Crafting a Competitive BRIC Project: Newark Ironbound Resilience Hub Case Study

NJIT Hazard Mitigation Workshop

June 7, 2023

Ironbound Resilience Hub

OVERVIEW – FISCAL YEAR 2021 FEMA BRIC APPLICATION

LOCATION

Ann Street School, Ironbound neighborhood in Newark, NJ

PARTNERS

City of Newark (lead)

Newark Public Schools

Ironbound Community Corp.

+ others

SCOPE

Resilience hub

Cooling center improvements

Green infrastructure

Coordination w/ planned solar

COST

~$14M in estimated capital costs

Project Overview

RESILIENT NORTHEASTERN NJ

Resilient Northeastern NJ Project Area

NJDEP administers the Resilient NJ Program

Representatives of the Region Team sit on the Steering Committee

Residents from each city sit on the Community Advisory Council

Our Process

"WHO WE ARE" AND "WHAT WE ENVISION"

WHAT'S AT RISK

OPTIONS

SOLUTIONS

All deliverables and materials are available at www.resilient.nj.gov/nenj

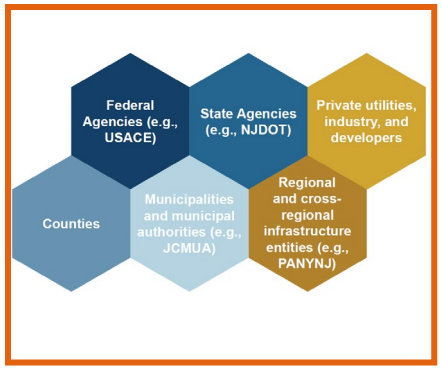
Identification and advancement of Phase 2 / Early Action items

Types of actions included in the plan

Physical and nature-based solutions

- Coastal
- Stormwater
- Other climate hazards

Example: Conversion of park space and vacant lots for stormwater management

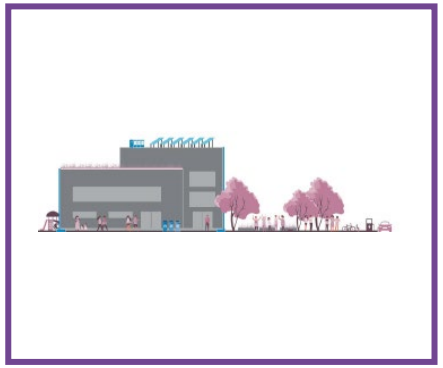


Recommended changes to policies and governance

Example: Regional Infrastructure Coordination Council

Outreach, education, and capacity building

Example: Flood management 101 campaign



Service and program development

Example: Resilience hubs

Emergency response and preparedness

Example: Improved & inclusive flood warning systems

Image sources: [1]Google Maps Streetview, [2]Arcadis, [3]Arcadis, [4]Urban Sustainability Directors Network, [5]Sea Isle News

Resilience hubs

Multi-functional community spaces that provide access to information and resources before, during, and after climate events.

WHAT MAKES A GOOD CANDIDATE?

- ✓ Already known to the community
- ✓ Able to be multi-functional
- ✓ People can gather inside
- ✓ Able to be hardened against hazards

Through the engagement process, we received direct and indirect feedback in support of resilience hubs.

Based on this feedback, Resilient NENJ envisions a regional network of resilience hubs.

Image source: Urban Sustainability Directors Network

BRIC Minimum Qualifications

Projects MUST:

- Reduce/eliminate risk and damage from future **natural** hazards
- Be cost-effective (a BCA is required for project applications)
- Provide 25% cost share (additional points provided for projects with 30%+ match)
- Meet all environmental and historic preservation (EHP) requirements
- Conform to either of the two latest consensus-based codes (IBC 2015/2018/2021)
- Subapplicants must have a Local and State Hazard Mitigation Plan in place to be eligible

Improve Quality of Life

Equity

Improve Resilience

Spur Economic Growth

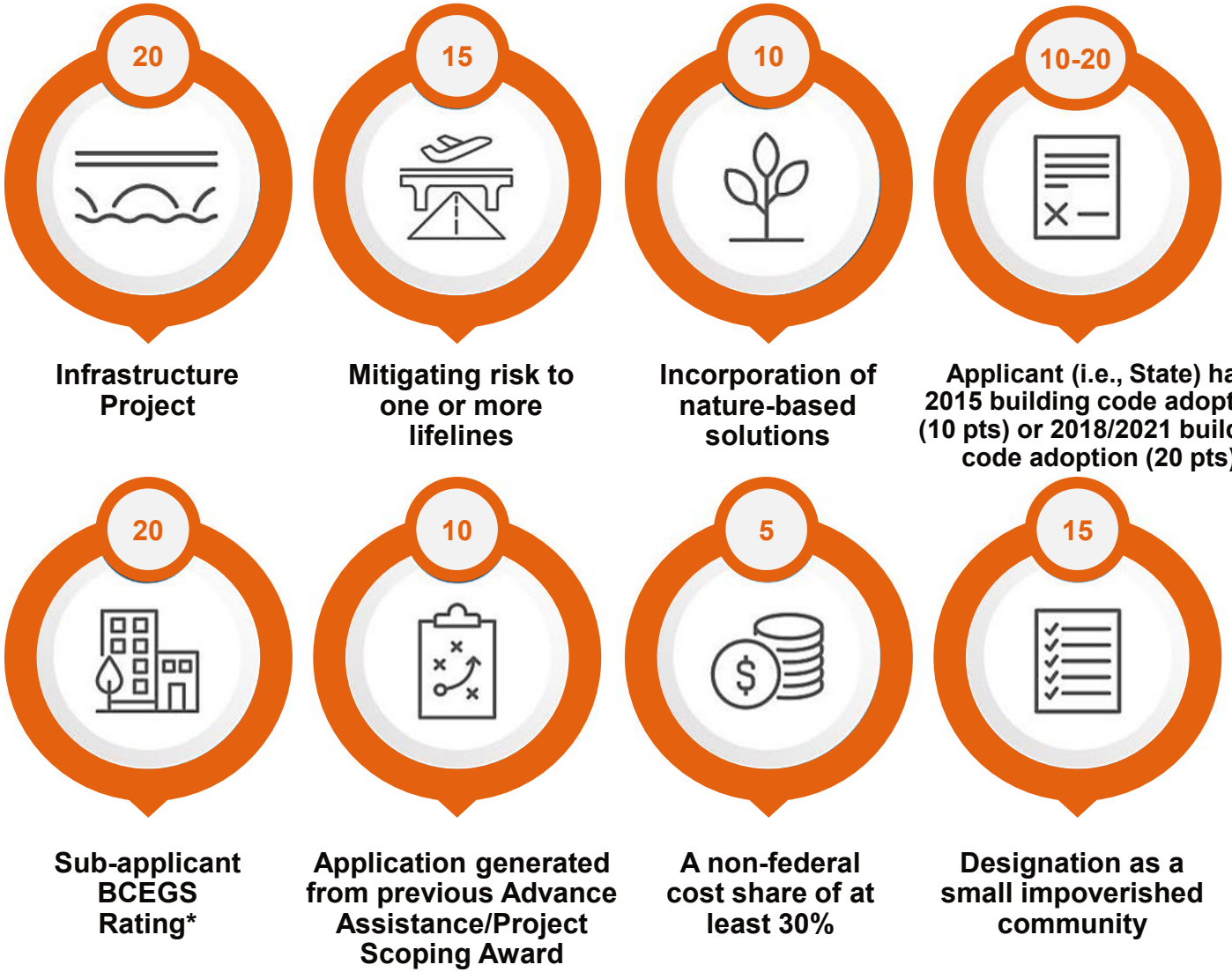
Cost-Benefit Framing

FY21 Technical Criteria Values: 105-115 max points

Some points are dependent on State or local actions

Technical criteria are binary point awards (projects either receive full points or zero in each criterion).

Note: there were minor changes to technical criteria in FY22. Mitigating risk to one or more lifelines was removed. 15 points were allotted if a community has a CDC SVI of 0.6 to 0.79, while 30 points were allotted if a community has a CDC SVI of 0.8 or higher or is a small impoverished community.

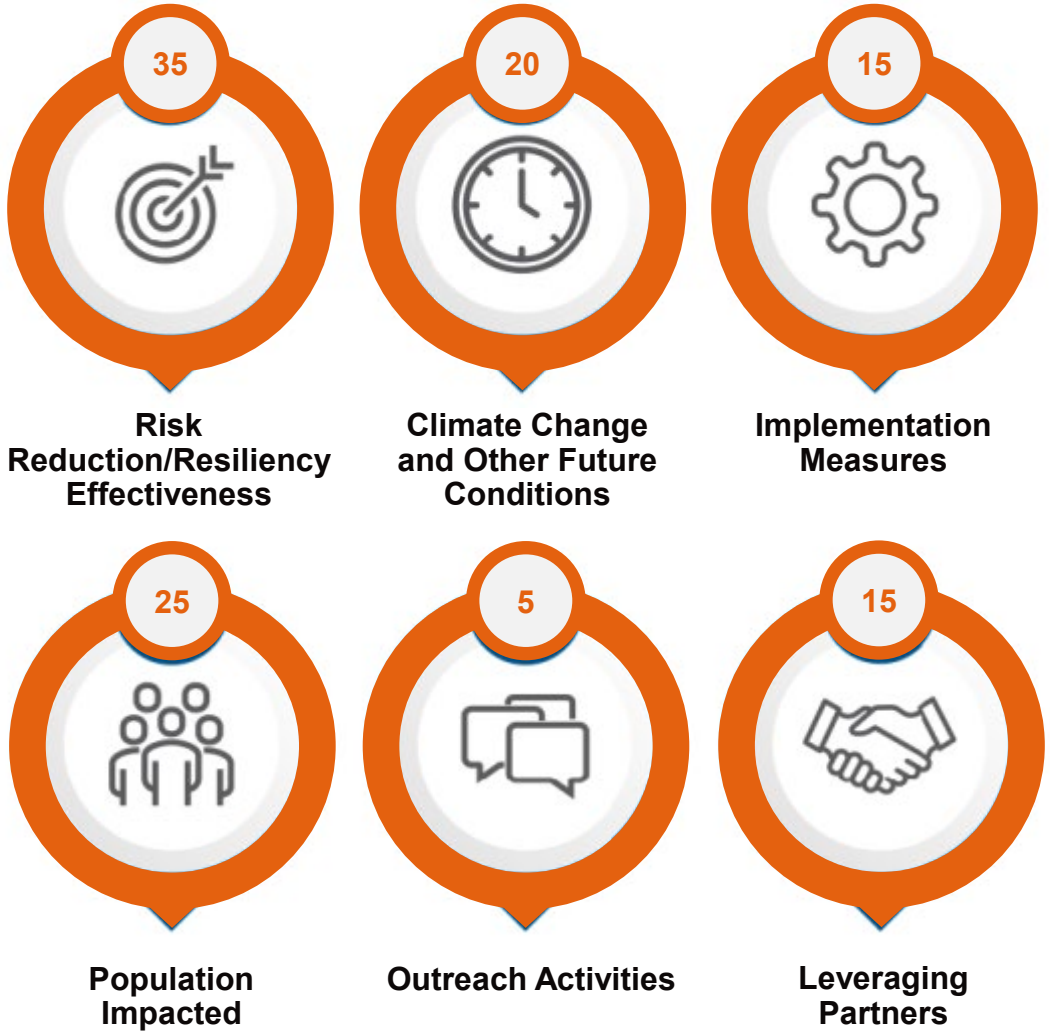


*Building Code Effectiveness Grading Schedule

FY21 Qualitative Criteria Values: 115 max points

Qualitative criteria emphasis on:

- Climate change/future conditions
- Population impacted



Ironbound Resilience Hub: Ann Street School, Newark

Location:

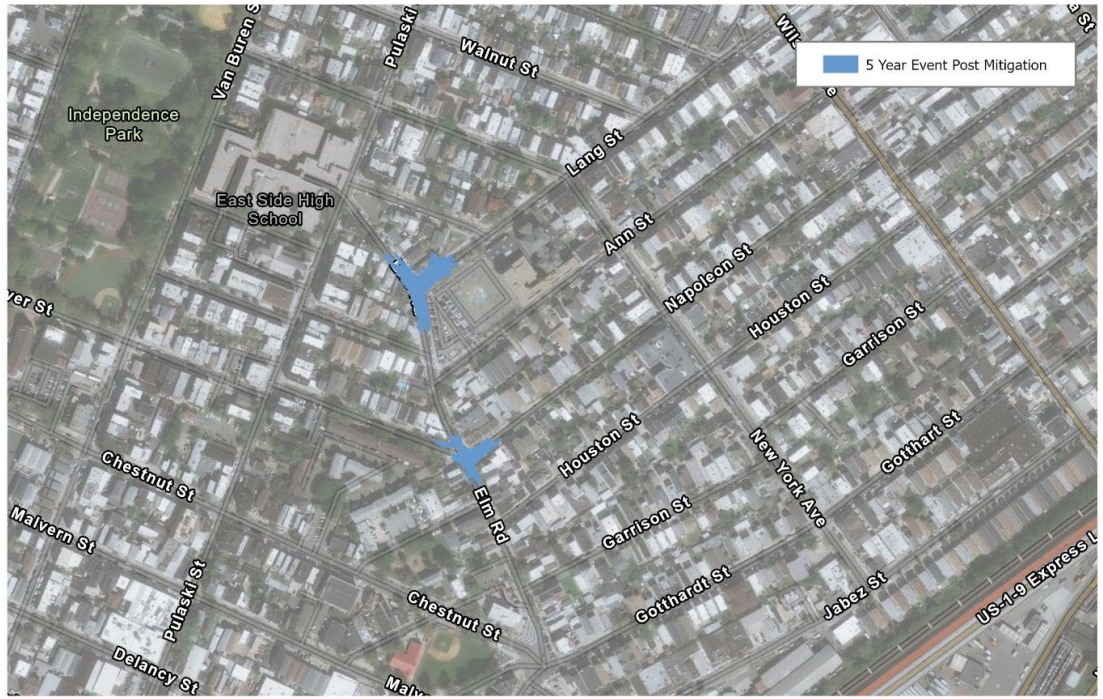
- Socially vulnerable and flood-prone Ironbound neighborhood (immediate area is less flood-prone, anecdotally)

Scope:

- Hub serving as central location for collection and dissemination of information and for community gathering before, during, and after extreme weather events
- Emergency safe room / HVAC improvements for cooling center
- Subsurface detention in Ann Street School parking lot (up to 450k gallons)
- Permeable pavement in adjacent streets
- Power resilience: battery storage, islanding, HVAC improvements - *combined with planned solar array project*

Bluespot Analysis

Flood Extents: 5-year, 2-hour rainfall event, Pre-Mitigation



Flood Extents: 5-year, 2-hour rainfall event, Post-Mitigation

Determination of benefits relied on the ArcGIS Bluespot tool combined with engineering calculations to estimate flood volumes and depths for different recurrence intervals.

Benefit Cost Analysis

A project is cost-effective when the benefit-cost ratio (BCR) is greater than 1.*

Costs: ~$15M

- ~$14M capital costs
- ~$75k annual O&M

Capital costs include:

- Site investigations
- Design
- Construction
  - Green infrastructure and associated sitework
  - Energy improvements (HVAC, islanding, battery storage)
- Project management

BCR = 3.53

Benefits: ~$53M

Quantitative:

- **Avoided costs due to FLOOD MITIGATION**
  - Up to 5-year, 2-hour event almost fully mitigated
  - Damages from up to 100-year, 2-hour event significantly reduced

  - Physical damages (buildings and contents)
  - Displacement costs
  - Social costs (allowable for projects protecting residential buildings with BCR>0.75)

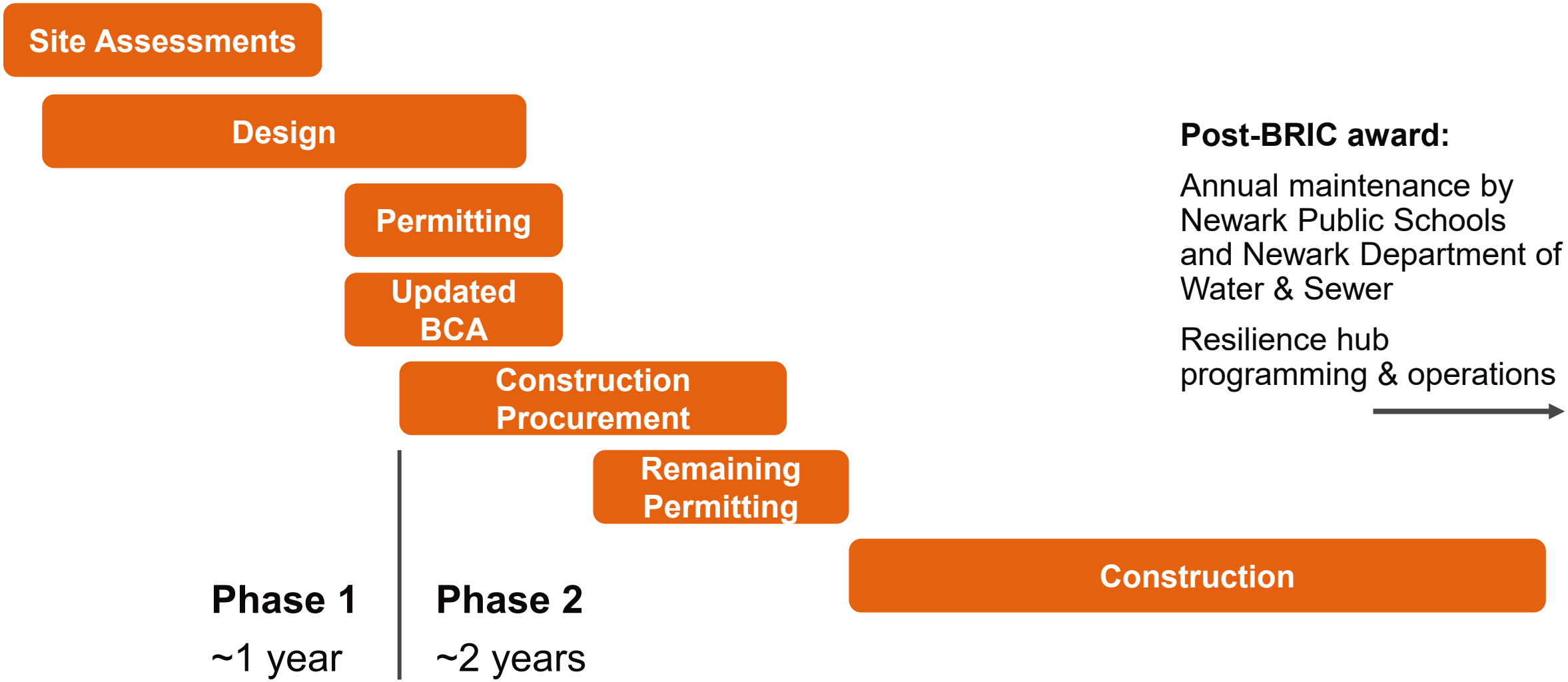
Qualitative (not reflected in BCR):

- Heating, cooling, wind sheltering
- Power resilience
- Roadway flood impacts
- Water quality benefits
- Other green infrastructure benefits

*Note: as of the FY22 cycle, FEMA released an alternative methodology that considers a project cost effective if the BCR is greater than 0.75 using a 7% discount rate and greater than 1.0 using a 3% discount rate IF the mitigation activity benefits disadvantaged communities and/or meets several other criteria.

Implementation

What comes next?



Post-BRIC award:

Annual maintenance by Newark Public Schools and Newark Department of Water & Sewer

Resilience hub programming & operations

What made this a strong BRIC application?

Community

- Community with overlapping environmental justice concerns
- Flood-prone neighborhood

Engagement & Outreach

- Comprehensive engagement & planning process through Resilient NENJ
- Documented feedback related to resilience hubs and flood challenges

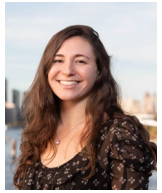
Partnerships

- Coordinated effort between municipal government (multiple departments), electric utility, non-profit organization (Ironbound Community Corp), and others
- Support from Resilient NENJ

Aligning Multiple Initiatives

- Leveraging planned solar array
- Existing COVID testing site & community resource
- HMP alignment

Questions?



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