

RED HOOK COASTAL RESILIENCY (RHCR)

30% DESIGN WALKTHROUGH – COMMUNITY MEETING FOR PRESENTATION PURPOSES ONLY

Bill de Blasio Mayor Jamie Torres-Springer Commissioner









AGENDA*

- 1. Meeting Goals & Introductions
- 2. FEMA Overview
- 3. Timeline and Community Engagement
- 4. Overview of Proposed 30% Design
- 5. The Science Behind How We Got Here
- 6. Proposed Protection Visuals
- 7. In-Depth Review of Atlantic Basin Design Concept
- 8. In-Depth Review of Beard Street Design Concept
- 9. Next Steps

* multiple Q&A sessions included throughout the meeting

WELCOME & THANK YOU



1. MEETING GOALS & INTRODUCTIONS

Red Hook Coastal Resiliency (RHCR) Project

This project will reduce Coastal Flood risks for the Red Hook community



- Proposed in response to the devastation and damage caused by Hurricane Sandy in NYC
- RHCR will provide defensive flood protection from coastal surge along the waterfront
- The goal of today's meeting is to provide an update of the proposed 30% design and obtain community input



RHCR Project Partners & Team

New York City Agencies

- Department of Design and Construction (DDC)
- Mayor's Office of Climate Resiliency (MOCR)
- Emergency Management (EM)
- Office of Management and Budget (OMB)
- Department of Transportation (DOT)
- Department of Environmental Protection (DEP)
- Mayor's Office of Environmental Coordination (MOEC)
- NYC Department of City Planning (DCP)
- Economic Development Corporation (NYCEDC)
- NYC Department of Parks & Recreation (Parks)

New York State and Federal Agencies

- NYS Division of Homeland Security and Emergency Services (DHSES)
- Federal Emergency Management Agency (FEMA)

Design Team

- NV5 Engineering (lead design consultant)
- Grain Collective
- Tetra Tech, Moffatt & Nichol, Toscano Clements Taylor, Siteworks, Core Environmental Consultants, Infrastructure Engineering, MSI Engineering, B. Thayer Associates, GdB Geospatial

DDC has partnered with four local CBOs:

- The Resilience, Education, Training and Innovation Center (RETI)
- South Brooklyn Industrial Development Corporation (SBIDC)
- Aesthetic Soul Community
- Red Hook Art Project (RHAP)

Coordination with:

- New York City Housing Authority (NYCHA)
- NY & NJ Port Authority (NYNJPA)
- Property Owners (O'Connell, Thor Equities, IKEA, etc.)



2 MINS KICK-OFF: TOP CONCERNS / WHAT'S ON YOUR MIND



2. FEMA OVERVIEW

funding | criteria | project priorities | review process

FEMA Phases & Funding



\$4 Million awarded by FEMA to study the feasibility of an Integrated Flood Protection System (IFPS)

\$100 Million total capital project budget, \$50 Million FEMA award and \$50 Million local City match, to design and construct an integrated coastal protection system



FEMA Eligibility Criteria

- Must be an independent system cannot depend on other projects to fully function
- Cannot have a negative impact on existing conditions, or worsen flooding in other nearby locations
- Quantified benefits must be greater than quantified costs
- Must be a permanent system without temporary measures
- City must be able to access, operate, and maintain the protection system, including emergency activations, routine inspections, and repairs as needed



FEMA Criteria & Project Priorities

Need to meet FEMA eligibility criteria, and address community and City needs

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Community Priorities	Reliability	Environmental Impacts	Urban Design	Constructability	Operations and Maintenance
Maintain Waterfront Access, Preserve Neighborhood Character, Open Space and Trees, Neighborhood-wide Coordination, Enhance Community Preparedness	Maximum Level of Flood Risk Reduction, Minimize Use of Deployable Features Mitigate Interior Flood Impacts	Minimize and Mitigate Environmental Impacts, Incorporate Sustainable Features	Integrate with Neighborhood Streetscape, Maintain Waterfront Access & Views, Minimal Impact to Pedestrian & Vehicle Circulation	Minimize Construction Impacts to Neighborhood	Plan For Long-term Operations & Maintenance Needs for the Life of the Project



3. TIMELINE & COMMUNITY ENGAGEMENT

project timeline & phases | meetings | what we've heard





RHCR Design Phases & Engagement Opportunities

Continued Community Input at Critical Milestones





Preliminary Est. End of 2026

RHCR Community & Stakeholder Engagement

Engagement Goals

Incorporate community and stakeholder priorities as much as possible Minimize short- and long-term impacts to neighborhood and private properties Minimize impacts to pedestrian / bike / vehicle circulation and public infrastructure

What We've Done So Far

2016 - 2018	Feasibility study, four large public meetings, several focused-group meetings		
JAN 2020	Capital project kick-off meeting and recap of Feasibility Study		
JAN-MAR 2021	Introductory briefings with Elected Officials and stakeholders, including: Councilmember Menchaca, Congresswoman Velazquez, Assemblywoman Mitaynes, BK Borough President, BK CB6 District Manager, Red Hook Local Leaders, Resilient Red Hook, Red Hook West, Red Hook Community Justice Center, MAP Partners		
FEB-JUN 2021	Coordination meetings with impacted private properties, including: Port Authority, The O'Connell Organization, Thor Equities, Amazon, UPS, IKEA		

Design meetings with Elected Officials and key stakeholders, including:



SEP 2021 Councilmember Menchaca, Congresswoman Velazquez, Assemblywoman Mitaynes, BK Borough President, BK CB6 District Manager, NYCHA, Resilient Red Hook, Red Hook West and East, MAP Partners, Red Hook Local Leaders

RHCR Highlights What We've Heard

- Feasibility Phase Feedback Positive integration with neighborhood / Maintain waterfront access / Enhance Brooklyn Greenway / Keep community engaged / Storm preparedness / Coordinate with other major projects
- COVID-19 Impacts no significant impact to project schedule, funding, and community outreach. RHCR project is fully funded and proceeding with design
- Coordination RHCR is coordinated with various City / State agencies, including DOT, DOB, DEP, Parks, EM, EDC, NYCHA, FEMA, etc.
- NYCHA RHCR is a separate project from NYCHA's Recovery & Resiliency project at Red Hook Houses. We are not anticipating conflicting construction schedules or impacts
- Last-Mile Delivery this project will not impede or exacerbate local truck traffic, nor will it be impacted by the truck traffic of distribution centers, the two are independent from one another. RHCR team is aware of community concerns, while committed to delivering this critical flood protection infrastructure. We will coordinate closely with DOT for future temporary construction impacts to maintain traffic circulation and preserve pedestrian safety
- Construction details of construction areas, impacts, timeline, and operations (closures, access, detours, etc.) as well as any potential job opportunities will be established after final design stage, upon construction contract award







4. OVERVIEW OF PROPOSED 30% DESIGN

feasibility study & RHCR | protection level | flood conditions

Establish Measurement Nomenclature

For Your Reference: Elevation vs. Height





Red Hook Flooding Existing Conditions Elev. 10-ft

From Feasibility Study to RHCR

Summary of Approved Concept Design

FEMA approved the City's proposed concept based on the findings of the Feasibility Study:

- Focus on the two lowest points in Red Hook, Atlantic Basin and Beard/Richards Streets
- 8-ft level of protection and elevation (NAVD88) for higher frequency, lower intensity storms
- Passive system with raised and regraded streets in the public right of way



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RHCR Design Update Level of Protection: Elevations 8-ft and 10-ft

IFPS: elevation 8-ft level of protection recommended by the Feasibility Study, for an Integrated Flood Protection System

RHCR: building off the findings of the Feasibility Study, RHCR is working to add elevation 10-ft level of protection





Development of the Proposed RHCR

Elevations 8-ft and 10-ft were analyzed with various passive and active systems to identify a design that meets neighborhood, City, and FEMA goals and requirements

STEPS:

- 1. Elevation 8-ft protection, fully passive system (Feasibility Study recommendation)
- 2. Exploration of elevations beyond 8-ft, to increase the level of protection
- 3. Proposing elevation 10-ft protection with active features (deployables) in addition to passive elevation 8-ft protection
 - Higher design flood elevation reduces flood risks for residents and properties
 - Protects critical City/State infrastructure (Utility lines, Streets, etc.)
 - Includes additions and upgrades to community amenities (i.e., BK Waterfront Greenway)



LEGEND Wall Street Raising / Re-grading Bowne/Imlay **Flood Wall** Pioneer / Conover Street Re-Grading **Clinton Wharf / Ferris** Ferris

> Atlantic Basin Flooding Proposed Conditions – Elev. 10-ft

LEGEND

Wall

Street Raising / Re-grading

Beard/Van Brunt

Van Brunt/Reed

Flood Wall

Beard Street Flooding // Proposed Conditions – Elev. 10-ft

Street Re-Grading

Types & Activation Methods for Resiliency Infrastructure

For Your Reference: Typical Components of a Flood Protection System



Fixed Wall Passive (no activation needed)



Buried Wall Passive (no activation needed)



Wall Adjacent to existing building Passive (no activation needed)



Roller Gate Manual (pulled with truck)



Flip-Up Gate Hydraulic, manual backup (lift w/ telehandler)



WALLS

GATES

Swing Gate

Manual (pulled with truck)

RHCR Overview Project Goals, Alignment, Components

- Maintain a completely passive system at elevation 8-ft
- Deployable features are activated ahead of a hurricane for the system to reach elevation 10-ft
- Maintain minimal impacts to pedestrian, bike, and vehicle circulation
- Maintain waterfront access and neighborhood connectivity
- Incorporate the BK Waterfront Greenway
- Reduce flood impacts to existing drainage system





RHCR Design Update: 8-ft and 10-ft Protection Level Atlantic Basin







RHCR Design Update: 8-ft and 10-ft Protection Level Beard Street





*Elevation 10: 10 Year Storm + 2.5-ft SLR + Freeboard **Elevation 8: 10 Year Storm + 1-ft Freeboard

10 MIN Q&A



5. THE SCIENCE BEHIND HOW WE GOT HERE

coastal storm surge | RHCR design flood elevation

DFE is the total elevation adopted to provide flood risk reduction



ELEVATIONS:

Freeboard. The additional structure height needed above the DFE to protect against wave overtopping during a flood event

Sea Level Rise (SLR). The change in elevation of the sea level over time, (i.e., increase in Stillwater Elevation).

Still Water Elevation Level (SWEL). The projected elevation of floodwaters in the absence of waves.

Mean Higher High Water (MHHW). The average of the highest Tide recording from each tidal day. For NYC this is recorded by the NOAA station at the Battery in Lower Manhattan.

Mean Sea Level. Average height of the sea between high and low tide.



Frequency of Different Coastal Storms

The project's 10-ft level of protection is equivalent to a 10-year coastal storm, which is a frequent and intense storm



1-year Storm a sea level that has 100% chance of occurring every year

5-year Storm a sea level that has 20% chance of occurring every year

10-year Storm a sea level that has **10% chance** of occurring every year

50-year Storm a sea level that has 2% chance of occurring every year

100-year Storm a sea level that has 1% chance of occurring every year



Almost every storm in Red Hook has been under 7-ft elevation



This project incorporates the highest estimate of Sea Level Rise at 30-inches, to protect against the most frequent storm now and into the future



- NYC Panel of Climate Change (NYCPCC) has established Sea Level Rise (SLR) Projections based on 24 Global Climate Models
- Sea Level Rise NYC has averaged 0.15 in/year in recent years
- Current Sea Level Rise Projections from the NYCPCC for the 2050s, ranges from **min 8-inches to max 30-inches**

Me

With a 10-ft level of protection, this project is protecting against the most frequent storms now and into the future


10 MIN Q&A



6. PROPOSED PROTECTION VISUALS

existing conditions | flood conditions | protected post-project

Red Hook Flooding Existing Conditions Elev. 10-ft

Atlantic Basin Flooding Existing Conditions – Elev. 10-ft

FRANK STRAN HEAR

LEGEND Wall Street Raising / Re-grading Bowne/Imlay **Flood Wall** Pioneer / Conover Street Re-Grading **Clinton Wharf / Ferris** Ferris

> Atlantic Basin Flooding Proposed Conditions – Elev. 10-ft



Atlantic Basin – Area 2 Pioneer and Conover Streets 10-ft Elevation

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Atlantic Basin – Area 3 Clinton Wharf 10-ft Elevation

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Atlantic Basin – Area 3 **Ferris Street** RIDES **10-ft Elevation**

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Beard Street Flooding Existing Conditions – Elev. 10-ft LEGEND

Wall

Street Raising / Re-grading

Beard/Van Brunt

Van Brunt/Reed

Flood Wall

Beard Street Flooding // Proposed Conditions – Elev. 10-ft

Street Re-Grading

Beard And Van Brunt Streets 10-ft Elevation

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Beard Street – Area 1 Beard and Reed Streets 10-ft Elevation

DEAD

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10 MIN Q&A



7. IN-DEPTH REVIEW OF ATLANTIC BASIN DRAFT DESIGN

existing conditions | areas 1, 2, 3 | before & after

Overview of Atlantic Basin

Proposed Draft Design



Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

AREAT

Proposed Draft Design

Bowne / Imlay Streets

AREA

Summit Street/ Van Brunt Street and Hamilton Avenue



Flip-up Gate (deployable)

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Bowne and Imlay Streets

FLOOD WALL FOLLOWS FENCE / **GUIDE RAIL BETWEEN PORT** AUTHORITY AND DOCK BUILDING CONDOMINIUMS / WAREHOUSE

PROPOSED FLOOD WALL AT THE BACK OF SIDEWALK OF IMLAY AND SUMMIT STREETS / EXPAND SIDEWALK TO ENCOMPASS BWG





Proposed Draft Design



Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Proposed Draft Design







WATERFRONT GREENWAY (BWG) DOWN TO WATERFRONT AND FERRIS ST

Atlantic Basin – Area 2 Pioneer and Conover Streets 10-ft Elevation

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Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Proposed Draft Design



Wall

LEGEND



Street Raising / Regrading

Flip-up Gate (deployable)

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FLOOD WALL AND GREENWAY.

Atlantic Basin – Area 3 Clinton Wharf 10-ft Elevation

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Atlantic Basin – Area 3 Ferris Street RIDES **10-ft Elevation**

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8. IN-DEPTH REVIEW OF BEARD STREET DRAFT DESIGN

existing conditions | areas 1, 2, 3, 4 | before & after

Beard Street Flooding Existing Conditions – Elev. 10-ft LEGEND

Wall

Street Raising / Regrading

Flood Wall Street Re-Grading

Beard Street Flooding Proposed Conditions – Elev. 10-ft

Overview of Beard Street Proposed Draft Design



AREA

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Beard Street – Area 1 Proposed Draft Design



Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

AREA 3



Beard And Van Brunt Streets 10-ft Elevation

Beard Street – Area 1 Beard and Reed Streets 10-ft Elevation

DEAD

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Beard Street – Area 2 Proposed Draft Design

Beard Street

AREA 3



Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale


Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Beard Street – Area 3 Proposed Draft Design

Beard, Halleck, and Columbia Streets

AREA 3



Roller Gate (deployable)

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Beard Street – Area 3

Proposed Draft Design



FLOOD WALL, FROM SOUTH SIDE OF BEARD ST. TO NORTH SIDE AT IKEA ENTRANCE

LEGEND

Wall



Street Raising / Regrading

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

Columbia Triangle – Area 3 Todd Triangle and Columbia Street 10-ft Elevation

EXISTING CONDITIONS

Columbia Triangle – Area 3 Todd Triangle and Columbia Street 10-ft Elevation

FLOODING CONDITIONS

PROPOSED CONDITIONS

FLOOD WALL

PROTECTION

FLOOD WATER CONTAINED

RAISED SIDEWALK + ROAD

Columbia Triangle – Area 3 Todd Triangle and Columbia Street 10-ft Elevation



Beard Street – Area 4 Proposed Draft Design





Roller Gate (deployable)

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

AREA 3

Beard Street – Area 4

Proposed Draft Design

MINOR ROADWAY REGRADING ON BAY ST. BETWEEN PARK AREAS. NO IMPACT TO THE PARKS AS PART OF THIS WORK



INTERSECTION OF COURT STREET AND LORRAINE STREET TO BE RECONSTRUCTED AT HIGHER ELEVATION





RHCR Look Ahead & Engagement Opportunities

Continued Community Input at Critical Milestones







Contract bid advertisement, contract award & registration, Regular progress updates to community, Public notices, construction kick-off, continued community updates and advance notifications Preliminary Est. End of 2026

CONTACT US

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RED HOOK



Search Q, Have an idea, question or concern? Please submit your comments below.

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20 MINS OPEN DISCUSSION

