

**NORTH BATTERY PARK CITY
RESILIENCY PROJECT**
ALL-AGENCY COORDINATION MEETING

November 22, 2019



NORTH BATTERY PARK CITY

AGENDA

1. INTRODUCTIONS

2. PROJECT OVERVIEW

3. AGENCY COLLABORATION + DISCUSSION

4. NEXT STEPS

NBPC CONSULTANT TEAM

AECOM

GEDEON GRC CONSULTING
ENGINEERS • PLANNERS • CONSTRUCTION MANAGERS



MATRIX **NEW** WORLD
Enabling Progress



JERSEY BORING & DRILLING COMPANY, INC.
JERSEY ESSAY LABS, INC.



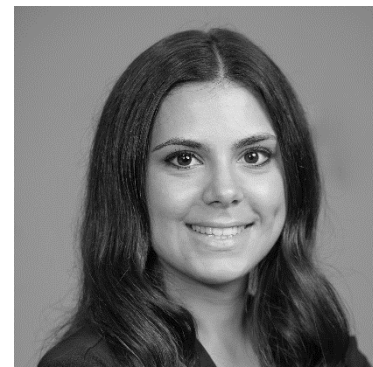
KEY TEAM MEMBERS



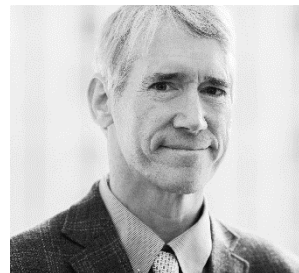
Alim Baycora, PE, LEED AP
Project Executive



Garrett Avery, ASLA
Project Manager



Serena De Stefano
Deputy Project Manager



Mark Foster, PE
Engineering Lead



Susan Bemis, AICP
Public Realm Design
Lead



Andrea Rosenthal, EIT, ENV-SP
Environmental Lead



Teresa Gonzalez
Partner and Stakeholder
Engagement



Nora Madonick
Community
Engagement



Wael Youssef, PE
Structural Engineering



Helder De Almeida, PE
Hydrological Team Lead



Samara Daly
Partner and Stakeholder
Engagement



Ibrahim Abdul-Matin
Partner and Stakeholder
Engagement



Mike Seering, PE
FEMA Certification

PROJECT OVERVIEW

RESILIENCY MEASURES | BATTERY PARK CITY

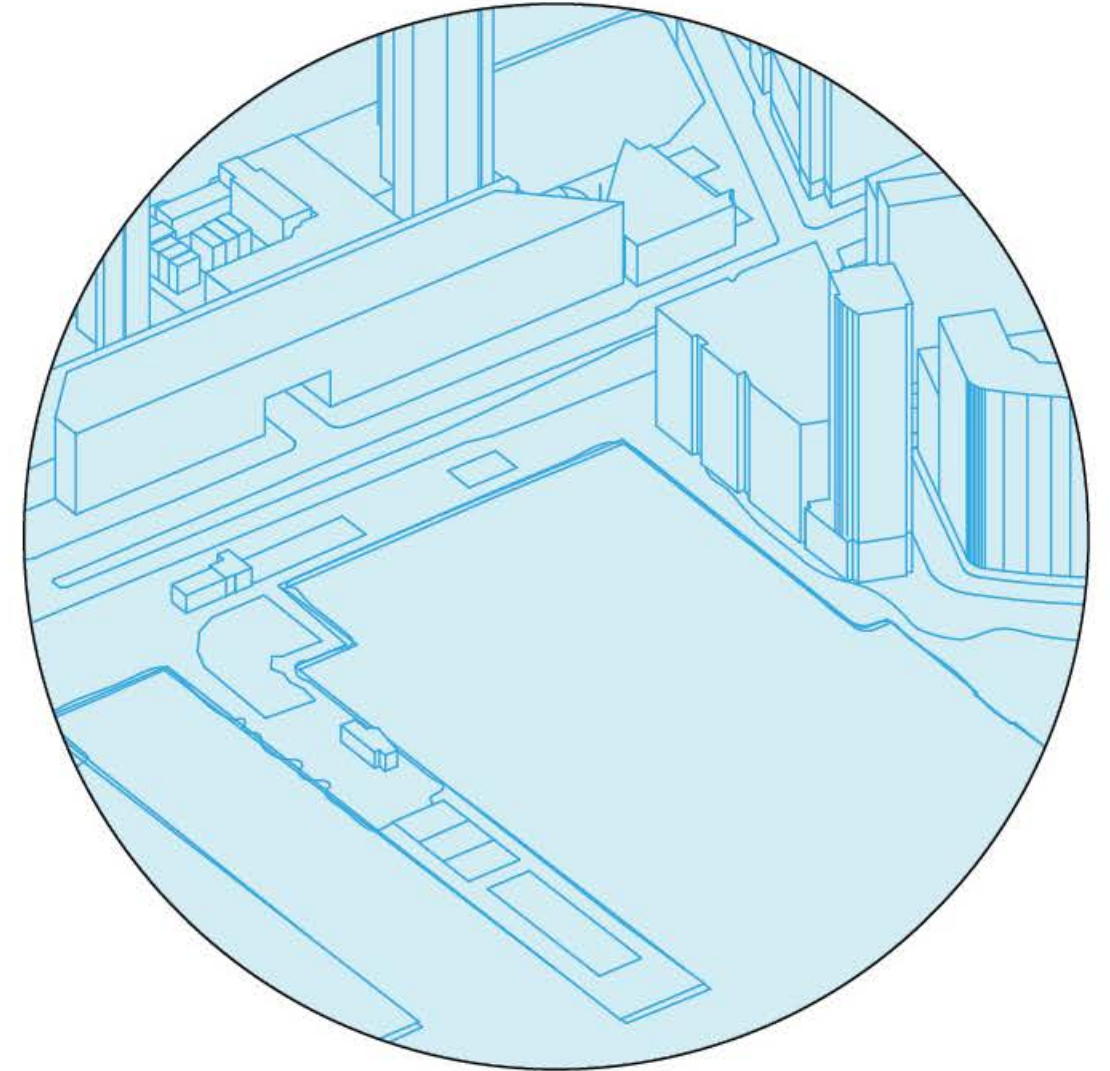


PROJECT STUDY AREA



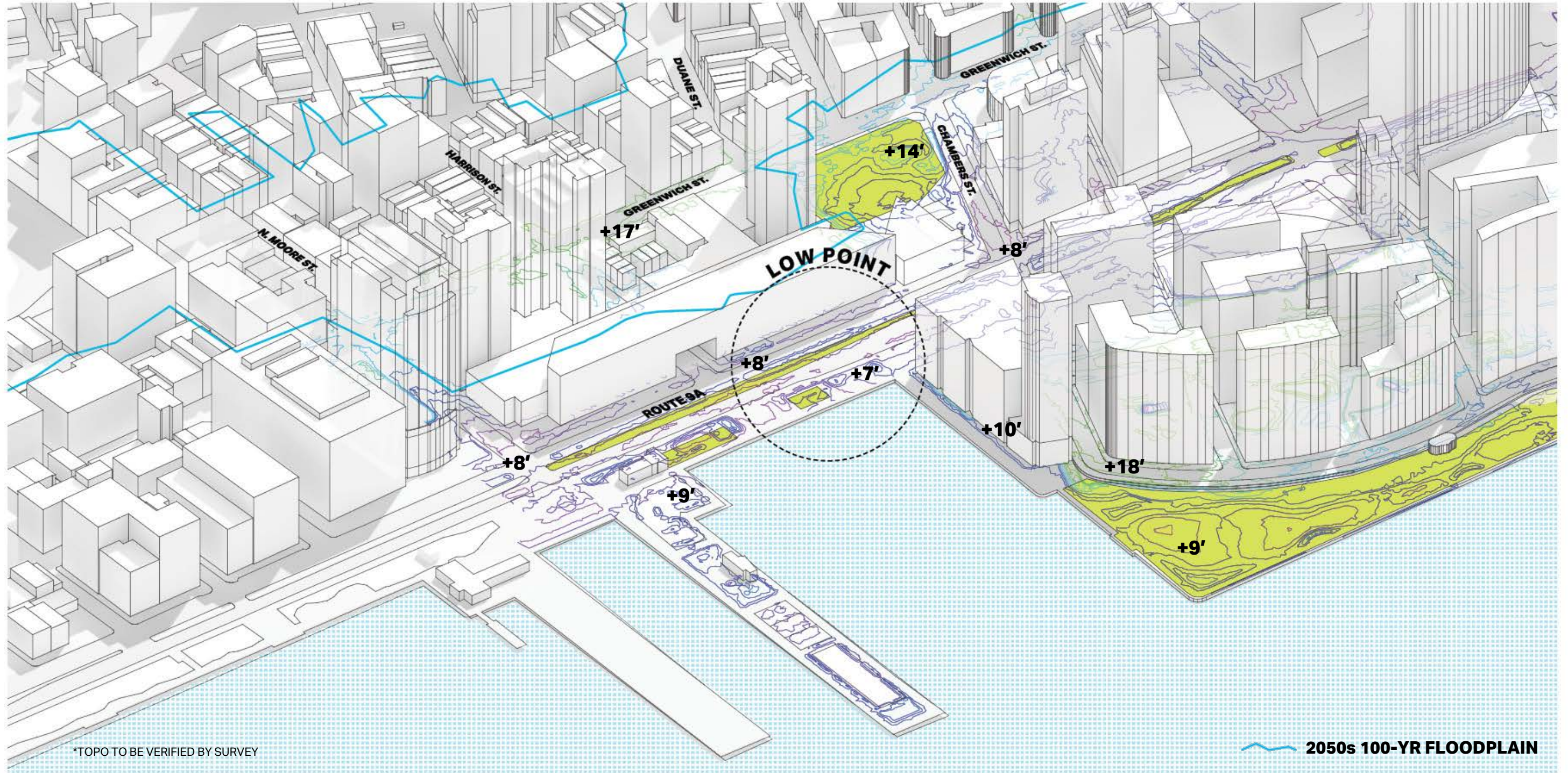
PROJECT SCOPE

- Conceptual design through construction documentation
- Integrate resiliency measures to improve risk-reduction for BPCA and City of New York
- Community, Partner, and Stakeholder Engagement
- Collaboratively develop long-term Operations & Maintenance Plans
- Achieve FEMA certification/accreditation



CONCEPTUAL ALIGNMENT DEVELOPMENT

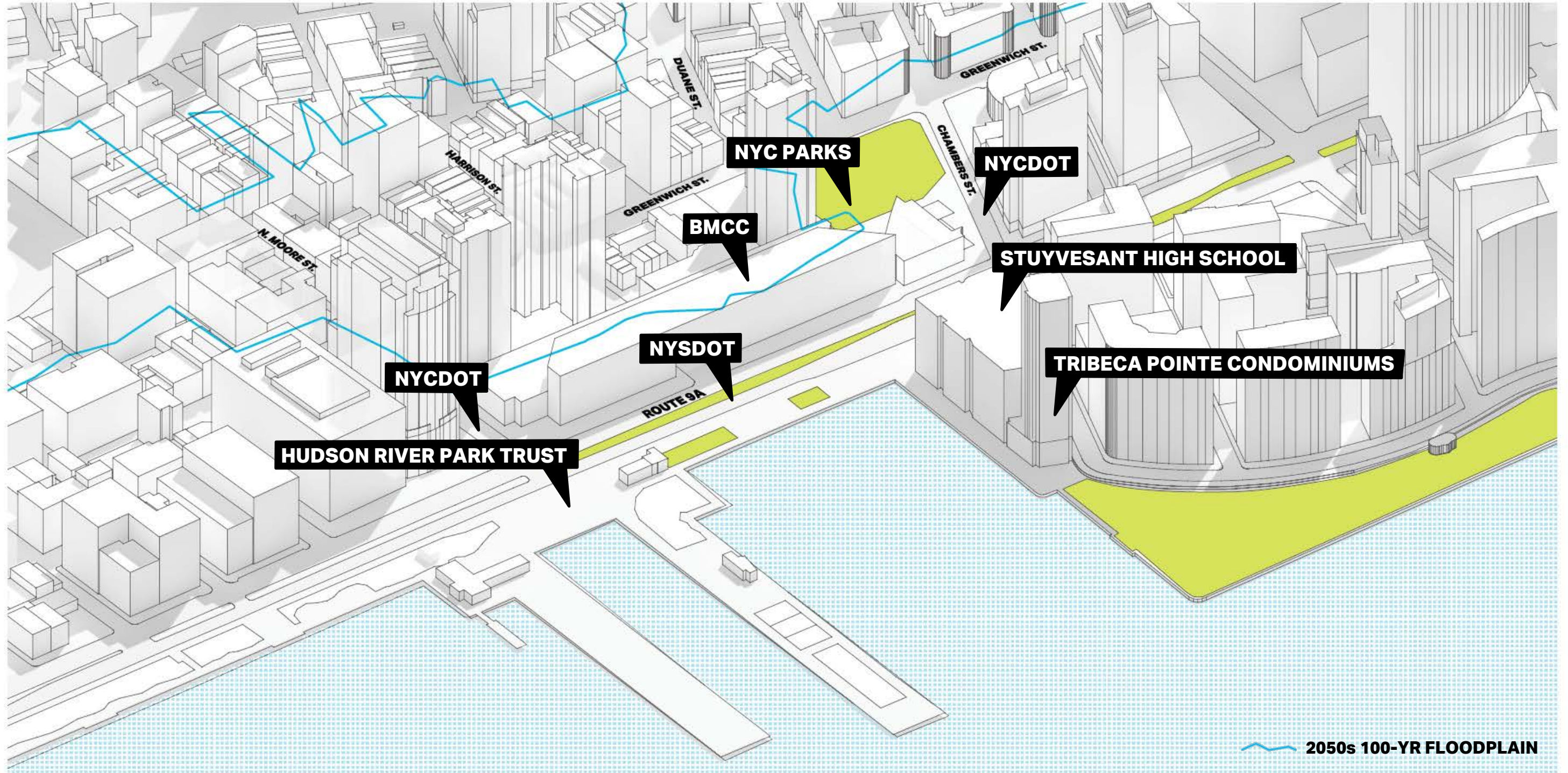
TOPOGRAPHY | LOW POINT



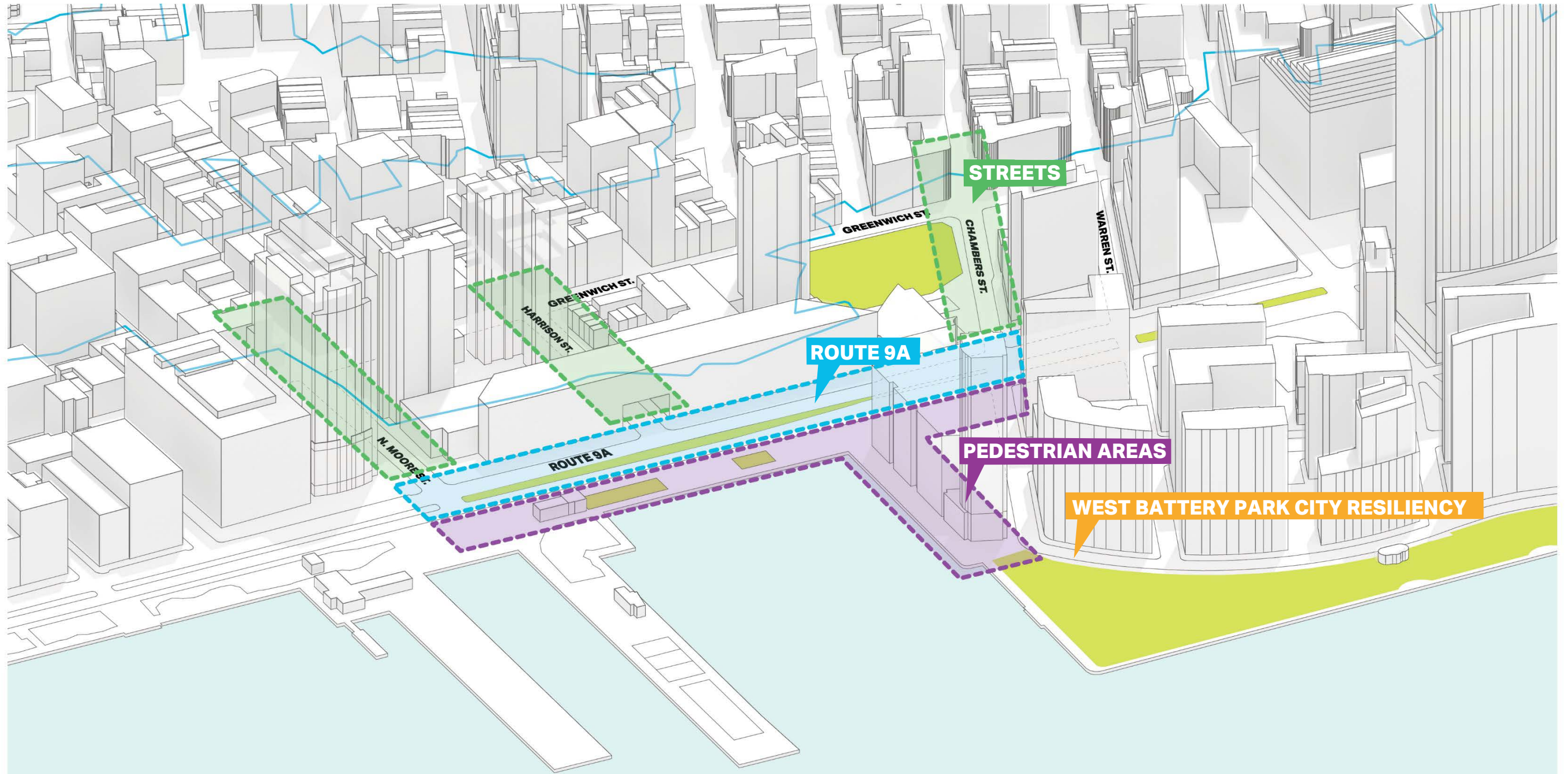
*TOPO TO BE VERIFIED BY SURVEY

2050s 100-YR FLOODPLAIN

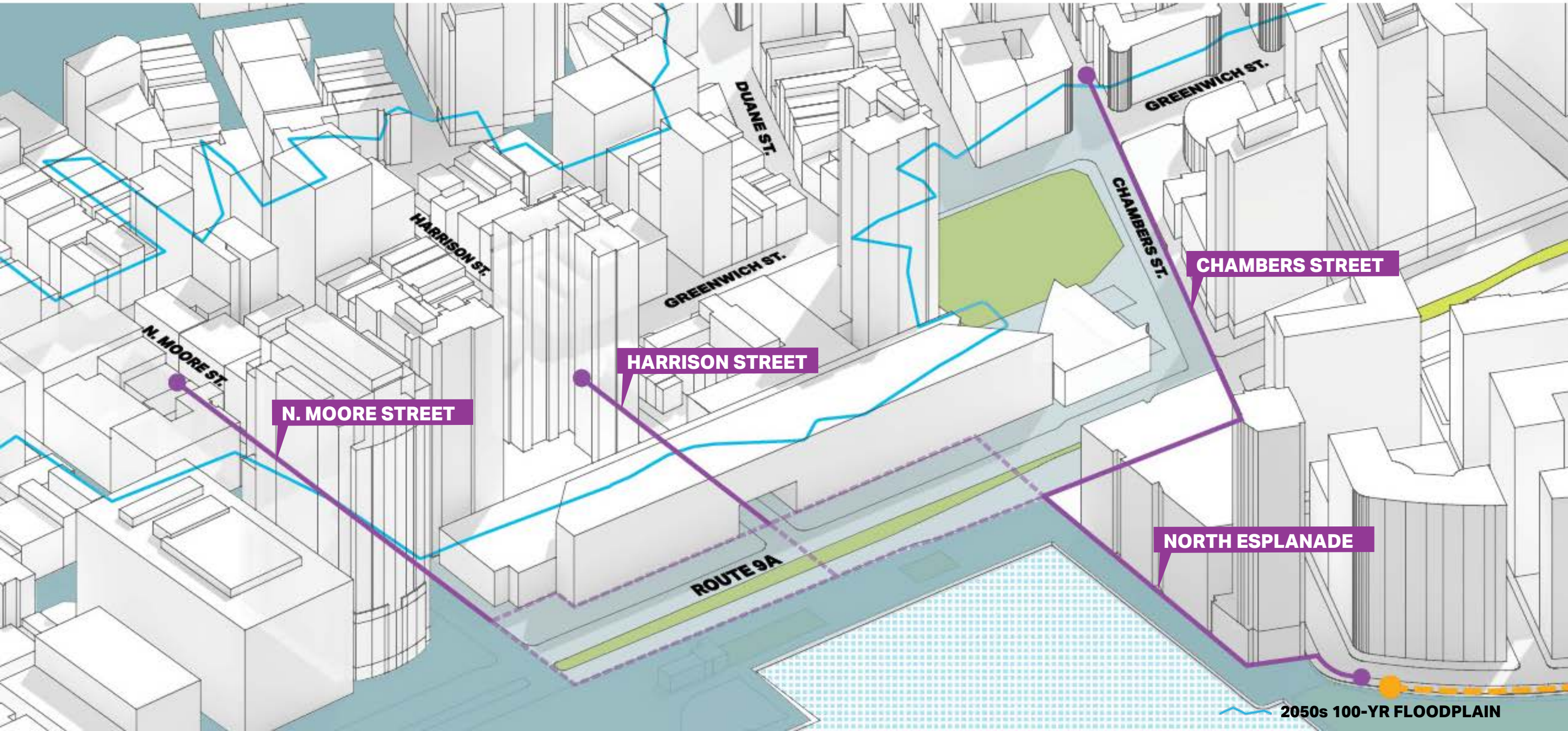
POTENTIAL PROJECT STAKEHOLDERS



POTENTIAL DESIGN ZONES

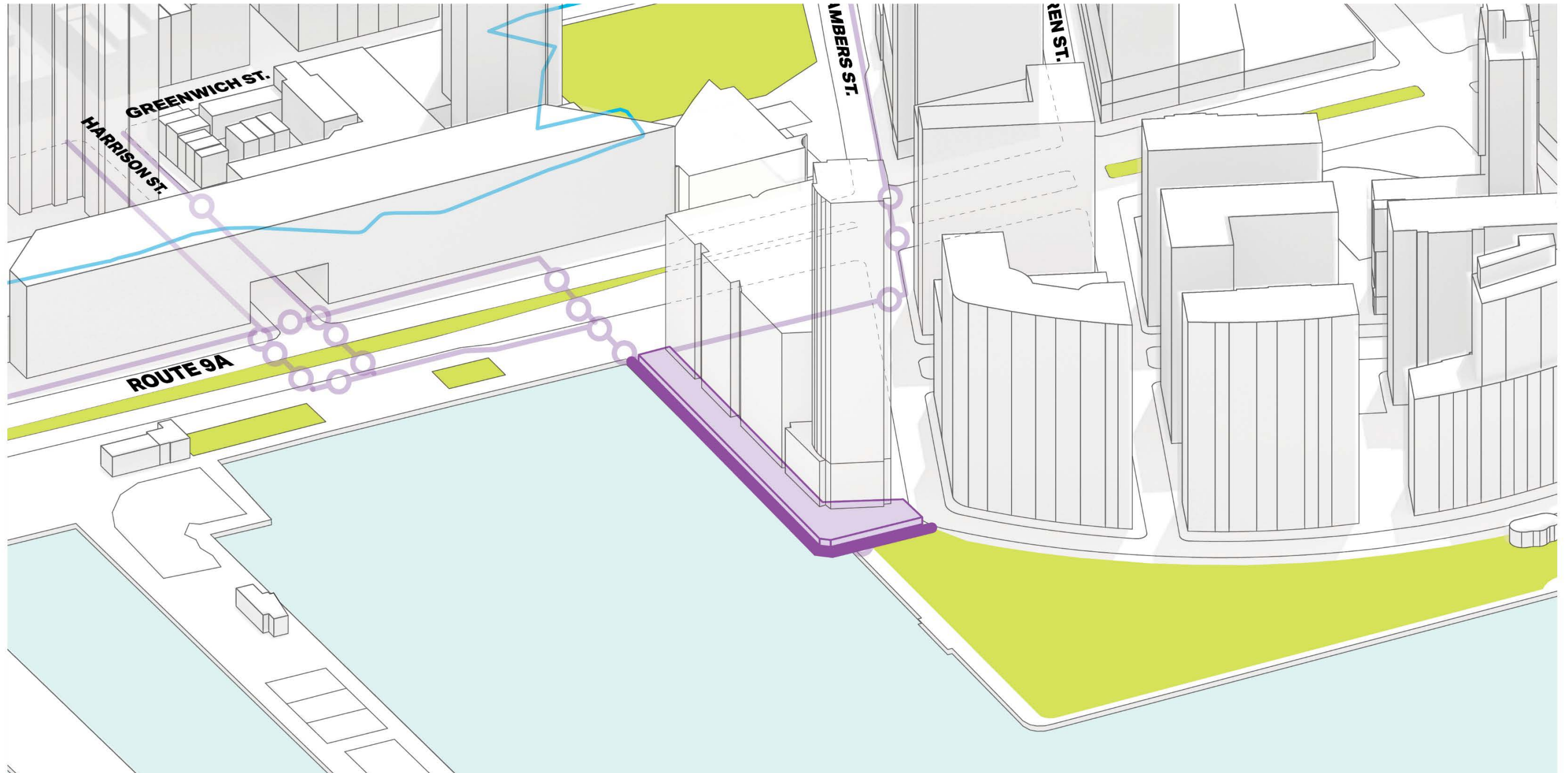


CONCEPTUAL ALIGNMENTS | EVALUATION OPTIONS



NORTH ESPLANADE

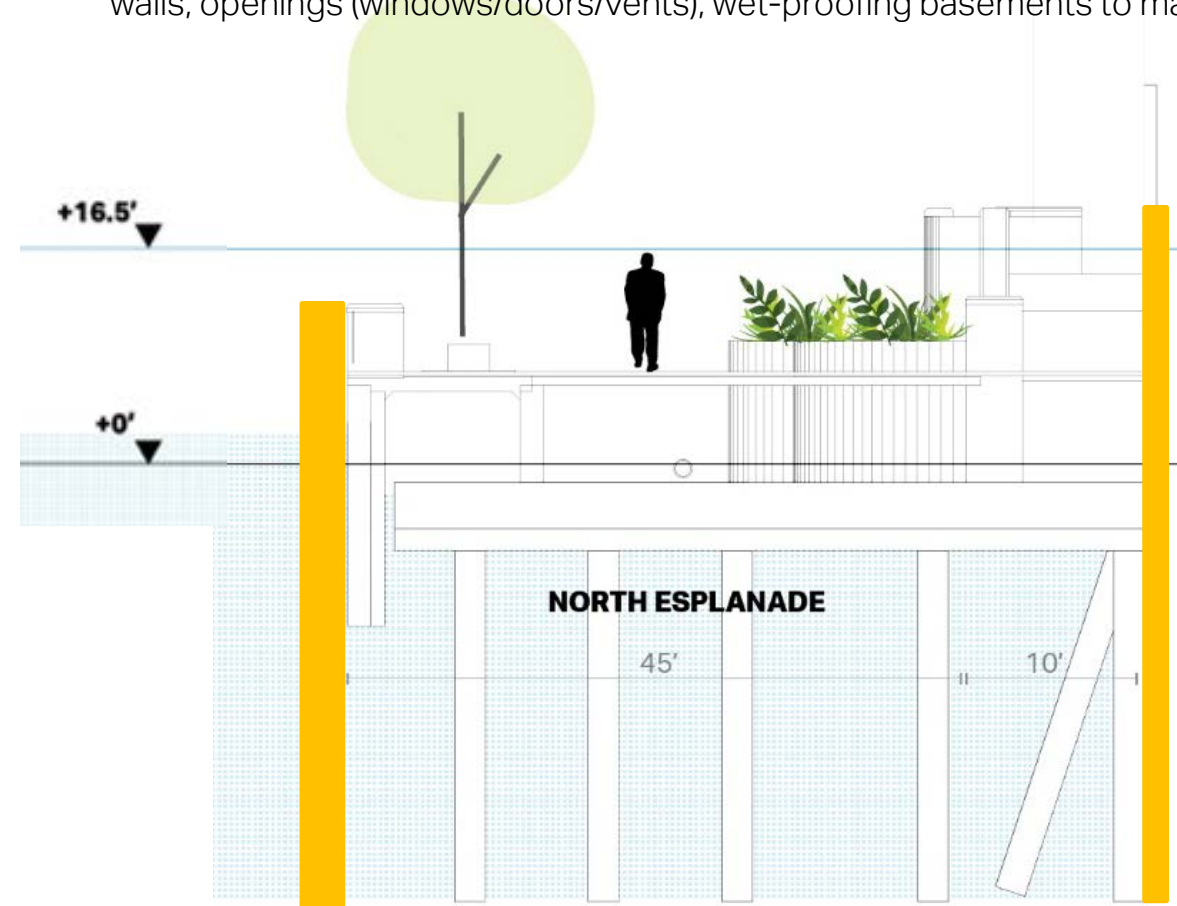
NORTH ESPLANADE | PROPOSED ALIGNMENT OPTIONS



NORTH ESPLANADE | STUDY CONDITIONS

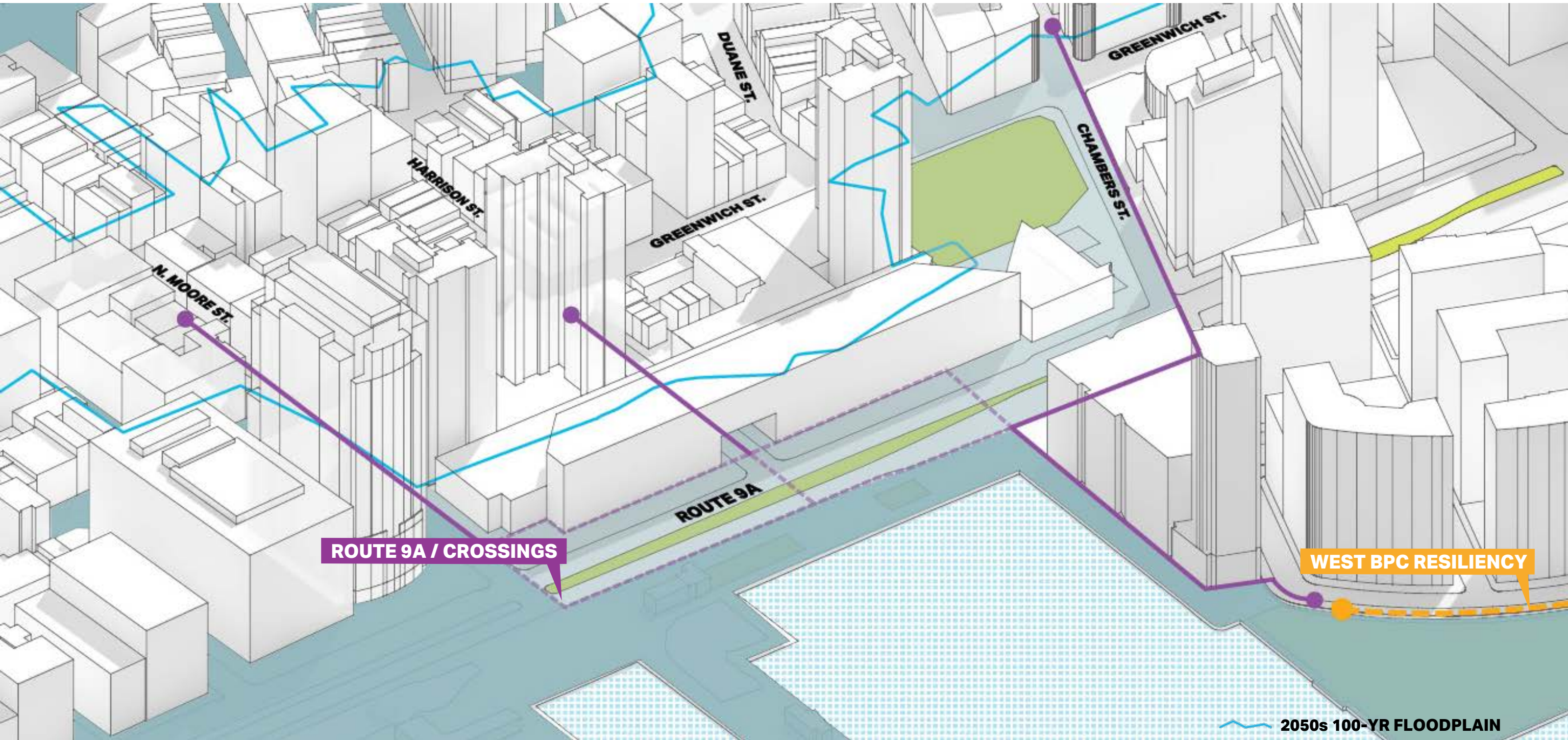


- Relieving platform below structural sidewalk and structural column-supported stairwells / ramp system
- Existing Seawall flush with adjacent sidewalk; existing railing with columns spaced approx. every 50'
 - **Option 1** – Convert relieving platform to bulkhead; elevate existing seawall and meet DFE with vertical deployable.
 - **Option 2** – Retrofit existing structures (Stuyvesant High School and Tribeca Pointe Condominium) to act as flood barrier; structurally reinforcing foundation and architectural walls, openings (windows/doors/vents), wet-proofing basements to manage hydrostatic uplift



ROUTE 9A

ROUTE 9A | PROPOSED CONDITIONS | OPTION 1-2



ROUTE 9A / CROSSINGS

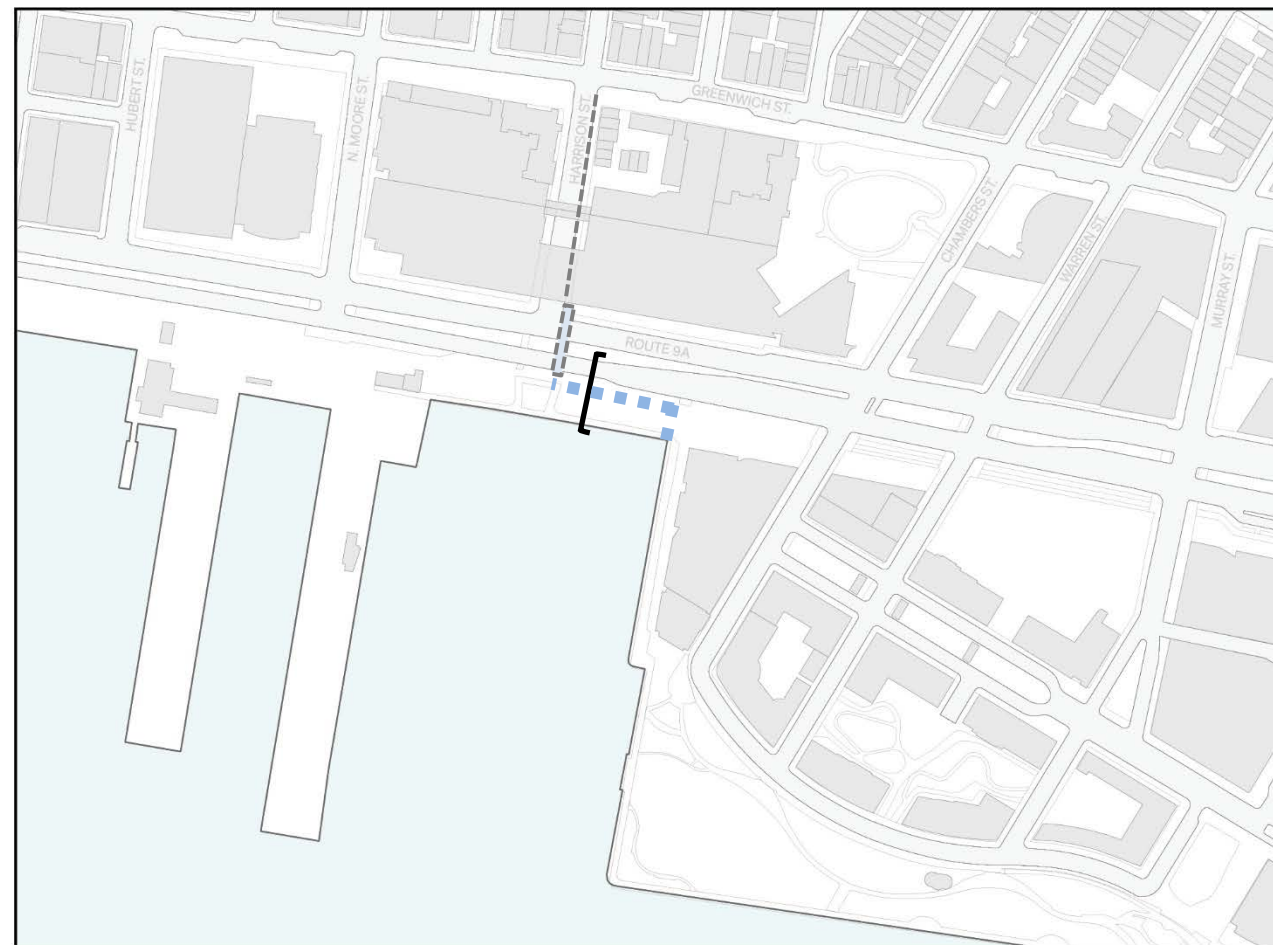
WEST BPC RESILIENCY

2050s 100-YR FLOODPLAIN

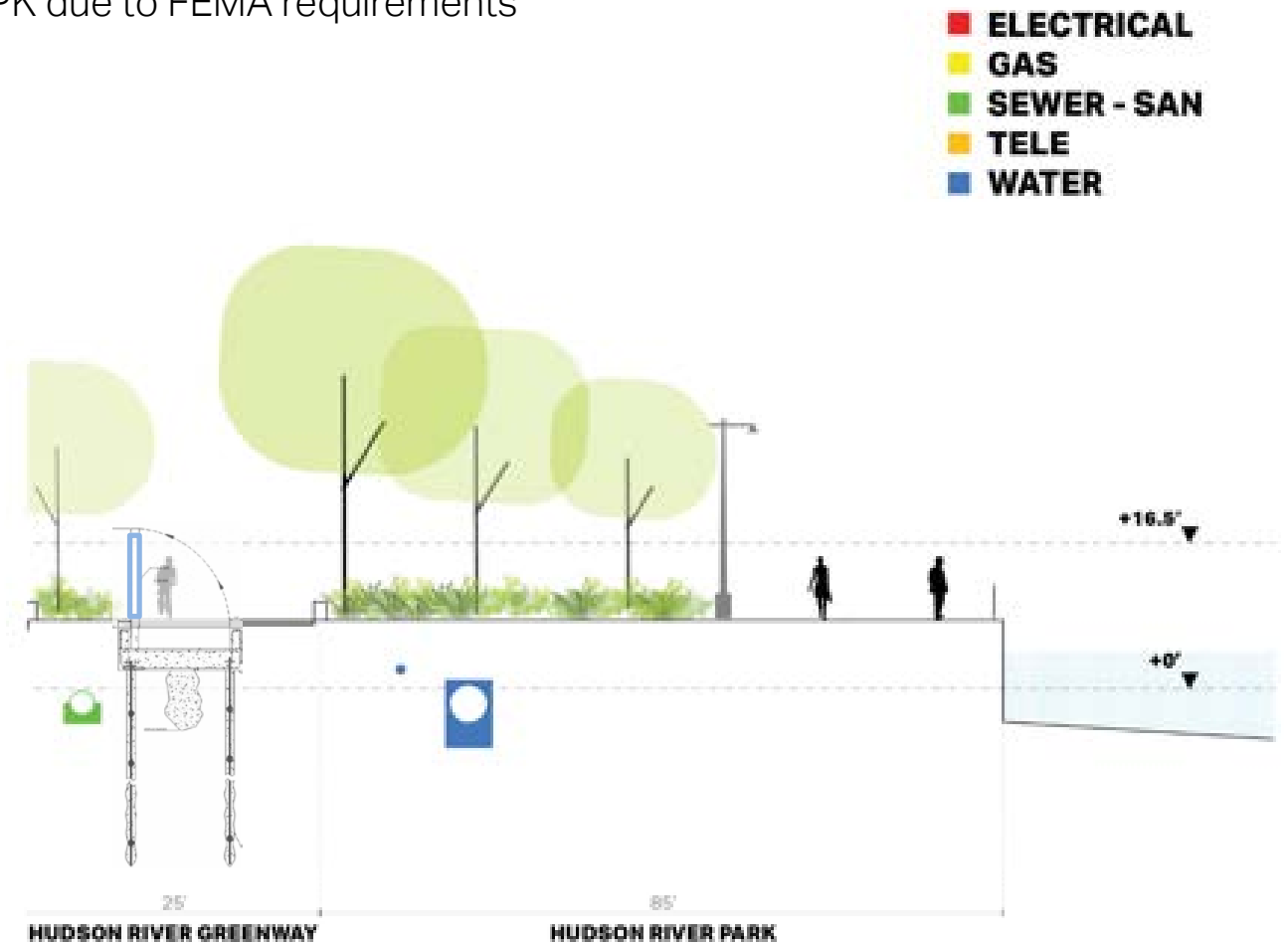
ROUTE 9A | PROPOSED CONDITIONS | OPTION 1

Deployable flip-up gates become Bikeway surface;
intermittent fixed wall segments where needed

- Length from North Esplanade: +380 ft // Wall Height: 6' // Width: 9' // Gates: 8
- Likely least permanent visual impact along this segment
- Concern for significant utility conflicts, including relocations, increased separation distances, potential loss of street trees along West Street and some located within HRPK due to FEMA requirements



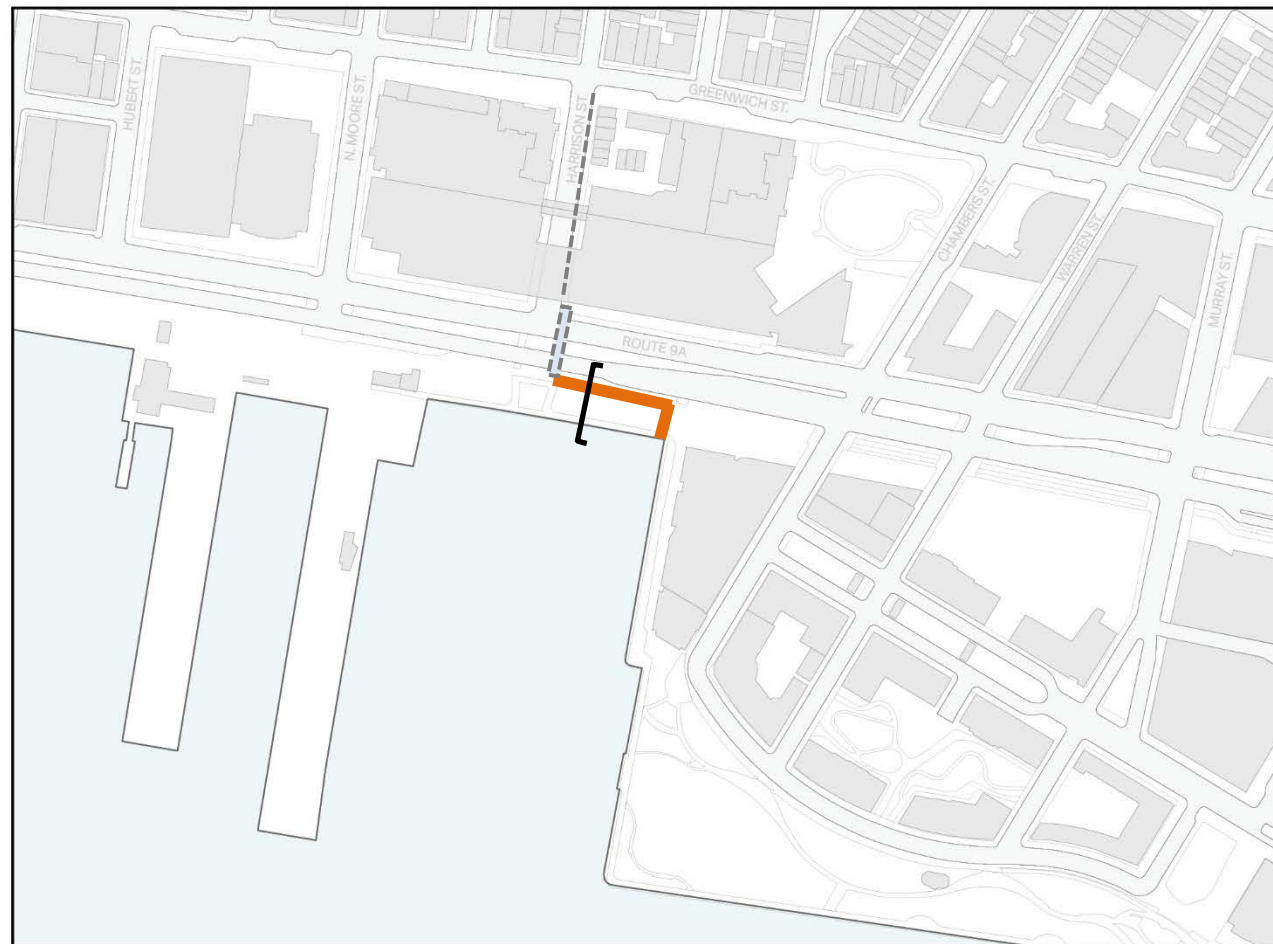
- FIXED WALL
- - - DEPLOYABLE
- - - ALIGNMENT OPTIONS



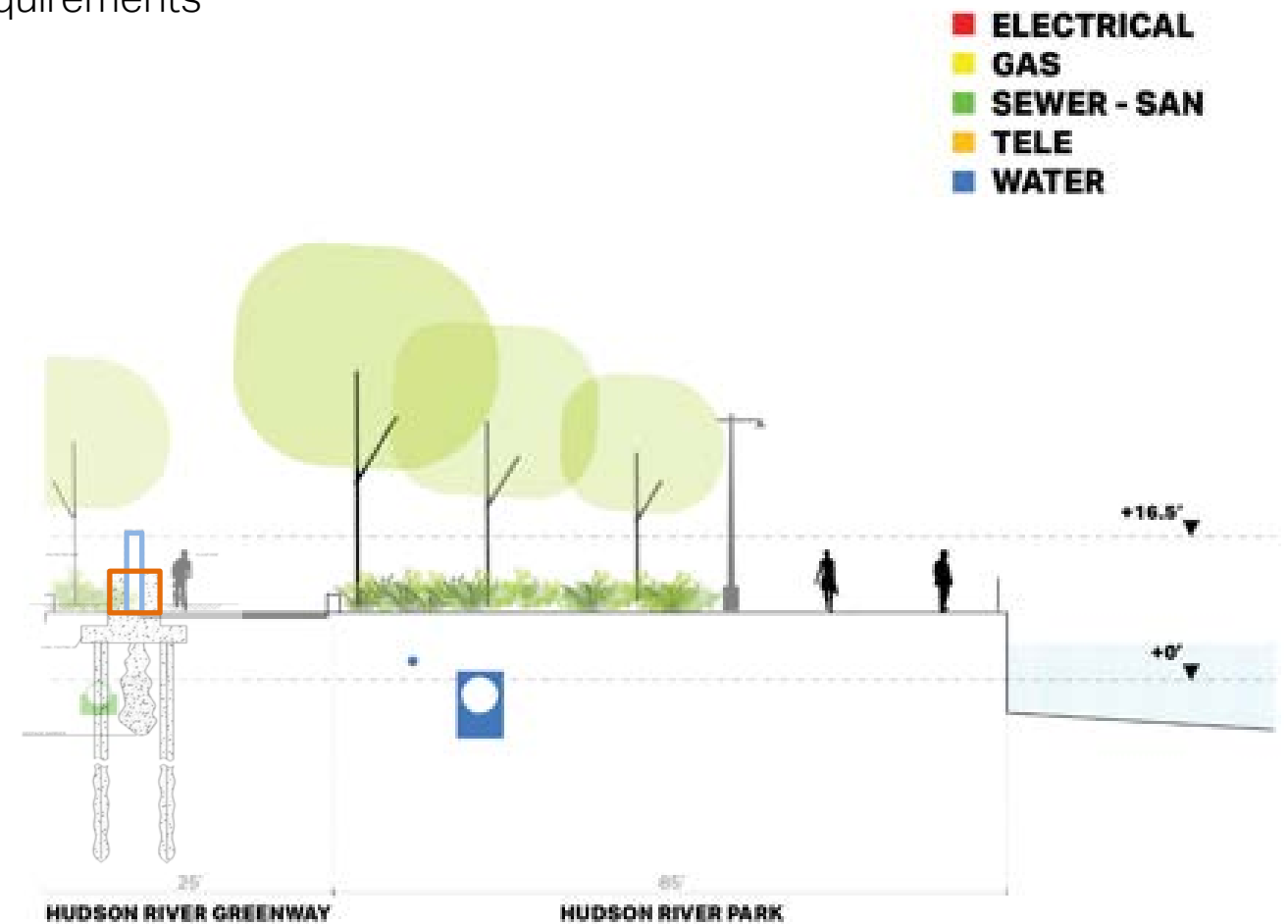
ROUTE 9A | PROPOSED CONDITIONS | OPTION 2

Fixed wall along east edge of Bikeway; DFE met using vertical deployable stowed within wall

- Length from North Esplanade: +380 ft // Wall Height: 5' // Width: 42" // Gates: 2
- Second least permanent visual impact along this segment
- Concern for significant utility conflicts, including relocations, increased separation distances and loss of street trees along West Street due to FEMA requirements



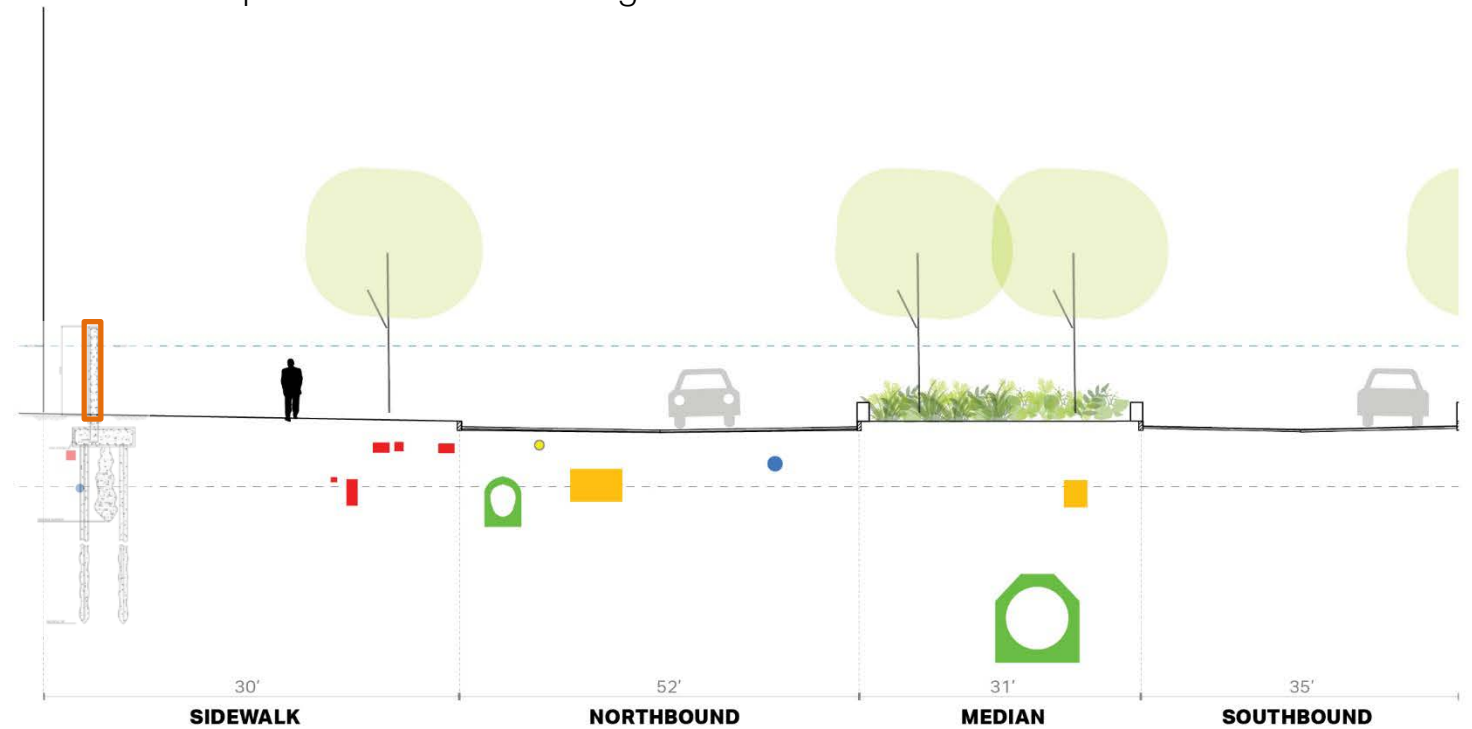
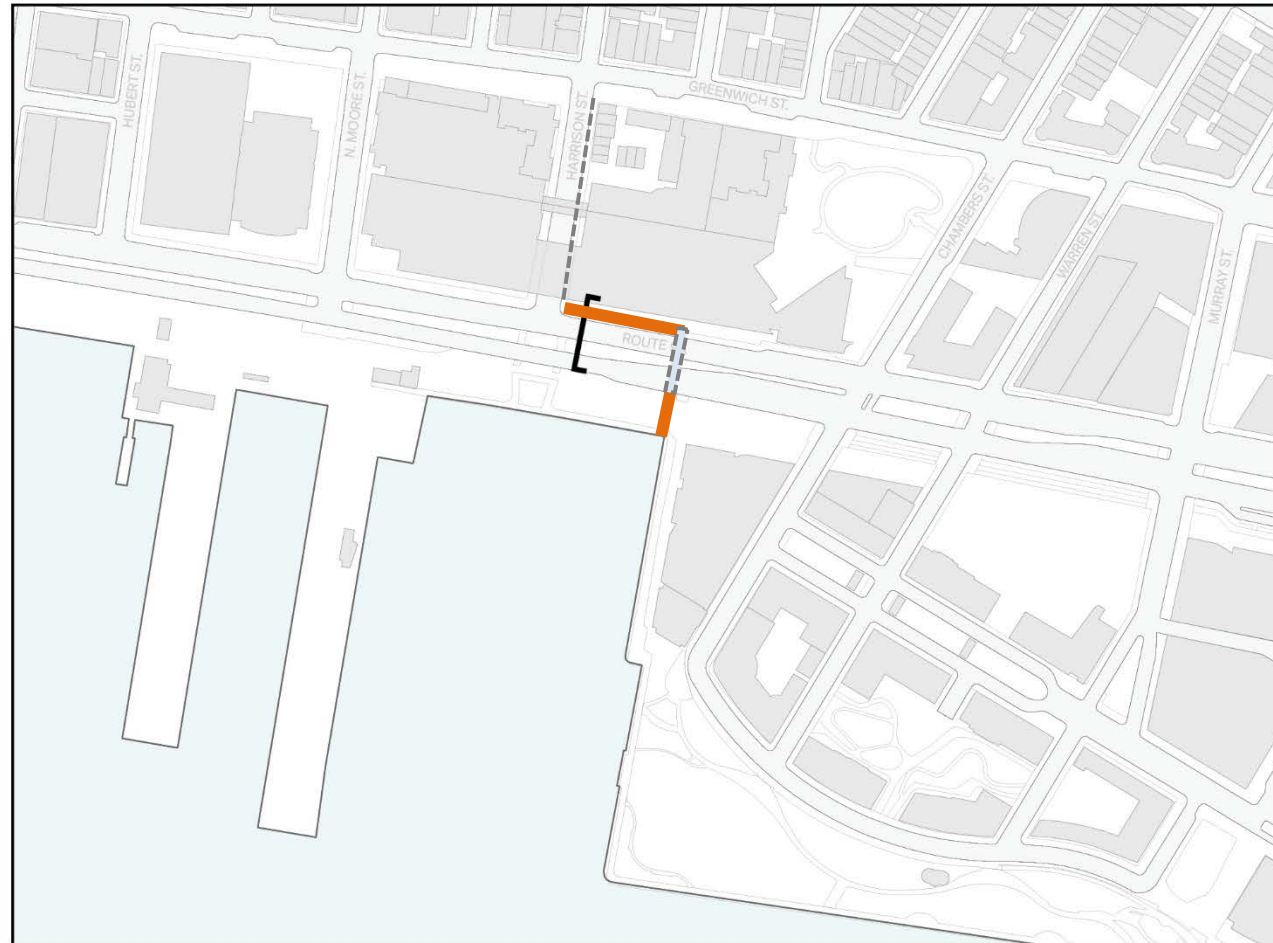
- FIXED WALL
- - - DEPLOYABLE
- - - ALIGNMENT OPTIONS



ROUTE 9A | PROPOSED CONDITIONS | OPTION 3

Fixed wall along NYS DOT right-of-way / parallel to BMCC building façade

- Length: +365 ft // Wall Height: 3'-8" // Width: 18" // Gates: 3
- Minimizes Potential Visual Impact to pedestrians, cyclists and vehicular viewers along Hudson River; minimizes disruption to HRPK, provides opportunity for artist collaboration / public art integration
- Concerns for Interference with BMCC Façade (egress, windows, venting); existing utilities; minimal wave overtopping distance between wall and building façade; loss of street trees along West Street due to FEMA requirements
- Would require Easement and long-term O&M coordination with DASNY / CUNY / BMCC

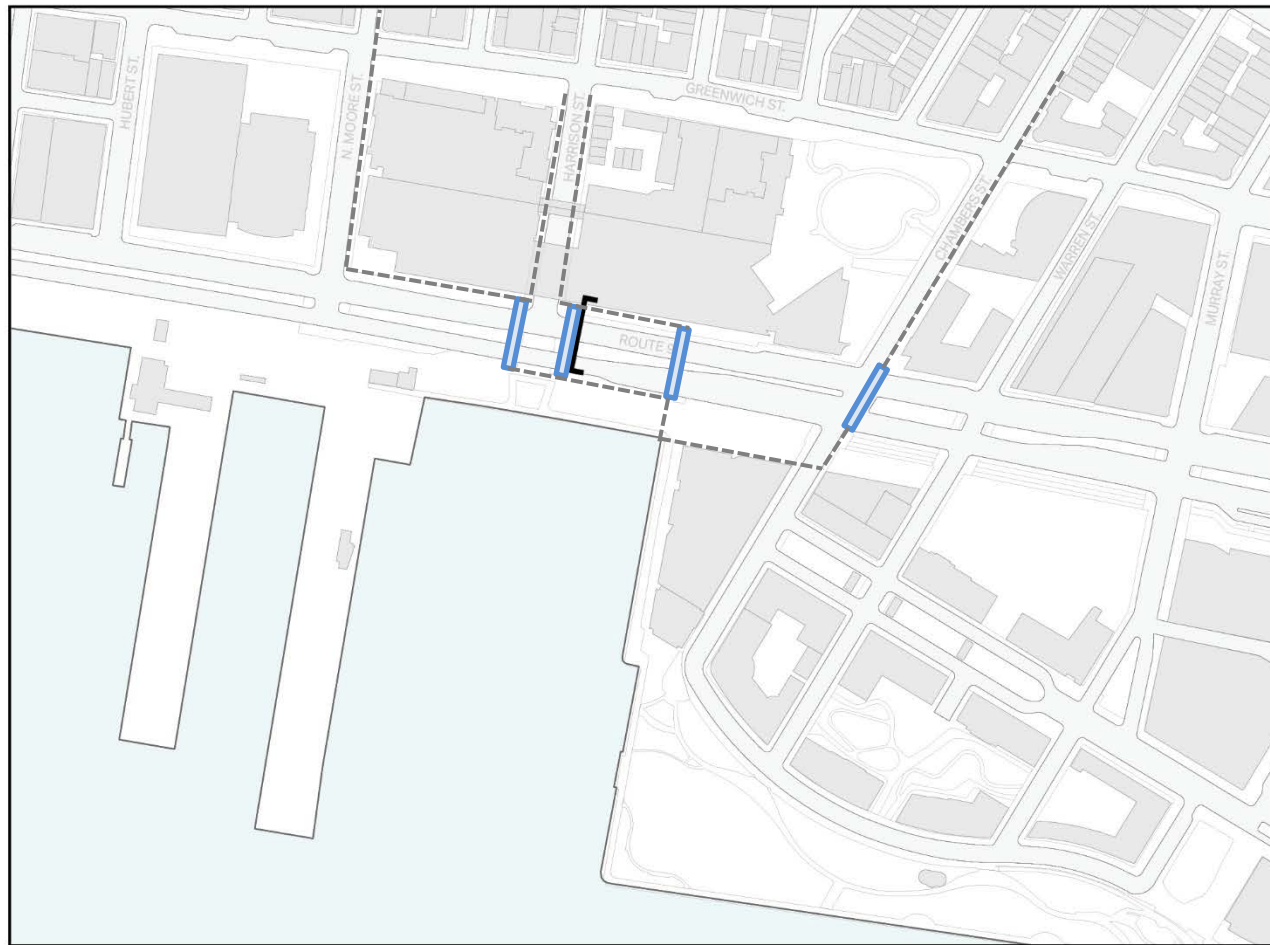


— **FIXED WALL**
- - - **DEPLOYABLE**
- - - **ALIGNMENT OPTIONS**

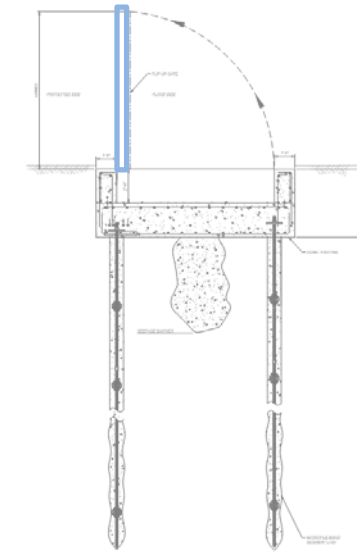
■ **ELECTRICAL**
■ **GAS**
■ **SEWER - SAN**
■ **TELE**
■ **WATER**

ROUTE 9A CROSSING | MULTIPLE LOCATIONS

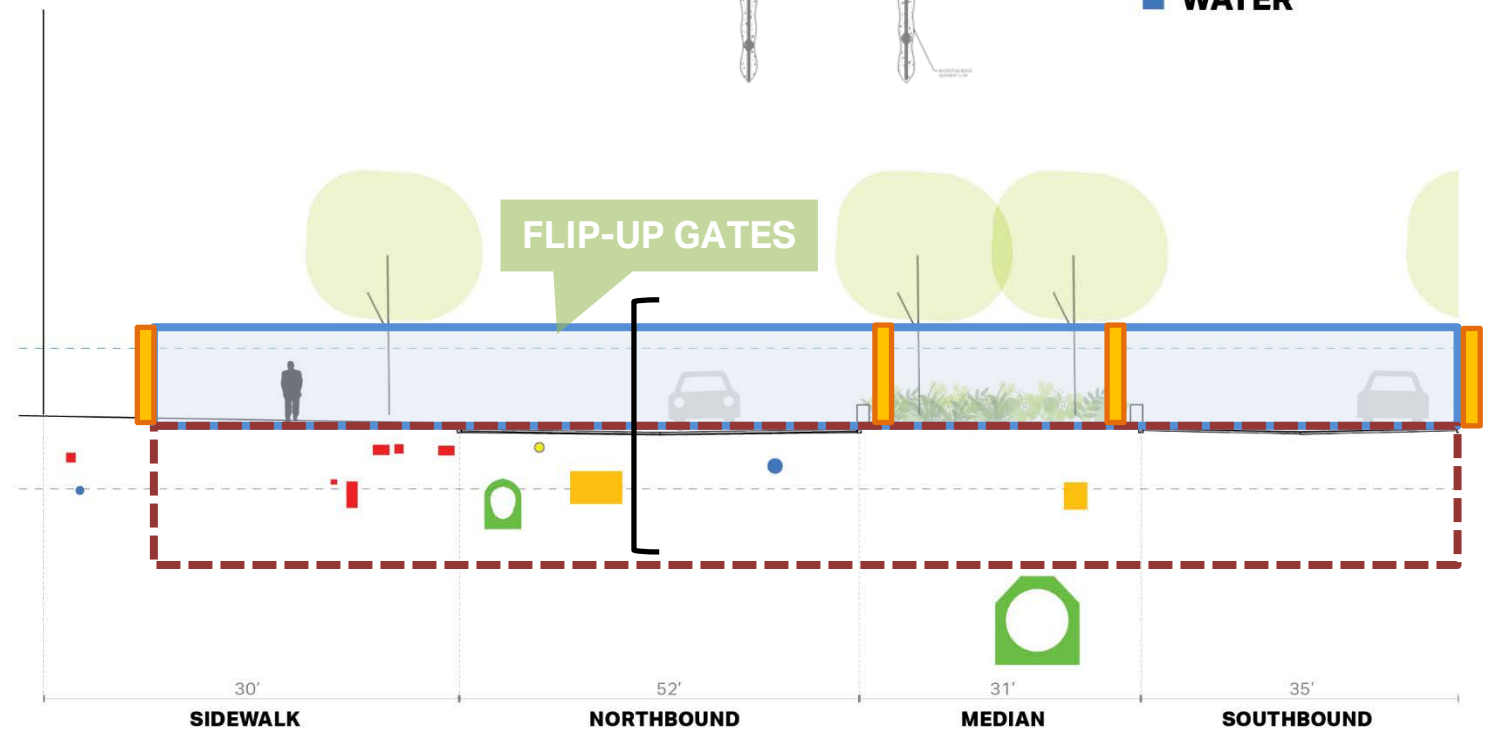
- Average Length: +160 ft // Wall Height: 8-9' // Depth: 5' // Gates: 3-4
- Deployable flip-up gates across Bikeway, Route 9A, with intermittent fixed wall segments
- Concern for significant utility conflicts, including relocations, increased separation distances, operational design requirements per NYSDOT, NYCDOT, NYCDEP, OEM/DHS/JTT, etc.



- FIXED WALL
- - - DEPLOYABLE
- - - ALIGNMENT OPTIONS

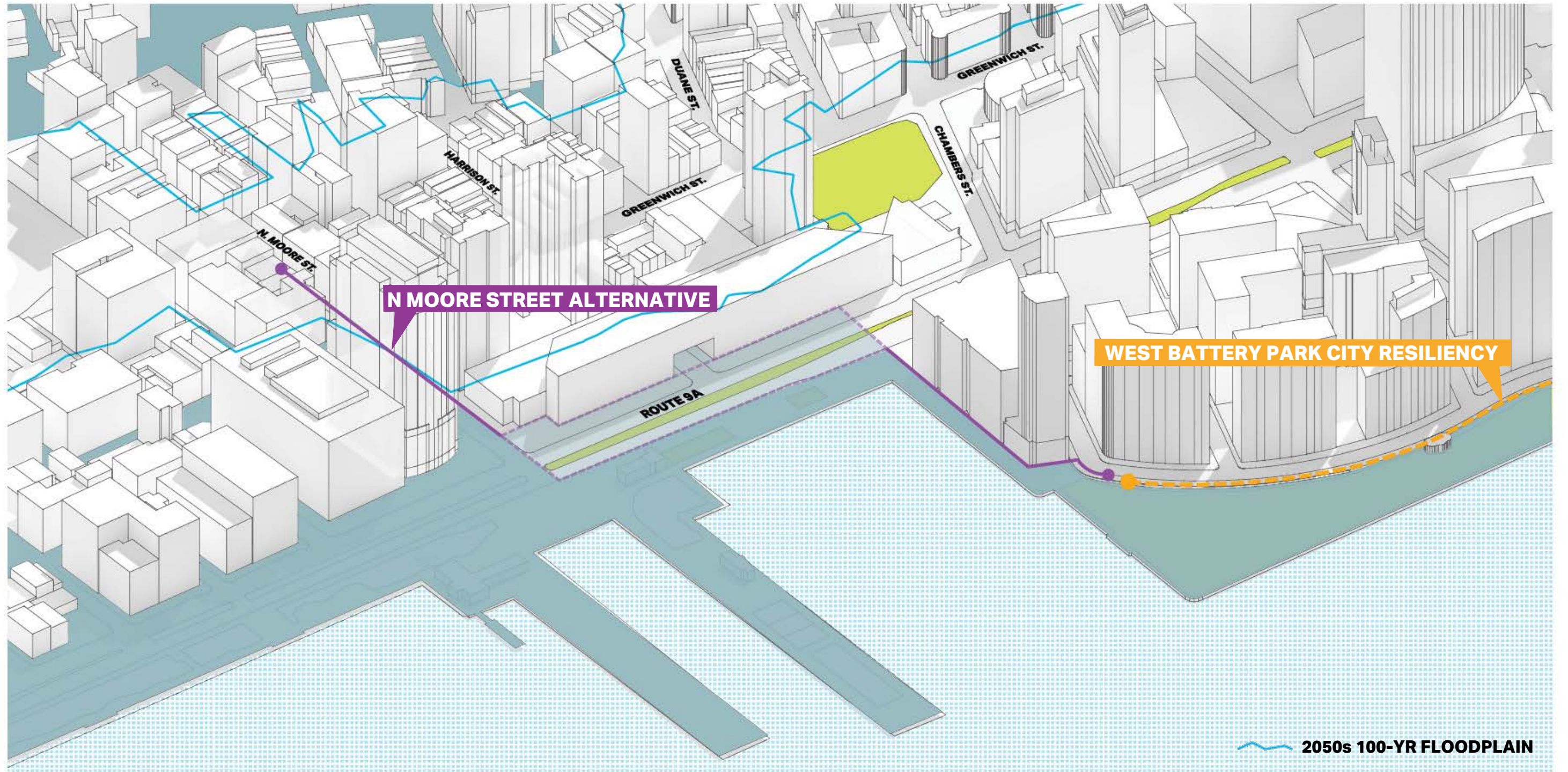


- ELECTRICAL
- GAS
- SEWER - SAN
- TELE
- WATER



N. MOORE STREET

N. MOORE STREET



N MOORE STREET ALTERNATIVE

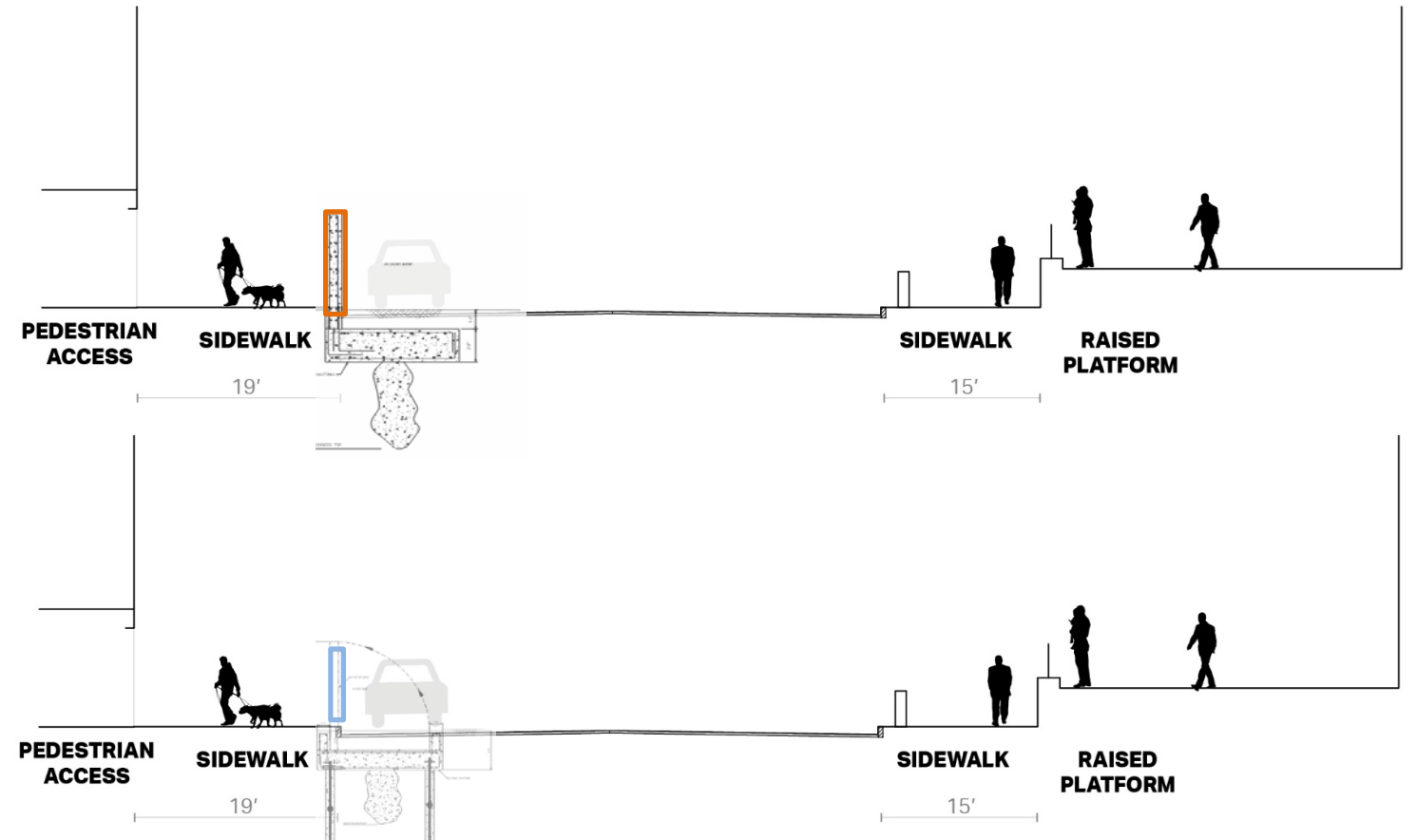
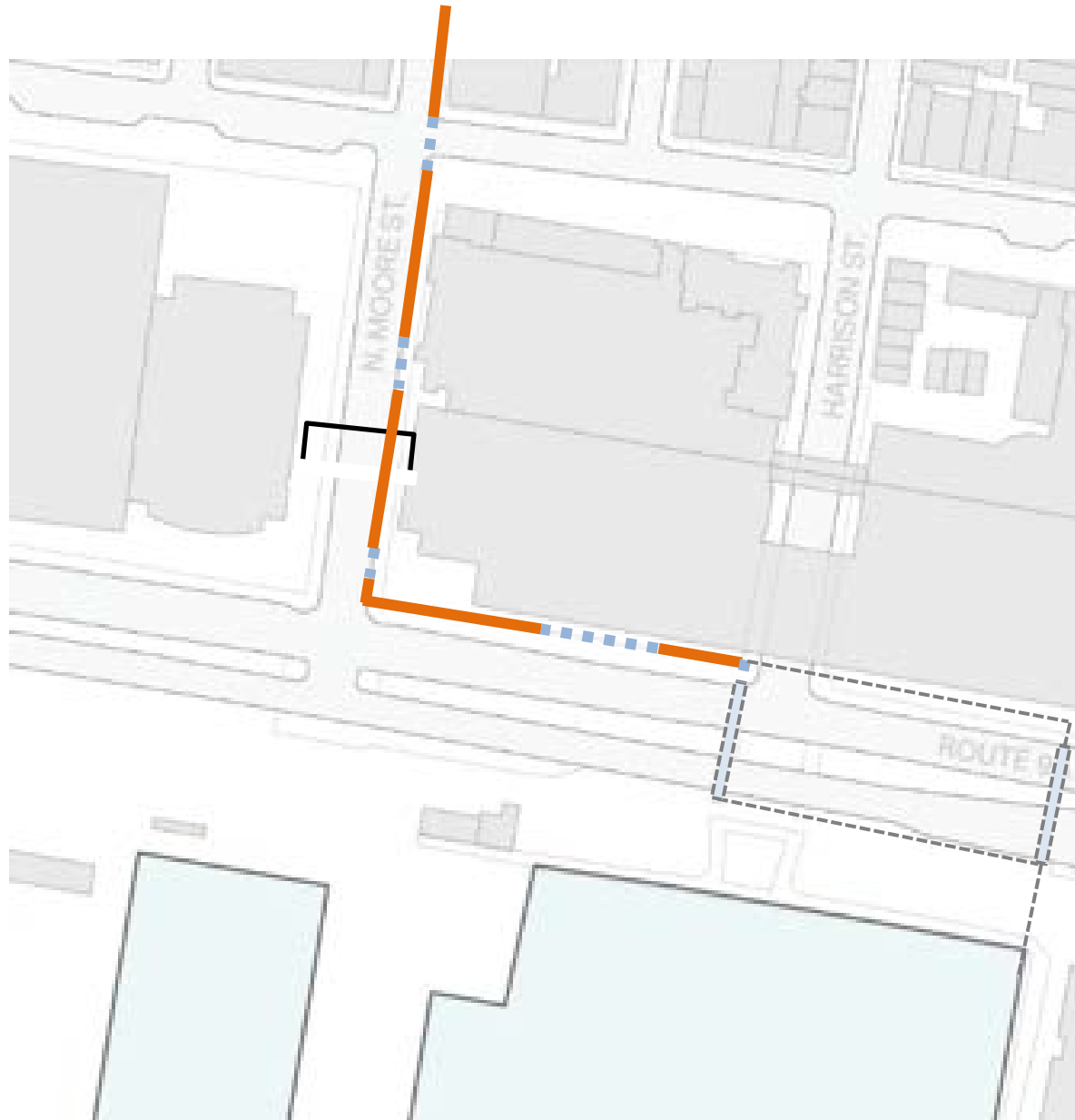
WEST BATTERY PARK CITY RESILIENCY

 2050s 100-YR FLOODPLAIN

N. MOORE STREET | PROPOSED CONDITIONS

Fixed wall of variable height with deployables at driveways, loading docks, and local street crossings

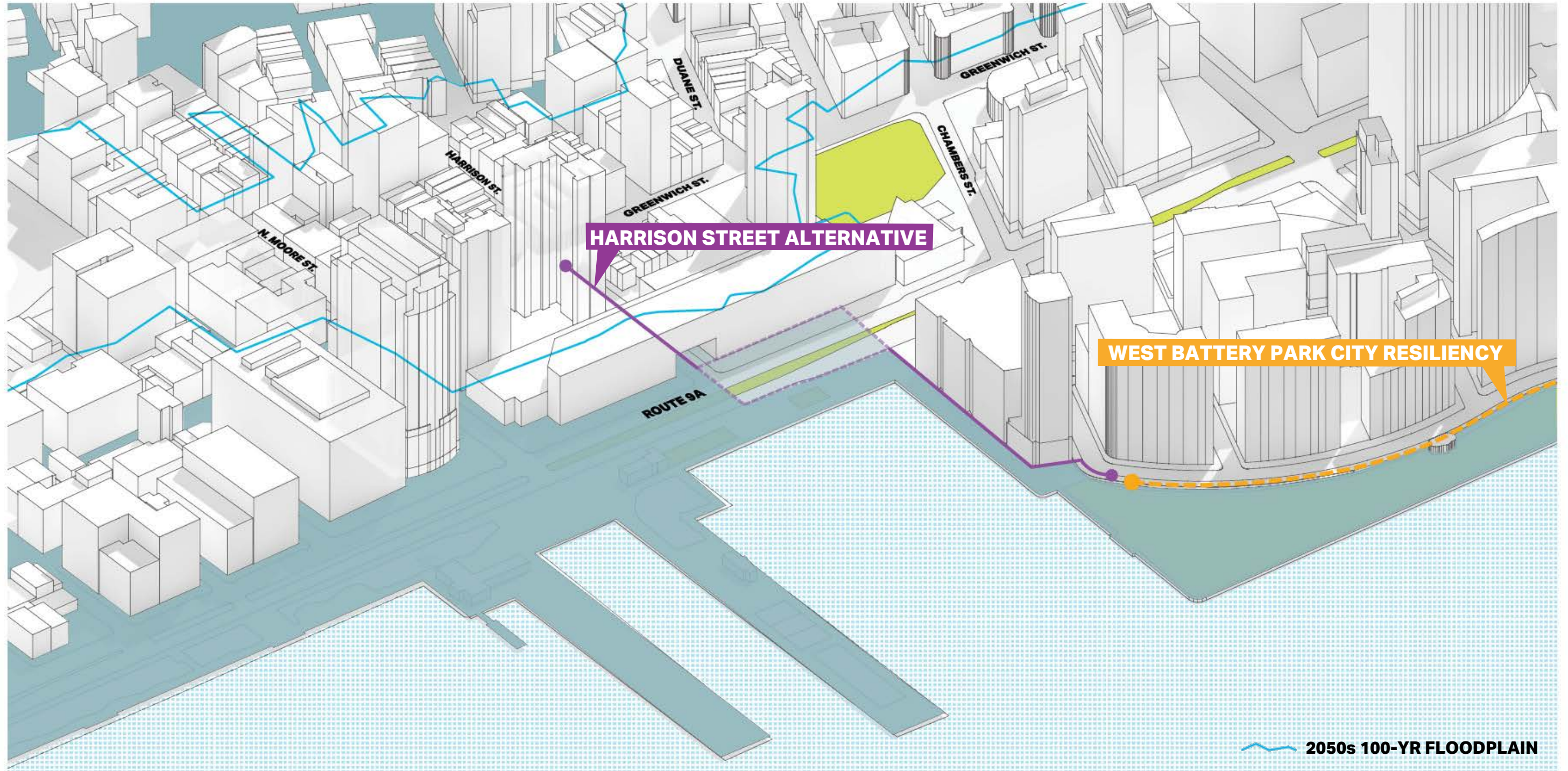
- Length from Harrison: +1150 ft // Wall Height: 8' to 6" // Width between 18"-24" // Gates: 4-6
- Deployable flip-up or roller gates at driveways, loading docks, local street crossings to reduce deployment time and minimize coordination (storage, staffing, etc.)
- Located at back of sidewalk (NYSDOT right-of-way) along Route 9A; located along existing southern curb line on N. Moore Street to minimize significant utility/vault conflicts; curb re-established 2'-4' north of existing in current parking lane
- Concern for proximity to segment of BMCC North façade; alignment parallel to utilities/ConEd steam service; length of segment east of Greenwich into Historic District ; loss of street trees along alignment



— **FIXED WALL**
- - - **DEPLOYABLE**
- - - **PROPOSED ALIGNMENT**

HARRISON STREET

HARRISON STREET



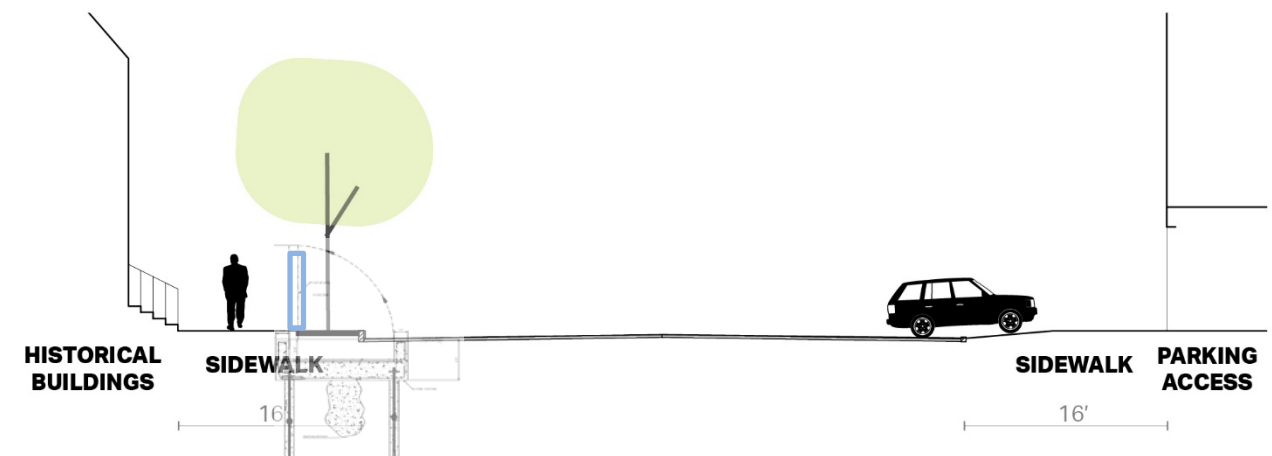
HARRISON STREET | PROPOSED CONDITIONS | OPTION 1

Fixed wall with variable height with deployables at openings and crossings



- **FIXED WALL**
- - - **DEPLOYABLE**
- - - **PROPOSED ALIGNMENT**

- Length from Route 9A: 500 ft // Wall Height: 8' to 6" // Width between 18"-24" // Gates: 3-4
- Deployable flip-up gates at openings and crossings to reduce deployment time and minimize coordination (storage, staffing, etc.)
- Located along street tree/parkway zone to minimize conflict with street and sidewalk operations
- Possible regrading of the intersection at Greenwich St. to avoid closure/crossing
- Concern for potential visual impact, construction (noise/vibration) impacts to Historic/Landmark Properties, proximity to BMCC façade, and loss of street trees per FEMA requirements



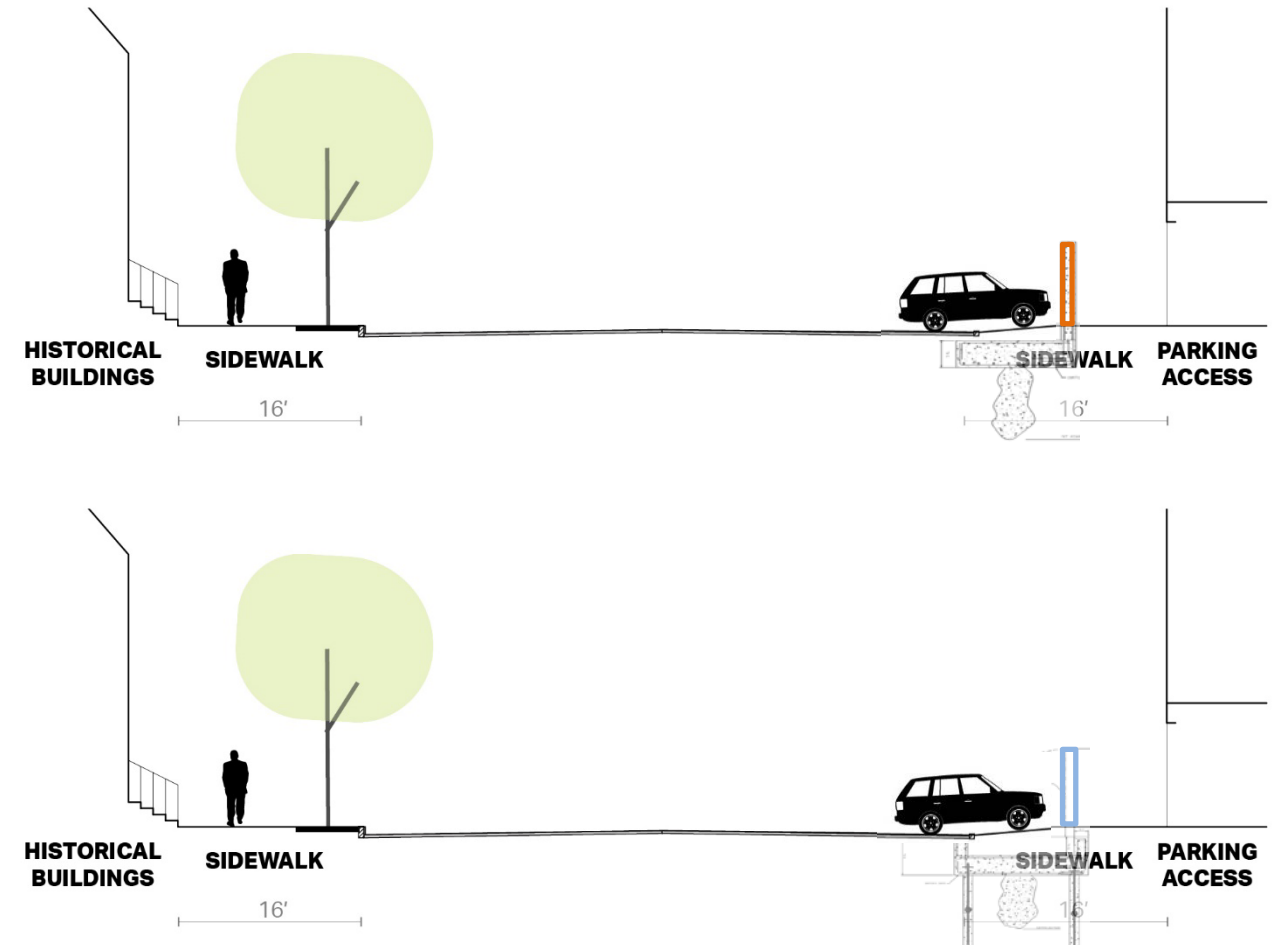
HARRISON STREET | PROPOSED CONDITIONS | OPTION 2

Fixed wall with variable height with deployables at openings and crossings



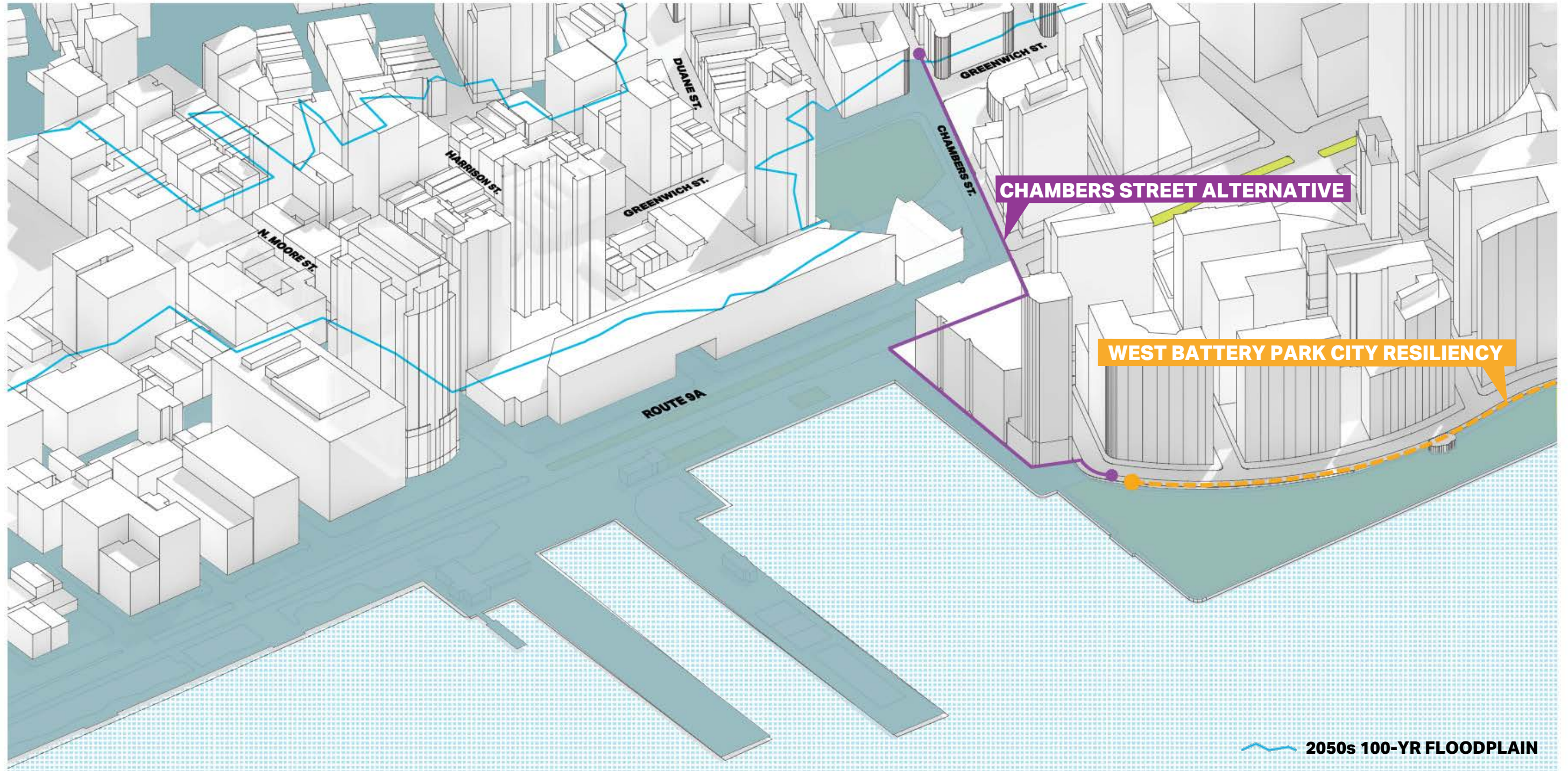
- **FIXED WALL**
- - - **DEPLOYABLE**

- Length from Route 9A: 500 ft // Wall Height: 8' to 6" // Width between 18"-24" // Gates: 3-4
- Deployable flip-up gates at openings and crossings to reduce deployment time and minimize coordination (storage, staffing, etc.)
- Located along street tree/parkway zone to minimize conflict with street and sidewalk operations
- Possible regrading of the intersection at Greenwich St. to avoid closure/crossing
- Concern for potential visual impact, construction (noise/vibration) impacts to BMCC, and loss of street trees per FEMA requirements



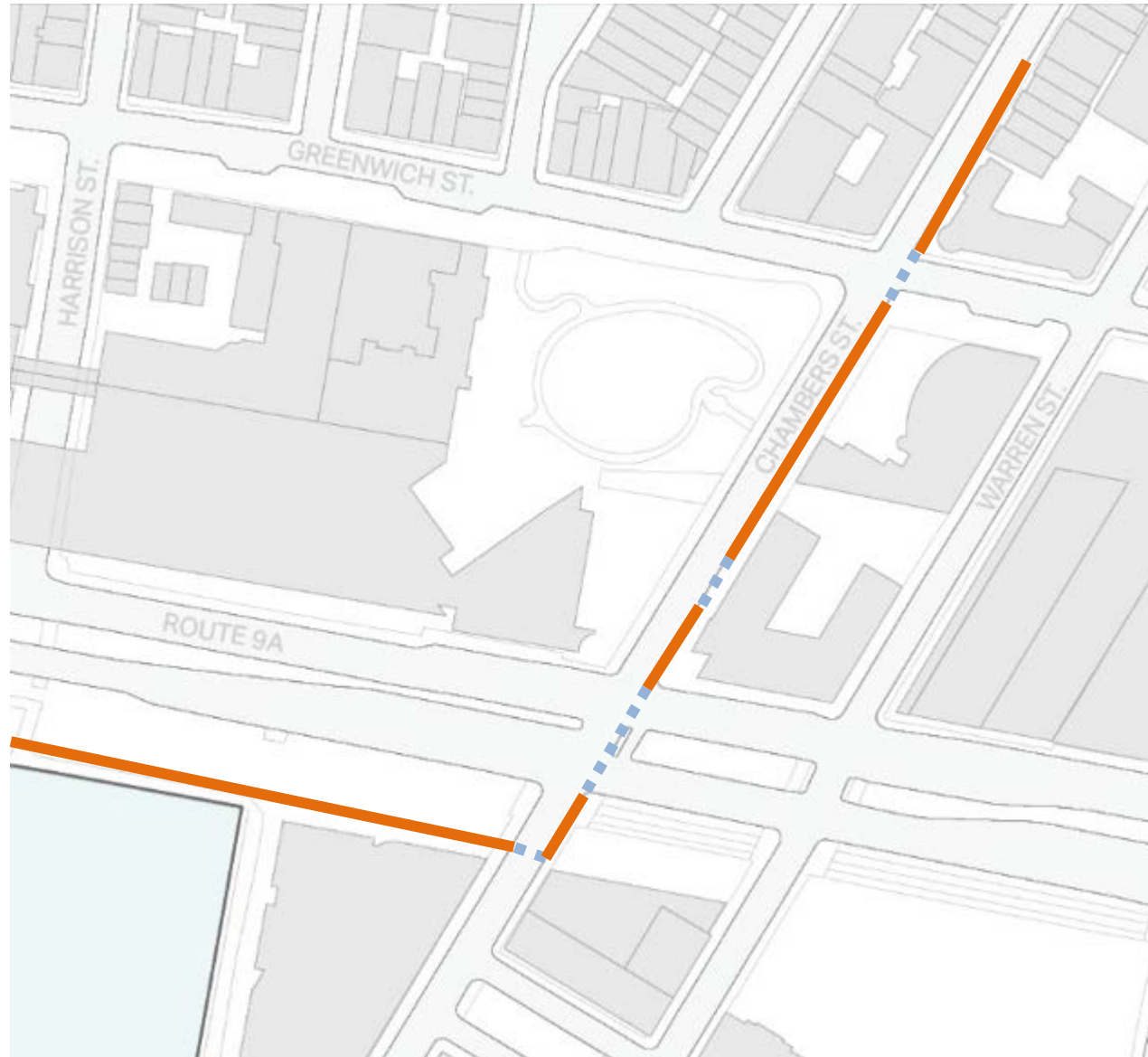
CHAMBERS STREET

CHAMBERS STREET

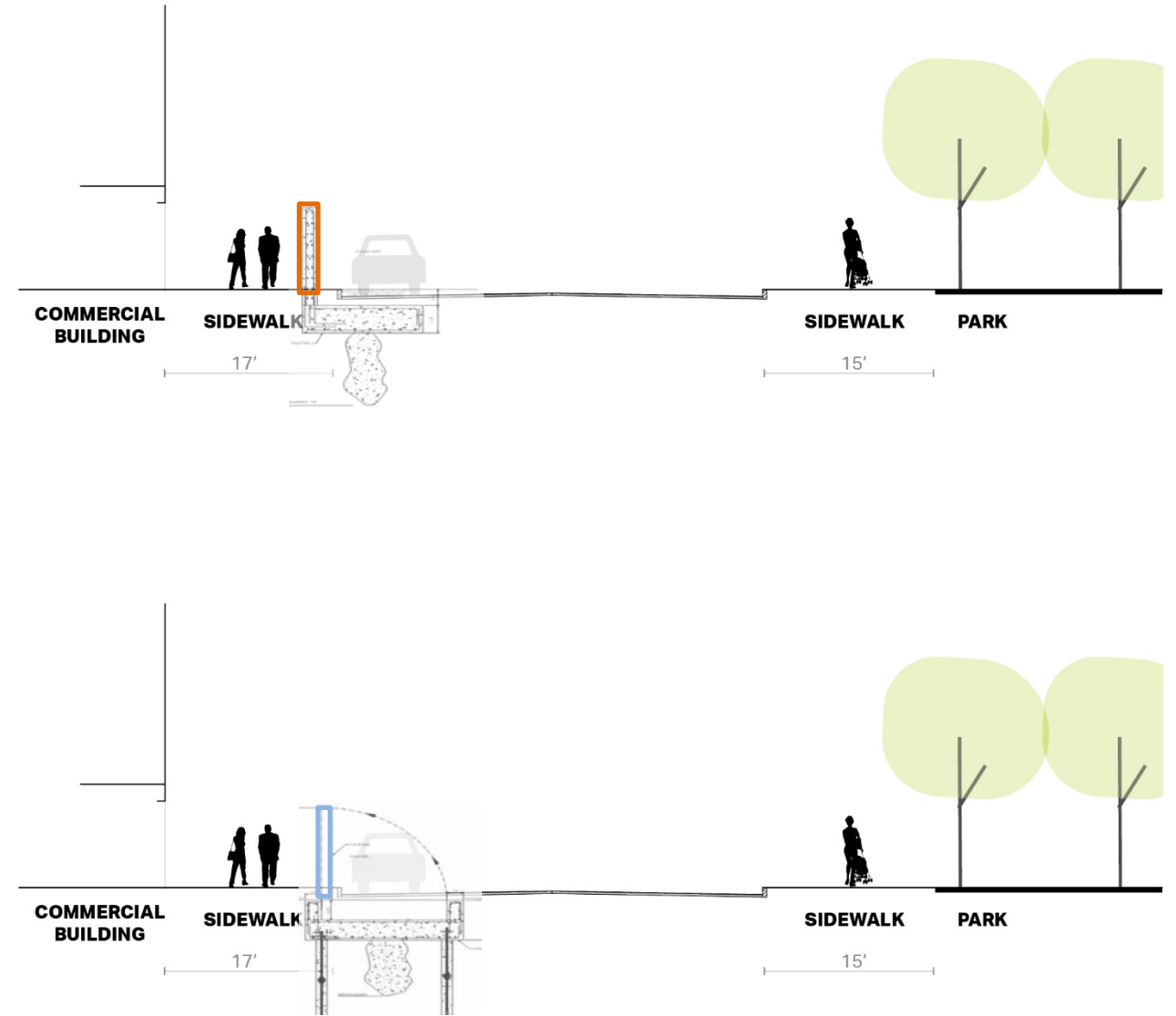


 2050s 100-YR FLOODPLAIN

CHAMBERS STREET | PROPOSED CONDITIONS



- FIXED WALL**
- DEPLOYABLE**



AGENCY COLLABORATION

AGENCY COLLABORATION

Although the alignment has not been determined, West Street (9A) must be crossed and a City sidewalk/street must be altered. Existing configuration of utilities and roadway elements are generally similar in all locations.

Configuration of proposed elements is also anticipated to be largely similar regardless of location.

Given strong typologies, our goal is to expeditiously initiate technical coordination of the following:

- **Detailed Existing Conditions**
- **Operational Requirements**
- **Utility Relocations / Utilities to be Protected-in-Place**
- **Conduit/pipe resiliency measures**
- **Grading and Affected Streetscape Elements**

NEXT STEPS

- Direct technical coordination and additional data requests
- Continued site investigations: detailed utilities survey and geotechnical borings
- Integrated Coastal and Interior Drainage Modeling refinement
- Continued design development of flood alignment
- **January 2020:** Community Meeting #2 – Alignment Evaluation + Preliminary Design Concepts

QUESTIONS + COMMENTS?



NICHOLAS SBORDONE

BPCA VICE PRESIDENT OF COMMUNICATIONS AND PUBLIC AFFAIRS

NICHOLAS.SBORDONE@BPCA.NY.GOV

212-417-3194

646-531-2276