview

Vulnerabilities

- Superstorm Sandy Damage
 - West Street: Inundation from North and South
 - Riverside Breaches: Damage to Electrical Equipment and Landscaping
- 100/500 Year Flood Planning Horizon: Inundation Throughout Battery Park City

Assets

- Existing Infrastructure
 - Seawall: Baseline Protection
 - Network of Garden/Park Walls: Can be Leveraged to Create New Line of Flood Protection
 - Landscaping: Provides Opportunities to Supplement Wall Protection

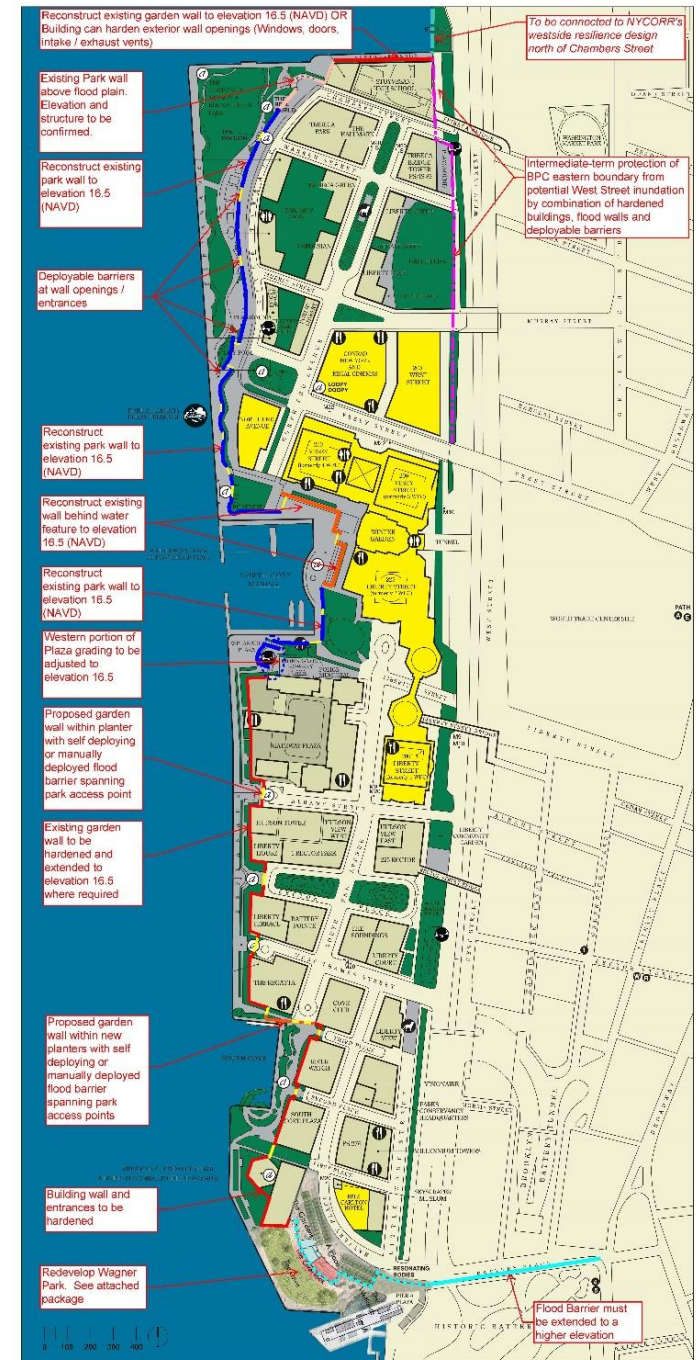


Battery Park City

Resiliency Assessment Overview

- Northern, Western, Southern Boundaries hardened existing structures combined with permanent / deployable barriers.
 - Compatible with LMCR Proposal
 - Protects BPC from intrusion from West Street & waterside breaches.
 - Makes maximum use of existing structures
 - Minimizes preparation activities

- Eastern Boundary - Floodwalls and Deployable Flood Barriers



Resiliency Assessment Overview

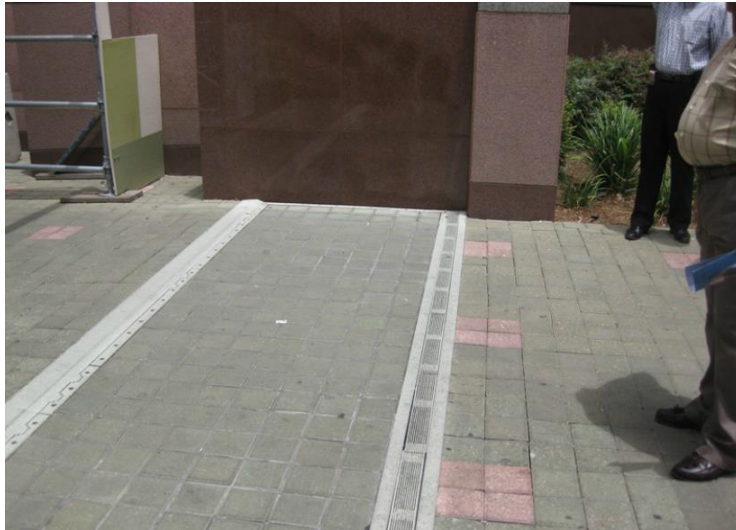


Examples of manual deployment systems

Resiliency Assessment Overview



Passive flood barriers combined with garden walls



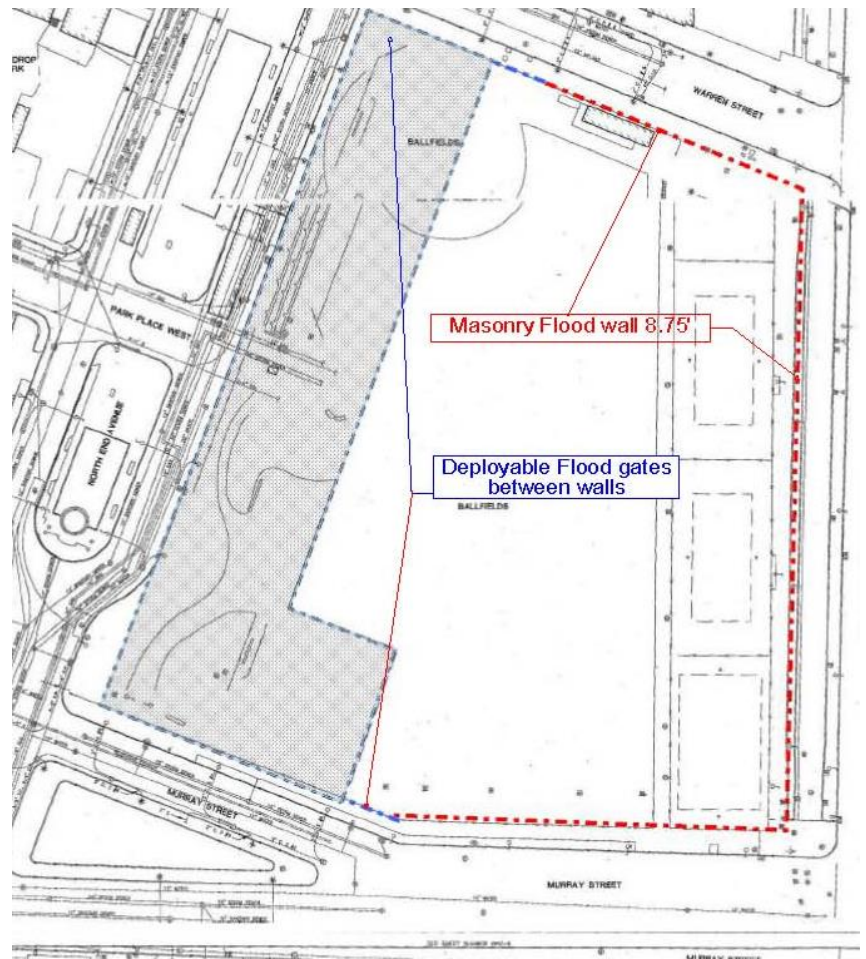
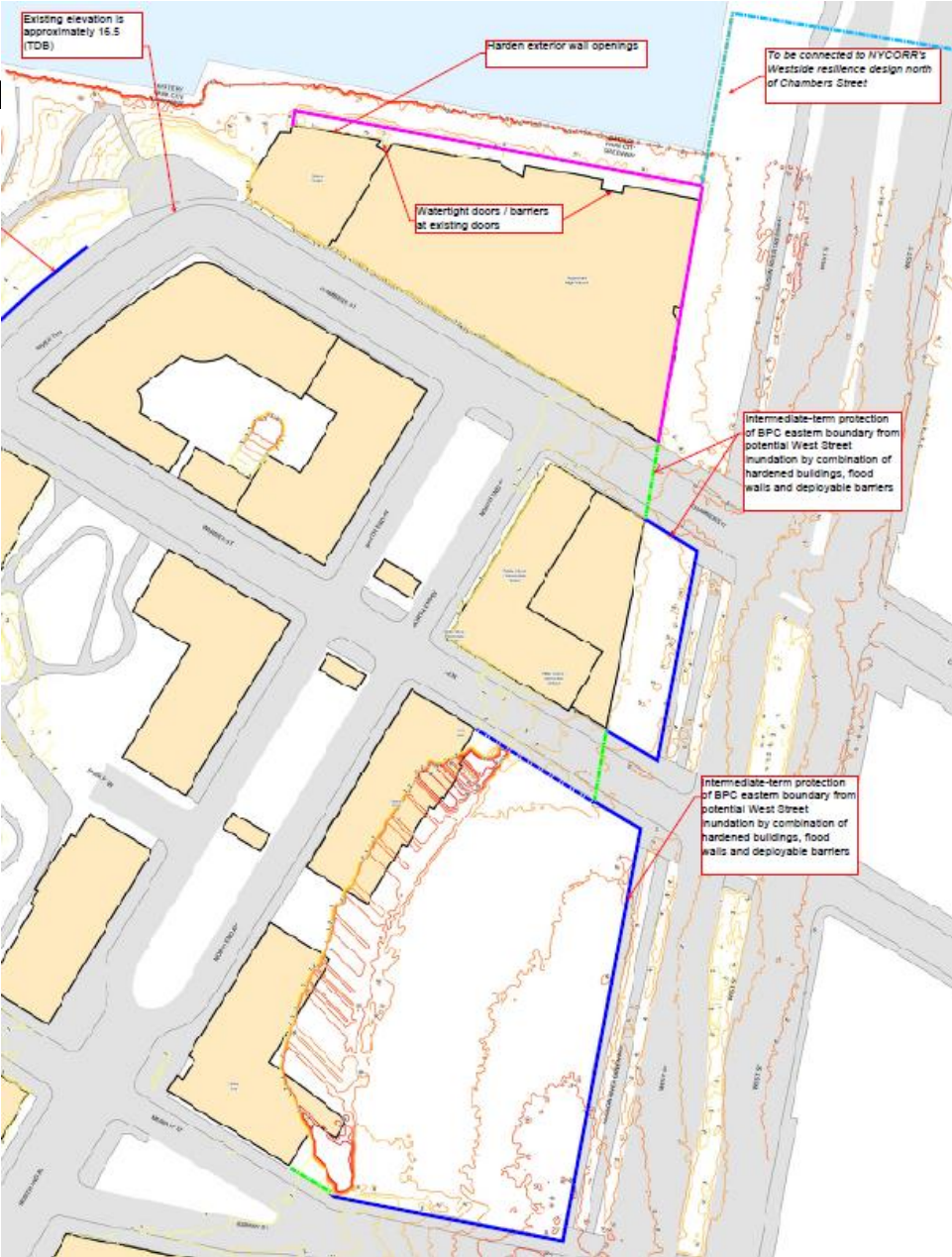
Example of Passive Flood Mitigation

Battery Park City Resiliency Assessment Overview



Example of Passive Flood Mitigation

Battery Park City Resiliency Assessment Overview



Plan of Ballfields

Battery Park City Resiliency Assessment Overview

Ballfields



West Street view towards

Battery Park City Resiliency Assessment Overview

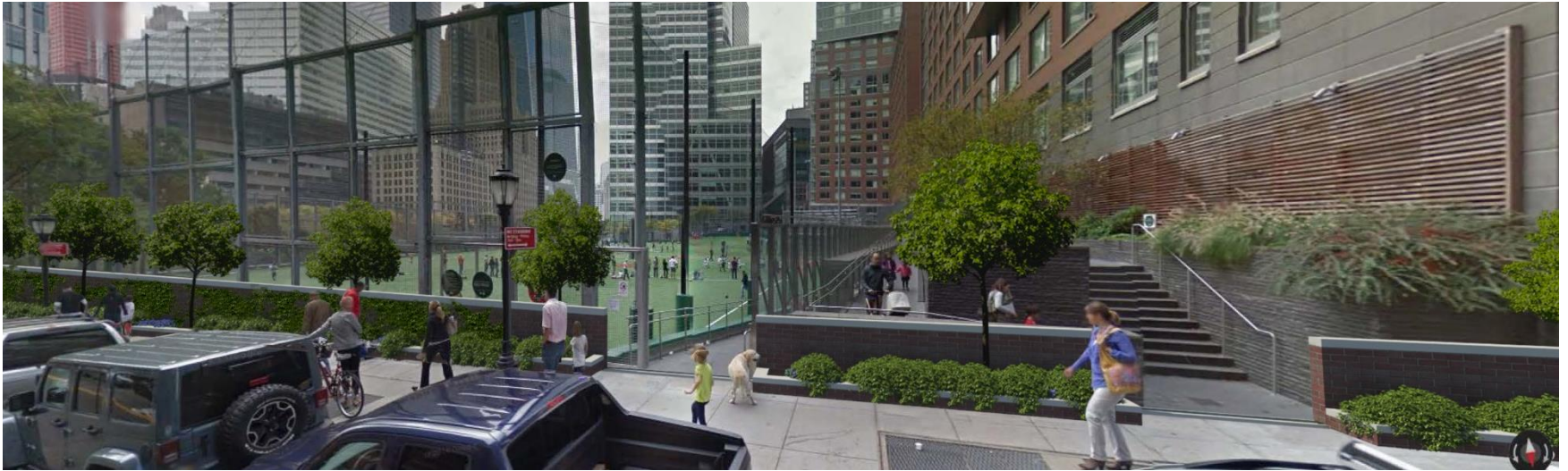
Ballfields



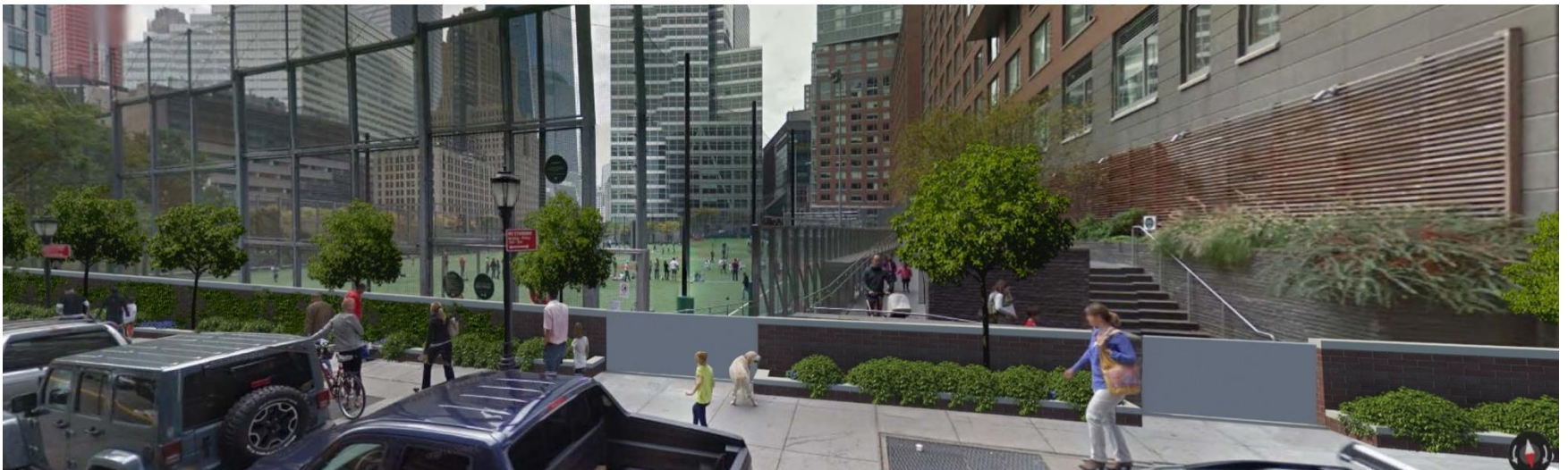
West Street view towards proposed permanent flood barrier at Ballfields

Battery Park City Resiliency Assessment Overview

Ballfields



Proposed permanent flood barrier at Ballfields (Warren Street view)

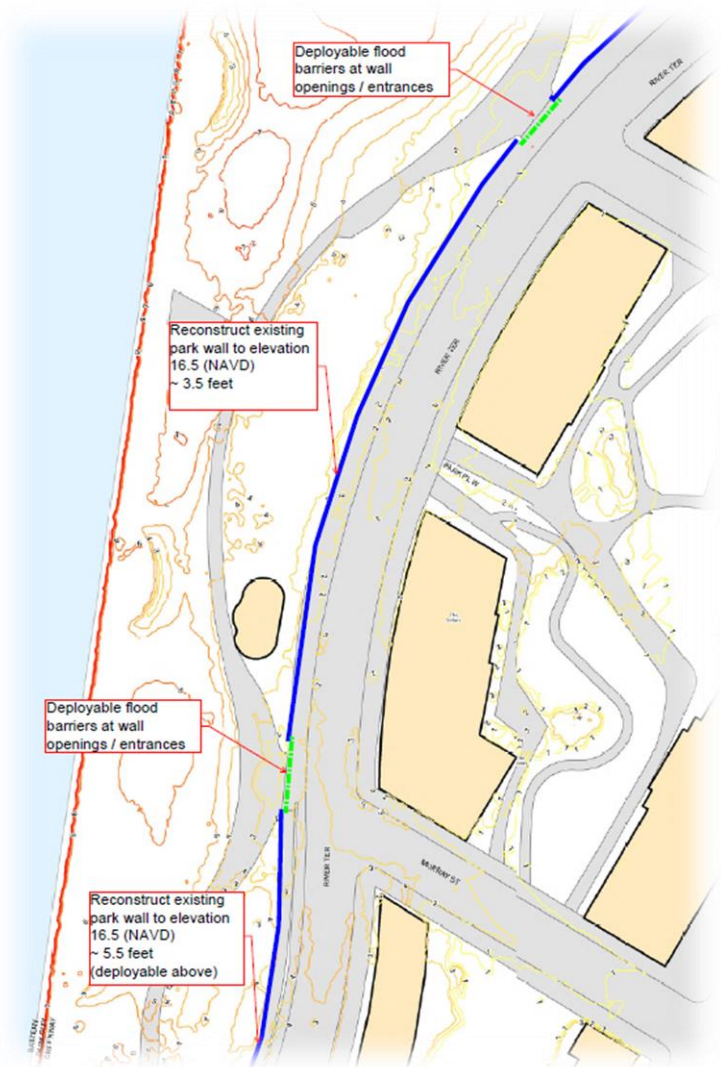


Proposed permanent and deployable flood barrier at Ballfields (Warren Street view)



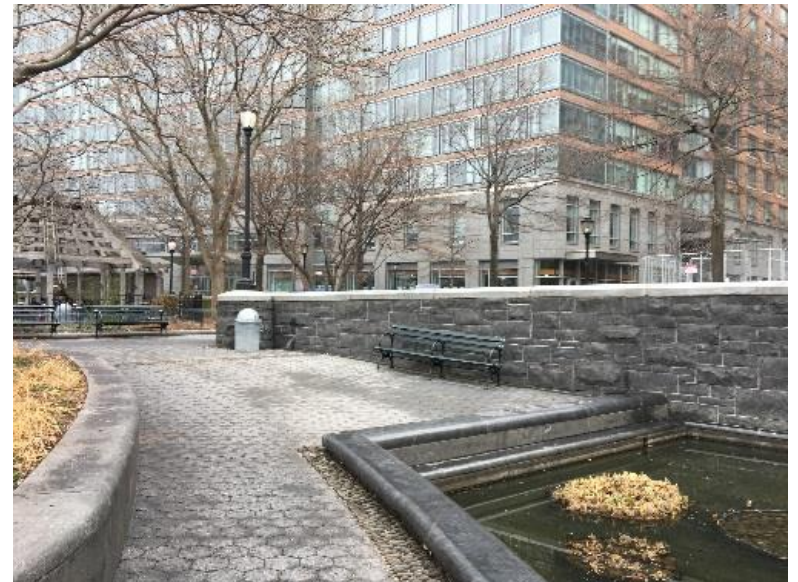
Battery Park City Resiliency Assessment Overview

North Neighborhood

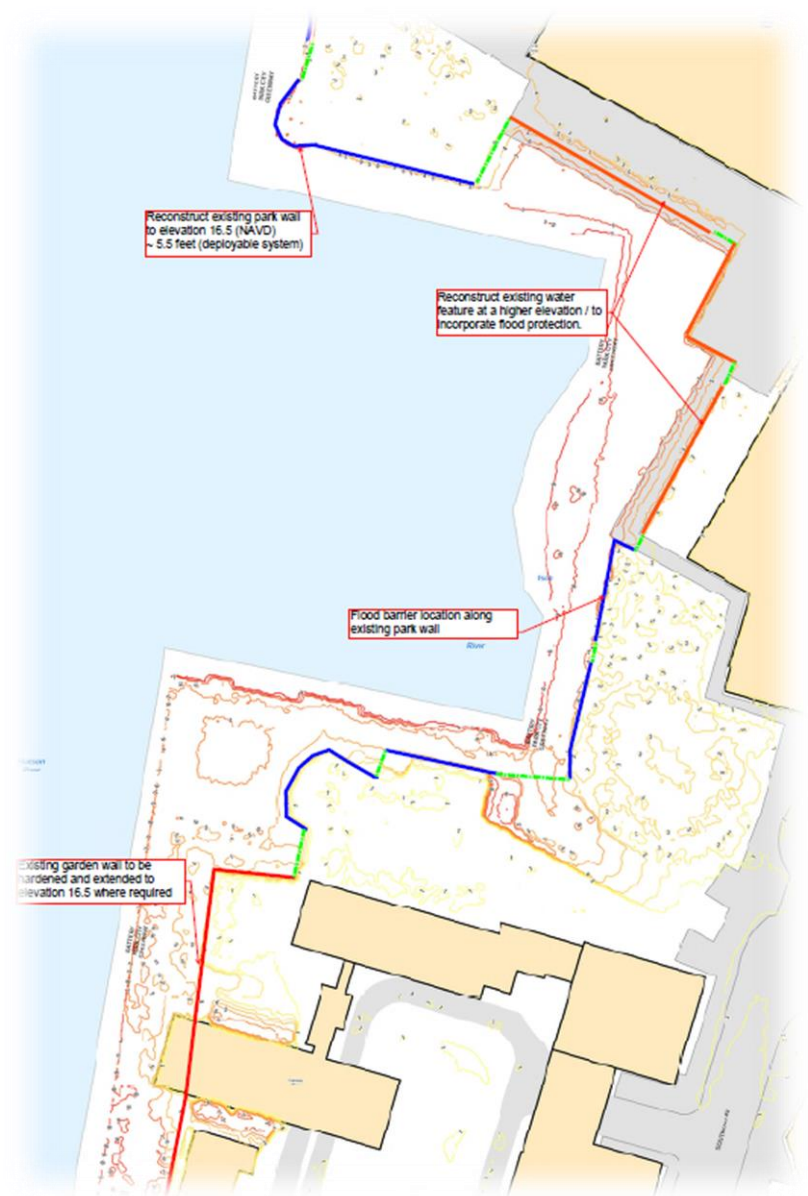
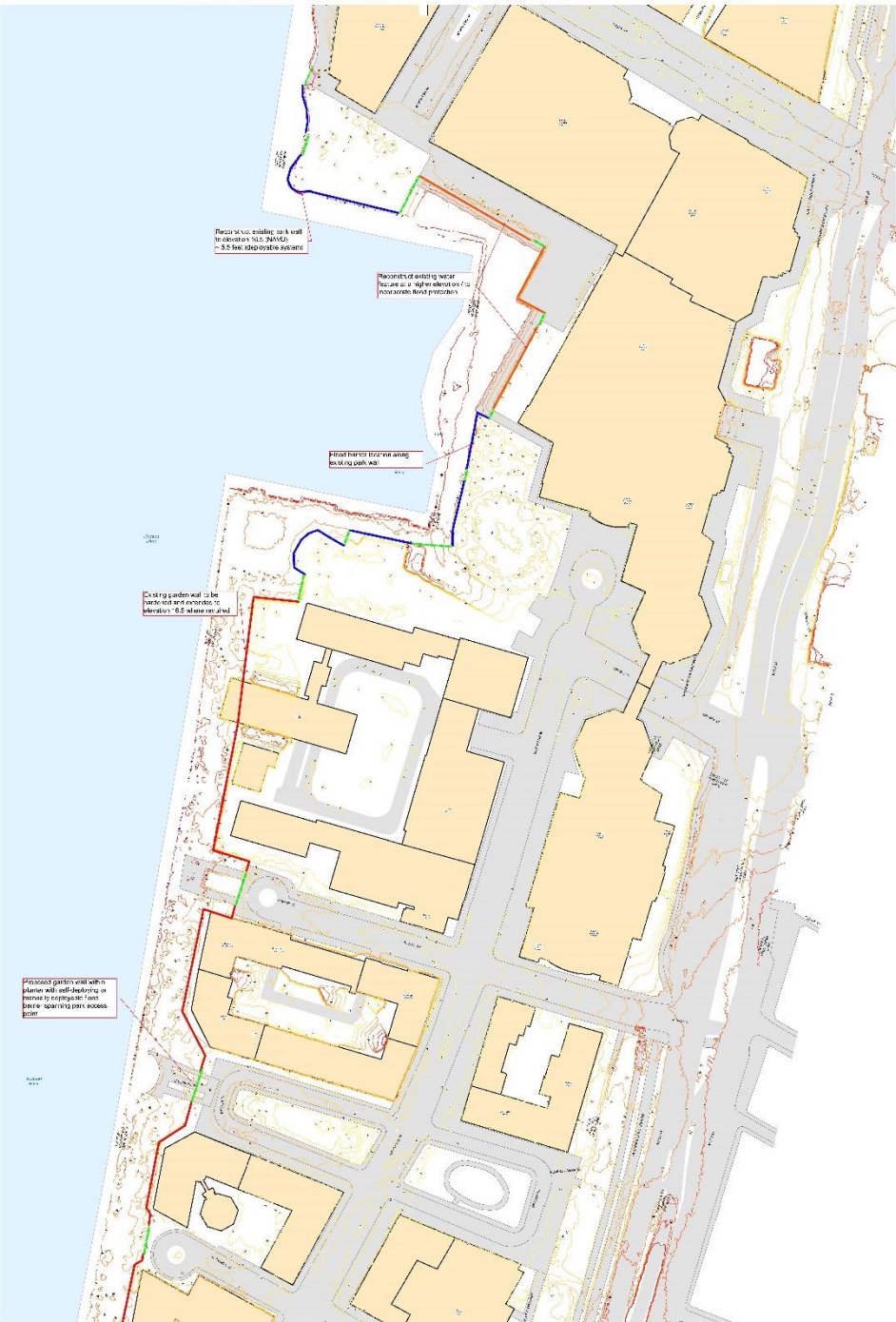


Battery Park City Resiliency Assessment Overview

North Neighborhood

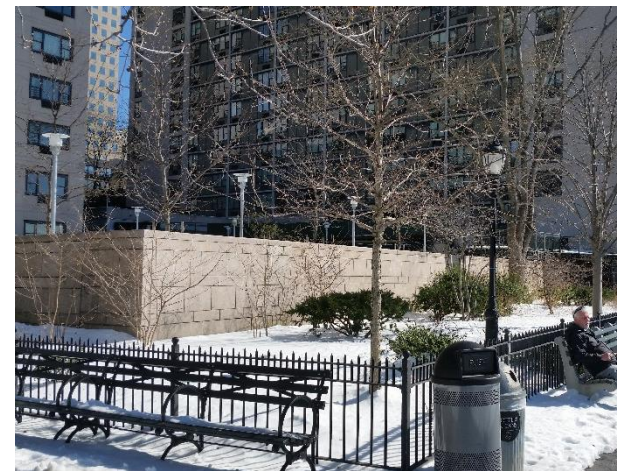


Battery Park City Resiliency Assessment Overview Central Neighborhood



Battery Park City Resiliency Assessment Overview

Central Neighborhood



Battery Park City Resiliency Assessment Overview

South Neighborhood

Proposed garden wall within planter with self-deploying or manually deployable flood barrier spanning park access point

Proposed garden wall within new planter with self-deploying or manually deployable flood barrier spanning park access points

Existing garden wall to be hardened and extended to elevation 16.5 where required

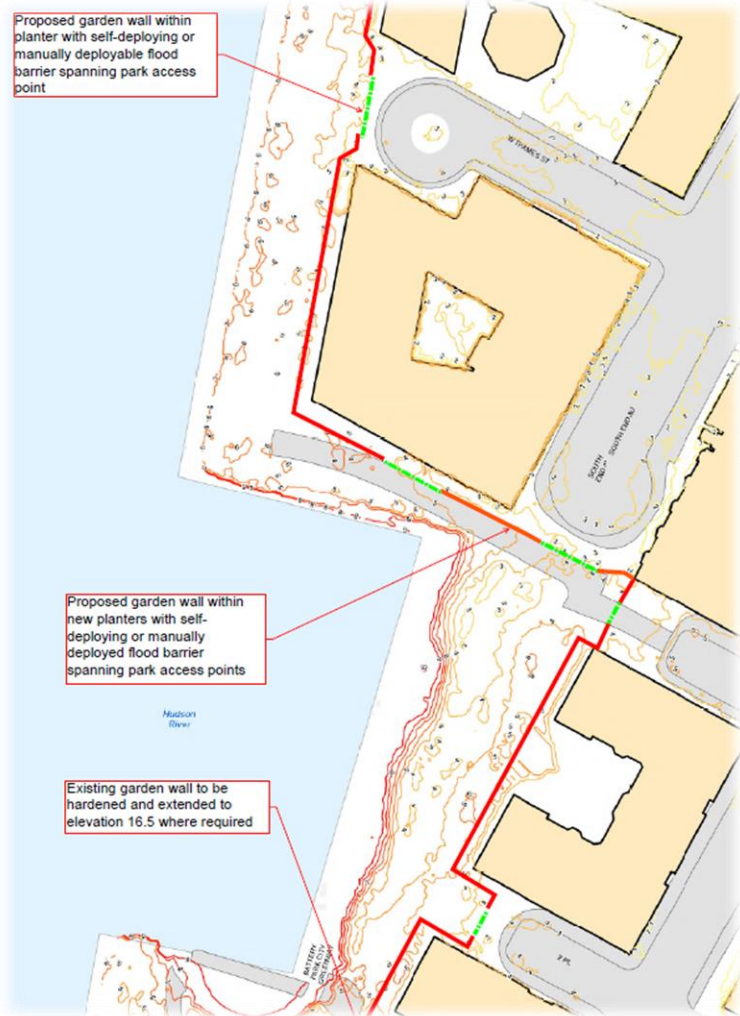
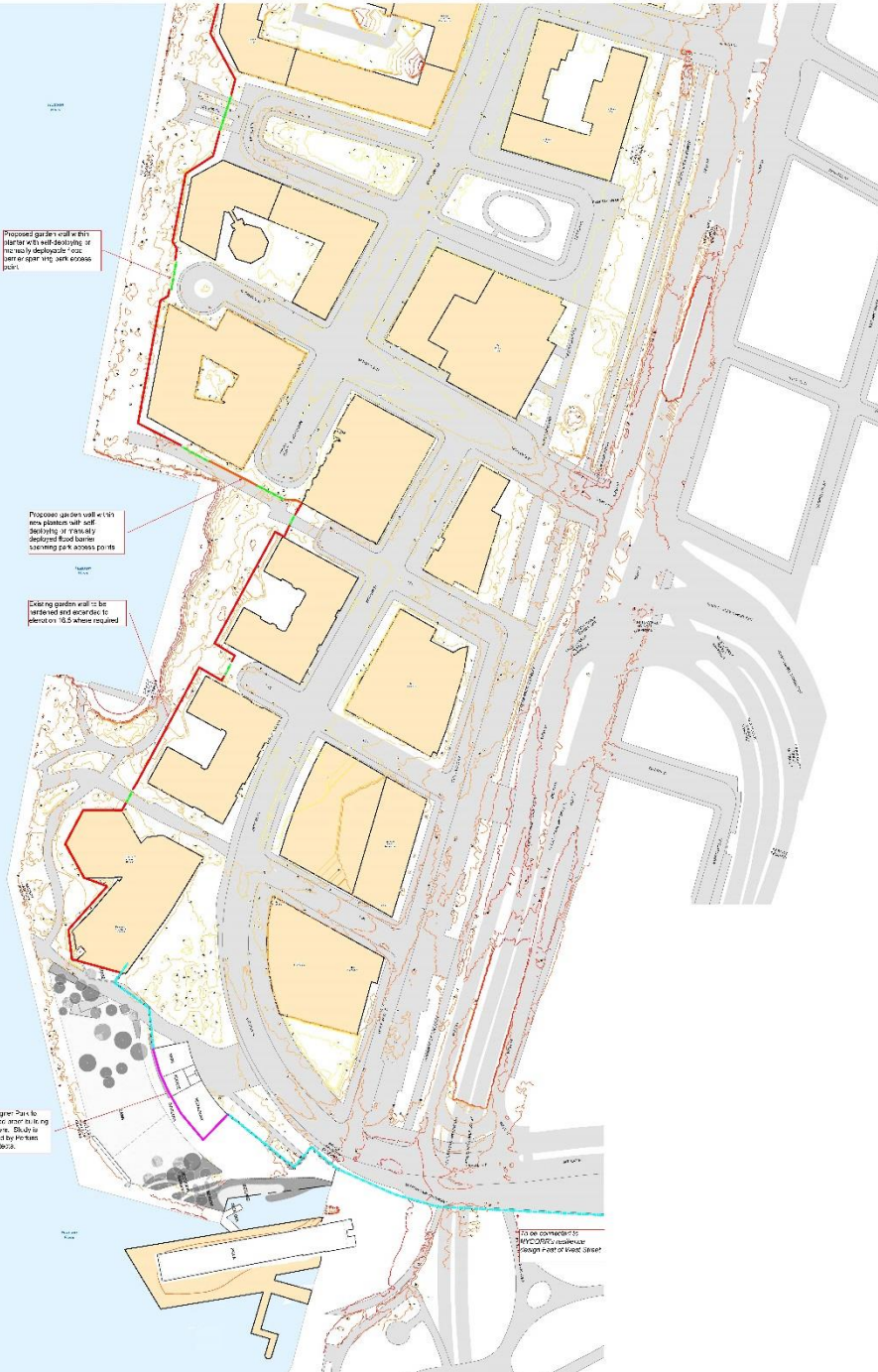
Proposed garden wall within planter with self-deploying or manually deployable flood barrier spanning park access point

Proposed garden wall within new planters with self-deploying or manually deployed flood barrier spanning park access points

Existing garden wall to be hardened and extended to elevation 16.5 where required

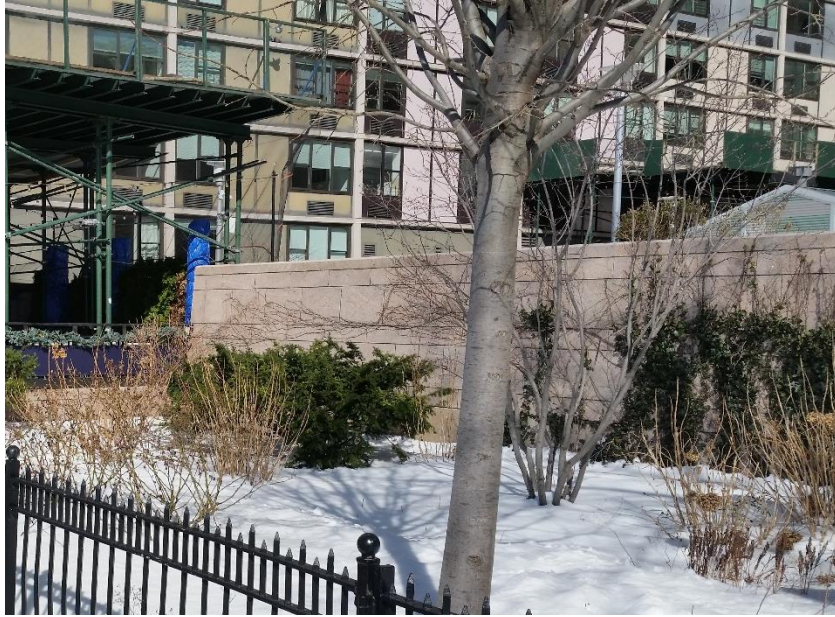
Redevelop Wagner Park to include new park area with new and flood barriers. Study to be completed by E&Y&E Architects.

Map is to be completed by E&Y&E Architects. Study to be completed by E&Y&E Architects.



Battery Park City Resiliency Assessment Overview

South Neighborhood



Battery Park City Resiliency Assessment Overview



Eastern view of existing condition at Third Place



Eastern view of proposed condition at Third Place



Western view of proposed deployable flood barrier at Third Place

Battery Park City Resiliency Assessment Overview



Existing condition at Rector Place



Proposed condition at Rector Place

Battery Park City Resiliency Assessment Overview



Existing condition at Rector Place



Proposed condition at Rector Place

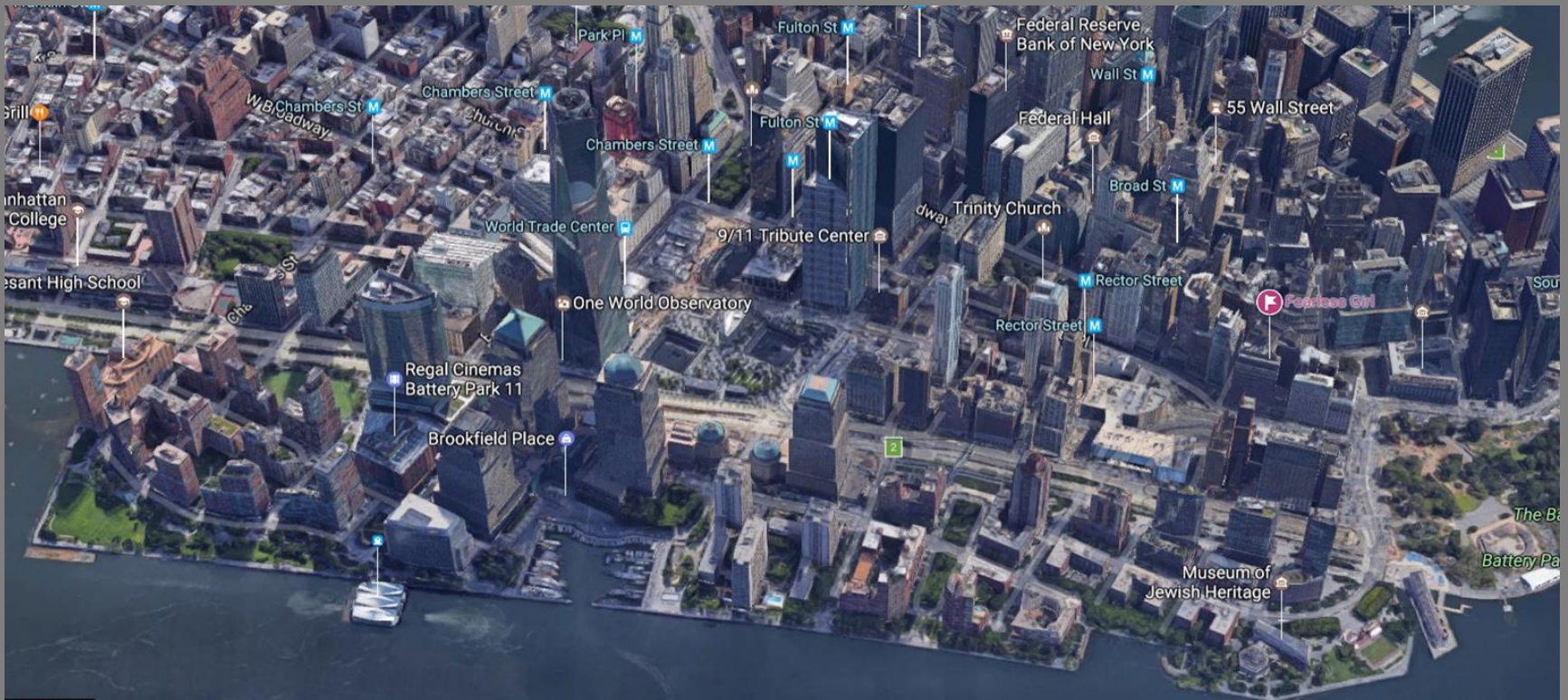
Resiliency Assessment Overview

- Next Steps
 - Detailed Engineering and Design

- Phasing Options (Subject to Modification)
 - North Esplanade / Ballfields
 - Wagner Park / Pier A / Battery
 - Waterfront Garden Wall and Landscaping (South Neighborhood), including South Cove
 - Waterfront Plaza at North Cove Marina
 - North Neighborhood Park Wall

Battery Park City

Resiliency Assessment Overview



Preparing for the Future