

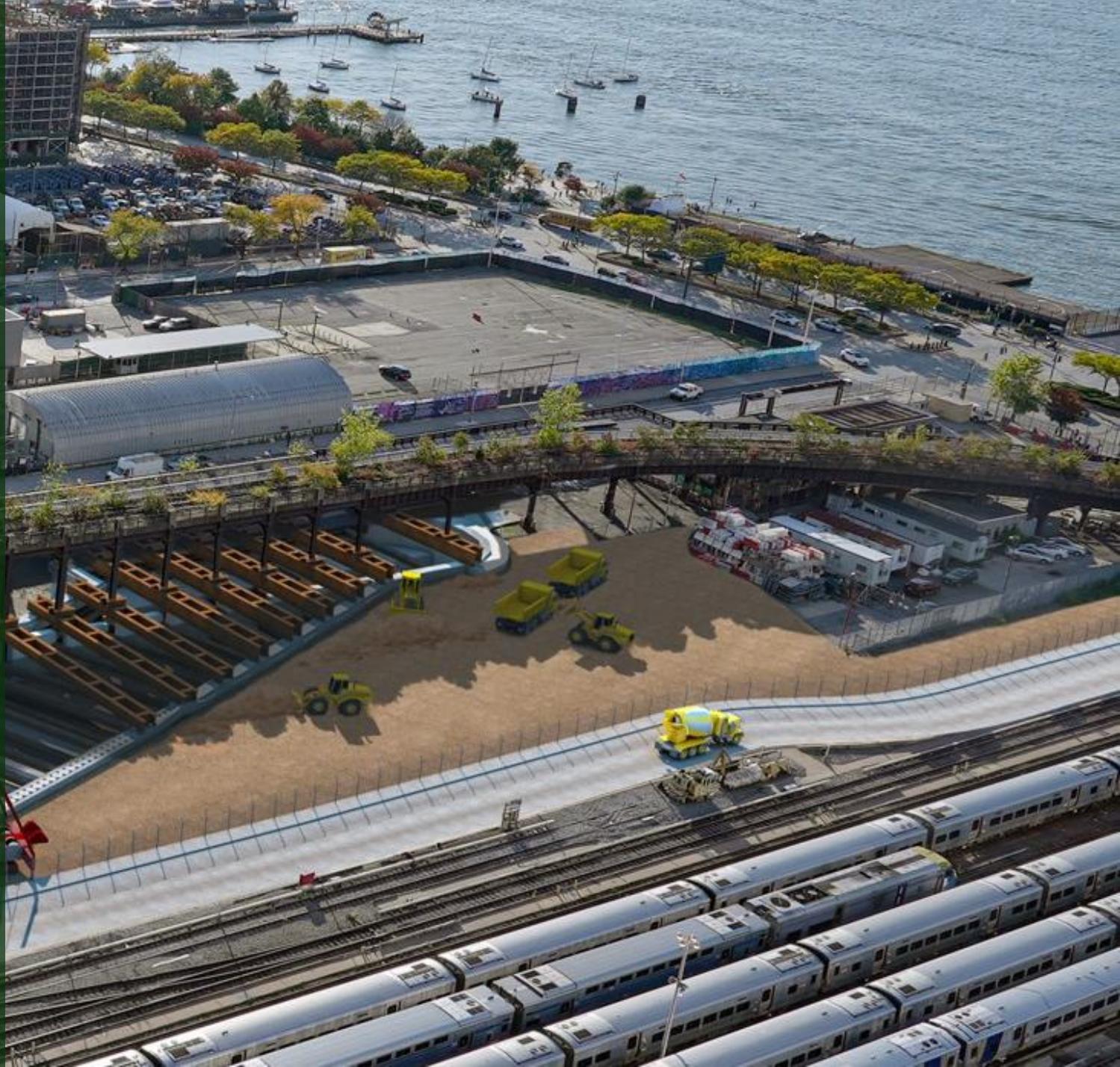
Gateway Development Commission

Hudson Tunnel Project Section 4(f) Coordination

Proposed Changes to Project
Work in the Hudson River

March 12, 2026

For Indicative, Illustrative, Contemplative Purposes Only



Agenda

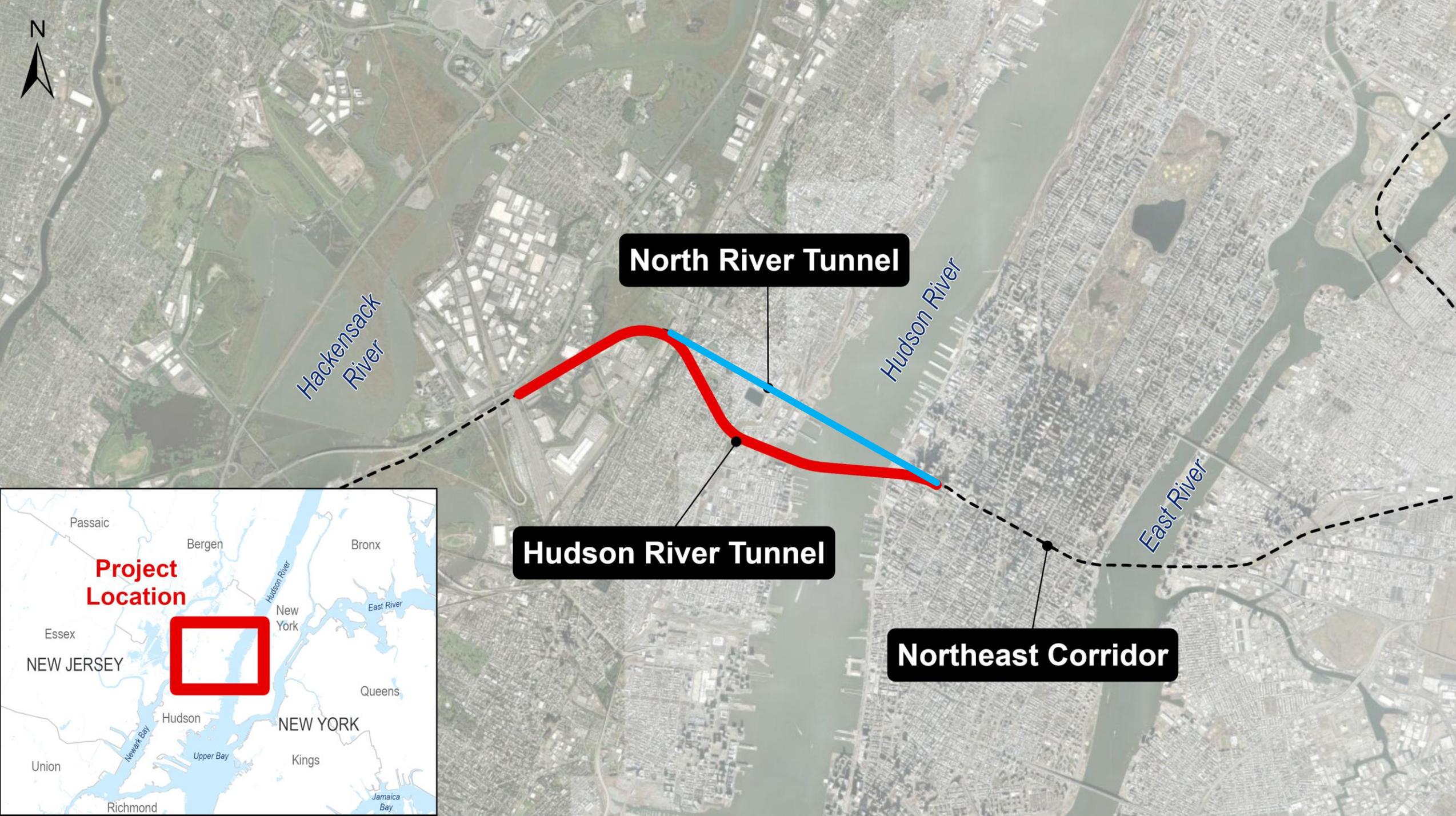
- Project Overview
- Environmental Review
- Project Status
- Currently Contemplated Project Activities in the Hudson River
- Proposed Project Modifications
- New Anticipated Construction Schedule
- National Historic Preservation Act Section 106
- Section 4(f)
- Safety Measures & Best Management Practices
 - Navigating Around In-Water Construction
 - Safety Protections
 - Best Management Practices
- Stakeholder Outreach & Public Engagement Opportunities
 - Ongoing Coordination
 - Section 4(f)-Related Comments

Project Overview



NEED FOR THE PROJECT

- Existing Amtrak / NJ TRANSIT rail tunnel beneath Hudson River must be closed for full reconstruction to repair damage from Superstorm Sandy
- Need for repair is critical: storm damage continues to degrade tunnel
- Existing train service (450 trains per day) must be maintained
- New tunnel will provide train capacity during reconstruction of existing tunnel and ongoing stability and redundancy once both tunnels are operating



North River Tunnel

Hudson River Tunnel

Northeast Corridor



Project Location

Environmental Review



ENVIRONMENTAL REVIEW

- National Environmental Policy Act (NEPA): Before providing funds or issuing a permit, Federal agencies must consider the environmental effects of projects; this was achieved by the Environmental Impact Statement (EIS) for the Hudson Tunnel Project (issued together with the Record of Decision (ROD) in May 2021)
- The Federal Railroad Administration (FRA) was the lead Federal agency for the Project's environmental review, in accordance with NEPA; FTA is now serving as the lead Federal agency
- The Federal Transit Administration (FTA) was a Cooperating Agency for the Final EIS (FEIS)/ROD and issued the ROD jointly with FRA
- The Gateway Development Commission (GDC) is the NEPA Project Sponsor for the Hudson Tunnel Project

Project Status



PROJECT CHANGES SINCE FEIS/ROD

- Following the issuance of the NEPA FEIS/ROD, potential changes to the Project have been identified as design is advanced and construction methods are refined
- GDC proposes modifications to the Hudson River portion of the Project Area in Manhattan that had not been evaluated as part of the previously completed NEPA FEIS/ROD or Section 4(f) Evaluation of certain protected resources, including significant public parks and historic (Section 106) resources
- These changes to the Project warrant reconsideration of potential uses of Section 4(f) properties

RESOURCES POTENTIALLY AFFECTED BY THE PROPOSED PROJECT MODIFICATIONS – HUDSON RIVER BULKHEAD

- Extends from the Battery (i.e., an approximately 25-acre public park located at the southern tip of Manhattan) to West 59th Street, though only an approximately 200-foot length of the bulkhead is in proximity to Project activities
- Constructed between 1871 and 1936 by the New York City Department of Docks
- Eligible for listing on the National Register of Historic Places



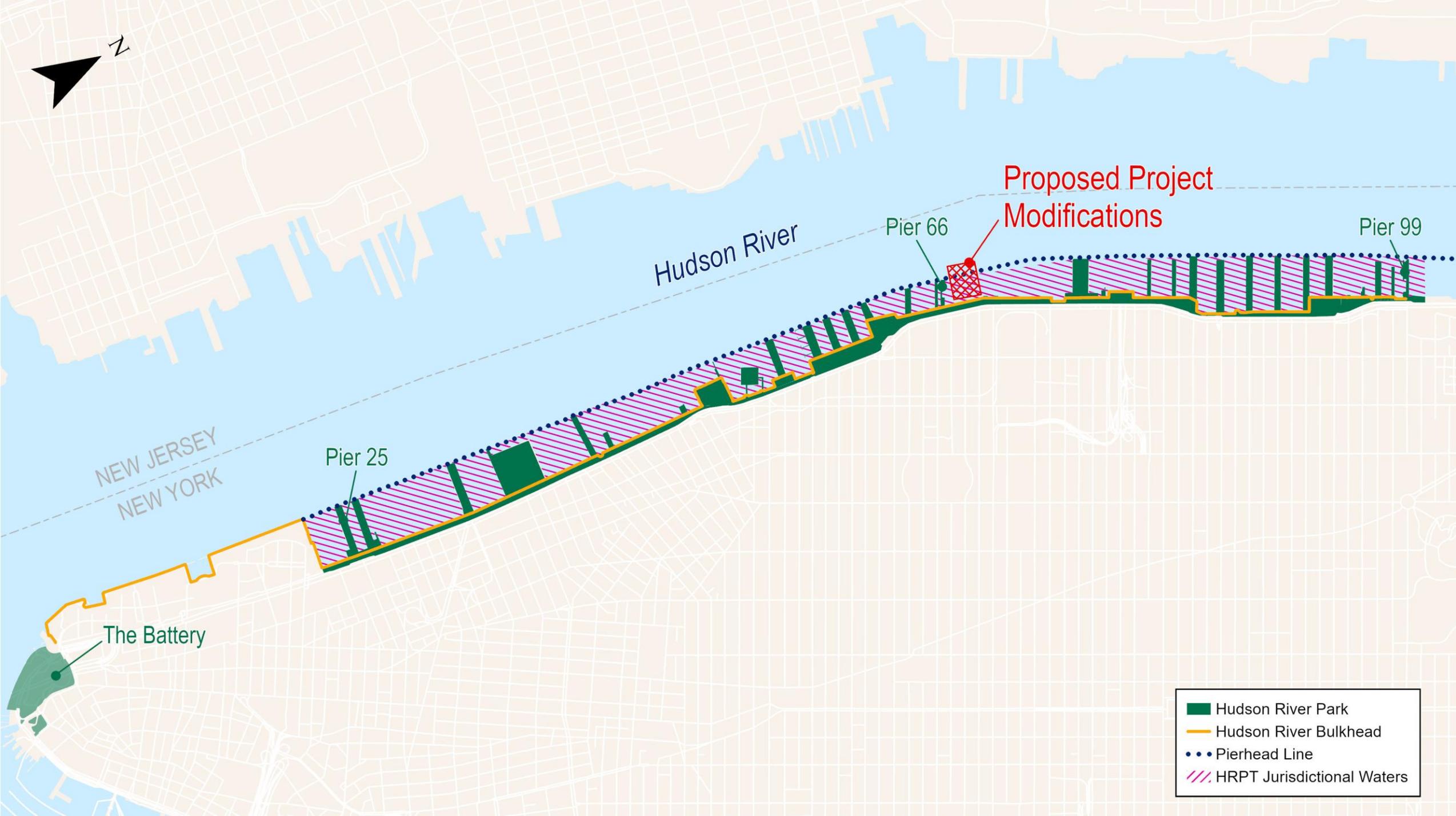
View north of the Hudson River Bulkhead from the foot of West 29th Street

RESOURCES POTENTIALLY AFFECTED BY THE PROPOSED PROJECT MODIFICATIONS – HUDSON RIVER PARK

- 550-acre public park maintained by the Hudson River Park Trust (HRPT) that runs along 4+ miles of western Manhattan waterfront
 - Inclusive of the Hudson River Park Estuarine Sanctuary
- Hudson River Park facilities in the vicinity of Project construction activities:
 - Pier 66 boathouse: operated by Hudson River Community Sailing and New York Kayak Polo



View of the Pier 66 boathouse in Hudson River Park



Proposed Project
Modifications

Hudson River

Pier 66

Pier 99

NEW JERSEY
NEW YORK

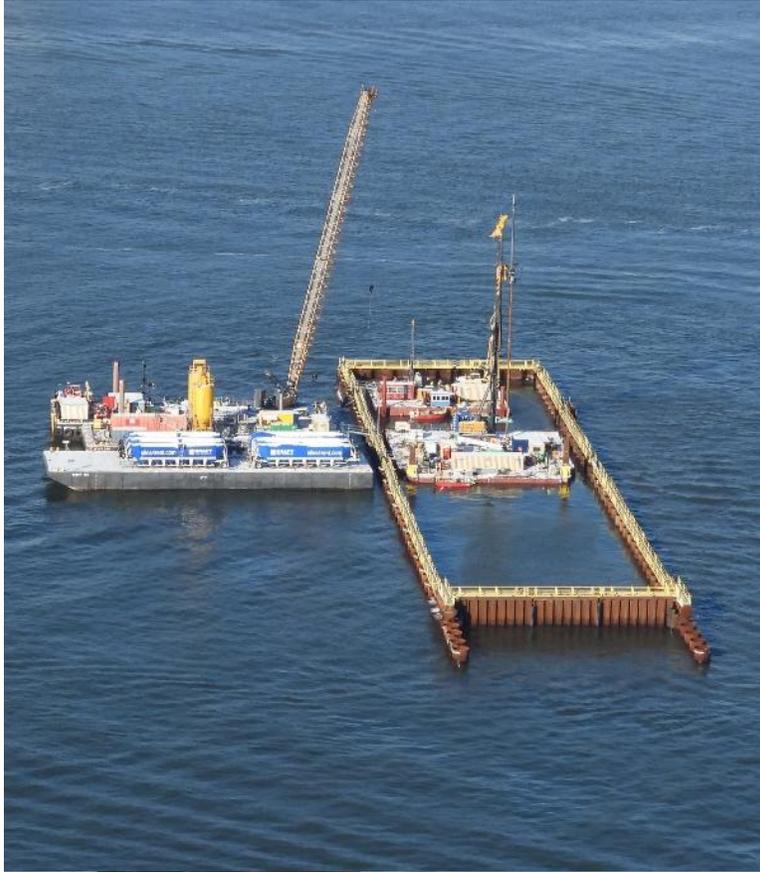
Pier 25

The Battery

-  Hudson River Park
-  Hudson River Bulkhead
-  Pierhead Line
-  HRPT Jurisdictional Waters

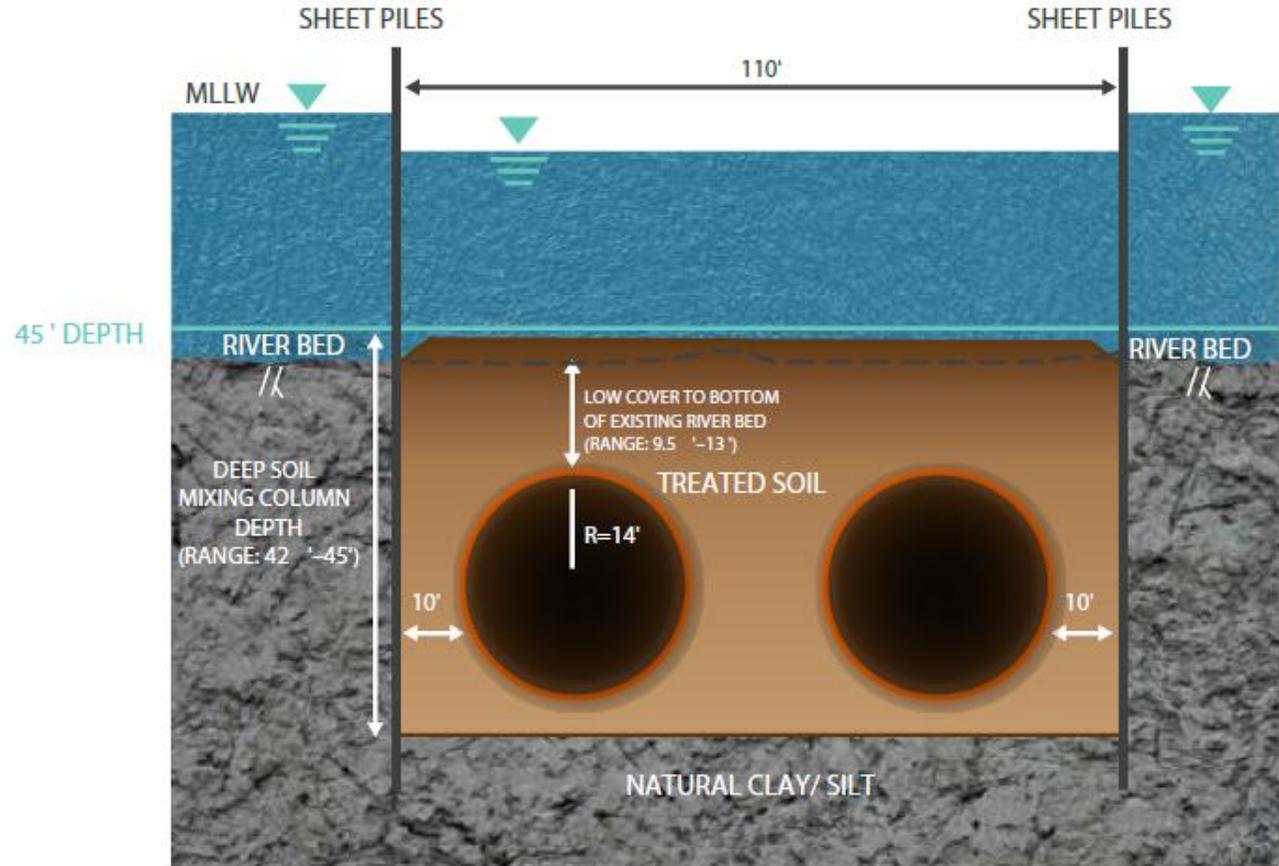
Currently Contemplated Project Activities in the Hudson River (incl. Hudson River Park)

KEY TERMS IN THIS SECTION



Cofferdam

(a watertight structure designed to facilitate construction projects in areas that are normally submerged)



HRGS = Hudson River Ground Stabilization (typical cross-section)

BACKGROUND

- The Hudson River Ground Stabilization (HRGS) cofferdam is currently in place in the river, with construction work ongoing to harden the riverbed prior to tunnel boring

GDC PREVIOUSLY DISCUSSED THE FOLLOWING WITH CB4 IN APRIL 2025:

- Open water pile pulling/obstruction removal in the footprint of former Piers 68 and 69 prior to tunnel boring activities
- Stabilizing the ground at the Hudson River Bulkhead from both landside and waterside
- Stabilizing the ground beneath HRP and across Twelfth Avenue
 - Horizontal ground stabilization from a temporary shaft in HRP (West 30th Street Heliport), potentially reconfigured as two shafts or a peanut-shaped shaft; or
 - Vertical ground stabilization from the surface, requiring temporary, sequential shifting of Twelfth Ave lanes into HRP (West 30th Street Heliport)

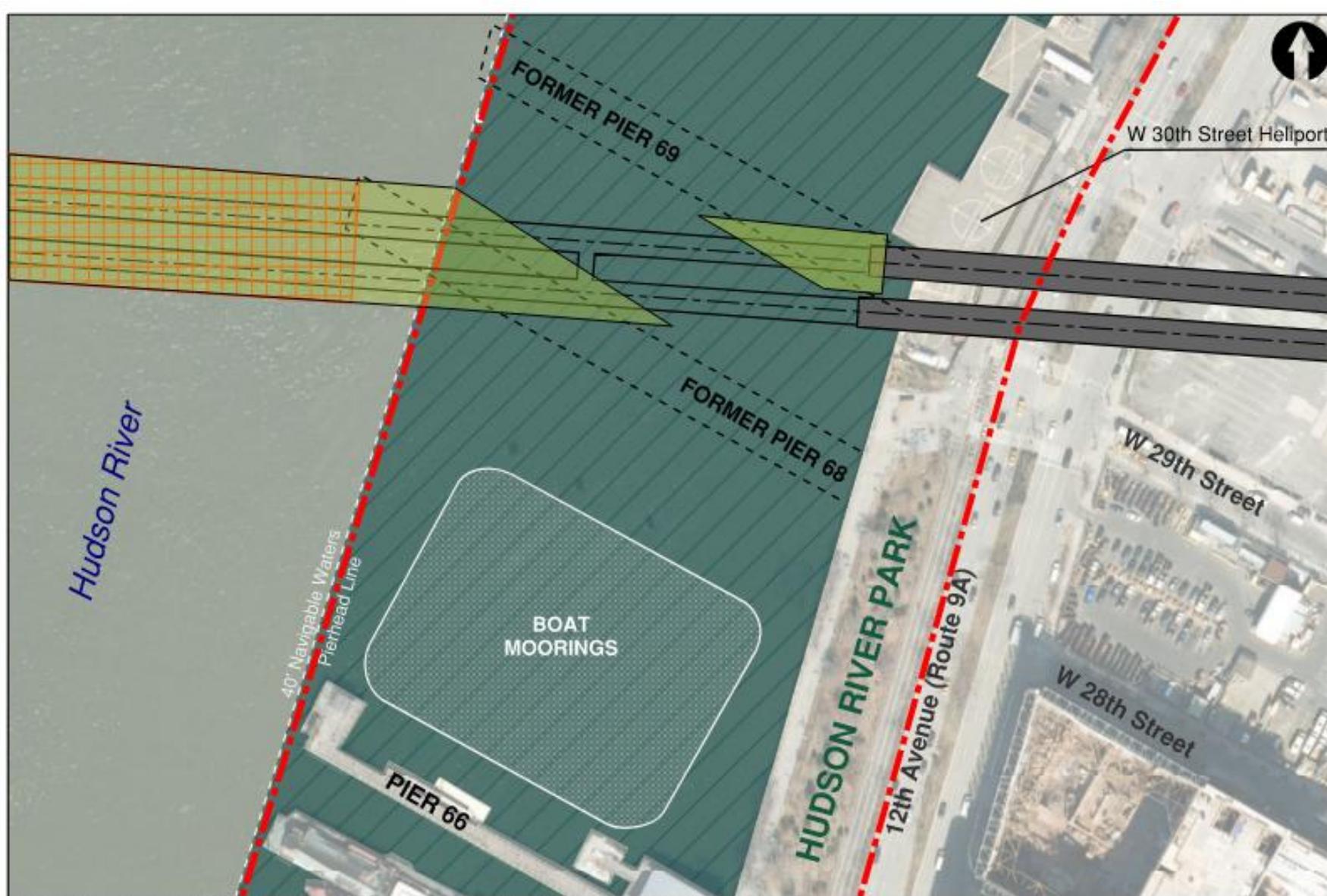
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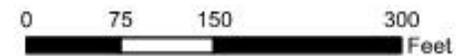
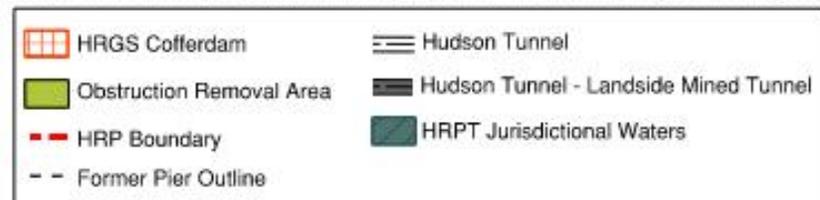
- **Open water pile pulling/obstruction removal in the footprint of former Piers 68 and 69 prior to tunnel boring activities**
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 - Vertical ground stabilization from the surface, requiring temporary, sequential shifting of Twelfth Ave lanes into HRP (West 30th Street Heliport)

*Previously
Discussed in
April 2025*



**OPEN WATER
OBSTRUCTION REMOVAL
AT FORMER PIERS
68 & 69**

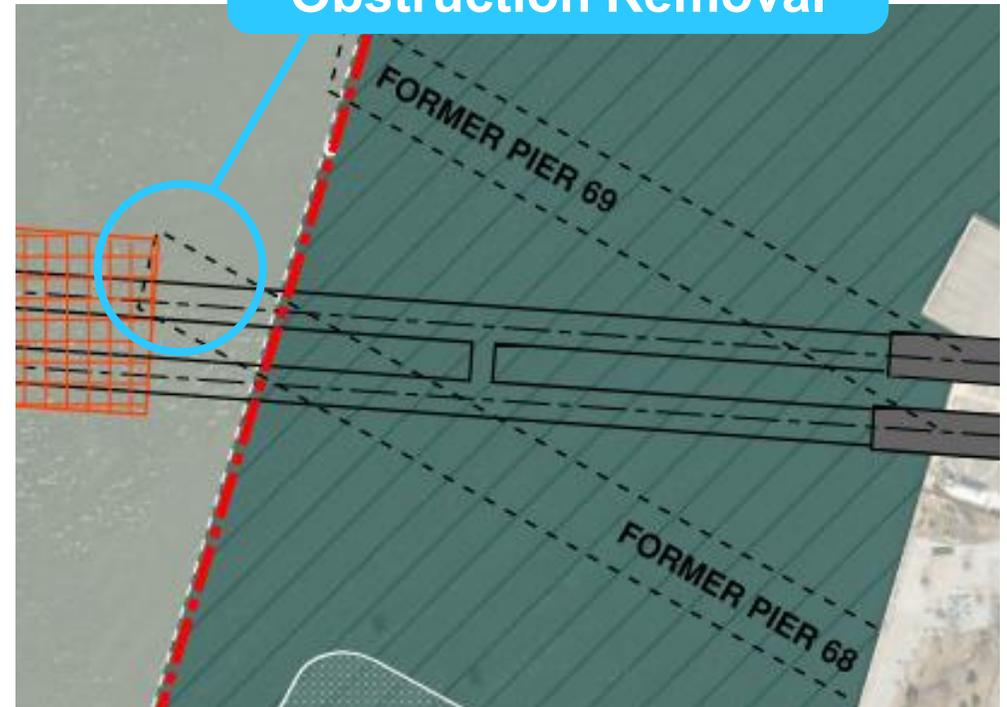
Source: ESRI, Maxar, Earthstar Geographics; Gateway Trans-Hudson Partnership (GTHP), 2025; Gateway Development Commission, 2025.



BACKGROUND

- The Contractor conducted open water pile pulling in a small test section
 - Difficulty working in the Hudson River tidal currents
 - Only approximately two piles were pulled per day, on average

Test Area for Open Water Obstruction Removal

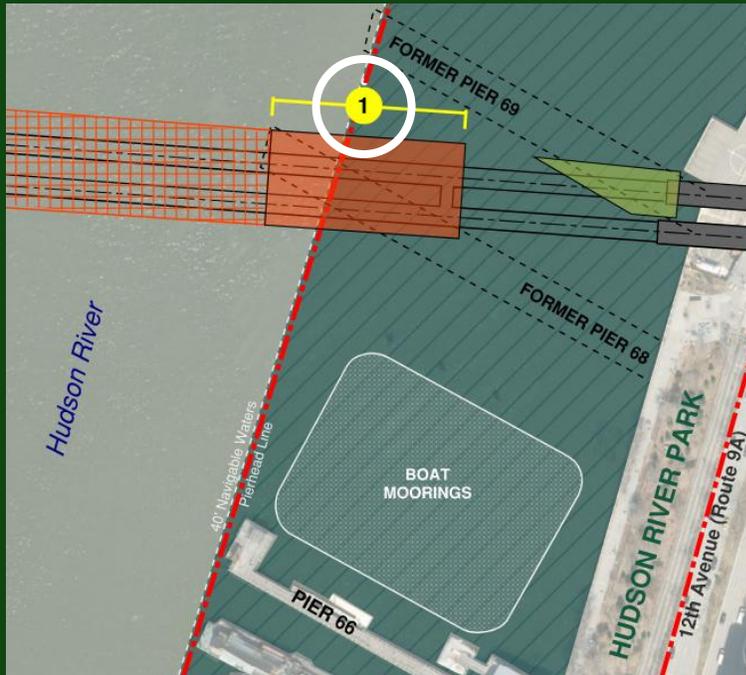


Proposed Project Modifications



What's Different Since We Last Spoke?

PART 1

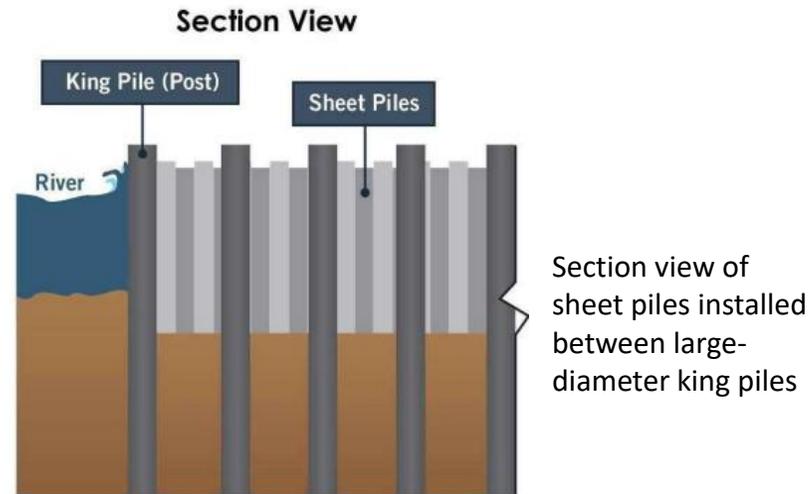


PROJECT MODIFICATIONS: EXTENDED COFFERDAM

GDC proposes to extend the HRGS cofferdam east from its currently approved location to include the area for pile pulling in the footprint of former Pier 68 (the subject of the previous presentation)

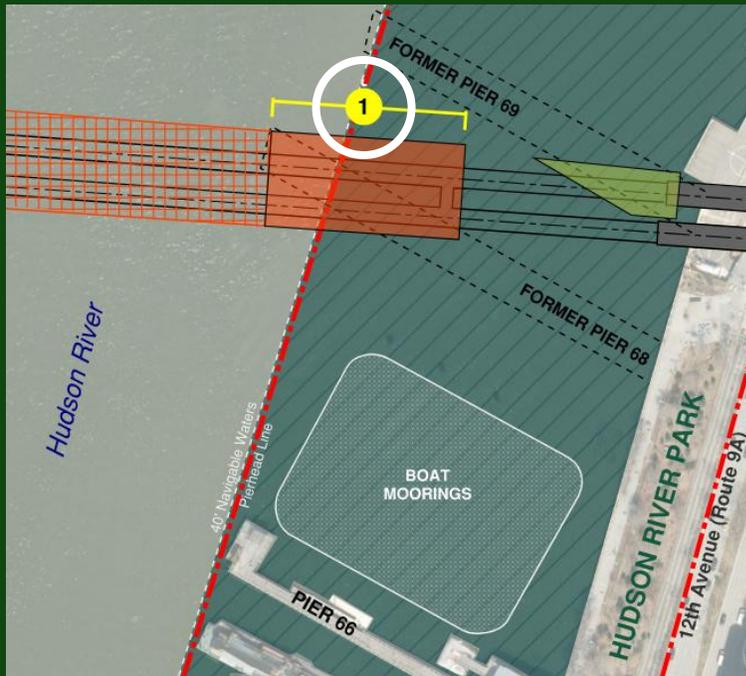
The following activities would be performed:

- Installation of extended cofferdam (using king & sheet piles driven into the riverbed to create a watertight enclosure)



What's Different Since We Last Spoke?

PART 1



PROJECT MODIFICATIONS: EXTENDED COFFERDAM

GDC proposes to extend the HRGS cofferdam east from its currently approved location to include the area for pile pulling in the footprint of former Pier 68 (the subject of the previous presentation)

The following activities would be performed:

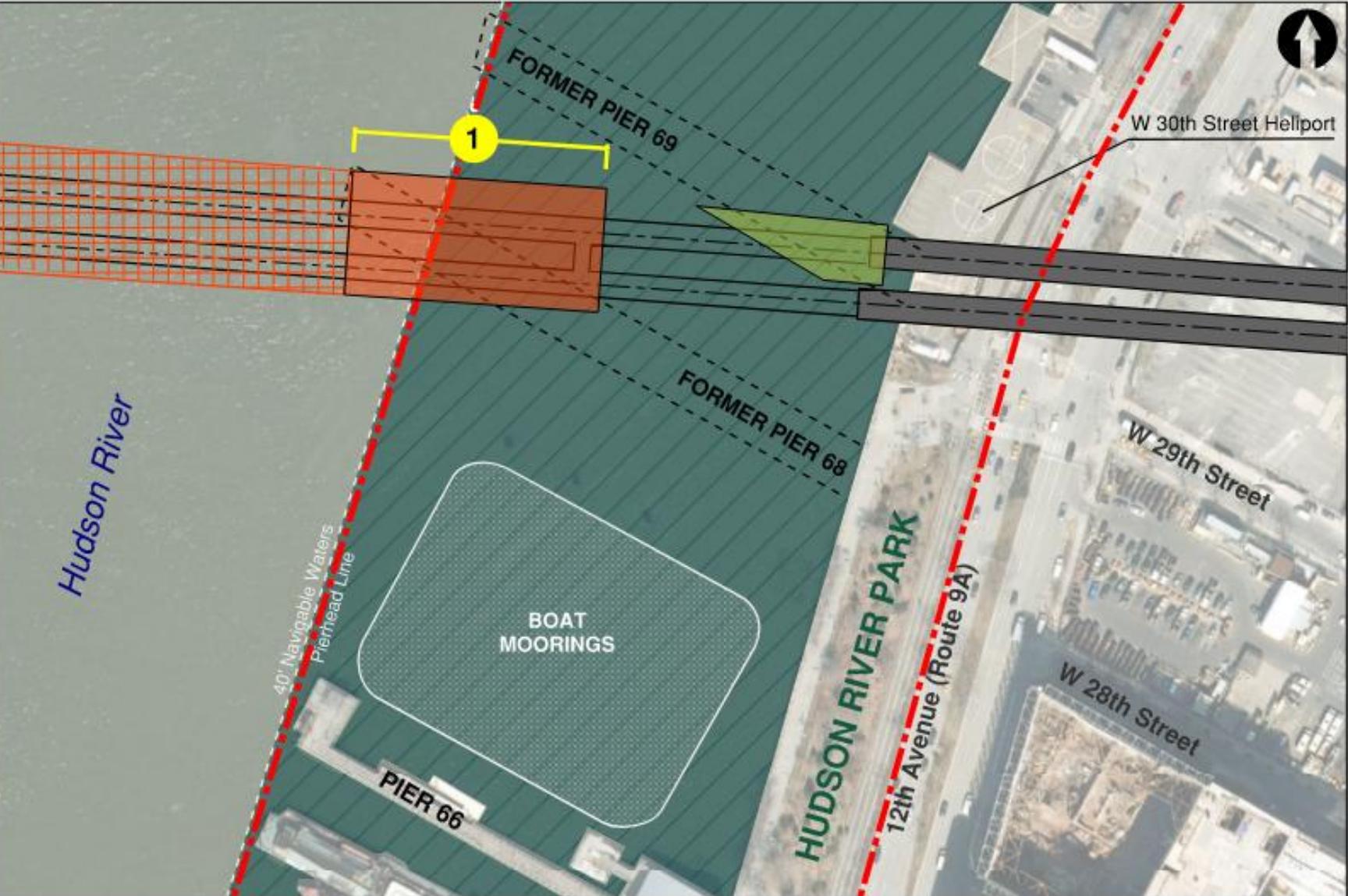
- Installation of extended cofferdam (using king & sheet piles driven into the riverbed to create a watertight enclosure)
- Obstruction removal and subsequent mudline restoration within the extended cofferdam limits
- Ground stabilization to improve conditions within the extended cofferdam limits
- Removal of extended cofferdam

Given proximity of approx. 300-ft tall cranes to the West 30th Street Heliport, GDC is coordinating with HRPT and heliport operators to avoid conflict between aircraft and equipment

*Currently
Proposed*

1. EXTENDED COFFERDAM

Subject to further refinement

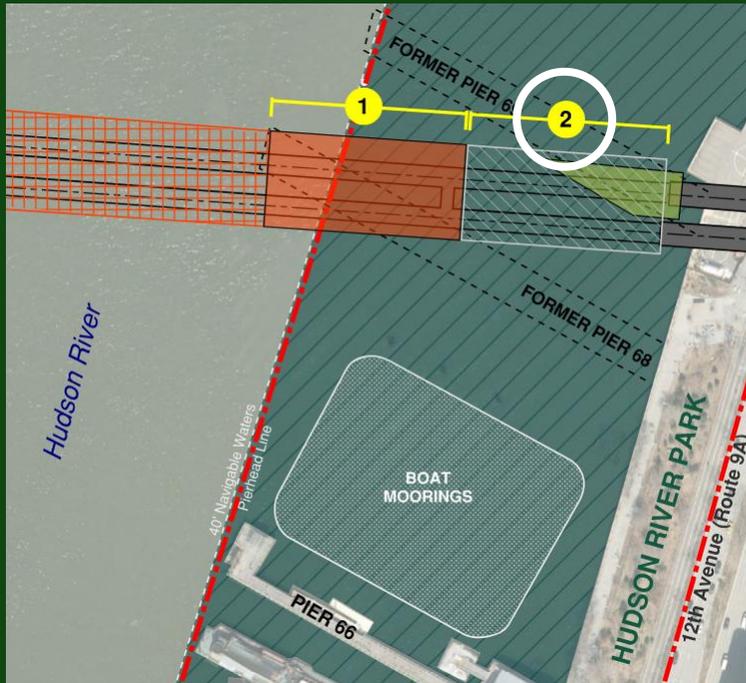


Source: ESRI, Maxar, Earthstar Geographics; Gateway Trans-Hudson Partnership (GTHP), 2025; Gateway Development Commission, 2025.



What's Different Since We Last Spoke?

PART 2



PROJECT MODIFICATIONS: EMERGENCY CONSTRUCTION MEASURES FOR SAFETY & RISK MITIGATION

GDC has identified two unforeseen or emergency scenarios that could occur during tunnel boring (approx. Summer 2028, i.e., following completion of other in-water construction activities) that may trigger the need for additional in-water work inside the pierhead line. These scenarios are being considered as part of a new NEPA Re-Evaluation #14:

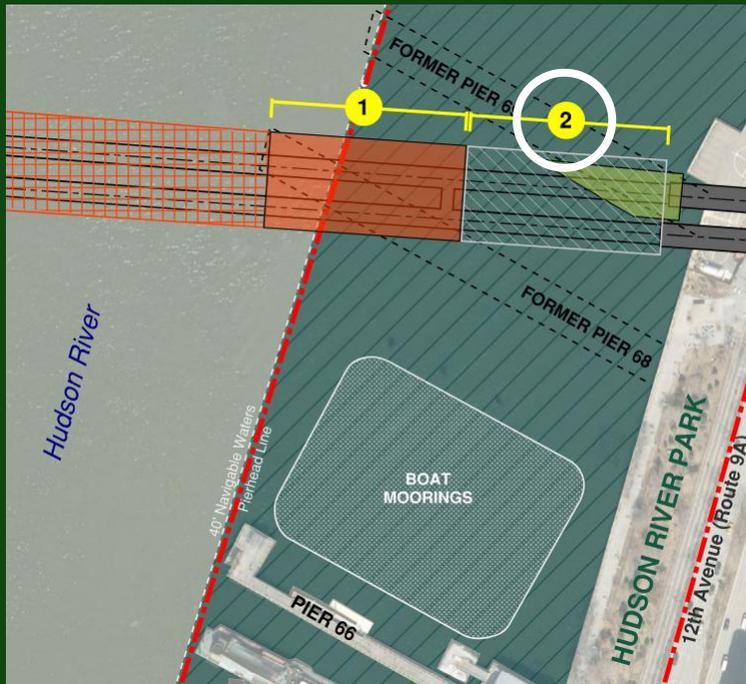
- 1) Obstructions are encountered outside of the geographic areas already approved for obstruction removal



Large anchor encountered in the path of a TBM in the Chesapeake Bay

What's Different Since We Last Spoke?

PART 2



PROJECT MODIFICATIONS: EMERGENCY CONSTRUCTION MEASURES FOR SAFETY & RISK MITIGATION

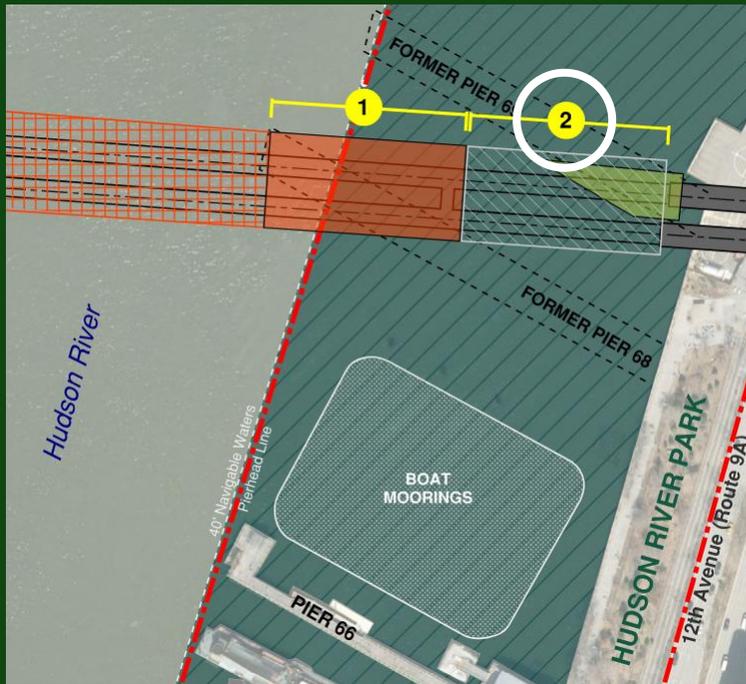
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- 1) Obstructions are encountered outside of the geographic areas already approved for obstruction removal
- 2) TBM equipment fails (e.g., a TBM component is damaged and requires replacement, removal of lodged object, etc.)

In the event that one or both of these scenarios occurs during tunnel boring, the Contractor would implement one or more emergency construction means and methods along the tunnel alignment within the pierhead line (east of cofferdam)

What's Different Since We Last Spoke?

PART 2



PROJECT MODIFICATIONS: EMERGENCY CONSTRUCTION MEASURES FOR SAFETY & RISK MITIGATION

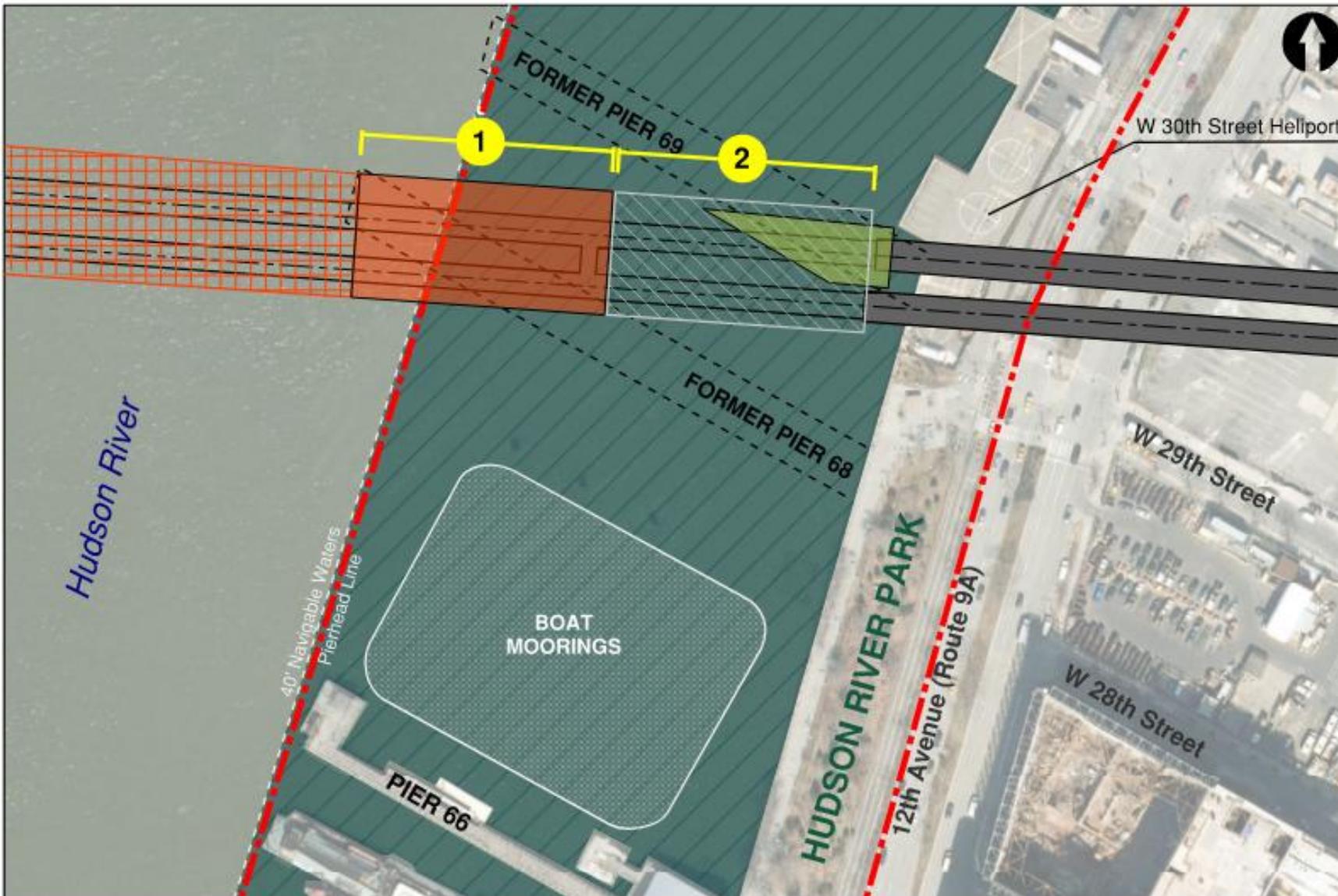
Potential emergency construction means and methods currently under review that may be implemented between the extended cofferdam and the bulkhead include:

- Open water obstruction removal (*consistent with methodology previously approved in the footprints of former Piers 68 and 69*)
- Ground stabilization from surface (*similar to the ground freezing/grouting effort at the bulkhead, potentially requiring an additional marine deck be installed in the river*)
- Temporary placement of riprap on the riverbed to improve safety conditions during TBM repair (*riprap would be removed following construction*)
- Installation of (dewatered) cofferdam(s) (approx. 50ft by 75ft) around the TBM perimeter

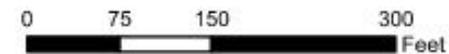
*Currently
Proposed*

- 1. EXTENDED COFFERDAM**
- 2. AREA OF EMERGENCY
CONSTRUCTION MEANS
& METHODS**

Subject to further refinement



Source: ESRI, Maxar, Earthstar Geographics; Gateway Trans-Hudson Partnership (GTHP), 2025; Gateway Development Commission, 2025.



New Anticipated Construction Schedule

DURATION OF ACTIVITIES IN THE HUDSON RIVER

Construction Activities	Previously Discussed with CB4
PART 1 Installation of Extended Cofferdam & Obstruction Removal – Former Pier 68 (+ Ground Stabilization)	Open water pile pulling at former Pier 68: Two approx. 7-month seasons (Jul 1, 2025 – Jan 20, 2026 & Jul 1, 2026 – Jan 20, 2027)
PART 2 Emergency Construction Means & Methods	N/A
Open Water Obstruction Removal – Former Pier 69	One approx. 7-month season (Jul 1, 2028 – Jan 20, 2029)
Ground Stabilization at the Hudson River Bulkhead	36 months* (Fall 2025 – Fall 2028)

** Open water work activities in the Hudson River would not be performed between January 21 and June 30, in accordance with the seasonal work restriction set forth in the FEIS/ROD.*

DURATION OF ACTIVITIES IN THE HUDSON RIVER

Construction Activities	Previously Discussed with CB4	Currently Proposed
PART 1 Installation of Extended Cofferdam & Obstruction Removal – Former Pier 68 (+ Ground Stabilization)	Open water pile pulling at former Pier 68: Two approx. 7-month seasons (Jul 1, 2025 – Jan 20, 2026 & Jul 1, 2026 – Jan 20, 2027)	19 Consecutive Months*† (Summer 2026 – January 2028)
PART 2 Emergency Construction Means & Methods	N/A	During Tunnel Boring‡ (as early as Summer 2028)
Open Water Obstruction Removal – Former Pier 69	One approx. 7-month season (Jul 1, 2028 – Jan 20, 2029)	No Change
Ground Stabilization at the Hudson River Bulkhead	36 months* (Fall 2025 – Fall 2028)	No Change

* Work activities in the Hudson River would not be performed between January 21 and June 30, in accordance with the seasonal work restriction set forth in the FEIS/ROD.

† With the cofferdam in place, obstruction removal and ground stabilization within the perimeter of the cofferdam would continue year-round.

‡ Emergency construction measures that could be implemented in an emergency scenario may be employed year-round.

National Historic Preservation Act Section 106



NATIONAL HISTORIC PRESERVATION ACT SECTION 106

- Section 106 refers to the original section within the National Historic Preservation Act of 1966, which established the national policy on the preservation of historic and cultural places
- Section 106 requires a Federal agency to 1) take into account the effects of its actions on properties listed in or eligible for listing in the National Register of Historic Places, and 2) provide the Advisory Council on Historic Preservation an opportunity to comment on the agency's actions
- The focus of this process is consultation with State Historic Preservation Officers, Federally recognized Tribes, applicants for Federal funding or approvals, local governments, the public, and others with a demonstrated interest
- Section 106 review encourages, but does not mandate, preservation

SECTION 106 DETERMINATION – FORMER PIER PILES & HUDSON RIVER BULKHEAD

- **Former Pier Piles:** In a letter dated January 11, 2024, the New York State Historic Preservation Office concurred with FRA’s determination that the remnants of former Piers 68 and 69 are not eligible for listing in the National Register of Historic Places and indicated that they have no concerns regarding the Project’s effects on these resources. Accordingly, the removal of the remnants of former Piers 68 and 69 does not require review under Section 106.
- **Hudson River Bulkhead:** Given that the emergency construction measures could, if needed, be implemented near the bulkhead, Section 106 consultation with the New York State Historic Preservation Office is being undertaken. Consultation is ongoing and expected to result in a finding of no additional adverse effects to historic and archaeological resources (i.e., the Hudson River Bulkhead).

Section 4(f)



U.S. DEPARTMENT OF TRANSPORTATION ACT OF 1966 - SECTION 4(f)

- Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966, which established the requirement to consider alternatives which would avoid the use of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development
- Section 4(f) applies to projects that receive funding from or require approval by an agency of the U.S. Department of Transportation
- FTA/FRA must determine whether there will be impact to, i.e., Section 4(f) “use” of a resource, and, if so, consider any feasible and prudent alternatives, and maximize planning to minimize harm to such resources, and gather public input
- Section 4(f) properties include significant publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places

SECTION 4(F) USE (CFR § 774.17) DEFINITION

- A project uses a Section 4(f) property when:
 - Land from the Section 4(f) property is permanently incorporated into a transportation facility;
 - There is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose (e.g., when all or part of the Section 4(f) property is required for project construction-related activities); or
 - There is a “constructive” use of a Section 4(f) property (i.e., the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired)

What's Different Since We Last Spoke?

SECTION 4(F) DETERMINATION

Based on coordination with FTA and FRA, GDC anticipates the proposed Project modifications will not require a separate Section 4(f) approval for the Hudson River Bulkhead or HRP:

- With no new adverse effects to historic and archaeological resources, including the Hudson River Bulkhead; and
- By maintaining access to the Hudson River pierhead line and navigation channel, and avoiding substantial impairment of recreational features of the Pier 66 boathouse and moorings

FTA anticipates that the proposed project modifications would not change the FEIS/ROD Section 4(f) use finding for the Hudson River Bulkhead or HRP

Safety Measures & Best Management Practices



What's Different Since We Last Spoke?

NAVIGATING AROUND IN-WATER CONSTRUCTION

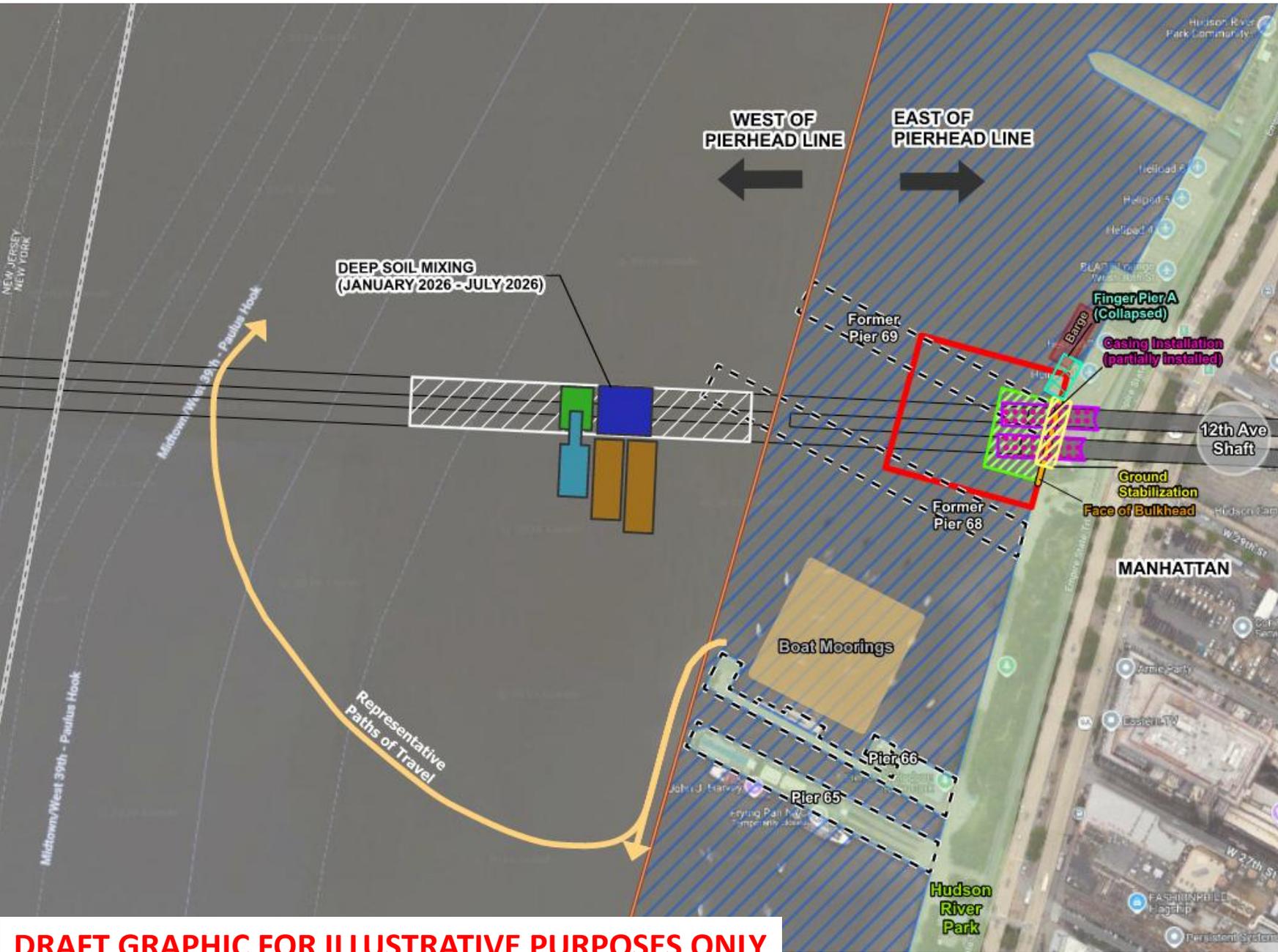
Though construction staging plans are subject to further refinement, these updated graphics account for the construction activities (and barge configuration on the north side of the cofferdam) associated with the extended cofferdam and potential emergency construction measures that may be implemented during tunnel boring (i.e., following completion of all other in-river activities)

EXISTING SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

JAN 2026 – JUL 2026
Subject to further refinement

Legend

-  Pierhead Line
-  Bulkhead
-  Pier Footprint
-  Barge
-  Casing Installation
-  Bulkhead Grouting
-  Coring Barge
-  Crane Barge
-  Deep Soil Mixing Barge
-  Support Barge
-  Marine Deck
-  Manhattan Tunnel Work Area (approx.)
-  Hudson Tunnel Underwater Segment
-  12th Avenue Shaft
-  Landside Mined Tunnel
-  Boat Mooring
-  Hudson River Park
-  HRPT Jurisdictional Waters

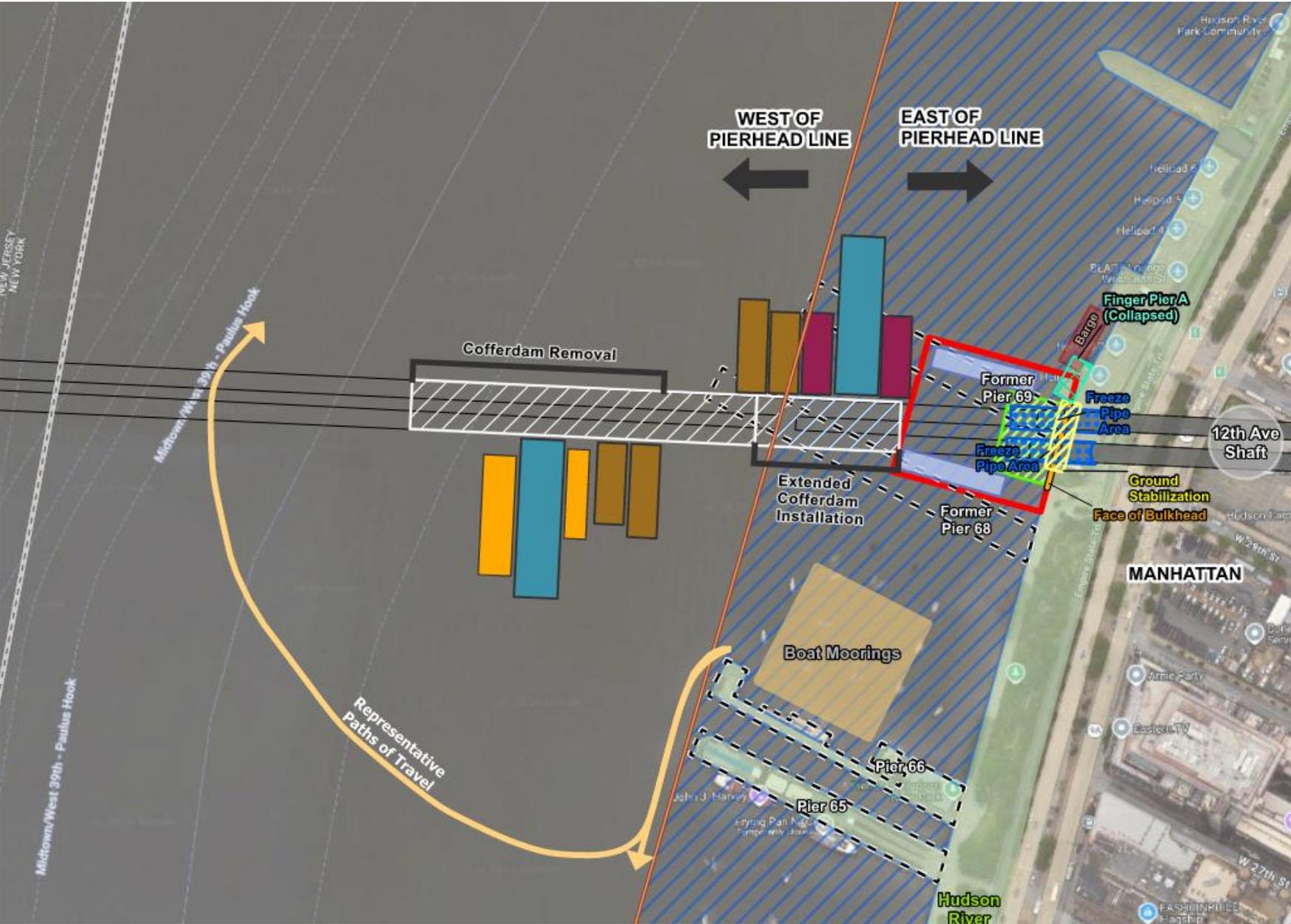


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EXAMPLE SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

JUL 2026 – JAN 2027

Subject to further refinement



Legend

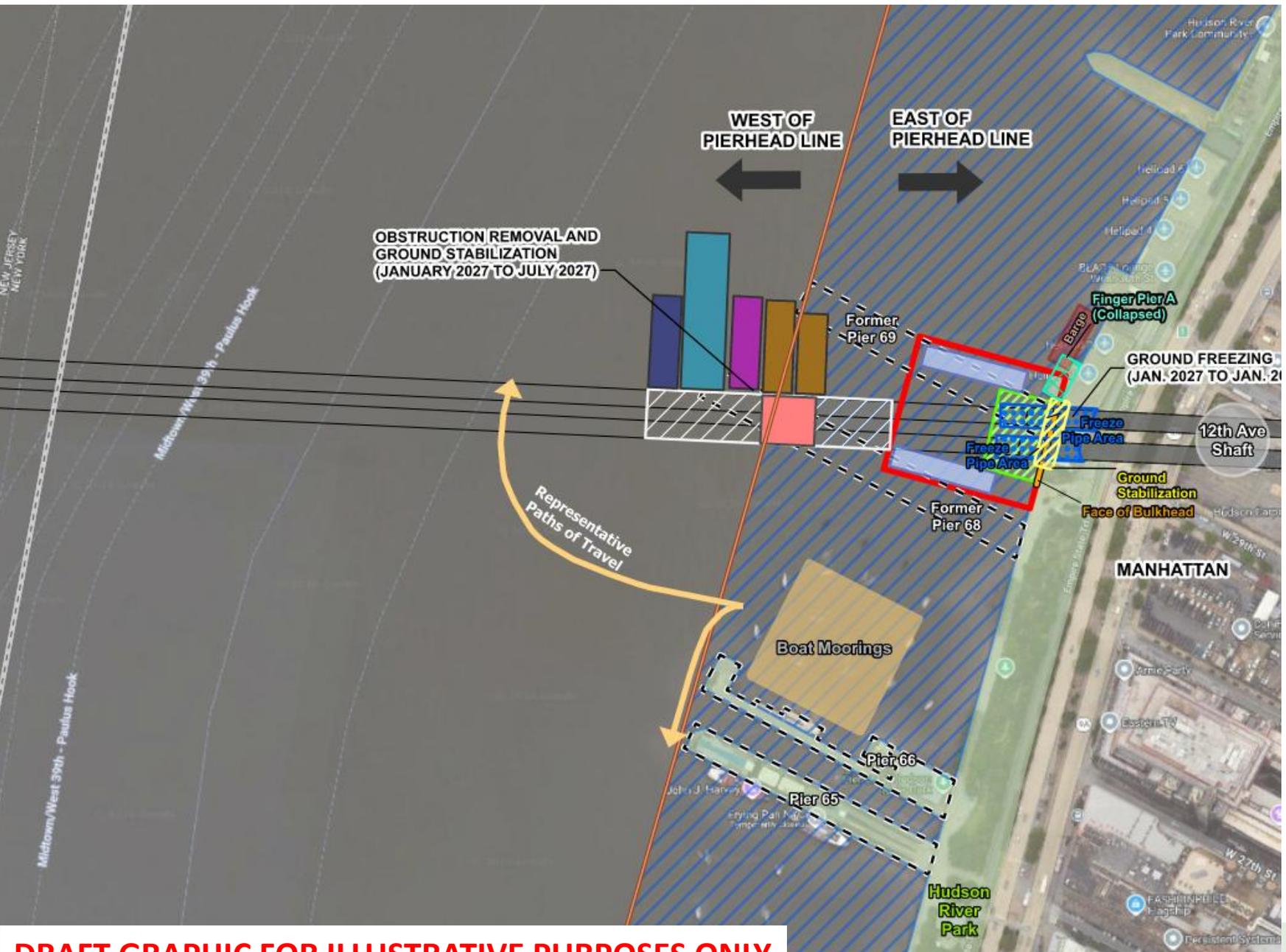
- Pierhead Line
- Bulkhead
- Pier Footprint
- Barge
- Freeze Pipe Area
- Bulkhead Grouting
- Cofferdam Install Barge
- Crane Barge
- Support Barge
- Cofferdam Removal Barge
- Chiller Barge
- Marine Deck
- Manhattan Tunnel Work Area (approx.)
- Hudson Tunnel Underwater Segment
- 12th Avenue Shaft
- Landside Mined Tunnel
- Boat Mooring
- Hudson River Park
- HRPT Jurisdictional Waters

DRAFT GRAPHIC FOR ILLUSTRATIVE PURPOSES ONLY

EXAMPLE SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

JAN 2027 – JUL 2027
 Subject to further refinement

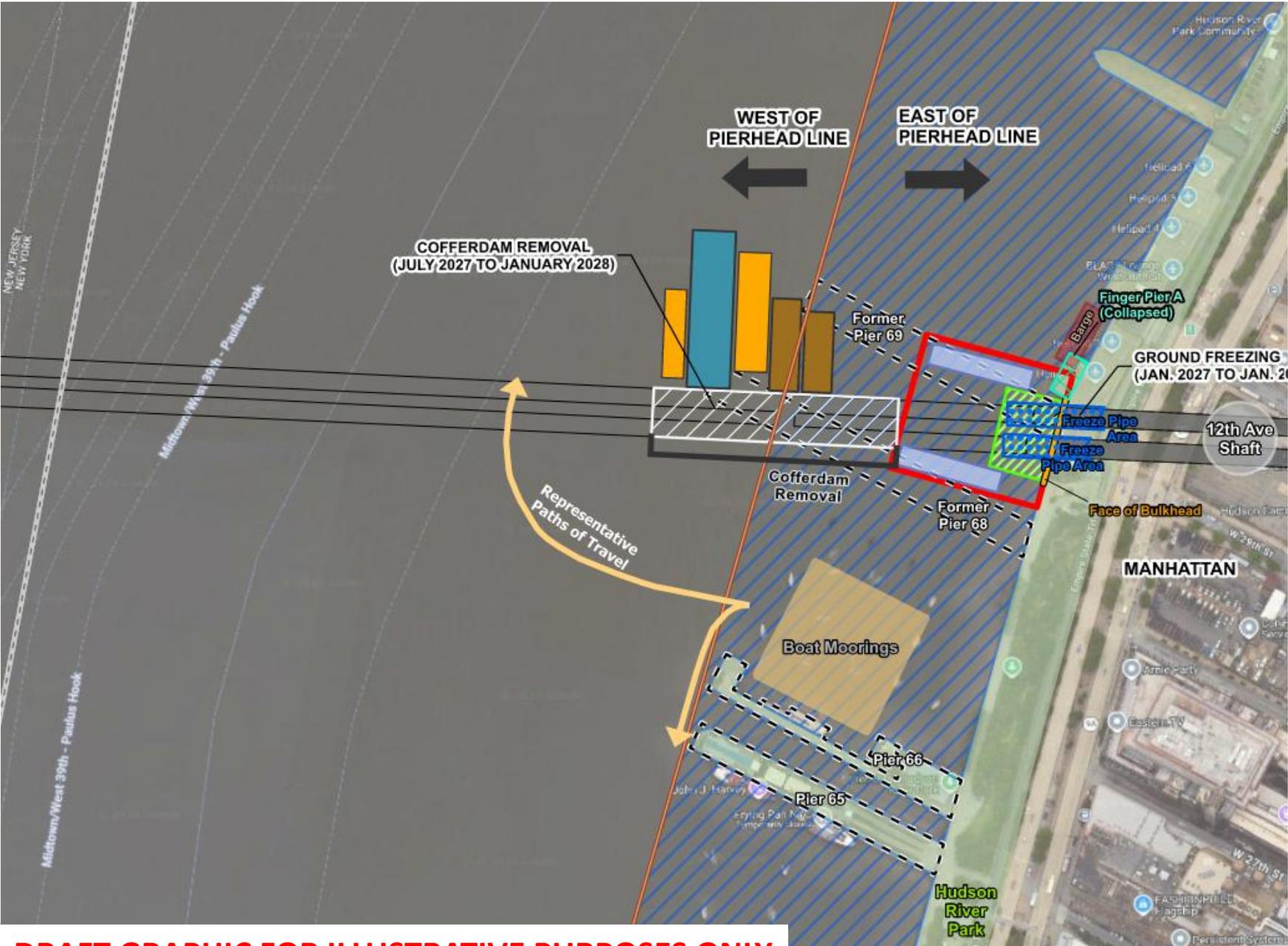
- Legend
- Pierhead Line
 - Bulkhead
 - Pier Footprint
 - Barge
 - Freeze Pipe Area
 - Bulkhead Grouting
 - Crane Barge
 - Support Barge
 - Equipment Barge
 - Dredge Barge
 - Ground Stabilization Barge
 - Chiller Barge
 - Marine Deck
 - Manhattan Tunnel Work Area (approx.)
 - Hudson Tunnel Underwater Segment
 - 12th Avenue Shaft
 - Landside Mined Tunnel
 - Boat Mooring
 - Hudson River Park
 - HRPT Jurisdictional Waters



DRAFT GRAPHIC FOR ILLUSTRATIVE PURPOSES ONLY

EXAMPLE SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

JUL 2027 – JAN 2028
Subject to further refinement



Legend

- Pierhead Line
- Bulkhead
- Pier Footprint
- Barge
- Freeze Pipe Area
- Crane Barge
- Support Barge
- Cofferdam Removal Barge
- Chiller Barge
- Marine Deck
- Manhattan Tunnel Work Area (approx.)
- Hudson Tunnel Underwater Segment
- 12th Avenue Shaft
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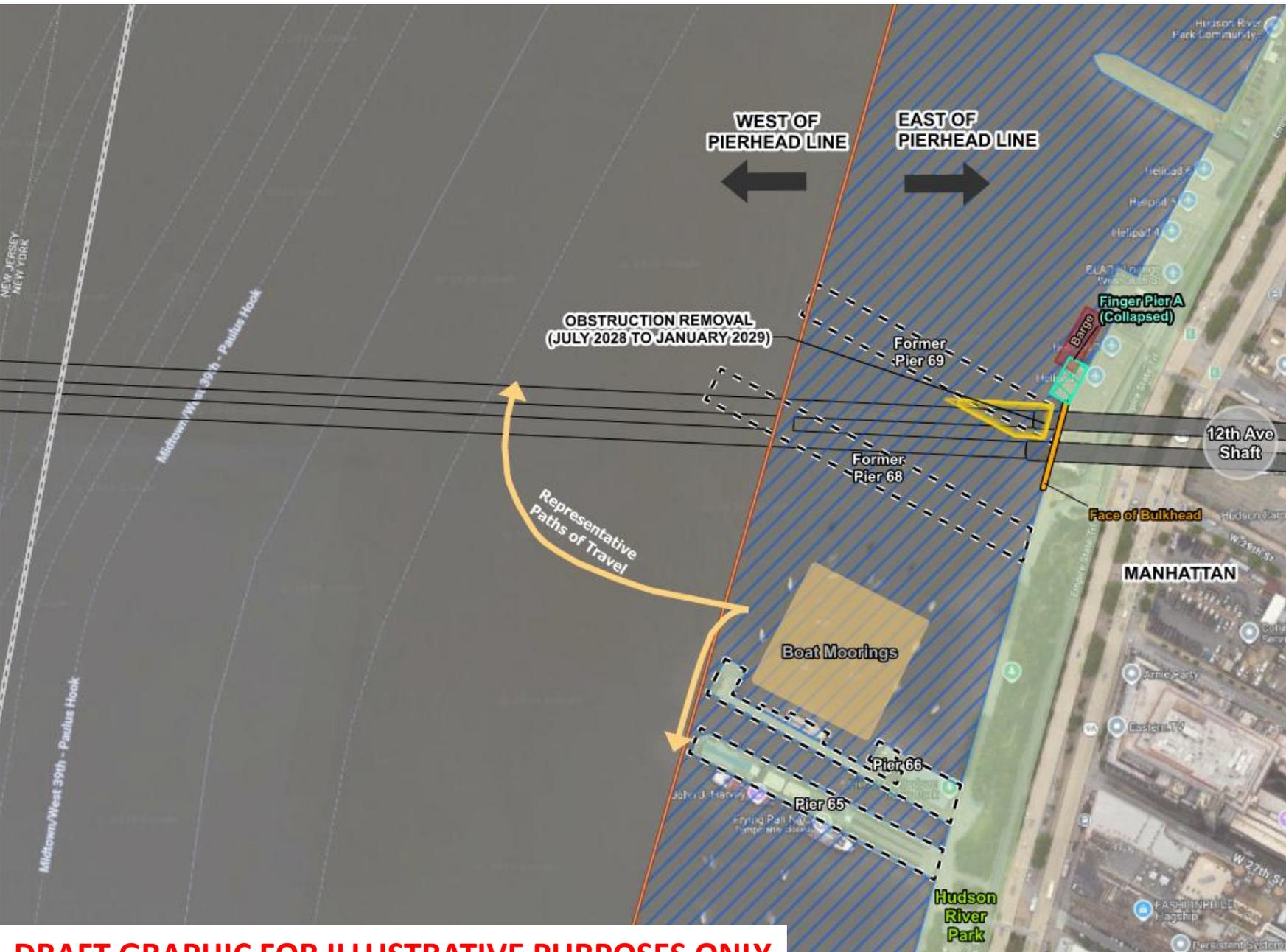
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EXAMPLE SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

JUL 2028 – JAN 2029
Subject to further refinement

Legend

-  Pierhead Line
-  Bulkhead
-  Pier Footprint
-  Barge
-  Pile Removal Area
-  Hudson Tunnel Underwater Segment
-  12th Avenue Shaft
-  Landside Mined Tunnel
-  Boat Mooring
-  Hudson River Park
-  HRPT Jurisdictional Waters



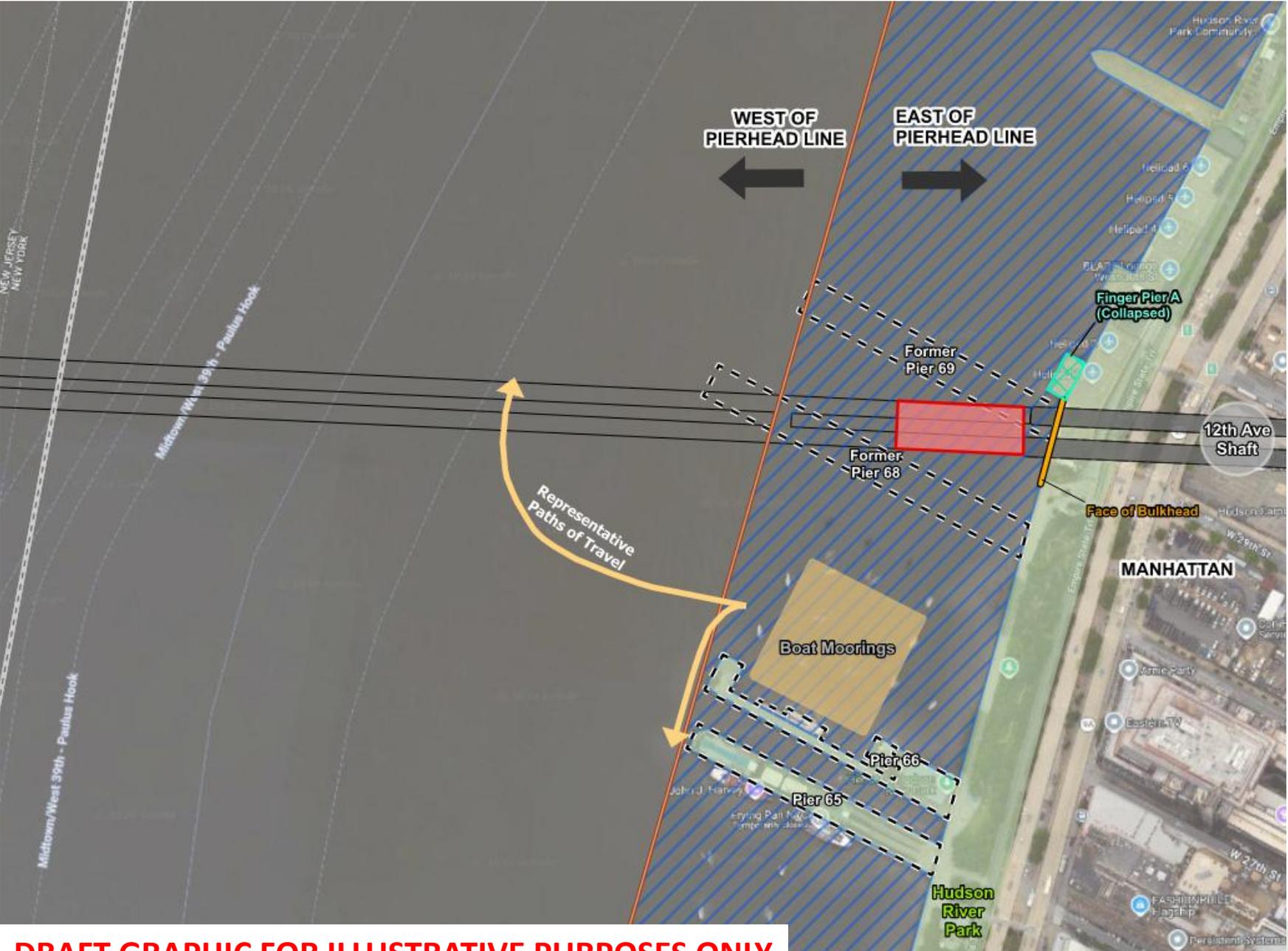
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EXAMPLE SNAPSHOT OF POTENTIAL BOATER PATHS OF TRAVEL

AUG 2028 – ONGOING
 Subject to further refinement

Legend

-  Pierhead Line
-  Bulkhead
-  Pier Footprint
-  Area of Potential Emergency Construction Means and Methods
-  Hudson Tunnel Underwater Segment
-  12th Avenue Shaft
-  Landside Mined Tunnel
-  Boat Mooring
-  Hudson River Park
-  HRPT Jurisdictional Waters



DRAFT GRAPHIC FOR ILLUSTRATIVE PURPOSES ONLY

CONTINUATION OF EXISTING SAFETY PROTECTIONS

- Measures to provide for the safety of Hudson River users (i.e., sailors, boaters) during in-river construction activities include:
 - Marker buoys with solar lighting to delineate restricted work zones in the Hudson River
 - Lighting on barges
 - Notification to mariners via the USCG
 - Hudson River park water safety coordination
- With the implementation of these measures, boaters would continue to safely navigate the Hudson River



Marker buoys



CONTINUATION OF EXISTING BEST MANAGEMENT PRACTICES

- Best management practices implemented in coordination with Federal and State agencies, such as:
 - Use of a cofferdam and, during open water construction activities, turbidity curtains when practicable
 - Placement of piles in barges with a basin to contain sediment and runoff
 - Operational modifications to minimize turbidity and sedimentation (e.g., use of a vibratory hammer)
 - Implementation of a Water Quality Monitoring Plan



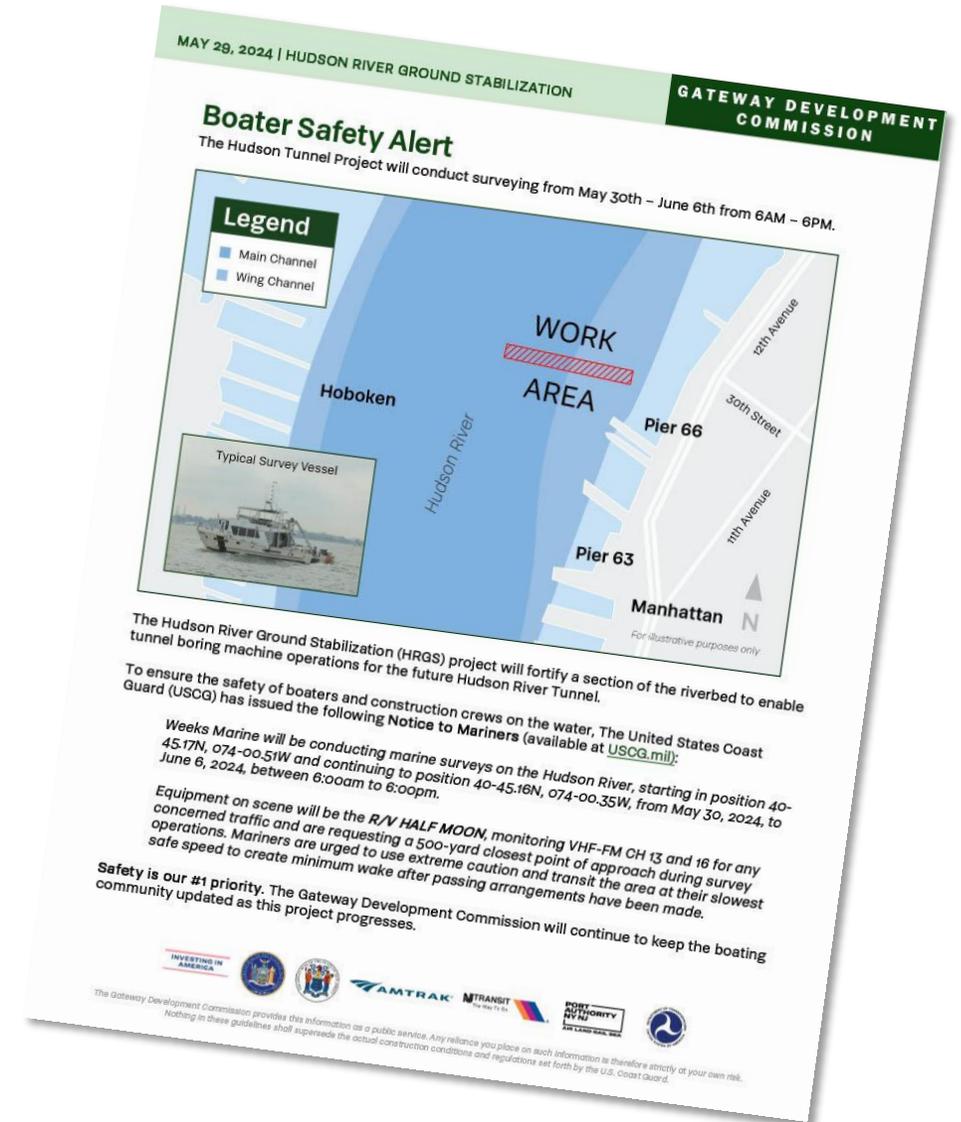
Stakeholder Outreach & Public Engagement Opportunities

ONGOING COORDINATION

- The Project Team will continue coordinating with the following stakeholders to minimize disruption at Hudson River Park:
 - HRPT
 - HRPT Advisory Council
 - Hudson River Community Sailing and New York Kayak Polo
 - Air Pegasus
 - United States Coast Guard
 - U.S. Army Corps of Engineers (USACE)
 - National Oceanic and Atmospheric Administration (NOAA)
 - New York State Department of Environmental Conservation (NYSDEC)
 - Elected Officials
 - General public (Manhattan Community Board 4)

ONGOING COORDINATION CONT.

- The Project team will continue to send regular Boater Safety Alerts to the boating community on both sides of the river in coordination with the United States Coast Guard
- A drop-in Manhattan Community Engagement Center for community education and feedback opened in December 2025
- A full-time Manhattan Community Coordinator hired by GDC staffs the Community Engagement Center
- GDC established a construction task force with local representatives with a specific focus on the Manhattan Tunnel Project



SECTION 4(f)-RELATED COMMENTS

- Comments on the proposed construction activities in Hudson River Park may be submitted on or before 5:00 p.m. on **April 12, 2026**, by emailing [**daniel.moser@dot.gov**](mailto:daniel.moser@dot.gov) (please also CC [**ManhattanConstruction@gatewayprogram.org**](mailto:ManhattanConstruction@gatewayprogram.org))
- Please visit [*hudsontunnelproject.com*](http://hudsontunnelproject.com) for additional Project information



Gateway Development Commission

Thank you