PRIORITY PROJECT CANDIDATE

Drainage study

Infrastructure Systems

Project Description: Undertake a study of existing sewer/groundwater conditions in Red Hook to better understand the type, extent, and cause of recurring drainage problems, and to identify potential targeted solutions. The Planning Committee has identified two project alternatives:

A. A door-to-door survey to identify the type and location of drainage-related problems throughout the Red Hook planning area by soliciting input from residents, employees, and business owners in the neighborhood.

B. A hydrologic study by professional engineers and hydrologists to analyze existing drainage and groundwater conditions.

Background/Rationale: Many Red Hook residents and business owners experience regular and recurring flooding during heavy rain events. Flooding of properties and buildings creates recurring costs and inconvenience for property owners, businesses, and residents. Throughout the duration of the NY Rising process, the Planning Committee and other concerned members of the Red Hook community have consistently voiced a strong desire to solve drainage problems, but the specifics of the nature, location, and frequency of the problems have not yet been clearly defined.

PROJECT OVERVIEW

Benefits

- Enhance the community's understanding of causes of reoccurring flooding following rain events;
- Help prioritize locations for drainage improvement projects;
- Provide the community with information/data to support requests and recommendations to agencies such as the NYC Department of Environmental Protection, property owners, and organizations working to improve drainage conditions in the neighborhood.

Considerations

- Identification of local champion/lead organization(s) to write Request(s) for Proposals and manage the study process
- Coordination with NYC Department of Environmental Protection, which maintains the city's sewer system

Cost

Option 1: TBD / Option 2: TBD

Costs are based on engineer experience with projects of similar scope and scale. Costs have not been adapted to specific local conditions and will likely vary as project is further developed/refined. Conceptual estimate of probable cost - not for reliance - work-in-progress.

Timeline

Option 1: 6 months / Option 2: TBD

What issues have people reported?

The maps below summarize complaints made to 311 regarding various drainage issues in Red Hook since Sandy. 311 is New York City's main source of government information and non-emergency services.

Red Hook

NY Rising Community Reconstruction Program

PRIORITY PROJECT CANDIDATE

Partner locally to provide financial assistance for housing and business retrofits

Housing

Economic Development

Project: Loan and/or grant fund administered through an existing local Community Development Financial Institution (CDFI) or other partner to provide loans and/or grants to Red Hook small businesses and homeowners/tenants seeking to implement resiliency upgrades, and to entrepreneurs seeking to start micro-businesses.

Rationale: Red Hook residents unable to acquire loans and/or grants from traditional banks need access to local financial alternatives. Currently there is no CDFI in the area that provides financial tools for resiliency and there is potentially interest in piloting resiliency loan and/or grant programs in Red Hook.

PROJECT OVERVIEW

Benefits

- **Risk Reduction** By providing businesses or homeowners the financing needed to undertake resiliency improvements, vulnerability is reduced
- **Economic Development** - Numerous economic benefits result including keeping businesses open and possibly reducing insurance premiums
- **Equity** - CDFIs are able to increase financial literacy and provide financing to a broader range of individuals thereby increasing equity

Considerations & Challenges

- Financial tools could include loan, micro-loan, matching grant program
- The lending rates and terms of a loan fund will depend on market conditions, the administering entity, the size of the loan, credit rate of the borrower, and other factors

Cost

$500K - $1M

According to industry leaders, a loan fund of this type would likely need to be seeded with approximately $500K initial loan pool. Such a pool could service approximately 10-35 buildings to take out loans from $15K - $50K which could cover basic resiliency upgrades.

Timeline

1-2 years

TECHNICAL CONSIDERATIONS

Basic Resiliency Improvements

A wide range of improvements can be used to improve the resiliency of homes and businesses. Options range in cost and optimal interventions vary widely depending on building use, location, construction, and other elements. Possible low-cost interventions include:

Dry flood-proof basement

Approx. Cost: $500 - $10,000*

*Estimate from SBIDC report and FEMA memo

Deployable flood barrier

Approx. Cost: $1K - $4K per door*

*Estimate from Presray, varies by door size

Elevate mechanical systems

Approx. Cost: $500 - $2K

* Assumes simple elevation of equipment on platform

Possible loan fund recipients

Homeowners

Approx. **610 owner-occupied housing units***

Renters

Approx. **4,690 rental units***

Small businesses

Approx. **50-60 retail/food/trade** businesses**

Approx. **120 manufacturing/ warehousing** businesses***

Entrepreneurs/ Micro-businesses

Approx. **9,400 people** over age of 18*

* 2010 US Census Bureau
** Based on Quarterly Census of Employment and Wages, Dept. of Labor 2011 and SBIDC estimates.
*** Based on Quarterly Census of Employment and Wages, Dept. of Labor 2011. Includes transportation and wholesale trade, and excludes construction & waste services

Red Hook

NY Rising Community Reconstruction Program

PRIORITY PROJECT CANDIDATE

Solar-powered emergency lights for Red Hook Houses stairwells

Infrastructure Systems

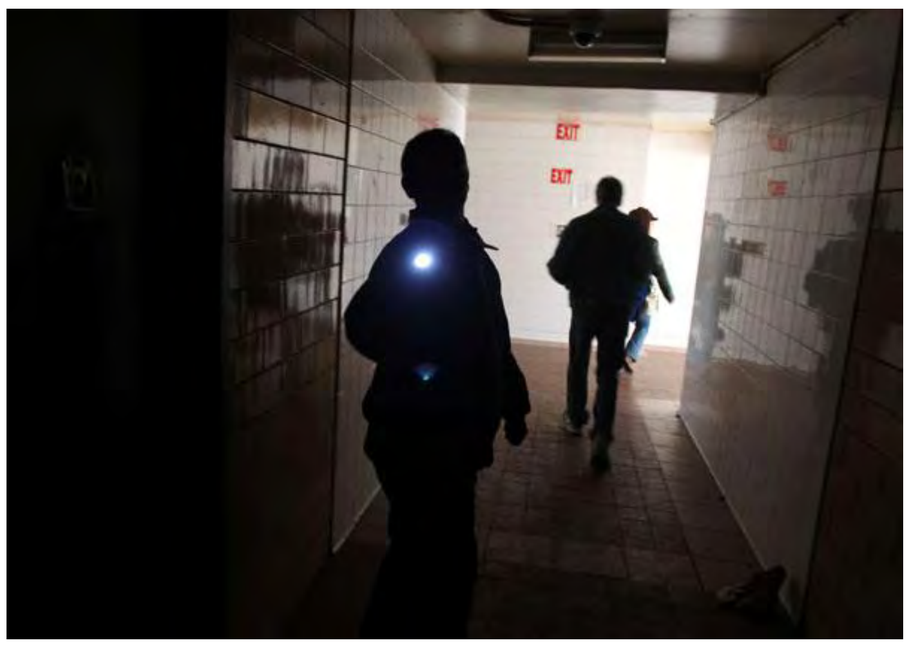
Housing

Project Description: This project would purchase and install solar panels (with backup batteries) on the roofs of Red Hook Houses buildings to provide an alternative power source for the stairwell lights in the event of an emergency that results in a power outage.

Background/Rationale: Following Superstorm Sandy, the Red Hook Houses were afflicted by prolonged power outages, and lack of light in the stairwells amounted to a safety issue for residents. NYCHA provided lanterns in the stairwells, but many were removed. In the future, the provision of a resilient power source for lighting of shared spaces at the Red Hook Houses will be critical in an emergency for both evacuation and returning to life as normal.

Prolonged Power Outages in the Red Hook Houses Following Sandy

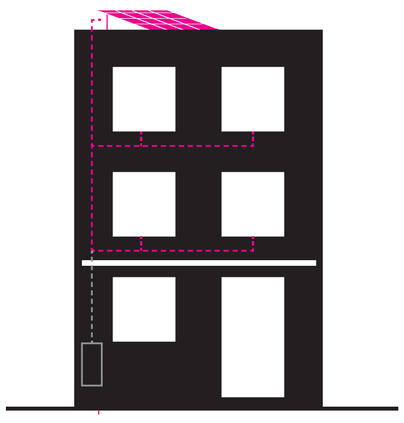
More than a week after Superstorm Sandy, the Red Hook Houses development was still without power because the utility companies could not restore electricity until NYCHA staff finished pumping out water from the flooded basements. As a result, many Red Hook Houses tenants were faced with the dangerous task of navigating unlit stairwells—or stairwells temporarily mitigated with lanterns—using flashlights for days.



Source: http://www.nydailynews.com/new-york/brooklyn/nycha-tenants-struggle-survive-heat-water-post-sandy-article-1.1196965

A Resilient Alternative During Emergencies: Solar-Powered Stairwell Lights

Solar-powered emergency lights for the Red Hook Houses stairwells would enable residents to safely make their way through the buildings in the event of a widespread power outage. The lights would retain the benefit of using grid power during normal operations, with the added benefit of being able to continue functioning if the grid goes out.



Source:
(above) http://money.cnn.com/2011/07/25/technology/solar-new-york/
(right) http://blogs.scientificamerican.com/solar-at-home/2013/03/18/should-you-add-backup-batteries-to-your-grid-tied-solar-array/

An Important Consideration: Battery Backup Power for Solar Panels

There are several components of solar power: a panel for generation; a connection to grid; smart inverters; a meter; a fossil generator for hybrid system; and, importantly, a battery for storage and smoothing fluctuation. The cost of the necessary backup battery depends upon not only the instantaneous load for powering the stairwell lights, but also the number of hours that the lights would remain on in a given day. The use of motion sensors could reduce the cost of the backup battery.

PROJECT OVERVIEW

Benefits

If implemented, the proposed project could result in:

- **Risk Reduction Benefits** – Decreased vulnerability to power loss for Red Hook Houses stairwells.
- **Economic Benefits** – Job creation (and training) for solar panel installation, operations, and maintenance.
- **Environmental Benefits** – Use of a renewable, clean, and efficient energy source.
- **Health and Social Benefits** – Serving a socially-vulnerable population.

Considerations

- Space requirements for panel siting
- Protection of outdoor equipment during/after a storm
- Upgrades to existing electrical equipment
- Battery backup system size and (protected) location
- Energy efficiency measures: type of lightbulbs (i.e., incandescent, linear fluorescent, LED); use of motion sensors
- Regulatory/agency review requirements: NYCDOB permitting; FDNY space restrictions; Con Edison/National Grid coordination; Bureau of Electrical Control (BEC) coordination

Cost

Approx. $20,000/building*

Assumptions:

- Representative 6-story building with 3 stairwells
- 20W/light (linear fluorescent)
- $5/W for solar panels
- $1,000/kwh for backup battery
- Backup battery would power the solar panels for 12 hours

*Includes cost of solar panels and backup battery; based on engineer experience with projects of similar scope and scale. Costs have not been adapted to specific local conditions and will likely vary as the project is further developed/refined. Conceptual estimate of probable cost—not for reliance

Timeline

6 months - 1 year

Red Hook

NY Rising Community Reconstruction Program

PRIORITY PROJECT CANDIDATE

Emergency back-up generators

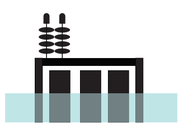
Infrastructure Systems

Health and Social Services

Project Description: Purchase and install fixed generators for select health and social service providers in Red Hook. Potential locations for the generators include the Joseph P. Addabbo Family Health Center, one or several future resilience center(s) (i.e., a relief hub with satellite locations), and/or other sites identified.

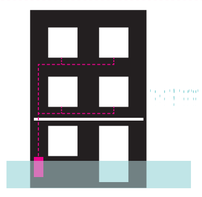
Background/Rationale: Power outage was a critical issue following Superstorm Sandy, which caused hardship for residents and businesses alike in the Red Hook community and slowed the pace of recovery. Permanent standby generators can provide a resilient power source for key facilities in the community during and after emergencies, providing back-up power in the event of larger grid failure.

Why Do We Need Back-up Generators?



Area substations around the city were knocked out of service as seawater from storm surge damaged equipment, rendering the substations inoperable and resulting in wide-spread power failure.

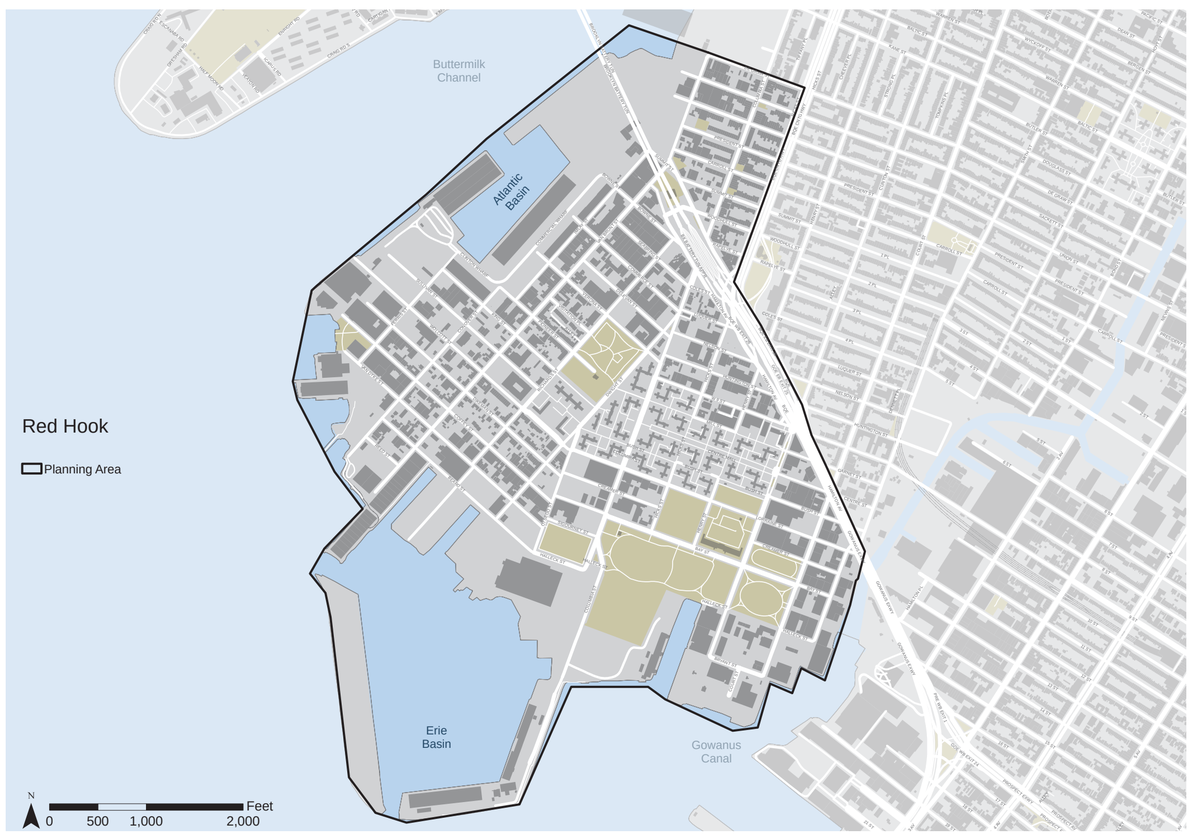
Toppled trees and intense winds damaged overhead powerlines.



Individual buildings electrical equipment was flooded by seawater, resulting in need for extensive repairs and prolonged outages.

Most electrical outages during Superstorm Sandy were caused by damage to the electricity distribution system.

Where do we need Back-up Generators?

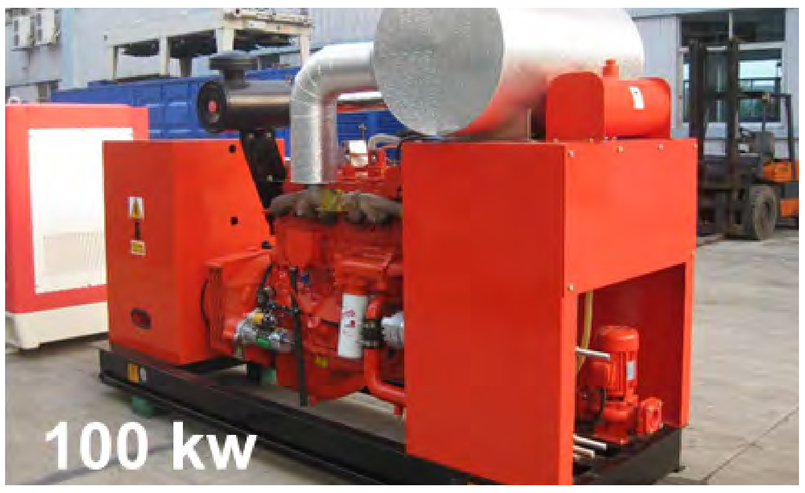


Example: The Joseph P. Addabbo Family Health Center

As a result of Sandy, the Joseph P. Addabbo Family Health Center—the only medical clinic in Red Hook—experienced significant damage, with the first floor and pharmacy destroyed by floodwaters. After slightly more than a week, the health center reopened, as staff received a shipment of medicines and supplies and they set up exam rooms on the second floor, but it would not have been possible without a temporary generator funded by Brooklyn Borough President Marty Markowitz. Power did not return to the health center and much of the surrounding neighborhood for several additional days.

What can it power?

This Generator...



Could Power...

a 10,000 SF building
(e.g., The Red Hook Public Library)

- Lighting (1.2 W/SF)
- Cooling (6 W/SF)
- Miscellaneous (3 W/SF)
  - Cooking
  - Cell Phones
  - Water Pressure Pumps
  - Sump Pumps

PROJECT OVERVIEW

Benefits

If funded, this project could result in:

- **Risk Reduction Benefits** - Decreasing the vulnerability to power loss in buildings where the generators will be installed
- **Economic Benefits** - Job creation (and training) for ongoing maintenance of the generators
- **Environmental Benefits** - Clean energy source if hybrid/dual generators are purchased that include solar power in addition to another fuel source
- **Health and Social Benefits** - Ensuring that select health and social service providers have backup power to continue offering services during and after emergencies

Considerations

The following factors should be considered in selecting the right backup generator for your location and activity:

- Size of building/space needed to power during an emergency
- What/how much you need to power: The activities and uses to accommodate during an emergency
- Number of people to accommodate during emergency
- Fuel sources available
- Age and current kilowatt load of building
- Space available for generator and fuel storage

Cost

Approx. $200,000 (for 100 kw generator)

Cost is approximate and includes generator and installation. Actual installed cost would vary depending on site- and building-specific conditions. Conceptual estimate of probable cost—not for reliance—work-in-progress.

Timeline

Less than 6 months

If funded, the proposed purchase and installation of generators could take place as soon as the specifications are defined for the identified buildings.

Red Hook

NY Rising Community Reconstruction Program

PRIORITY PROJECT CANDIDATE

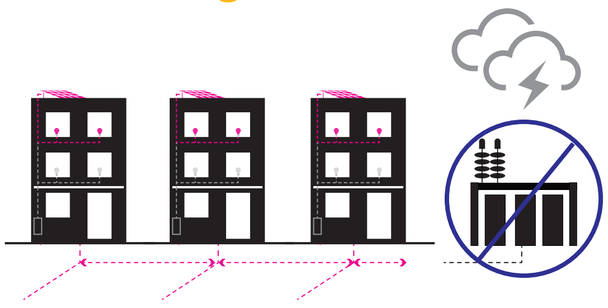
Red Hook Houses microgrid/cogeneration feasibility study

Infrastructure Systems | Housing

Project Description: Evaluate the suitability of creating a microgrid powered by a local energy source to ensure power resiliency for the Red Hook Houses property. The expected outcome of the study is a detailed cost estimate and site identification for a cogeneration/solar/wind facility to serve the Red Hook Houses, as well as an assessment of the feasibility of establishing a microgrid tie-in to the electric distribution system.

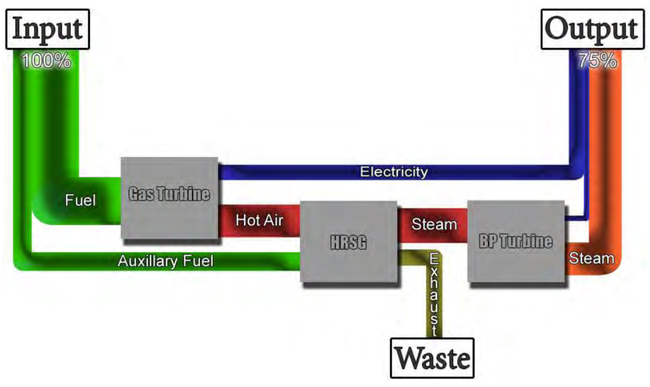
Background/Rationale: The Red Hook Houses suffered prolonged power loss following Superstorm Sandy due to disturbances to the regional power distribution system and vulnerability of on-site equipment to flooding. Pending the findings of the proposed feasibility study, a microgrid with cogeneration could enable the Red Hook Houses to continue having power in the event of an emergency that compromises the electrical grid.

What is a Microgrid?



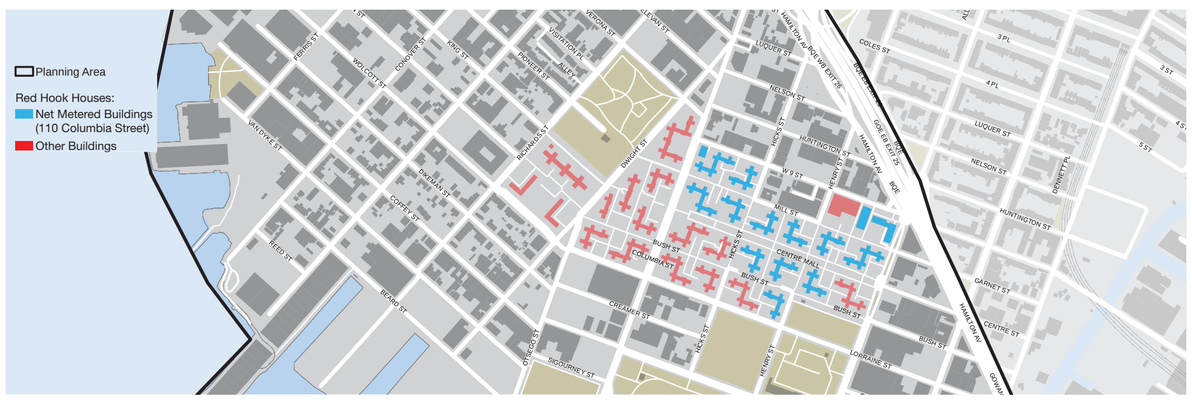
A microgrid is a small portion of the larger electrical grid that can be disconnected from the rest of the grid during an emergency, provided there is enough local power generation to meet necessary loads. The microgrid can therefore act as a self-sufficient unit when the larger grid is compromised.

What is Cogeneration?



The most established and commonly used power source for a microgrid is cogeneration, which uses a fossil fuel-powered engine to simultaneously produce electricity and heat. This is more efficient than purchasing grid power and natural gas/oil separately.

Cogeneration in Red Hook?



The NYCHA Red Hook Houses development is potentially a strong candidate for the implementation of cogeneration, as 16 individual buildings within the development are metered as a single unit (i.e., 110 Columbia Street, according to the NYC 2012 Energy and Water Data Disclosure), and the presence of net metering is an important siting consideration for cogeneration.

PROJECT OVERVIEW

Benefits

If implemented, cogeneration with a microgrid tie-in for the Red Hook Houses could result in:

- **Risk Reduction Benefits** – Decreased vulnerability to power loss for Red Hook Houses
- **Economic Benefits** – Job creation (and training) for cogeneration facility operations/maintenance; financial savings for New York City Housing Authority (NYCHA) due to possible lower power costs for cogeneration; revenue generation for NYCHA through sale of excess power back to utilities
- **Environmental Benefits** – Increased energy efficiency through the use of cogeneration
- **Health and Social Benefits** – Serving a socially vulnerable population

Considerations

The proposed feasibility study would analyze:

- Site suitability assessment for microgrid
- Existing rates of electric and gas
- Preliminary sizing of equipment for cogeneration
- Potential role of alternative energy (solar/wind)
- Detailed cost estimate
- Feasibility of establishing microgrid tie-in to the electric distribution system
- Locations/site identification for cogeneration facility

Cost

$300,000

*Based on engineer experience with projects of similar scope and scale. Conceptual estimate of probable cost—not for reliance—work-in-progress

Timeline

6 months – 1 year

If funded, the proposed study could be completed within one year, at which time the focus could shift to potential implementation, pending the findings from the study.

Precedents

Starrett City (Spring Creek Towers)

Source: http://bklynr.com/the-lesson-of-starrett-city/

The development, which contains nearly 6,000 apartments and was developed under the Mitchell-Lama Housing Program to provide affordable apartments to middle-income residents, has a cogeneration facility.

The Rochdale Village Housing Complex

Source: http://www.rochdalevillage.com/powerplant.html

This complex, comprising 20 buildings in southeastern Queens, similarly has a cogeneration facility that generates power for the entire development.

Red Hook

NY Rising Community Reconstruction Program

PRIORITY PROJECT CANDIDATE

Network of resilient community centers

Community Planning & Capacity Building

Health & Human Services

Project:

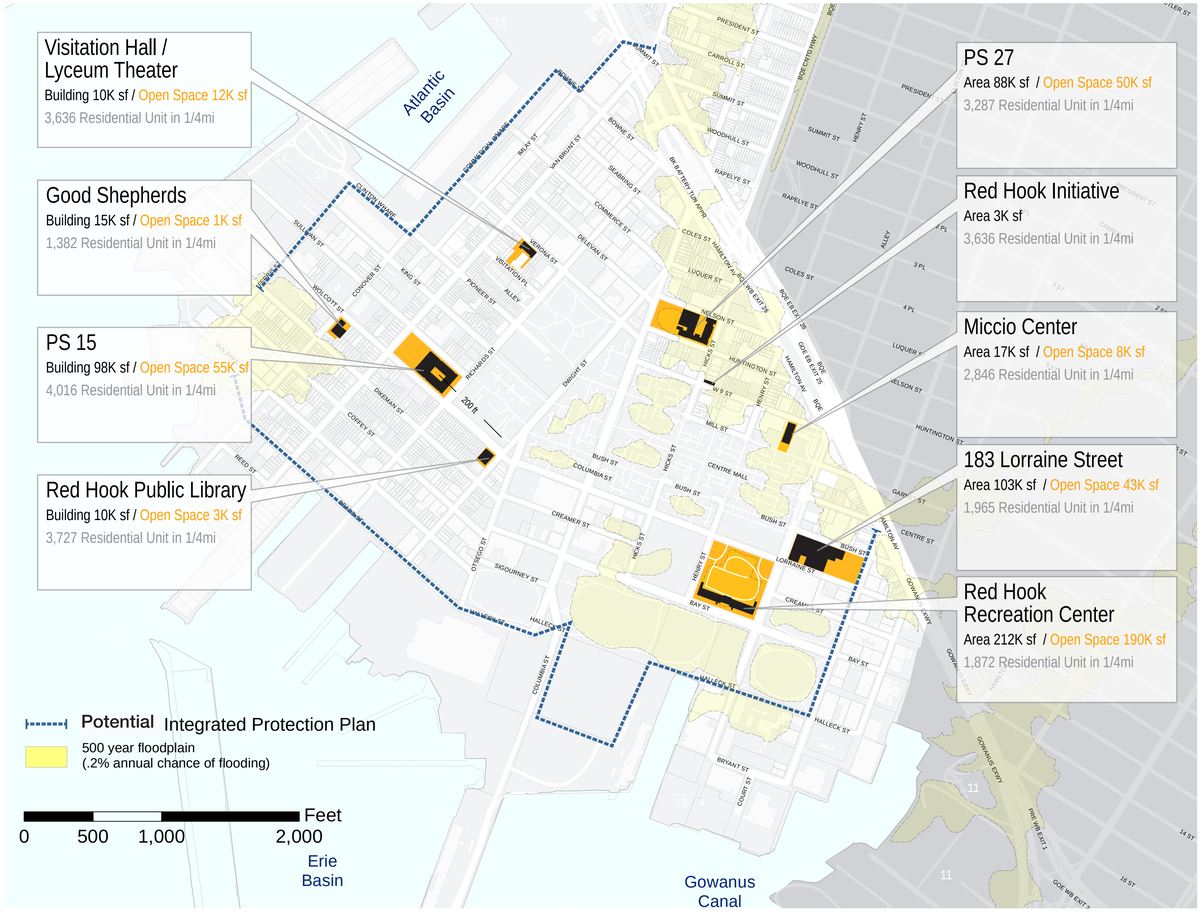
Establish a network of resilient community centers in Red Hook. Funds would go toward hardening 2-4 existing centers to ensure their resilience, and equipping them to provide relief after an emergency. Sites would be selected based on defined criteria including building capacity, organizational capacity, proposed services, and potential to provide a cohesive network of support in conjunction with other selected sites and with evolving emergency preparedness plans for Red Hook.

Rationale:

In conjunction with emergency preparedness planning, it is essential that entities responsible for providing required services be clearly defined and supported. A resilient community center network could balance the need for service redundancy at multiple locations while avoiding duplication of programs and efforts.

Illustrative resilient community center locations

Actual siting to be determined through solicitation process



Selection Criteria:

Required Improvements/ Program Components

Community centers participating in the resiliency/relief network would implement a set of required programs and may be able to use a percentage of funds for a set of discretionary resiliency programs as well

Possible required components across all sites:

- Back-up generator
- Electricity, heat/AC, light, charging stations
- Flood-proof and resiliency improvements to the facility
- First aid supplies
- Identified staff person to coordinate relief efforts
- Restrooms (and potentially showers)

Ideas for discretionary programming, differing by site:

- Creation and management of signage system to communicate during emergencies
- Coordination with Red Hook Initiative WiFi Network to ensure internet access and education maintained
- Coordination of health services resources
- One center to serve as central coordination hub

PROJECT OVERVIEW

Benefits

Community Capacity: By developing a coordinated and decentralized resiliency network, the capacity and resiliency of organizations would be increased

Risk Reduction: A resilient community center network would provide services before and after emergency events that could serve the whole neighborhood, particularly benefitting vulnerable populations

Cost

$1M - $3M*

Illustrative building upgrade costs per site:

Gas-powered generator: ~$200K+

Solar-powered battery: ~$45K+

Flood barrier for doors: ~$10K+

* Based on approximate costs for 2-4 sites. Costs for resiliency interventions and programming highly variable. Estimates above based on a 10,000 SF building. Installation costs are not included. Centers likely to have additional resiliency components. Additional details on generators included on "Emergency Back-up Generators" Board.

Timeline

2 - 3 years

PRIORITY PROJECT CANDIDATE

Ferry enhancements

Infrastructure Systems

Project Description: Enhance water-based transportation options for Red Hook through (one or both):

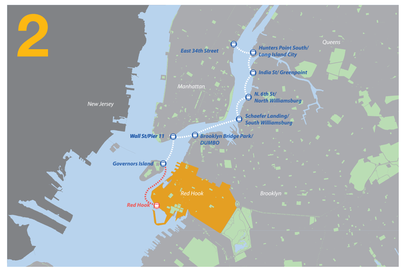
A. Ferry service enhancements: contribute to an operating subsidy to bring regular commuter ferry service to Red Hook.

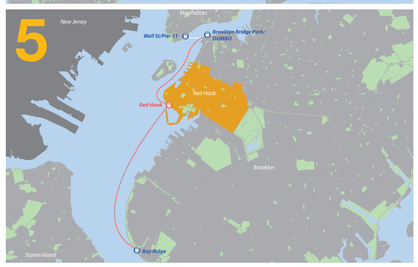
B. A new ferry landing at Atlantic Basin.

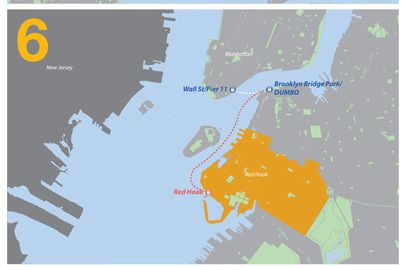
Background/Rationale: Enhanced passenger ferry service would add necessary redundancy to the transportation system by providing an additional modal option for travelers—a vital resource during and after emergencies should other transportation modes be compromised. More-frequent ferry service would also support access to job opportunities for Red Hook residents, aiding in the long-term recovery of Red Hook.

Route Options

1. Add morning service to IKEA route
2. Extend the East River Ferry to Red Hook
3. Add a stop in Red Hook on the existing Rockaways-Sunset Park-Manhattan route
4. Break the current Rockaway route into a Rockaways-Manhattan route and a Sunset Park-Red Hook-Manhattan route
5. New route - NYCEDC Comprehensive Citywide Ferry Study, Route 1
6. New route - NYC EDC Comprehensive Citywide Ferry Study, Route 1b

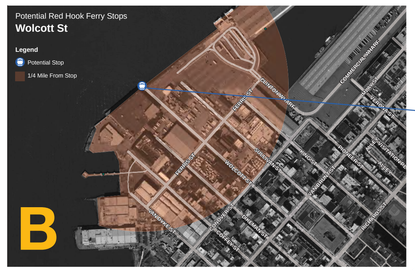


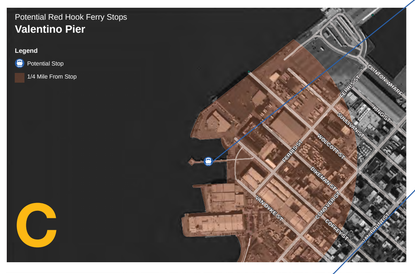


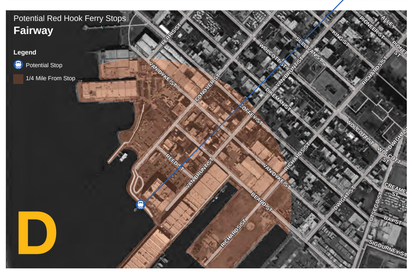


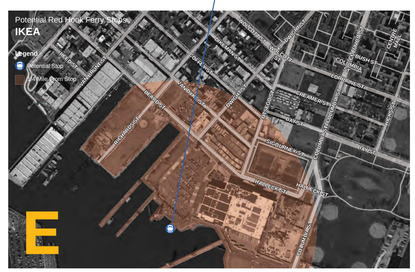
Landing Options

The Planning Committee has identified a number of potential landing options associated with the proposed ferry enhancements. The options include a range of locations and call for either using an existing landing as is, improving an existing landing, or constructing a new landing. The following graphics depict ¼-mile radii overlaid on aerials of the respective sites that have been suggested.









PROJECT OVERVIEW

Benefits

If implemented, this project could result in:

- **Risk Reduction Benefits** - Providing an additional evacuation and supply delivery option prior to and following disasters, thereby reducing vulnerability for the residents and workers of Red Hook.
- **Economic Benefits** - Reduced travel time for commutes to and from Red Hook; job creation for the operations and maintenance of ferries for enhanced service and/or the construction of a new ferry landing; contribution to the New York City Regional Economic Development Council's Strategic Plan, which cites ferry service as an important intra-city transit option.

Considerations

- Route options, including peak-period headways
- Landing options, including infrastructure needs
- Operating subsidy
- Ridership potential and market catchment area
- Acceptable fare

Cost

Route: varies by option Landing: $750K-$1M*

Capital and operations/maintenance costs vary by route/headway option, landing option, etc.

*Landing costs are for a 30x90' spuid barge with 50-60' of ramp. Costs exclude potential costs for ADA compliance and upland infrastructure improvements (shelters, benches, bike rack, and ticketing machines).

Conceptual estimate of probable cost - not for reliance - work-in-progress

Timeline

varies by option

Red Hook
NY Rising Community Reconstruction Plan

Have a Say ! Priority Projects Voting

Vote on which Priority Projects you think are the highest priority for funding

Green: Project(s) highly recommended for funding with CDBG-DR
Please take 3 green dots. Cast all 3 on one project, or spread 3 across multiple projects

Yellow: Project(s) you are neutral about funding with CDBG-DR
Please take 2 yellow dots. Cast 2 on one project or spread 2 across multiple projects

Red: Project that should not be funded with CDBG-DR
Please take 1 red dot if there is a project you do not support. If you suppport all, do not cast a vote.

Priority Projects Voting

	Resiliency construction workforce training		**Emergency back-up generators**
	Partner locally to provide financial assistance for housing and business retrofits		**Network of resilient community centers**
	Red Hook Houses microgrid/ cogeneration feasibility study		**Ferry enhancements**
	Solar-powered emergency lights for Red Hook Houses stairwells		**Drainage study**

Comments? Thoughts?

Do you have comments on the proposed Priority Projects, the Additional Resiliency Recommendations, or even the original list of 90+ potential projects generated from past public and Committee meetings?
Please share your thoughts with us below!