



Southeast Brooklyn Waterfront Planning Committee Meeting #6

October 15, 2014

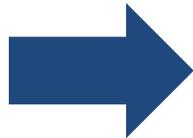
Agenda for Planning Committee Meeting #6

1. **Preliminary project and recommendation list** **7:00-7:20pm**
2. **Review of preliminary projects** **7:20-8:20pm**
 - Coastal Protection
 - Power
 - Drainage and Stormwater Management
3. **Project brainstorming** **8:20-8:50pm**
 - Housing
 - Economic Development
4. **Next steps** **8:50-9:00pm**

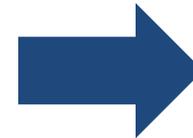
Project development and voting

Step #1: Develop and confirm list of projects

Information
around project
concepts and
considerations



Follow-up with
additional research,
based on Committee
feedback

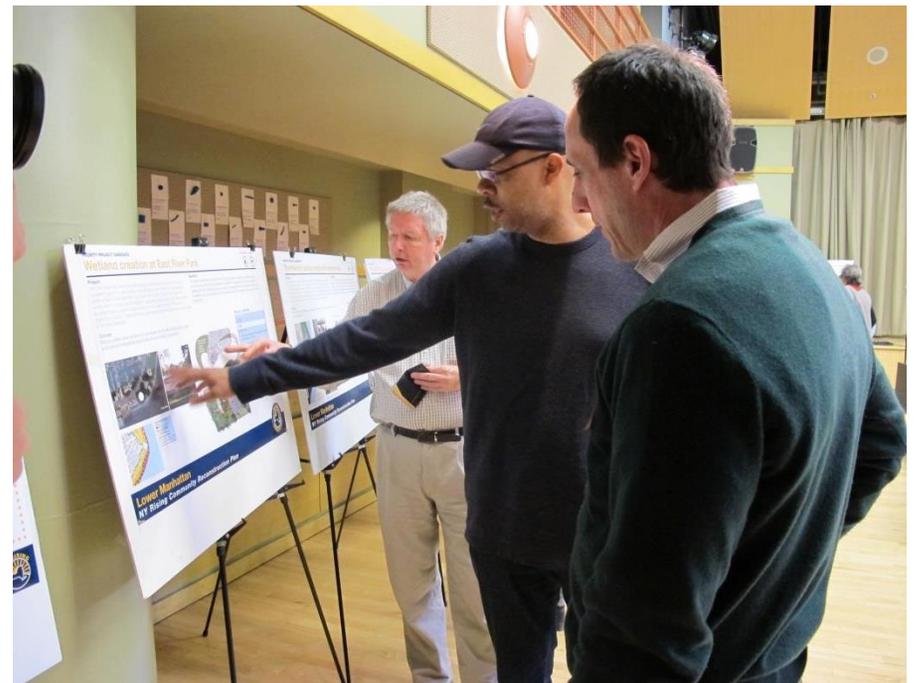
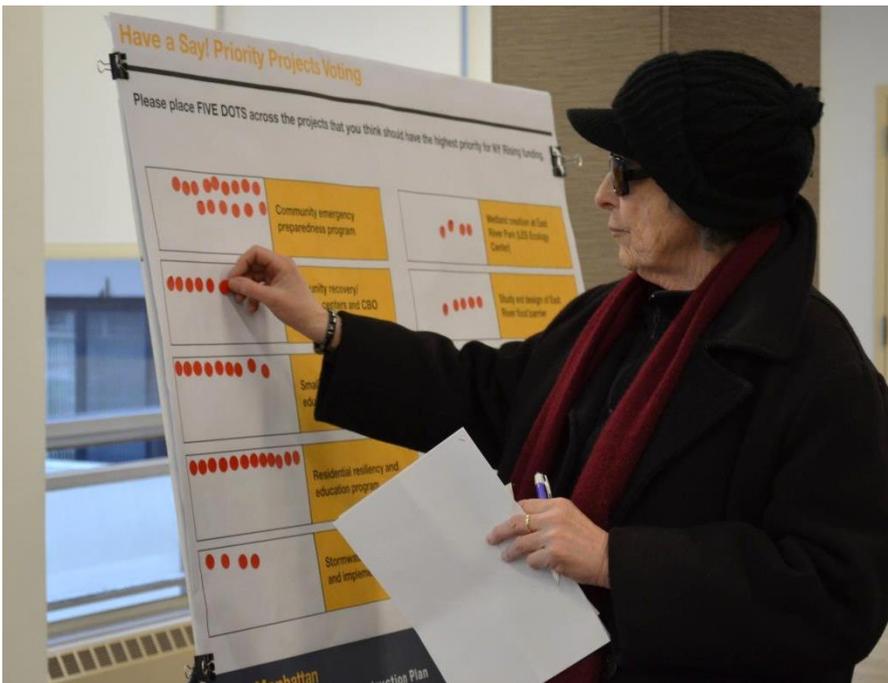


Finalize list of
project ideas to
be presented to
the public at PE#3

Project development and voting

Step #2: Present projects to the public at PE#3

PE#3 Event from NYRCR Round I



Project development and voting

Step #3: Committee votes on projects to propose for CDBG-DR funding

Sample ballot from NYRCR Round I Community



**Rockaway West
Community Reconstruction Plan
Ballot**

This is your ballot for the submission of priority projects to New York State. Please select yes, no or abstain for every project, save the document, and see kmatheny@hraadvisors.com, bcalabrese@hraadvisors.com, cmuller@stormrecovery.ny.gov

YES/NO/ABSTAIN	PROJECT	BRIEF DESCRIPTION
	(A) Implement Targeted Coastal Protection at Beach 88th Street	Capital costs for raised bulkhead, wetland restoration, and floodwalls/berms
	(B) Drainage Projects	Capital costs for 50 bioswales
	(C) Create Rockaway West Relief Center Hub(s)	Capital hardening costs and programming expenses for two years
	(D) Create Rockaway West Relief Satellites	Capital hardening costs and programming expenses for two years
	(E) Support Long-Term Ferry Operations	Operating expenses for two years (subject to revision)
	(F) Create a Rockaway Bike Share Program	Capital hardening costs and programming expenses for two years
	(G) Create Bus Circulator Service	Operating expenses for two years (subject to revision)
	(H) Streetscape Improvements at B108th Street & Beach Channel Drive	Capital hardening costs and programming expenses for two years
	(I) Build Harbor Park at B108th Street	Joint study with Five Towns to study road improvements along Rt. 878
	(J) Support National Grid Site Redevelopment	Operations expenses for workforce development programs, including emergency preparedness training
	(K) Issue RFP for Expansion of Health Services	Capital costs for infrastructure and two years of operating costs

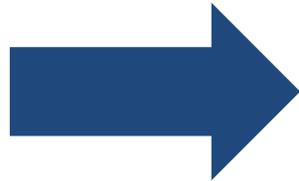
Project development and voting schedule

**Develop and
confirm list of
projects**

PC #6: 10/15
(Coastal Protection,
Power, Drainage and
Stormwater
Management)

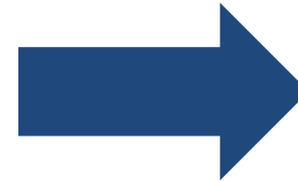
PC #7: 10/29
(Emergency
Preparedness and
Response, Housing,
Economic Development)

PC #8?: 11/5?



**Present
projects to
public**

PE #3: 11/12



**Committee
votes on
projects**

PC #9: 11/19

Preliminary projects and recommendations

Coastal Protection

1. Bergen Beach Integrated 100-Year Flood Protection
2. Bergen Beach Coastal Restoration
3. Avenue U Integrated Flood Protection
4. Assessment of Impacts of New or Upcoming Area Projects
5. USACE-Local Coastal Protection (Recommendation)

Drainage and Stormwater Management

1. Stormwater Capture Pilot Project(s)
2. Bergen Beach Stormwater Retention System
3. Assessment of Area Sewer System and Improvements (Recommendation)

Other (Natural and Cultural Resources)

1. Resilient Street Tree Plan

Preliminary projects and recommendations

Power

1. Alternative Power Hotspot
2. Hardening of Area Infrastructure (Recommendation)

Emergency Preparedness and Response

1. Community Emergency Preparedness Education Program
2. Resource/Recovery Center Program
3. Critical Facility Generator Funding Program
4. High Tide / Surge Warning System (Project or Recommendation)
5. Emergency Transportation Plan (Recommendation)

Residential Resiliency

1. Residential Resiliency Audit Program (Project or Recommendation)

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COASTAL PROTECTION

An aerial photograph showing a coastal area. On the left, a multi-lane highway runs parallel to a body of water. To the right of the highway is a large green sports complex with several baseball fields and a tennis court. Further right is a dense residential neighborhood with many houses. The foreground is dominated by a large, irregularly shaped green field with several orange-colored baseball diamonds. The background shows a wide expanse of water and a distant shoreline under a clear sky.

Strategy: Reduce neighborhood flooding through stabilizing the coastal edge, discouraging development at at-risk locations, and mitigating any potential negative impacts of new projects.

Project #1: Bergen Beach Integrated 100-Year Surge Protection

PROTECTION FROM A 100 YEAR STORM SURGE - ALIGNMENT 1



Surge Protection

- Berm
- Raise Bulkheads / Floodwalls

Level of Protection

- 100 year floodplain
- Protected from surge (100 year storm event)

Protects to elevation of 12' NAVD88

- 1% annual chance of storm event + 1' freeboard

Includes:

- 4,300 linear feet of floodwalls
- 7,000 linear feet of berms
- Stormwater retention/detention areas

Would require:

- Private property acquisition or easements (approx. 25+)
- Pumps to remove water in case of overtopping

Note: All numbers approximate.

Project #1: Bergen Beach Integrated 100-Year Surge Protection

PROTECTION FROM A 100 YEAR STORM SURGE - ALIGNMENT 2



Surge Protection

- Berm
- Floodwalls + Deployables

Level of Protection

- 100 year floodplain
- Protected from surge (100 year storm event)

Protects to elevation of 12' NAVD88

- 1% annual chance of storm event + 1' freeboard

Includes:

- 4,000 linear feet of floodwalls + deployables
- 7,000 linear feet of berms
- Stormwater retention/detention areas

Would require:

- Storage, maintenance, and labor to deploy walls before a storm event
- Pumps to remove water in case of overtopping

Note: all numbers approximate.

Project #2: Bergen Beach Coastal Restoration

BERGEN BEACH SHORELINE RESTORATION / STABILIZATION
ADDRESSING VULNERABILITY TO SEA LEVEL RISE AND FREQUENT STORM EVENTS



Existing conditions



Project #2: Bergen Beach Coastal Restoration (cont'd.)

BERGEN BEACH SHORELINE RESTORATION / STABILIZATION
ADDRESSING VULNERABILITY TO SEA LEVEL RISE AND FREQUENT STORM EVENTS



Existing conditions



Potential project

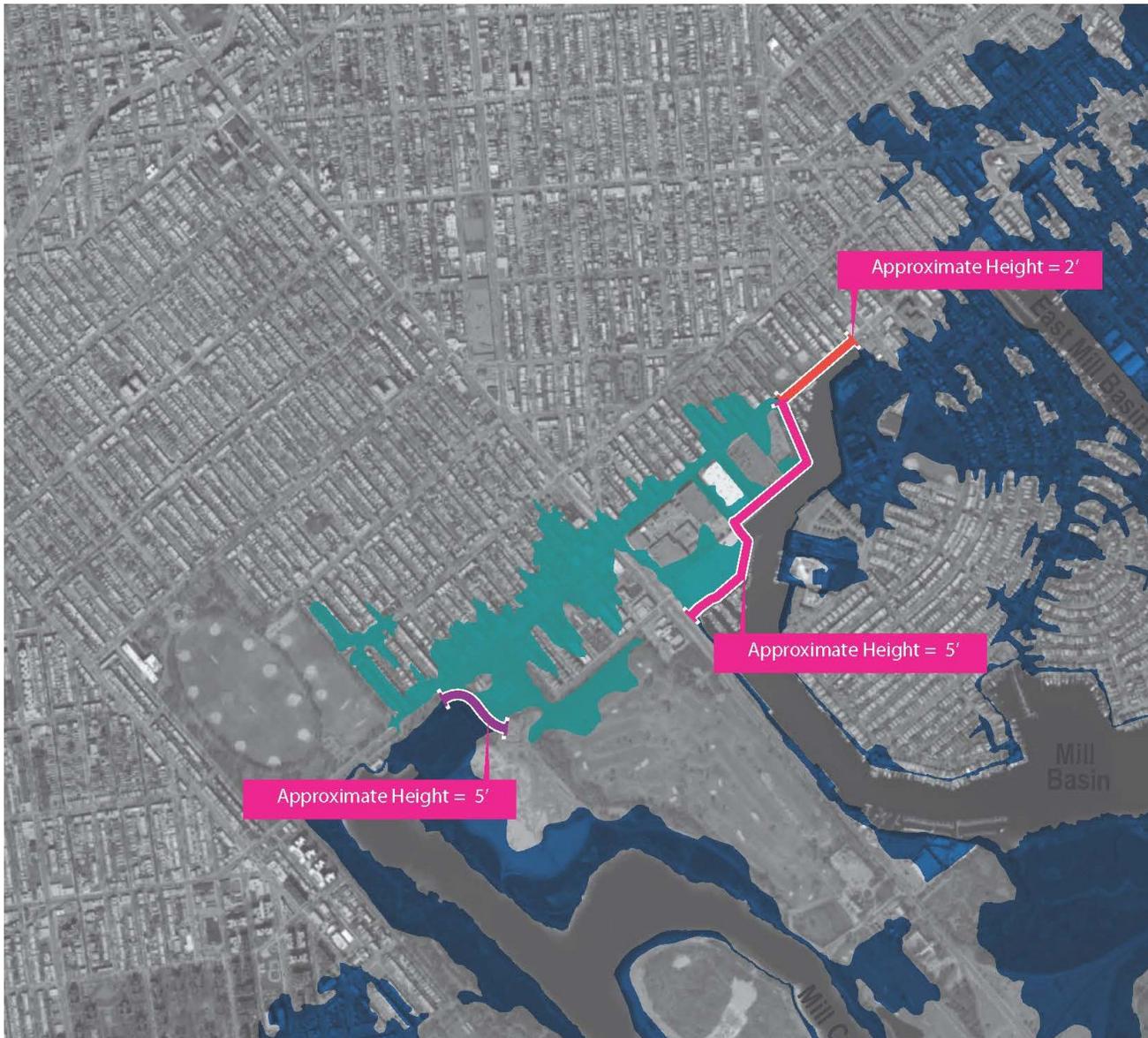


Project #2: Bergen Beach Coastal Restoration (cont'd.)

BERGEN BEACH SHORELINE RESTORATION / STABILIZATION PRECEDENTS



Project #3: Avenue U Integrated Flood Protection



Surge Protection

- Berm
- Raise Bulkheads
- Floodwall & Living Shoreline

Level of Protection

- 100 year floodplain
- Protected from surge (100 year storm event)

Protects to elevation of 12' NAVD88

- 1% annual chance of storm event + 1' freeboard

Includes:

- 1,500 linear feet of floodwalls
- 1,200 linear feet of raised bulkhead
- 800 linear feet of living shoreline
- 700 linear feet of berms

Would potentially require:

- Private property acquisition or easements
- Deployable walls / gates at road crossings
- Pumps to remove water in case of overtopping

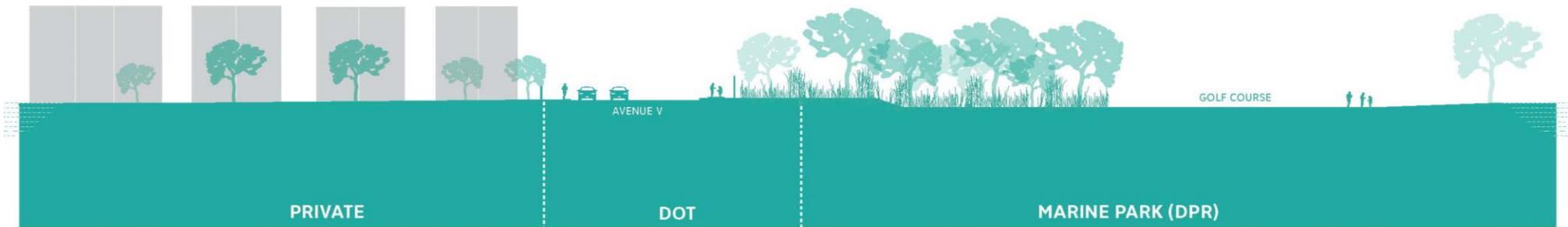
Note: all numbers approximate.

Project #3: Avenue U Integrated Flood Protection (cont'd.)

Marine Park location



Existing conditions



Project #3: Avenue U Integrated Flood Protection (cont'd.)

Marine Park location



Existing conditions



Potential project



Project #3: Avenue U Integrated Flood Protection (cont'd.)

Marine Park location



Existing conditions



Project #3: Avenue U Integrated Flood Protection (cont'd.)



Marine Park location

Existing conditions



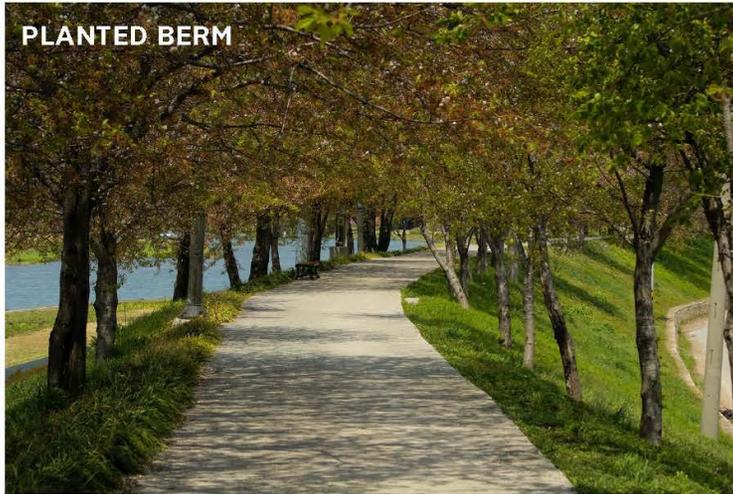
Potential project



Project #3: Avenue U Integrated Flood Protection (cont'd.)



AVE U FLOOD RISK REDUCTION MARINE PARK PRECEDENTS



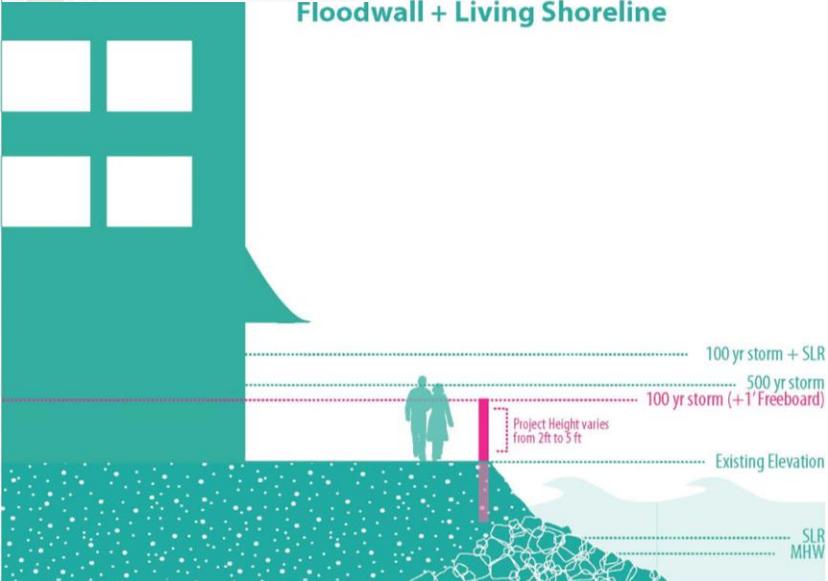
Project #3: Avenue U Integrated Flood Protection (cont'd.)

AVE U FLOOD RISK REDUCTION

100 YEAR STORM SURGE PROTECTION: KING'S PLAZA PROPOSED



Floodwall + Living Shoreline



Raised Bulkhead



Project #3: Avenue U Integrated Flood Protection (cont'd.)

AVE U FLOOD RISK REDUCTION KING'S PLAZA PRECEDENTS



Project #4: Assessment of Impacts of New or Upcoming Area Projects

Study by technical specialist to assess impacts of new / upcoming development projects, with focus on:

- Impacts to neighborhood flood risk
- Impacts to existing natural resources in Planning Area



POWER



Strategy: Make the power supply more resilient and redundant

Project: Alternative Power Hotspot

Potential components:

- Install **solar-powered lighting and cellphone charging stations** in parking lot of critical retailer
- Incorporate **stormwater capture “greening”** measures

What location criteria are most important? Could include:

- Outside of the floodplain (high- and extreme-risk zone)
- Large parking lot
- Home to critical retailer (e.g., supermarket)



Project: Alternative Power Hotspot

Potential sites could include:

- **Home Depot and Lowe's** on Avenue U
- **CVS or Duane Reade:** Ralph Ave. and E. 65th St. in Bergen Beach
- **Whitman Plaza and Georgetown Shopping Center** in Georgetown
- **Waldbaum's** on Flatbush in Marine Park



Recommendation: Hardening of Area Infrastructure

Ensure that Con Edison protects vulnerable substations within the Planning Area, as well as hardens all overhead power lines.

 Planning Area

Infrastructure Assets

 Infrastructure Systems Assets

 Belt Parkway

 Extent of High & Extreme Risk Areas
NYSDOS Risk Areas

 Moderate
 High
 Extreme

OUTSIDE OF THE PLANNING AREA:

18 GAS STATION (2773 NOSTRAND AVE)
 19 GAS STATION (2402 KNAPP ST)

- 1 GAS STATION
- 2 GAS STATION
- 3 GAS STATION
- 4 GAS STATION
- 5 GAS STATION
- 6 GAS STATION
- 7 GAS STATION
- 8 CON EDISON SUBSTATION**
- 9 CON EDISON SUBSTATION**
- 10 CON EDISON SUBSTATION**
- 11 BELT PARKWAY
- 12 FLATBUSH AVE BUS DEPOT (MTA)
- 13 MILL AVE SCHOOL BUS DEPOT
- 14 NYPD AIR OPERATIONS (FLOYD BENNETT FIELD)
- 15 PRIVATE BUS DEPOT (AMBOY)
- 16 STRICKLAND AVE SCHOOL DEPOT LOT
- 17 PAERDEGAT BASIN COMBINED SEWER OVERFLOW RETENTION CENTER



DRAINAGE AND STORMWATER MANAGEMENT



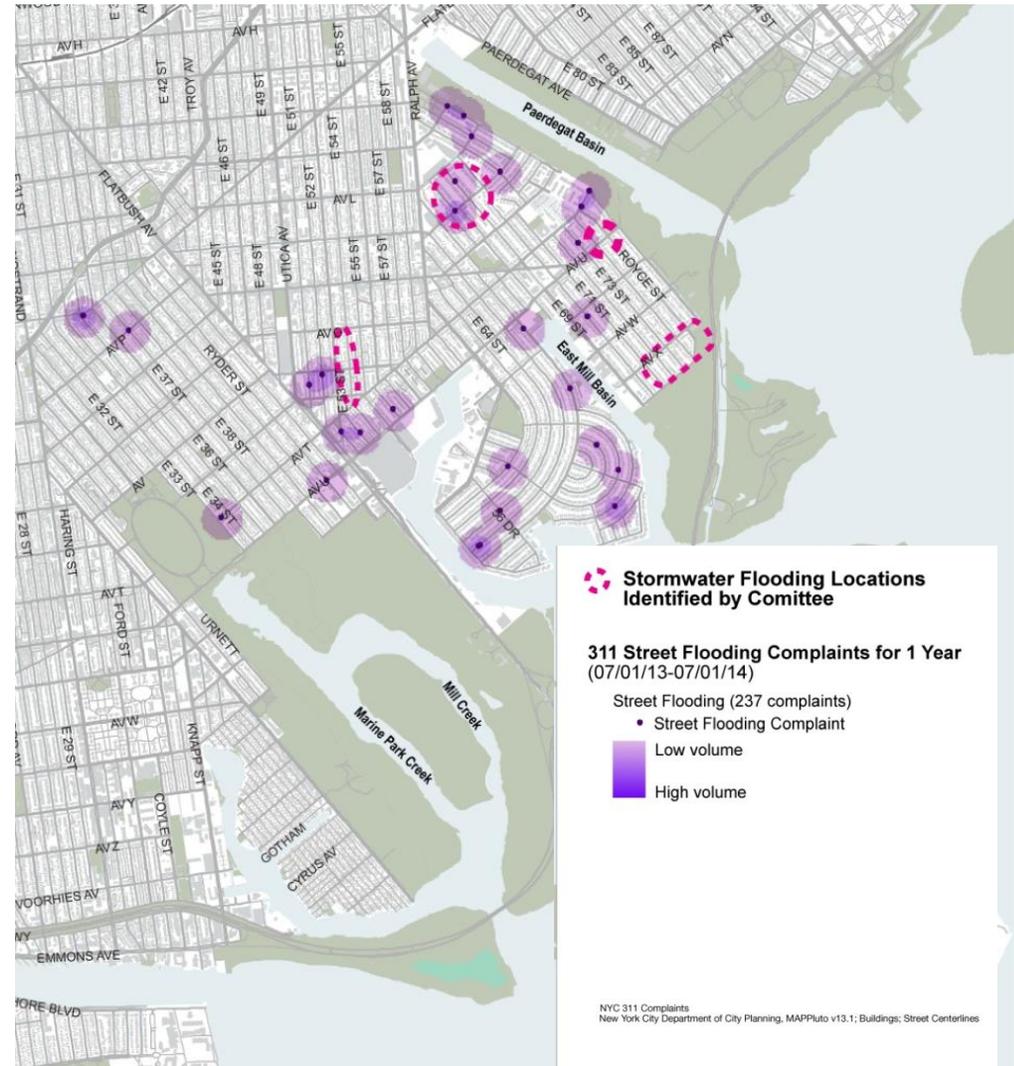
Strategy: Improve stormwater and wastewater management to prevent flooding and backup

Project #1: Stormwater Capture Pilot Project(s)

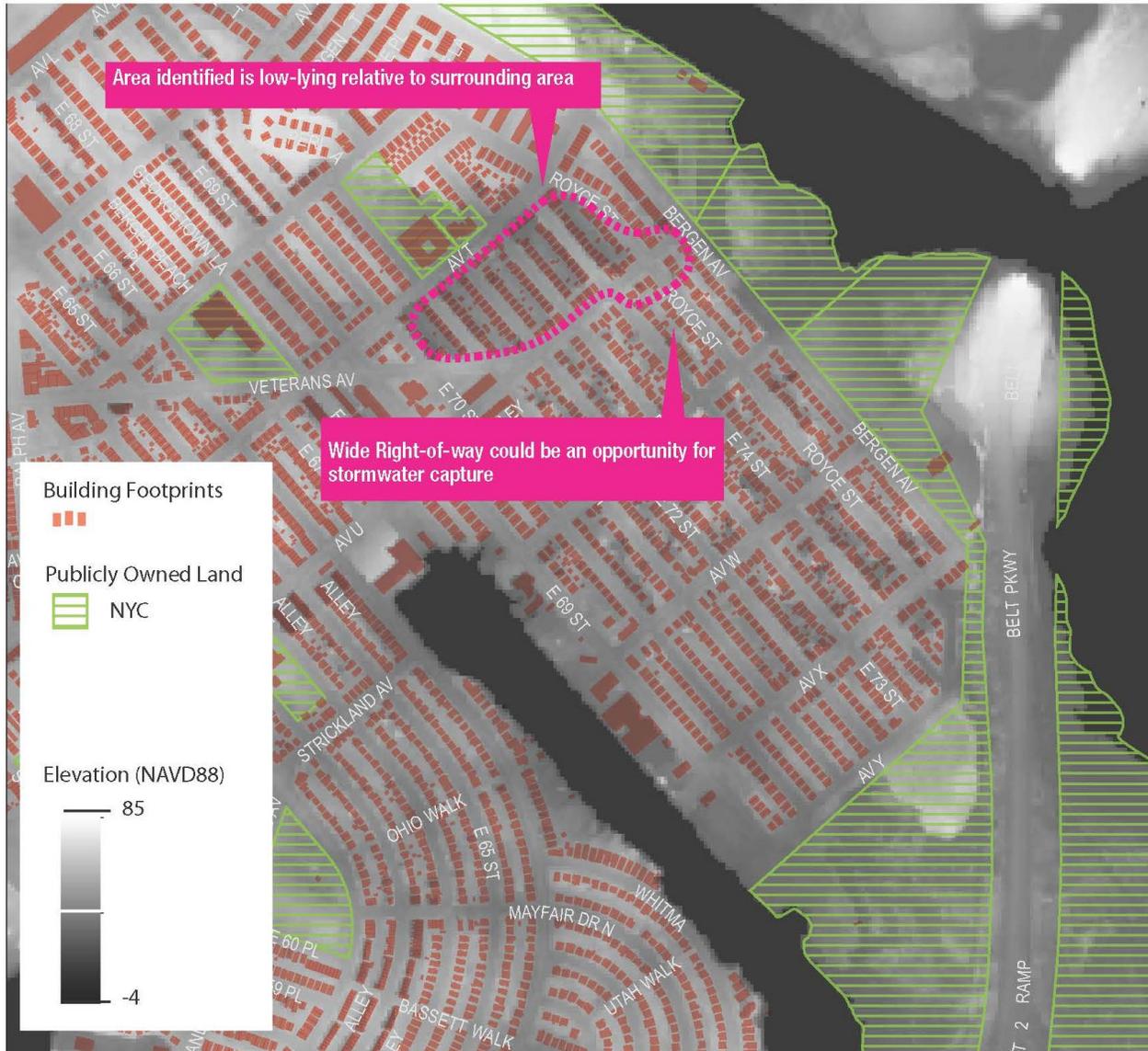
Reduce stormwater flooding at one or more targeted locations

Target most vulnerable location and/or location where intervention is most easily implementable

Pilot potentially replicable techniques which might include: bioswales, rain gardens, blue or green roofs, etc.



Project #1: Stormwater Capture Pilot Project(s)



Considerations

Coordination with NYC DEP, NYC DOT, and other agencies

Effectiveness of interventions

- Soil permeability
- Depth to groundwater
- Catchment area
- Effectiveness on a separated sewer system

Leveraging proximity of interventions to park / open space

Note: Stormwater capture interventions have no impact on depth of flooding for coastal storm surge. However, drainage improvements could improve the speed and efficiency of water draining after a storm event.



Project #1: Stormwater Capture Pilot Project(s)

PRECEDENTS



Church Avenue, Brooklyn
NYC DPR Stormwater Management Portfolio



Furmanville Avenue, Queens
NYC DPR Stormwater Management Portfolio



Seagirt Boulevard, Queens
NYC DPR Stormwater Management Portfolio



Seagirt Boulevard, Queens
NYC DPR Stormwater Management Portfolio



Sagamore Street, Bronx
NYC DPR Stormwater Management Portfolio



Parking lot retrofit, Scottsbluff, Nebraska
Nebraska H2O

Project #1: Stormwater Capture Pilot Project(s)

OTHER POSSIBLE TECHNIQUES FOR PUBLIC OR PRIVATE SITES

Subsurface systems

Considerations

- Opportunity for reducing runoff from parking lots and other large paved areas
- Restrictions / limitations on their use in some public areas (public Right-of-Way)
- The city has siting requirements for where and how systems can be located
- Site conditions such as soil permeability and depth to groundwater or bedrock will drive the effectiveness or feasibility of such techniques

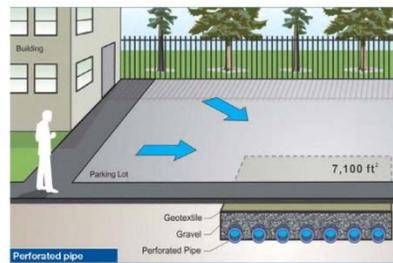


Figure 3-2: Construction of a perforated pipe system at NYCHA's Bronx River Houses in the Bronx.

Green Roofs & Blue Roofs

Considerations

- Opportunity for large roof areas
- May have minimal impact due to smaller volume of water captured

Examples



Project #2: Bergen Beach Stormwater Retention System

Opportunity

- Open space south of frequently-flooded area could be an opportunity to capture runoff
- Stormwater management could be integrated into restoration and park amenities

Considerations

- Need to understand the area / volume of runoff
- Need to understand site conditions (soil, groundwater, etc.) to determine feasibility and effectiveness of such a project
- Land is owned by NYC Parks, thus project would require their support and participation, as well as coordination with other agencies
- Need to consider / evaluate impacts on habitat including adjacent tidal wetland



Precedents and potential techniques

Permanent Pool Retention Pond (high groundwater leaves one to two feet of standing water at all times)



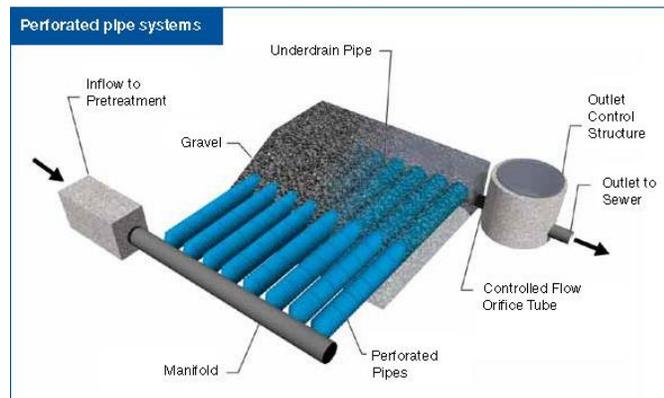
Freshwater Wetland in Canarsie Park (NYC DPR High Performance Landscape Guidelines)

Dry Retention Pond (water fully infiltrates after a severe rain event)

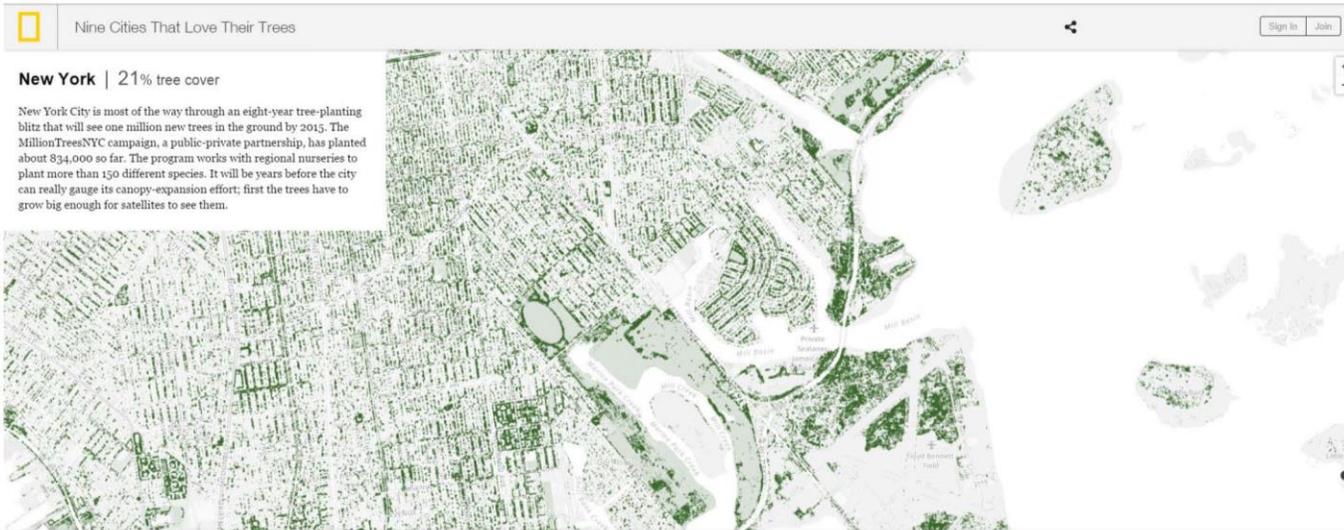


Pierce's Park, Baltimore

Underground retention system (open celled tanks or arches embedded in crushed rock)



Other Project: Resilient Tree Plan



Source: "Nine Cities That Love Their Trees," National Geographic, 2012

Observed / Reported Issues:

- Street trees (i.e “the urban forest”) are an important part of the community’s character
- Poorly maintained trees are a risk to safety and private and public infrastructure
- Existing trees may not be resilient to threats of climate change (street flooding, rising temperatures, etc)



Other Project: Resilient Tree Plan

Precedent: TreeKIT

TreeKIT builds tools to help city dwellers measure, map, and collaboratively manage urban ecosystems. The project is focused on high density urban areas where the links between human and non-human health are most clearly evident. Mapping street trees introduces people to the neighborly “charismatic megafloora” (AKA trees) living on their city block and quietly contributing many ecosystem services and raising property values. Through TreeKIT’s educational mapping workshops, we aim to promote long term stewardship of the urban forest, one tree at a time.



Leaders & Volunteers survey street trees at “community mapping parties”
Source: TreeKit



Data on the mapped Trees are added to an interactive online map.
Source: TreeKit

Precedent: Hudson River Watershed Tree Resource Resiliency Toolkit

Primer on climate impacts and resiliency strategies for tree species of the Huron River watershed. This toolkit was created to help land managers and decision makers...

- Understand how climate is changing locally in the Huron River Watershed
- Understand the implications of how this will affect our local forest and tree resources
- Learn what we can do about anticipated climate change impacts on our trees and manage these resources for climate resiliency

Description:

Tree survey to inventory and assess existing street trees and plan for creating and maintaining a more resilient urban forest.

Considerations:

- Coordination with NYC DPR (street tree census)
- A participatory survey could be an opportunity to engage and educate residents and stakeholders about what makes a resilient urban forest and street tree maintenance

Climate Resilient Communities

Trees of the Huron River Watershed in a Changing Climate

Red Maple *Acer rubrum*

Description
Red maple is one of the most widely distributed tree species in the Eastern US and is found in many types of forests and savannas in Michigan. It occurs on a broad range of sites. While historically it was primarily a wetland tree species, it is considered an aggressive colonizer of upland sites, responding well to disturbance. It has markedly increased in its range and abundance since the time of European settlement. It is moderately shade tolerant, sensitive to fire and moderately long-lived.

Change Maps for Red Maple!

Current Abundance Modeled Abundance- Modeled Abundance-

Climate Resilient Communities

Trees of the Huron River Watershed in a Changing Climate

White Oak *Quercus alba*

Description
White Oak is a very large, strong, long-lived tree. It is found throughout the lower peninsula of Michigan, however that is the northern limit of its range. White Oak is moderately shade tolerant but is poorly adapted to hard winter freezes. White Oak is found on a variety of well drained upland soils ranging from sandy to mesic. Oaks are among the tree species most valuable to wildlife due to the abundance of acorns that they produce which serve as a high quality food source.

Change Maps for White Oak!

Current Abundance Modeled Abundance- Modeled Abundance-

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 - **Housing**
 - **Economic Development**
4. Next steps 8:50-9:00pm

HOUSING



Strategy: Improve residential resiliency through **education, technical assistance, and funding**

Housing assets in the Planning Area



Housing Assets

- One and Two Family Residences in High and Extreme Risk Zones
- Multi-Family Walk-Up Buildings in High and Extreme Risk Zones

NYSDOS Risk Areas

- Moderate
- High
- Extreme

85% of housing stock is
1- or 2-family homes

Slightly more **attached single-family homes** than detached

Needs identified at PE#1 and PE#2

Information and technical assistance

- Recommendations on specific measures to enhance a home's resiliency
- Information on general best practices for homeowners

Funding for repairs and resiliency improvements

- Some funding to offset cost of repairs and resiliency upgrades

Information and technical assistance

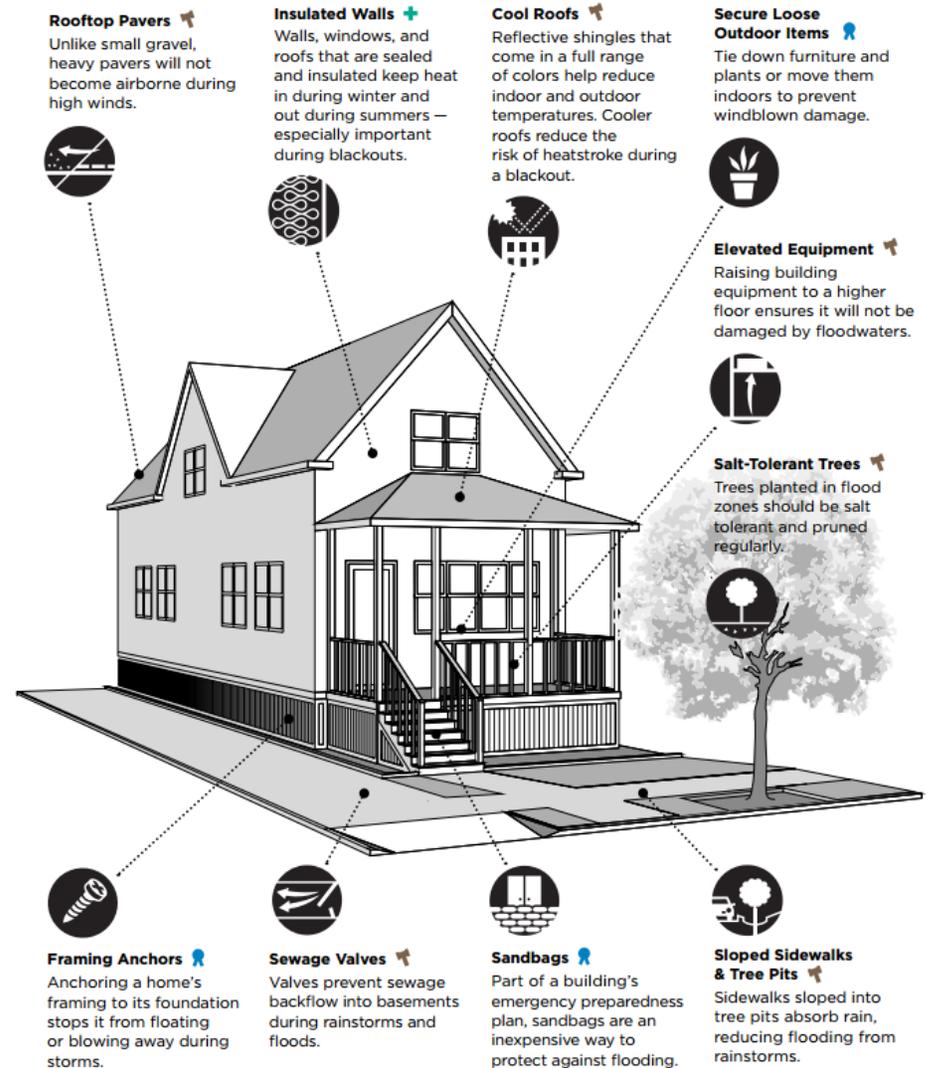
General information for residents around how to protect homes against flooding and backup, navigate existing programs

Resiliency audits that identify specific measures to enhance a home's resiliency

Discussion:

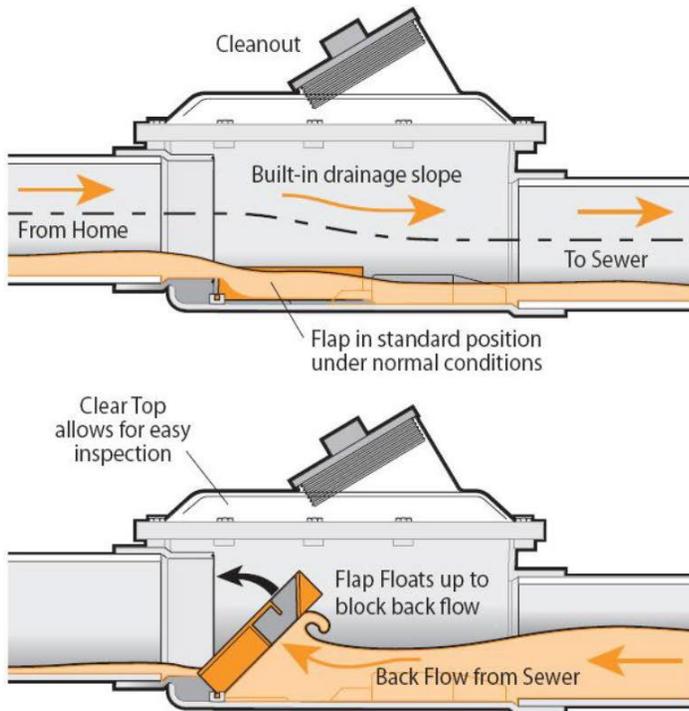
Where do residents currently receive information about repairs and improvements?

What information do homeowners most need?



Source: "Building Resiliency Task Force Report," Urban Green Council, <http://urbangreencouncil.org/content/projects/building-resiliency-task-force>

Information and technical assistance | Sample resiliency measures



Install check valves on stormwater and wastewater pipes

Note: depends on structure!



Connect rain barrel to roof leader to capture runoff before enters sewer



Behavioral changes

- Do not use water during storm
- Never pour cooking oil down drains

Information and technical assistance | Rising insurance premiums

National Flood Insurance Program (NFIP)

Three components: to provide flood insurance, floodplain management and flood hazard mapping

Recent rate hikes

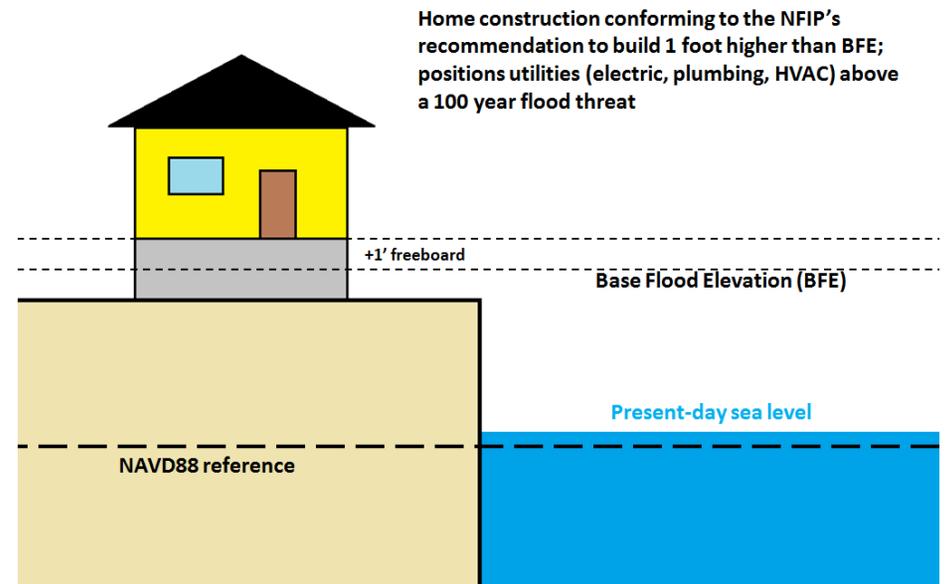
2012 NFIP reforms proposed to increase premiums – rates substantially higher for high risk, pre-FIRM structures

After Sandy, Homeowner Flood Insurance Affordability Act of 2014 repealed some provisions

Mitigating rate hikes

Raise building above flood elevation or fill in basement

Participate NFIP's Community Rating System

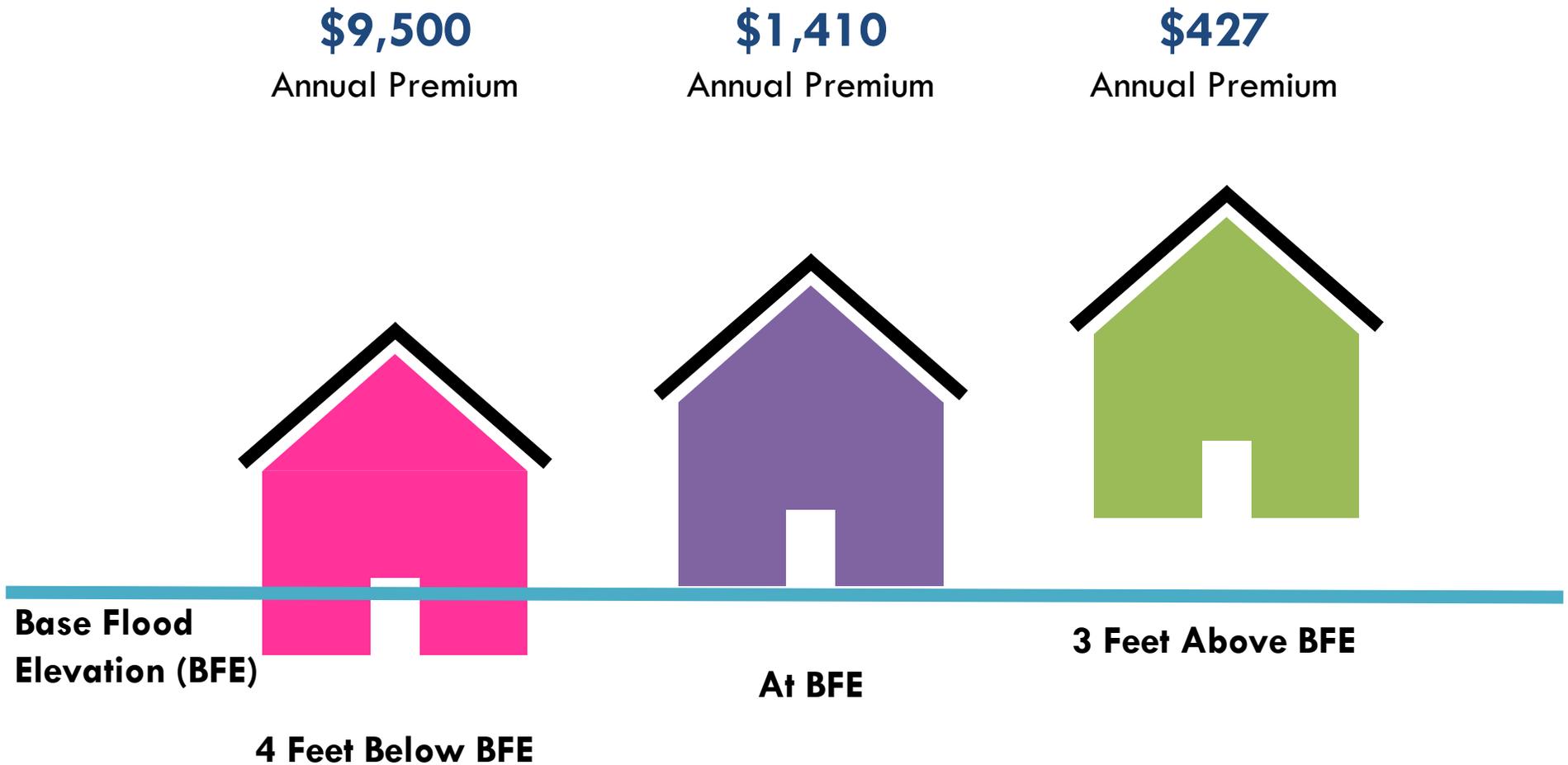


Source: <http://professorsak.com/>

Discussion:

How much of a concern are rising insurance premiums?

Information and technical assistance | Rising insurance premiums



Note: These are averages. Actual premium amounts will depend on the size and age of the house and construction materials.

Information and technical assistance | Existing and proposed programs

Repairing and rebuilding

- DOB Guide to Rebuilding after Sandy
- Build it Back
- SBA loans
- Private funding

Resiliency improvements

A Stronger, More Resilient New York proposed a **\$1.2 billion program** to provide incentives to owners of existing buildings in the 100-year floodplain.

Information, technical assistance, and funding

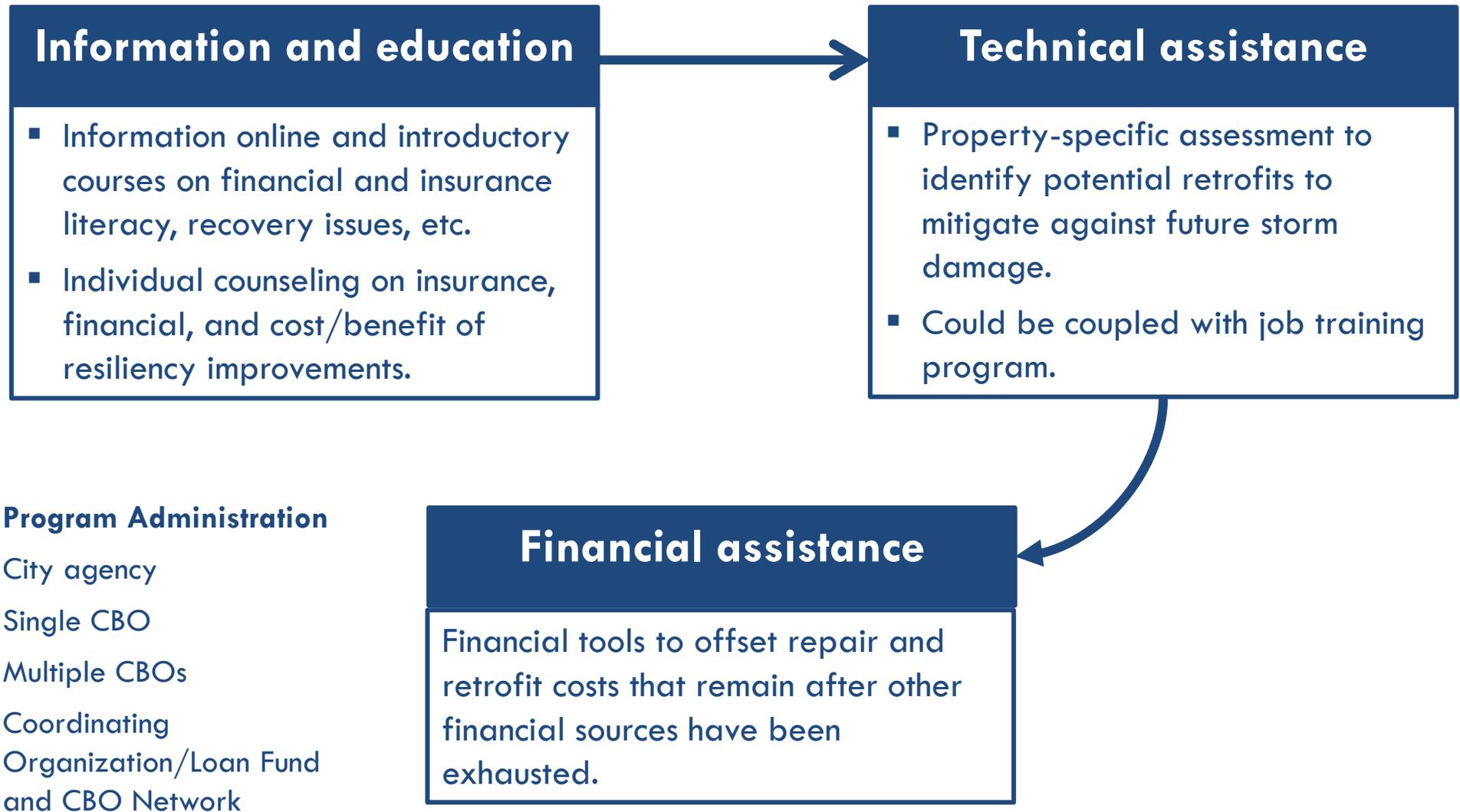
Center for New York City Neighborhoods (CNYCN) is a nonprofit launched in 2008 to support homeowners and preserve affordable home ownership.

They lead programs around:

1. Foreclosure prevention
2. Sandy relief
3. Flood insurance



Potential project: Residential resiliency audit program



ECONOMIC DEVELOPMENT



Strategy: Improve resiliency of **commercial corridors and critical supply chains**

Commercial corridors and supply areas in the Planning Area



Economic Assets

- # Economic Assets
- Commercial Corridors
(Flatbush Avenue, Avenue N,
Avenue U, Ralph Avenue)
- Shopping Centers

NYSDOS Risk Areas

- Moderate
- High
- Extreme

Economic Use

- Mixed Residential & Commercial
- Commercial & Office Buildings
- Industrial & Manufacturing

- 1 AVE N COMMERCIAL CORRIDOR
 - 2 FLATBUSH AVE COMMERCIAL CORRIDOR
 - 3 RALPH AVE COMMERCIAL CORRIDOR
 - 4 AVE U COMMERCIAL CORRIDOR
 - 5 GEORGETOWN SHOPPING CENTER
 - 6 KINGS PLAZA SHOPPING CENTER
 - 7 RALPH AVE SHOPPING CENTER
 - 8 KEY FOODS
 - 9 WALDBAUMS GROCERY
- OUTSIDE OF THE PLANNING AREA:
- 10 KEY FOODS GROCERY

Needs identified at PE#1 and PE#2

Access to critical supplies

- Resilient power at critical retailers



Alternative power hotspot

Resource/recovery center network

Fuel NY recommendation?

Other needs?

- Assistance for small business retailers?
- Shoreline access and amenities?
- Corridor upgrades?



Small business resiliency program?

Coastal protection projects

Stormwater capture study and projects

Fuel NY initiative

New NY State law requires gas stations located within a 1/2 mile of highway exits or hurricane evacuation routes to have a generator transfer switch, deploy backup power within 24 hours of losing power during an emergency

State plans to provide grants of up to \$13,000 per station toward purchase and installation of generators and transfer switches

Committee can support this initiative through a recommendation or design alternative project



Assistance for small business retailers

Information for small business retailers on how to protect spaces against flooding

Resiliency audits that identify specific measures to enhance a space's resiliency

Funding to make select recommended repairs

Considerations

The City is developing a Business Resiliency Program to do this (currently on hold)



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Next steps

- 1. Next PC meeting to continue projects review (Emergency Preparedness, Housing, Economic Development) on October 29**
- 2. Schedule PC#8 meeting for Week of November 3?**
- 3. Ongoing outreach for PE #3 on November 12**
- 4. Project voting on November 19**