

Hunts Point **RESILIENCY**

Public Meeting

June 18, 2019



Agenda

Final Public Meeting of the Feasibility & Concept Design Phase

- Welcome and Introduction
- How We Got Here: summary of process and Resilient Energy Project
- Coastal and Neighborhood Resiliency Update
- Open House
- Group Discussion
- Next Steps
- Engagement Evaluation

Hunts Point Resiliency: How We Got Here



HUD launched the **Rebuild By Design (RBD)** Competition in response to Hurricane Sandy

Hunts Point Lifelines awarded \$20M by HUD to further study and develop a pilot project

AWG recommends the City pursue a project focused on **Energy Resiliency & Flood Risk Reduction**

Hunts Point Resiliency project launches

Original simple cycle microgrid concept proposed

City revises concept to tri-generation microgrid based on community feedback; HUD approves new Action Plan Amendment

Environmental review and air permitting



Mayor de Blasio releases **OneNYC**, outlining a multilayered approach to resiliency



How We Got Here: Resiliency Project Goals

The City is implementing a Resilient Energy Pilot Project, based upon community priorities identified by the Advisory Working Group.

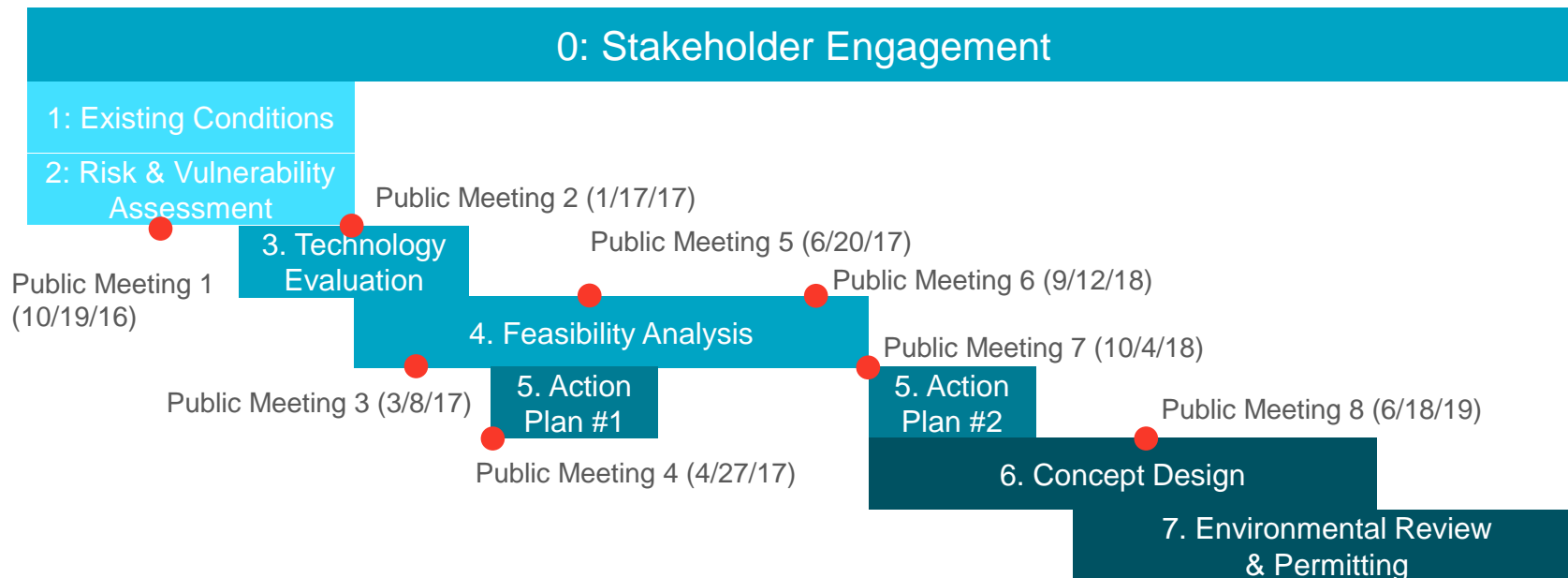
The Project seeks to advance solutions that meet the Advisory Working Group's goals:

- Address critical vulnerabilities for both community and industry
- Protect important citywide infrastructure
- Protect existing and future industrial businesses and jobs
- Support the community's social, economic, and environmental assets
- Use sustainable, ecologically sensitive infrastructure



How We Got Here: Feasibility Assessment & Concept Design Tasks

Tasks



How We Got Here: Risk & Vulnerability Key Findings

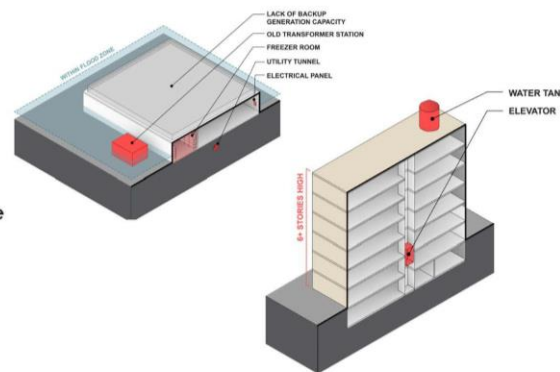
Identified through community priorities and assessment of risks & consequences across multiple climate threats



1. Building Outages

Building Vulnerability Factors

- Location within floodplains
- Basement below grade and in floodplain
- Age of infrastructure
- Location of boiler, mechanicals, and electrical service
- Backup generation capacity
- Perishable contents
- Elevators that require power for apartment access
- Water tank that require power for water service



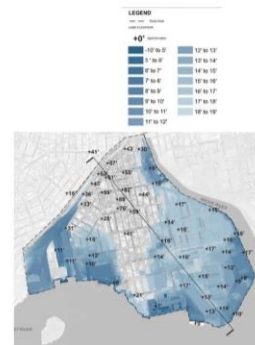
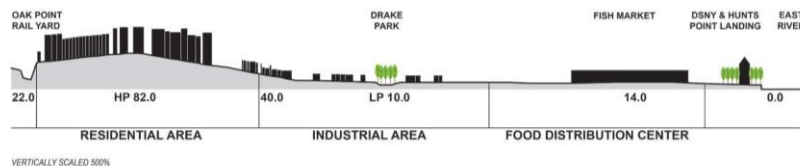
3. Precipitation Risk

Flooding from rain and snow is not a major threat in Hunts Point.



2. Coastal Flooding Risk

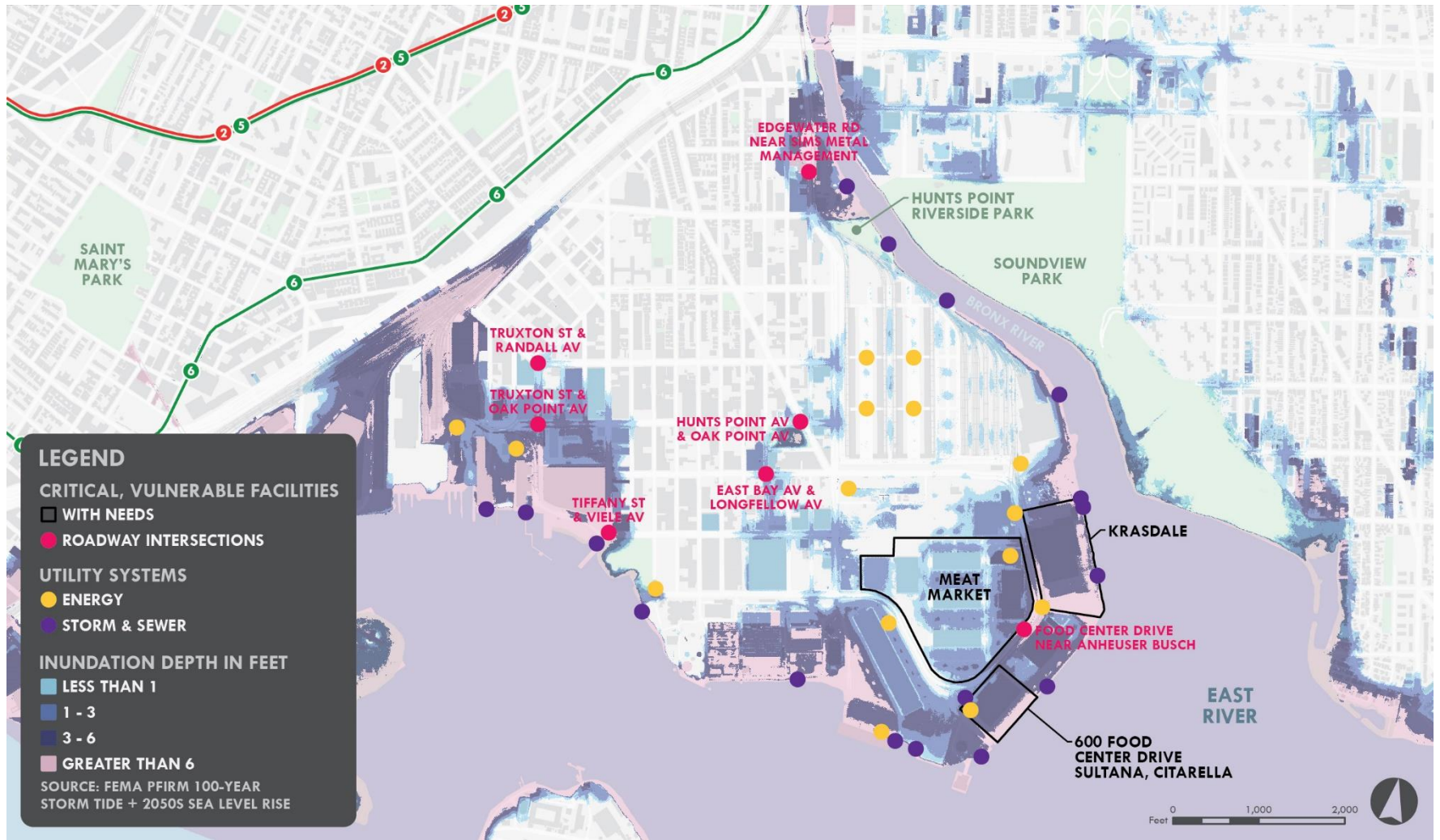
Due to considerable elevation change, the low-lying industrial area is very vulnerable to coastal flooding. Coastal flooding is not a threat to the upland residential area.



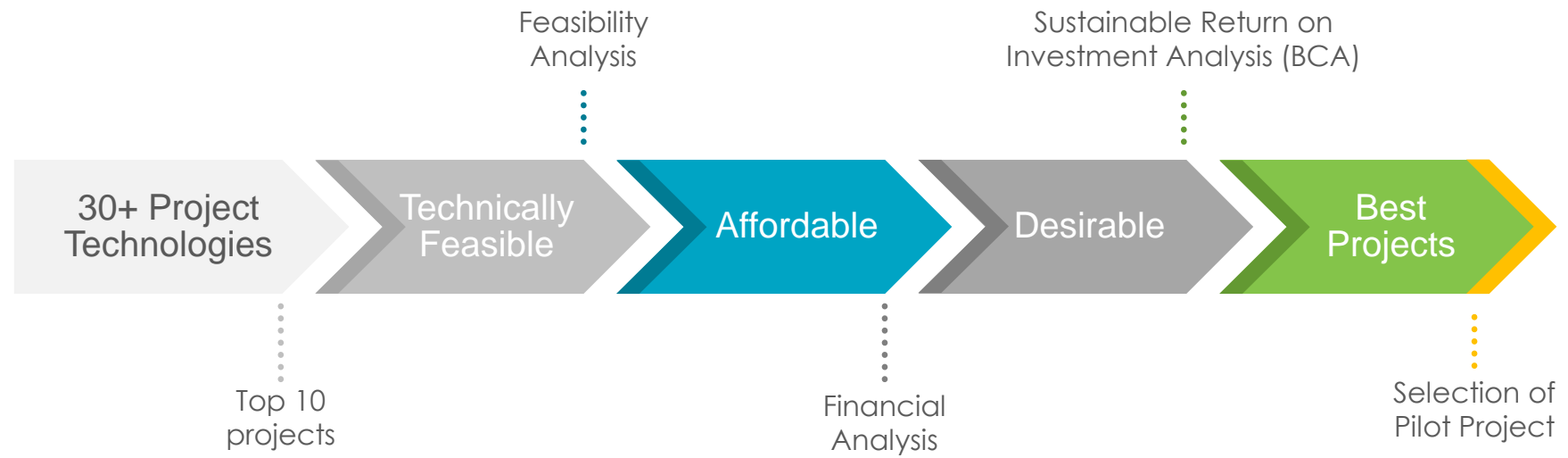
4. Social Resiliency

While residents still face many socioeconomic inequities, the density of community organizations and capacity for organizing in Hunts Point can enable strong social resiliency.

How We Got Here: Critical Facilities



How We Got Here: Technology Screening & Feasibility



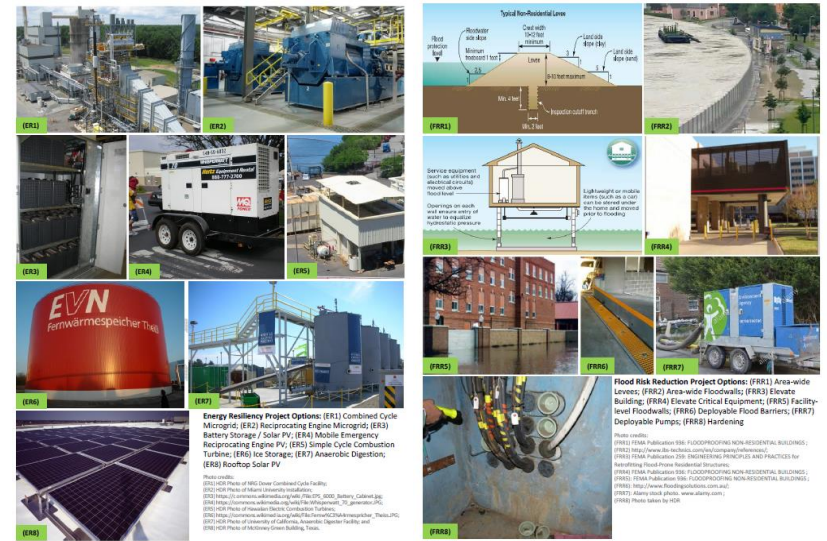
Hunts Point ENERGY RESILIENCY PROJECT OPTION 1

RESILIENCY COMBINED CYCLE MICROGRID

ER1

A microgrid is a group of interconnected electrical loads and generation resources that can operate in conjunction with the electrical grid or that can separate from and act independently from the electrical grid in the case of emergencies to maintain electrical service. This area-wide microgrid option is powered by an efficient, natural gas (or biogas or fuel oil) fired, combustion turbine with waste heat recovery to produce steam and supplemental electrical energy via a steam turbine generator. The facility can be sized for a wide range of energy generation, but is targeted in the 15 to 20 MW range to address the Food Distribution Center. **Applicable Vulnerable Critical Facilities:** Meat Market, Produce Market, Fish Market, 600 Food Center Drive (Ciarella/Sutana), Krasdale, and/or the Produce Market Railyard. (Photo credit: https://commons.wikimedia.org/wiki/File:Combined_Cycle_Gas_Fired_Power_Plant.jpg)

RESILIENCY			SUSTAINABILITY			IMPLEMENTATION			
GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
Applicable to Vulnerable Critical Facilities	✓	○	✗	○	○	Energy Efficient	○	○	Schedule (in Years) to Plan, Design & Construct M H
Proven Technology	✓	○	Fuel Type	○	○	Potential to Leverage Public or Private Funds L M H			
Reliable Technology	✓	○	Air Emissions Benefit	○	○		FINANCIAL		
Dispatchable/Operable during Emergencies	✓	○				Cost to Construct (\$/kW)		M H	
CONSTRUCTABILITY			COMMUNITY BENEFITS			Cost of Generation (\$/MWH)	M H		
Available & Suitable Space	✓	○	Scalable	○	○				
Required Infrastructure	○	○	Workforce Development (hiring and training)	○	○				
Ease of Permitting	○	○	Multi-purpose	○	○				

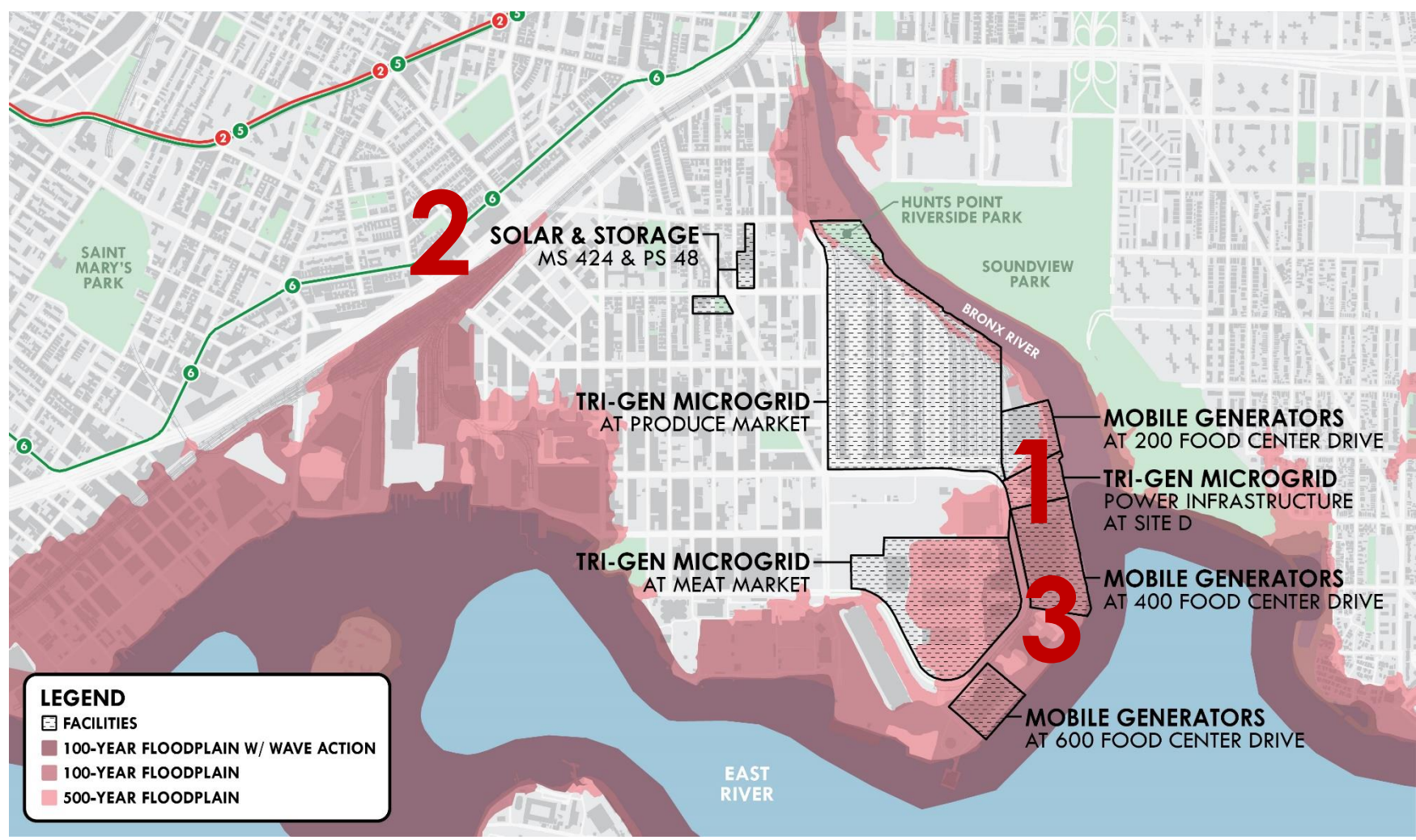


How We Got Here: Sustainable Return on Investment

- Produce comprehensive and site-specific cost and benefit analysis
- Incorporate stakeholder input in priorities
- Inform identification of the preferred pilot project

Lifecycle Costs	Resiliency	Environment	Social	Economic
Capital, Operations, Maintenance	Power Outage Reduction	Greenhouse Gas Emissions	Health (From Air Pollution)	Employment
Electricity, Generation Capacity	Property Damage Reduction	Discharges	Health and Safety	Training and Development Opportunity
Fuel	Displacement Reduction	Energy Efficiency	Injury and Casualty Reduction	Competitive Advantage

Resilient Energy Pilot Project Summary



Learning from Community Feedback

- Advisory Working Group identified top two priorities of Resilient Energy and Flood Risk Reduction, as well as the Implementation Principles for inclusion in scope
- Residents helped to identify critical facilities and community needs during emergency outages
- Concern over negative air impacts from emergency power solution at markets led to revision of design that achieves sustainability and resiliency and got us to a better final concept
- Creative ways to incorporate workforce, arts, and community benefits into a capital project
- Maintaining engagement frequency and transparency
- Knowledge exchange about battery chemistry options and sustainable disposal in final design

Environmental Assessment

- **Federal and city requirements**
 - NEPA: National Environmental Policy Act
 - CEQR: City Environmental Quality Review
- **Identify and assess alternatives to the project**
 - No project
 - Emergency power with simple cycle microgrid
 - Emergency generators for all buildings
 - Alternative design modifications considered
 - Proposed project
- **Design, construction, or operational strategies to avoid or minimize impacts**
- **Analyze operational, construction, and cumulative project impacts** on multiple categories, including:
 - Air quality
 - Greenhouse gas emissions and climate change
 - Public health
 - Land use and zoning
 - Transportation
 - Hazardous materials
 - Energy
 - Open space
 - Community facilities
 - Natural resources
 - Water and sewer infrastructure

Coastal & Neighborhood Resiliency



Hurricane Sandy & Hunts Point

Hunts Point was not significantly impacted by Hurricane Sandy, but there were concerns that Hunts Point, an environmental justice community and home to the region's food distribution center, was vulnerable to coastal flooding.

Since then, the Hunts Point Resiliency Project has studied and learned:

- 1) what are the climate change threats facing Hunts Point (specifically from coastal storm surge);
- 2) what are the risks and vulnerabilities to those threats; and
- 3) what are the best possible solutions to mitigate those threats.



Today's Goal

- 1) Understand what we've shared and learned to date.
- 2) Identify a path forward to reduce coastal flood risk and increase resiliency in Hunts Point.



Recap of Last Coastal Protection Public Meeting

- Public meeting held in June 2017 in Riverside Park before moving to Rocking the Boat.
- Reviewed coastal flood vulnerability findings.
- Presented feasible flood risk reduction approaches and associated benefits and costs.
 1. Building a Flood Wall along the coast line
 2. Elevating Buildings
 3. Flood Proofing Buildings

(we will review in more detail)
- Participants provided feedback on flood risk approaches.



Review of Risks and Vulnerability Findings:

One goal of this study was to address critical vulnerabilities for both community and industry. Based on a vulnerability and risk assessment, the key findings are:

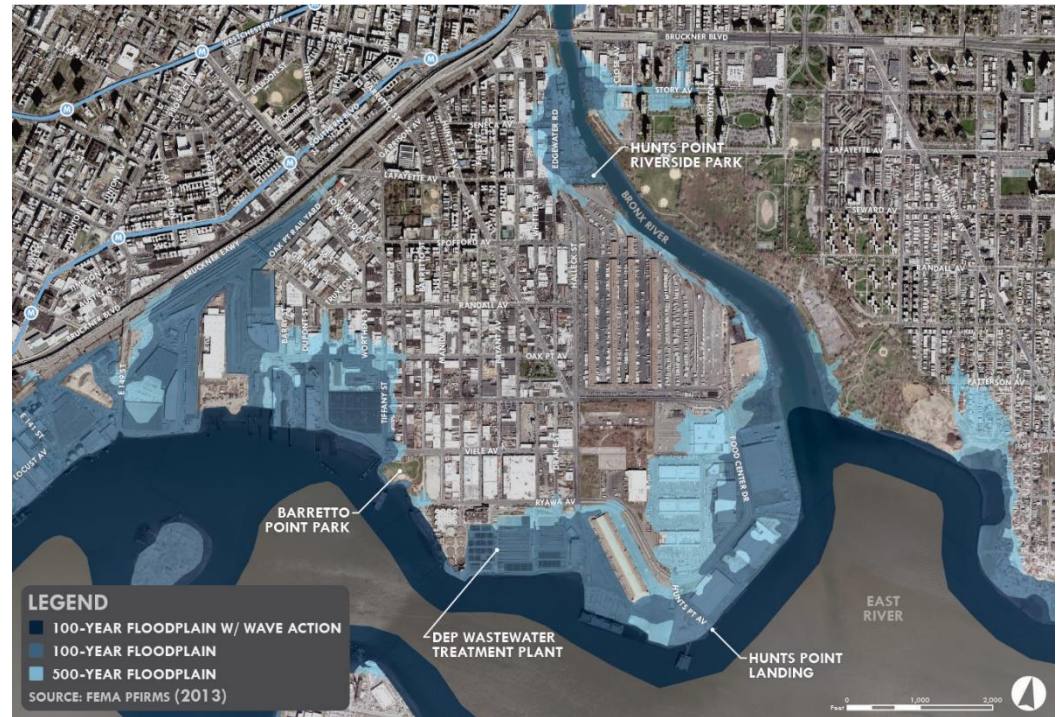
1. Building-level power outages are a significant and shared threat to residents and businesses in Hunts Point due to the vulnerable population in the residential area and the critical facilities in the industrial area.
2. **Due to considerable elevation change, specific areas within the low-lying floodplain face significant threats from coastal flooding while the upland residential area does not.**
3. Extreme rain/snow storms are not a major threat in Hunts Point.
4. The number of community organizations and history of organizing in Hunts Point can lay the foundation for strong social resiliency.

Addressing Risks and Vulnerabilities

Due to considerable elevation change, specific areas within the low-lying floodplain face significant threats from coastal flooding while the upland residential area does not.



The coastal flood protection study focused on finding solutions for the low-lying industrial areas that are in the flood plain.



Critical Facilities & Future Threats

Facility

Threat

Hunts Point Recreation Center

Outage, Heat

Pio Mendez Housing for the Elderly

Outage

Primary School (PS) 48

Outage, Heat

Middle School (MS) 424

Outage, Heat

Produce Market

Outage, Heat

Meat Market

Outage, Surge, Heat

Fish Market

Outage, Heat

600 Food Center Dr (Citarella/Sultana)

Surge

Krasdale

Surge

Hunts Point Wastewater Treatment Plant

Surge

Oak Point Railyard

Surge

Vernon C. Bain Correctional Facility

Surge, Heat

Certain Road Intersections

Surge, Outage

Certain Electrical Transformers

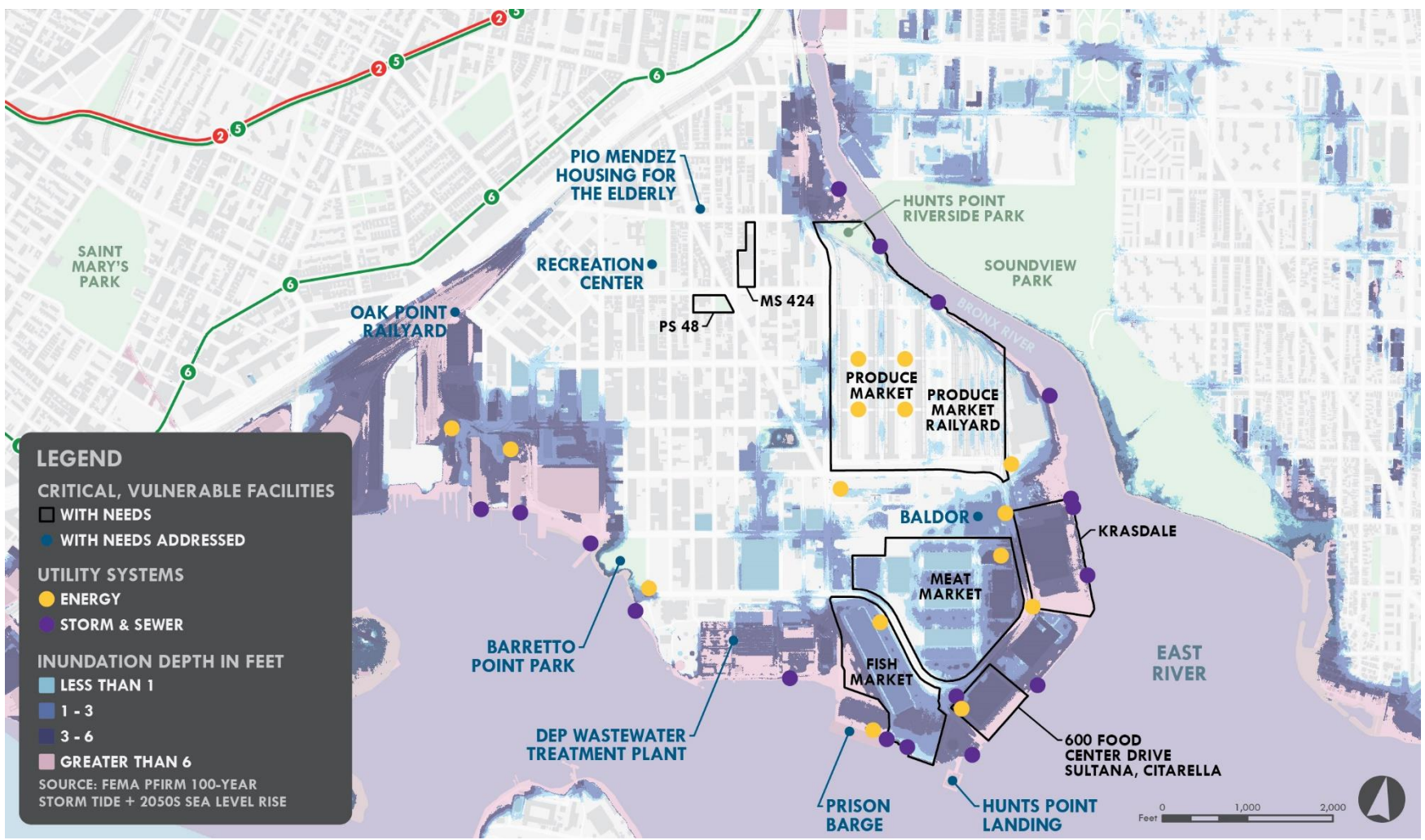
Surge, Outage

Community

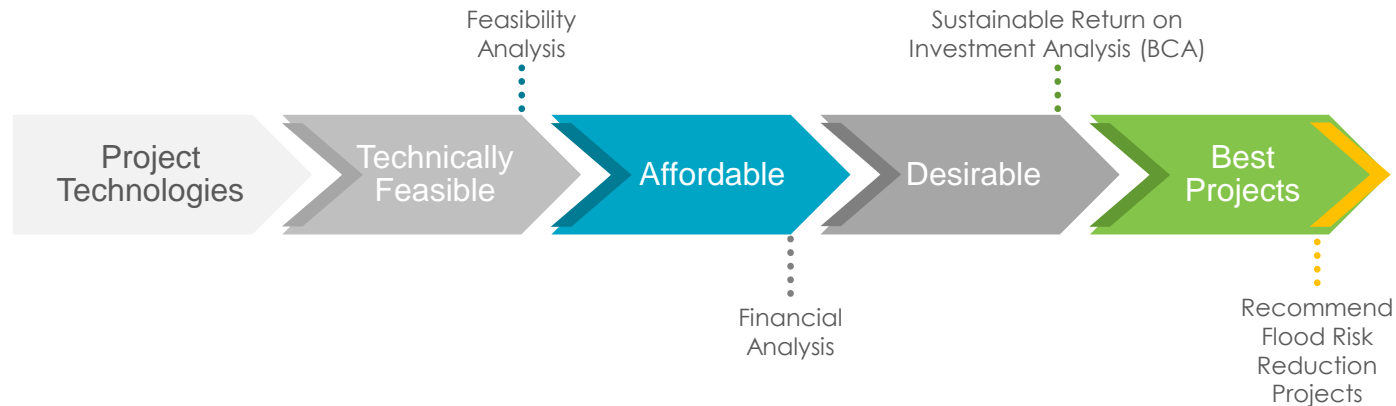
**Food
Distribution
Center**

**Infrastructure &
Other Facilities**

Vulnerability Findings



Identify a Flood Risk Reduction Project



Screening Criteria (adapted from Lifelines)

- Resiliency: protect against coastal storm surge, proven technology, operational during emergency conditions
- Sustainability: ecological improvements, green infrastructure, storm water management
- Community benefits: workforce opportunity, scalability, multi-purpose
- Constructability: suitable space, permitting
- Implementability: schedule, cost, potential to secure funding

Identify a Flood Risk Reduction Project

Screening potential approaches

Top reasons why retained:

1. Reliable
2. Scalable
3. Permitting Ability

Top reasons why screened out:

1. Space Availability
2. Elevations
3. Cost Prohibitive

- **Hardening**
- **Area-wide Floodwall**
- **Facility-level Floodwall**
- **Elevate Building**
- **Elevate Critical Equipment**
-
- **Area-wide Levees**
- **Deployable Flood Barriers**
- **Deployable Pumps**

Project Approaches

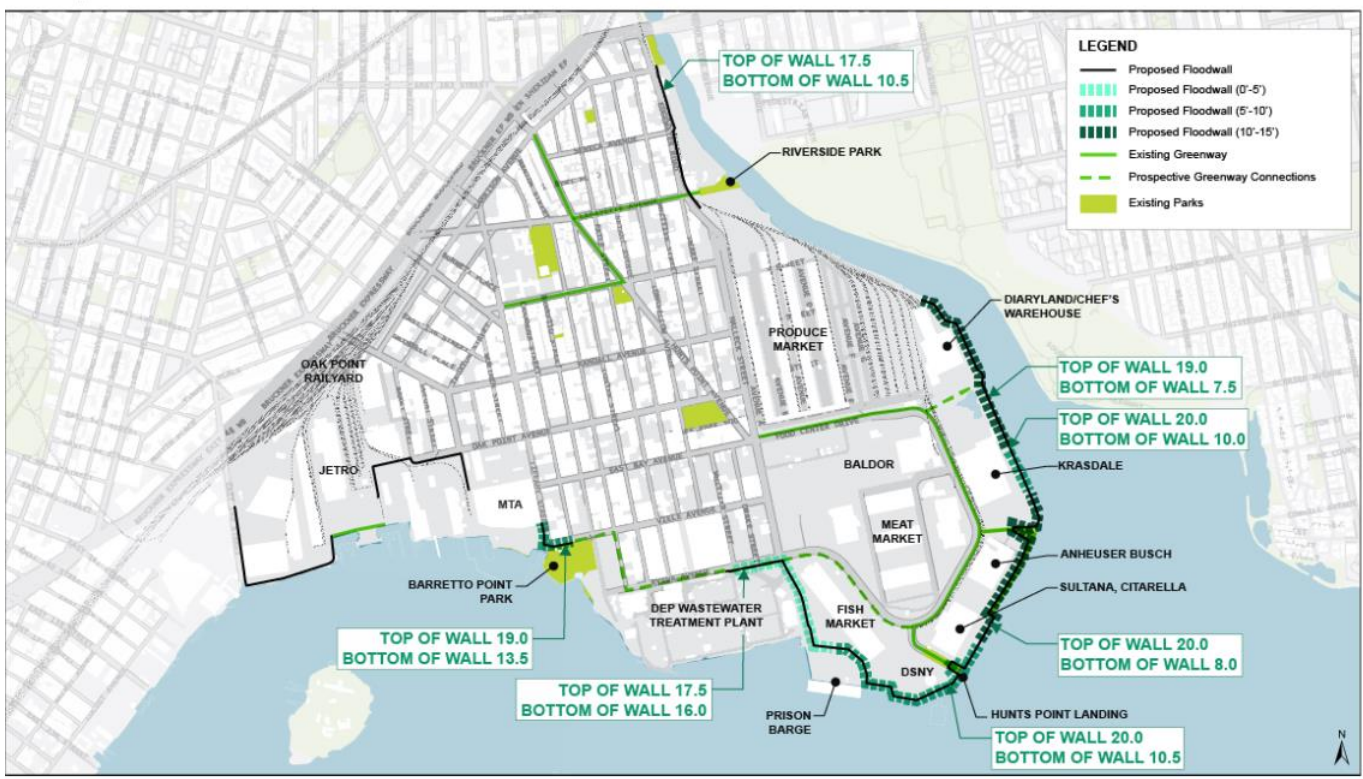
3 feasible approaches:

- **Approach 1:** Area Wide Floodwall
- **Approach 2:** Elevate Buildings at Meat Market
- **Approach 3:** Hardening at Meat Market, Krasdale and 600 Food Center Drive

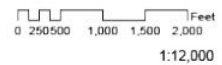
All approaches considered technically feasible because:

- **Benefit-Cost Ratio Greater than 1**
- **Reliable**
- **Scalable**
- **Acceptable by Permitting/Approval Agencies**

Approach 1 – Area Wide Floodwall



Area-wide Floodwall and Associated Greenway
Flood Risk Reduction Option



Hunts Point
RESILIENCY

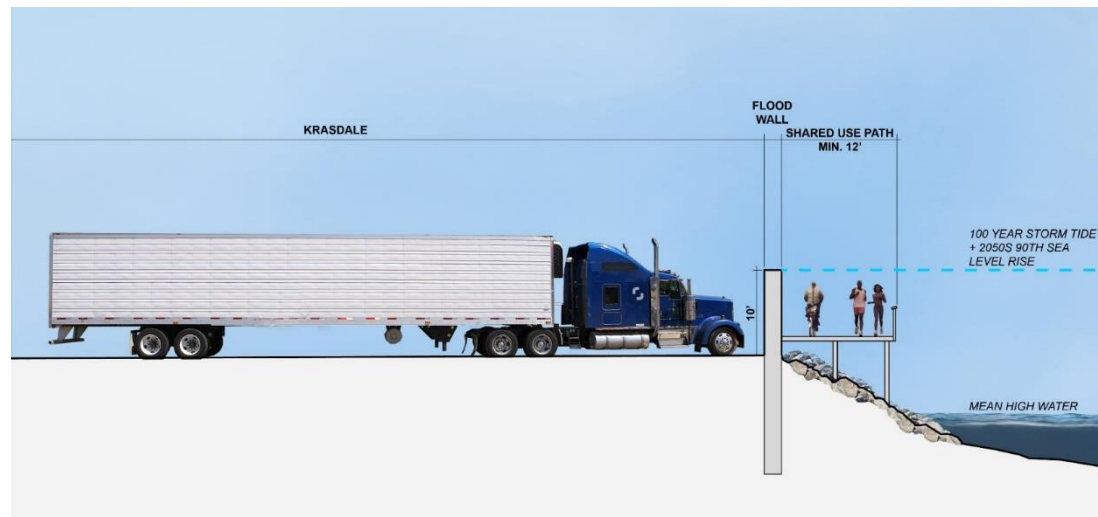
Approach 1 – Area Wide Floodwall

- **What is an area wide floodwall?**

A permanent, hard structure along waterfront, where feasible, to achieve a specified level of protection

- Different designs and configurations along waterfront are required due to existing conditions

- The wall elevation will be the same through the length, but the actual height as viewed from the ground may appear to change given changes in elevation



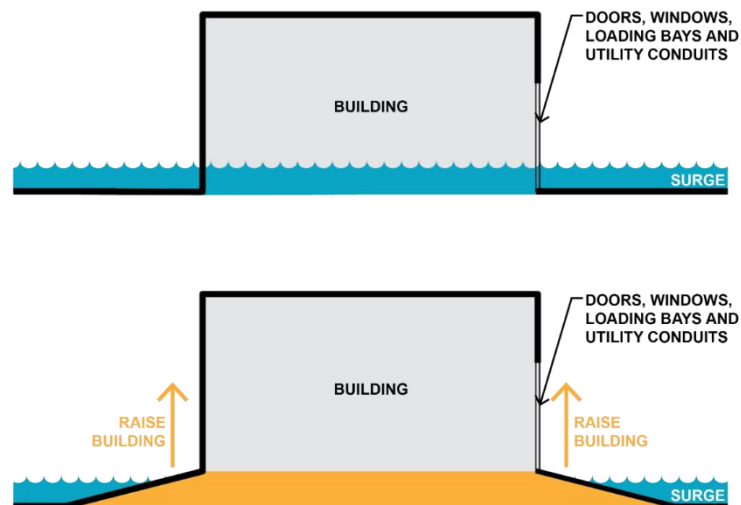
Approach 2 – Elevate Buildings at the Meat Market

- **What does it mean to elevate Buildings?**

The lowest occupied floor and equipment critical to a building's operation can be elevated above a design flood elevation to protect from floodwaters.

- Elevating techniques include:

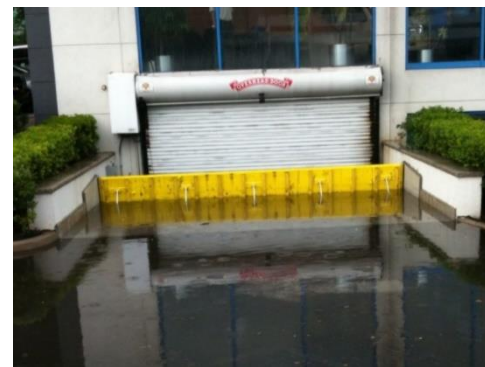
- Jacking the structure up and building a new or extended foundation below it;
- Leaving the structure in place and either building an elevated floor within the structure or a new upper story; or
- Constructing a new building at a higher elevation to replace the lower elevation building.



Approach 3 – Hardening at the Meat Market, Krasdale and 600 Food Center Drive

- **What is hardening?**
Strengthening essential systems (electrical, mechanical, fuel, communication, life-safety) to withstand floodwaters, operate during storm surge or return to service rapidly after floodwaters subside.
- Hardening includes:
 - Wet floodproofing: allowing water in building without endangering structural stability or equipment integrity
 - Dry floodproofing: preventing water from entering building or equipment

Floodbreak® system shown below; this type of passive flood barrier relies on water pressure on barrier system to raise barrier

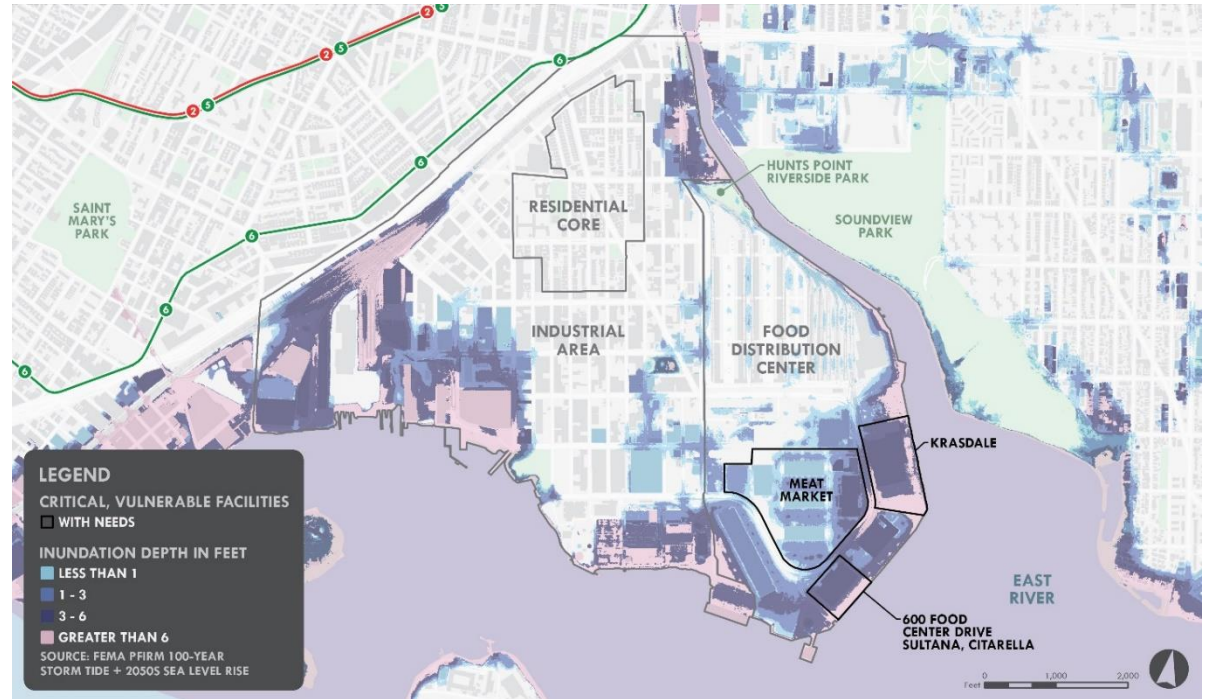


Summary of Coastal Protection Public Meeting – What Did We Hear?

- Elevating and hardening is the most cost-effective, implementable approach to reduce vulnerability, although it has limited co-benefits
- While more expensive, a flood wall can potentially provide the most co-benefits but may also cut the community off more from the water front
- While there were concerns about contamination from flooding on open industrial sites, those contaminants are not water soluble and are currently being remediated
- Concerns with feasibility of elevating large market buildings
- Concerns with maintenance of a flood wall and pumps
- Desire for greater community awareness and preparedness for emergencies
- Interest in a project that will address long-standing inequities and not lead to more gentrification

Flood Proofing of Vulnerable Critical Facilities at the Meat Market, Krasdale, and 600 FCD

- Flood proofing will provide targeted and tailored protection to the most vulnerable critical facilities at risk of flooding from a coastal storm surge.
- Flood proofing is the most cost effective approach.
- Many flood proofing techniques can effectively protect a large industrial building with relatively minimal operations and maintenance needed.



Why not the other options?

Elevating Buildings:

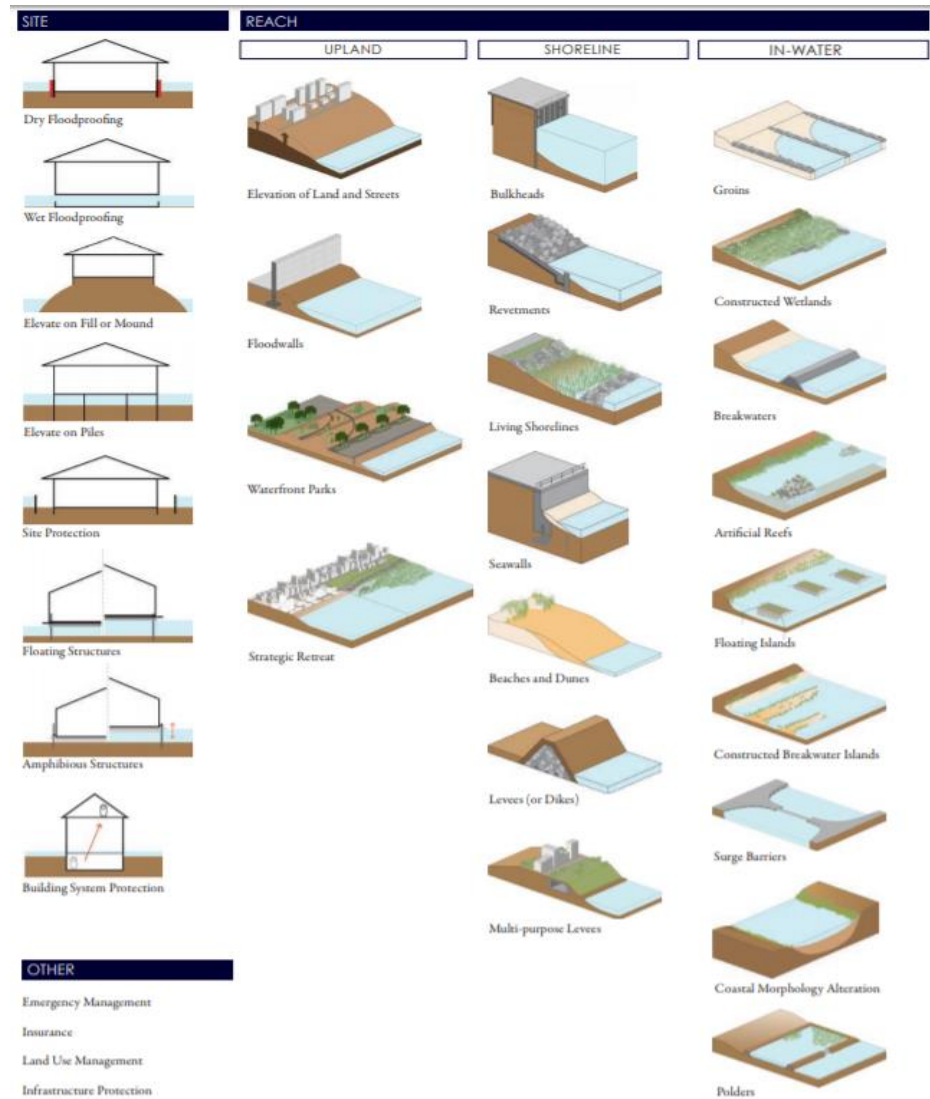
- Elevating the Meat Market would prove to be technically challenging given the large size of the buildings.

Area-wide Flood Wall:

- Requires deployables and pumps which reduce the reliability of the flood wall, and increases the risk of failure and maintenance needs.
- A flood wall is grey infrastructure that would block the waterfront from portions of the peninsula.
- The construction of a flood wall would be the most expensive option without providing significantly more resiliency benefits for critical vulnerable facilities.

Selecting A Coastal Resiliency Approach

- Every neighborhood is unique and needs uniquely designed solutions.
- Develop solutions to address risks and vulnerabilities.
- Informed by the latest climate data.
- Create “layers of resiliency” to further reduce risks.

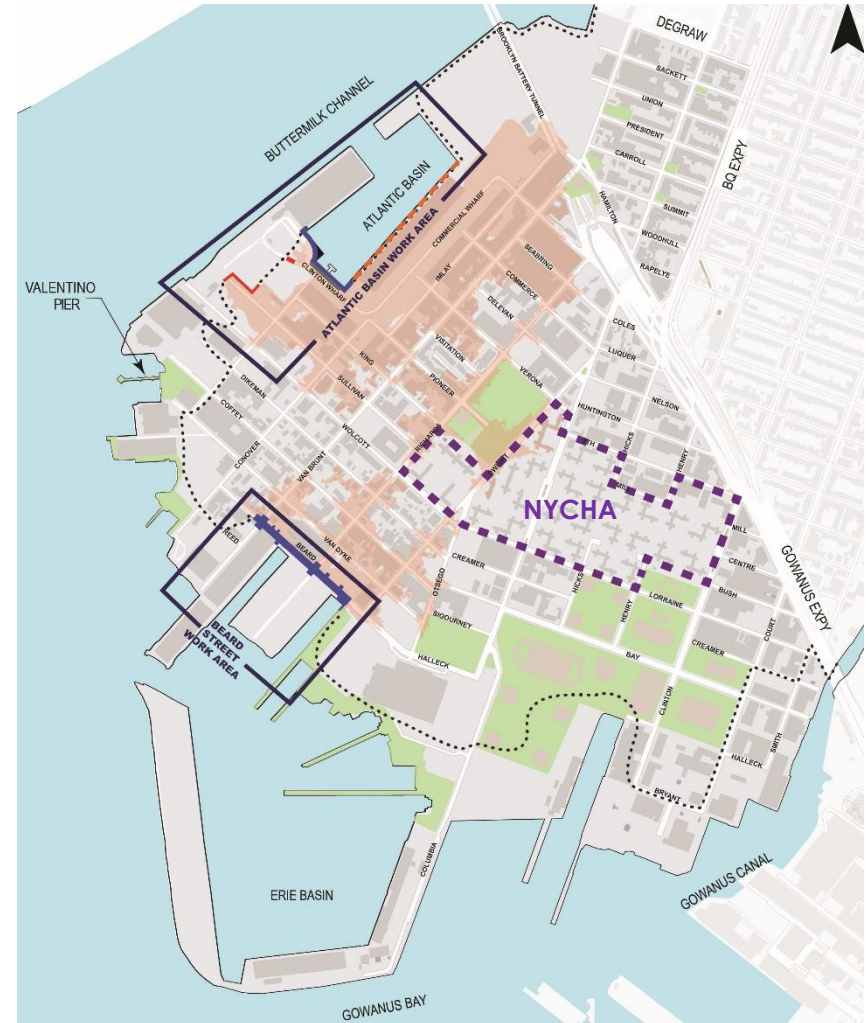


NYC Department of City Planning Inventory of Adaptive Strategies, Coastal Climate Resilience Urban Waterfront Adaptive Strategies

Selecting A Coastal Protection Project

Red Hook, Brooklyn

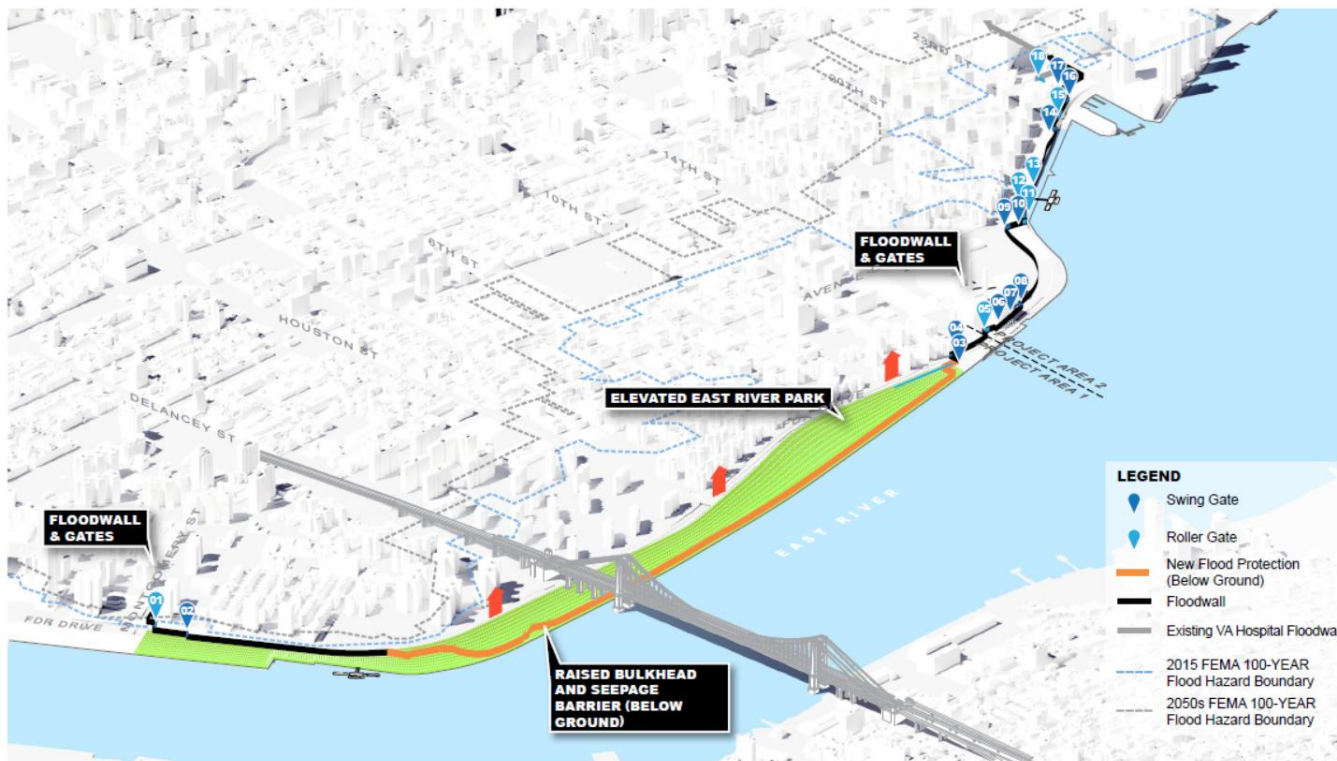
- All of Red Hook is in the 100 year flood plain
- Integrated Flood Protection System (IFPS) + NYCHA building level & utility flood proofing
- Red Hook IFPS constraints
 - Lack of available space
 - Working waterfront
 - Vulnerability to flooding
- Protection for more frequent lower level storms at current 10year + 1' of Sea Level Rise
- NYCHA program provided an additional layer of resiliency for vulnerable residential population in the flood plain



Selecting A Coastal Protection Project

East Side Coastal Resiliency, Manhattan

- Integrated flood protection using existing city park land.
- Protecting several vulnerable NYCHA & affordable housing developments in the flood plain.



Comprehensive and Layered Approach to Resiliency

Local Resiliency Project in Hunts Point:

- Hunts Point Resiliency Energy Pilot Project – Tri-gen CHP microgrid
- Be a Buddy - community-led preparedness model that promotes social cohesion
- R.I.S.E Wi-Fi Network – Resilient Mesh Wireless Technology
- NYC Department of Environmental Protection (DEP) Green Infrastructure (G.I.) program
- NYC Emergency Management Neighborhood Preparedness Planning
- NYC Emergency Management Interim Measures at:
 - Meat Market Co-op
 - NYC DEP Hunts Point Waste Water Treatment Plant

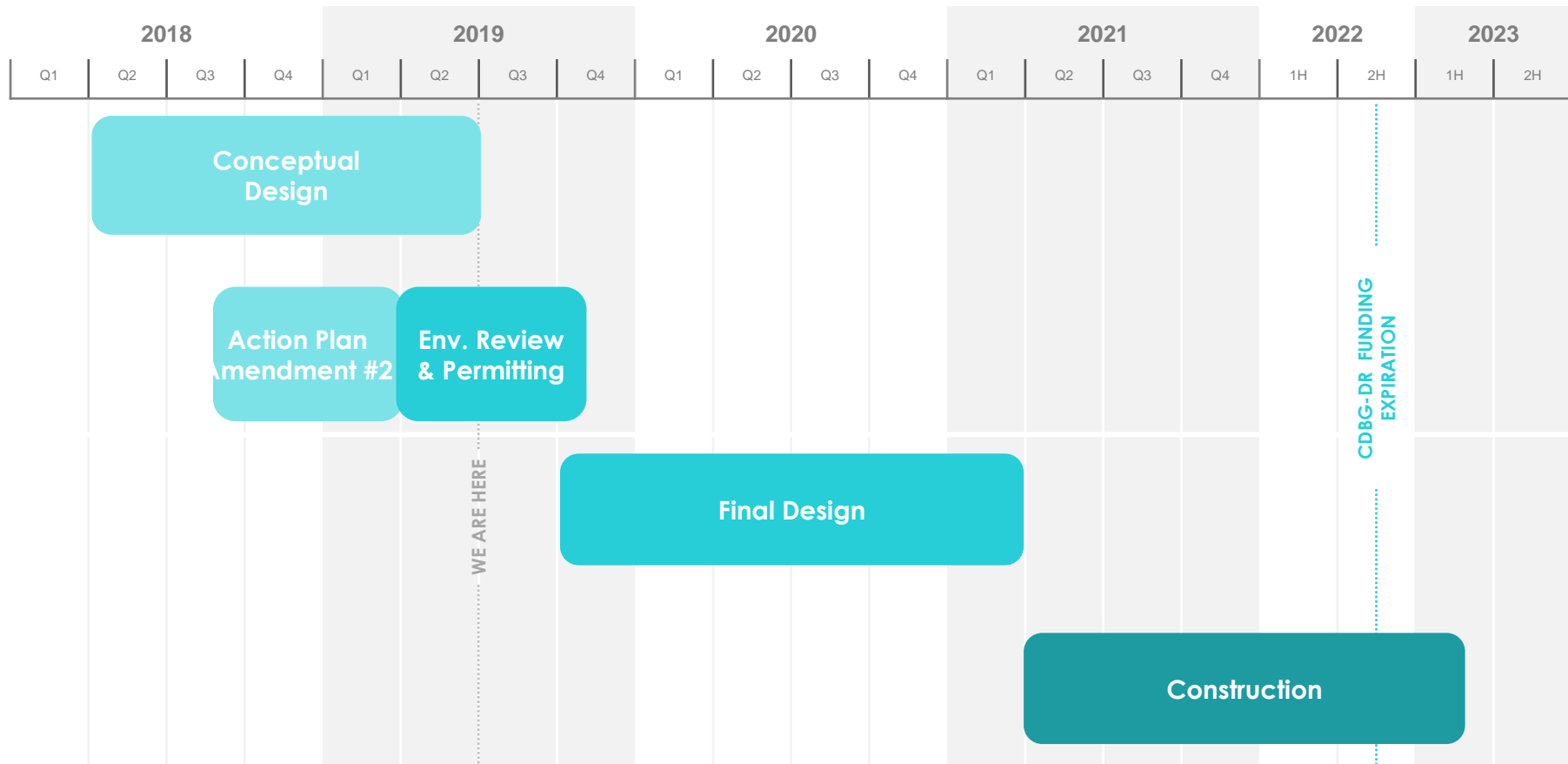
Findings & Next Steps of Coastal Flood Risk Study

- The residential area is not in the flood plain.
- The implementation of the tri-gen microgrid reduces the vulnerability of other identified critical facilities.
- The industrial area and specifically, three buildings in the Hunts Point Distribution Center are vulnerable to coastal flooding.
- A targeted and tailored approach through flood proofing at the three vulnerable, critical facilities is the most cost-effective way to reduce risks.
- Many hardening techniques can effectively protect a large industrial building with relatively minimal operations and maintenance.
- EDC will engage tenants in hardening measures specific to each facility.
- A new Hunts Point community planning process will be an opportunity to discuss open space access and other community benefits.

Open House Format

- Please visit the 4 stations, where you can ask detailed questions about how a technology works, how it will be implemented, and what are the next steps to advance the final design
 - Tri-Generation Microgrid, refrigerated truck plug-ins, and mobile generators at the Food Distribution Center
 - Solar & Storage at neighborhood schools
 - Coastal and neighborhood resiliency
 - Engagement and workforce development
- We will reconvene as a group to discuss next steps and evaluating the process as we close out this phase of Feasibility & Concept Design for the Hunts Point Resiliency Project

Energy Project Implementation Timeline



Energy Project Next Steps

- Released new final design RFP; expect award by summer
- Release Construction Management RFP
- Activities in final design to cover tri-gen microgrid, solar + storage at MS 424 and PS 48, and emergency generators
 - Detailed energy measurements to confirm critical loads
 - Detailed design development and contract documents
 - Step-by-step operations manual for facilities, ConEd, and City
 - Complete regulatory and permitting approvals from FDNY, DOB, ConEd, PDC, SHPO, LPC, NYCDOT
- How to stay engaged with the project
 - Ongoing engagement with project stakeholders incorporated into final design
 - Updates on progress
 - Information exchange around battery chemistry and disposal
 - Engagement about green jobs associated with energy projects
 - Education and awareness about energy systems once they are constructed, including school curricula and tours for community