Working Together
To Empower and Rebuild
Gerritsen Beach and Sheepshead Bay

Planning Committee Meeting #6

6:00pm – 8:00pm, 12/06/13
Brooklyn Amity School
3867 Shore Parkway, Brooklyn, NY
Agenda

Welcome and Introductions

• Project Progress to Date
• Strategies Document
• Project Illustration: Flood Reduction and Building Retrofit

Questions and Next Steps
PROGRESS TO DATE
NYRCP Program Overview

Meeting Objectives

Identify Assets And Risks
Define Needs, Opportunities, And Vision
Identify, Evaluate, And Prioritize Projects And Actions
Identify Funding Sources
Develop Implementation Plan
Create Final Community Reconstruction Plan

Oct 7-8
Public Meeting #1

Oct 28
Conceptual Plan

Nov 20
Public Meeting #2

January 2014
Public Meeting #3

March 31
Final NYRCP Plan

Public Meeting #4
# Work Schedule

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<td><strong>Work Plan</strong></td>
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<td><strong>Vision, Asset &amp; Risk Assessment</strong></td>
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<td><strong>List of Strategies</strong></td>
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<td><strong>List of Priority Projects</strong></td>
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<td><strong>Final NYRCR Plan</strong></td>
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- **Public Meetings**
  - Today

- **Planning Committee Meeting**
  - 10/28
  - 11/30
  - 12/30
  - 03/31
<table>
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<tr>
<th>Strategy</th>
<th>Community Planning and Capacity Building</th>
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<td>Increase resiliency of key facilities serving vulnerable populations, such as assisted living facilities and healthcare providers</td>
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<td>Improve pre-disaster preparedness, education, and communication; improve capacity of local response groups to conduct evacuations</td>
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<td>Make new investments in infrastructure that most effectively improve services to the community, resilience, and economic growth</td>
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<td>Reduce risk from future damage through investments and ongoing maintenance of public facilities and infrastructure (e.g., bulkheads, backflow prevention valves)</td>
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<td>Increase community connectedness by building and restoring key facilities for public gathering</td>
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**Gerritsen Beach and Sheepshead Bay: Highlighted Strategies Pertaining to Coastal Design and Flooding Mitigation Projects**

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<td>Implement a set of policies and programs enabling local businesses and community institutions to be resilient during and after a disaster</td>
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<td>Promote resiliency of the building stock to flooding, surge, and high winds through retrofit measures; modify zoning language to promote retrofit, such as building elevation, while otherwise reflecting neighborhood character</td>
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PROJECT ILLUSTRATION
EXAMPLES OF INNOVATIONS

Innovations Example: Deployable Floodwall
- Temporary floodwalls are less expensive than permanent floodwalls, but need to be actively deployed

Innovations Example: Living Shoreline
- Provide stabilization of the shoreline with the creation of an expanded natural habitat
- Can use plants, sand, stone, oyster reefs, etc. to develop expanded “living shoreline”

Innovations Example: Prevention Measures
- Flag gates keep backflow from entering the storm drain system

Innovations Example: Building Flood Protection
- Installing permeable paved walkways can reduce flood waters by allowing infiltrating rainwater
- As water seeps back into the soil, the floodwaters will begin to reduce

Innovations Example: Green Infrastructure and Buildings
- Stormwater Solutions: Garden End Fences and Associated Irrigation
- Green buildings are becoming more common as they provide environmental benefits

Innovations Example: Green Buildings
- Conserve water and energy
- Reduce environmental impact

Innovations Example: Curb Extensions
- Stormwater Collection Focal Points & Traffic Calming
- Reduce stormwater runoff

Innovations Example: Land Use Planning
- Expanding natural areas
- Planning for climate change

Innovations Example: Waterfront Redevelopment
- Economic Development ReUse of Facilities
  - 10,000 employees/130 companies
  - 1,200 acres/6.5 million sq. ft.
  - Office/Industrial/Manufacturing/Research & Development
  - Smart Energy Campus
  - Public/Private Partnership
  - Business Attraction – 70% are new to Philadelphia
  - Shuttles to Transit Connections
  - Storm Mitigation

Innovations Example: Transit Oriented Development
- Economic Development Multi-Use
  -Phase 2: $12 Billion Rail & Bus Transit Projects
  - Comprehensive approach that includes, residential, commercial, industrial, & educational elements
  - Green, Sustainable, Resilient
  - Tailed to individual communities
  - Input from multiple stakeholder groups
  - Strong Branding Campaign

Innovations Example: Housing: ReUse/RePurpose
- Housing Development ReUse, RePurpose Facilities
  - Former tin can manufacturing facility
  - Mixed Use/Mixed income
  - 40 residences, 30,000 sq. ft. office space, commercial facilities
  - Special Population: Teachers/Health and Human Service nonprofits
  - LEED Certified - Gold
  - 2010 Smart Growth Award Winner

Gerritsen Beach and Sheepshead Bay Committee Meeting
Coastal and Flood Protection
Surge and Flood Zones

- Operable gates
- Various scales
- Tie into landside measures such as floodwalls

Source: Federal Emergency Management Agency (FEMA), NYC Department of City Planning, MapPLUTO
Storm Surge Barriers

- Operable gates
- Various scales
- Tie into landside measures such as floodwalls

*Fox Point Storm Surge Barrier, Providence RI*  
(Source: Providence Journal)
Flood Gates in the Netherlands
City-Wide Surge Barrier

- Provides Harbor-wide protection (but doesn’t eliminate risk)
- Extremely expensive: $20-$25 billion to construct, plus ongoing maintenance
- Extensive environmental impacts likely
- Lengthy construction

Sandy Hook, NJ to Rockaway surge barrier (including connecting levees/floodwalls) and Surge Barrier at Throgs Neck
Breakwaters

- Reduce wave impacts
- To protect shorelines, beaches, or harbor areas
- Rubble-mound construction
Shoreline Stabilization and Protection

- Protect from wave impact and overtopping
- Protect from wave-induced flooding of adjacent buildings
- Assorted methods

Revetment at Poplar Island, MD
Rapid Deployment Floodwalls

• Deployed in advance of floodwaters
• Either installed or self-deployed through hydrostatic pressure (rise into place)

FloodBreak self-deploying barrier in operation
Deployable flood walls
Permanent Floodwalls

- Protect relatively small areas against lower levels of flooding
- Useful on urban shorelines (small footprint)
- May obstruct views and access

*Typical floodwall construction, Green Brook Flood Control Project, NJ*
Levees and Dikes

• Protect larger areas against higher flood levels
• Large footprints may preclude use in urban areas
• Interior drainage improvements needed

Typical levee construction, Green Brook Flood Control Project, NJ
Living Shoreline

- Provides erosion control while preserving or restoring natural shoreline vegetation and habitat
- Placement of sand, plantings, and a rock structure
- Estuaries, rivers, and creeks
Construction of wetland systems
Restoration of wetlands for storm surge attenuation
Jamaica Bay, Queens, NY
Backflow Prevention

• Prevents floodwaters from entering drainage outlets
• Can be combined with levees or other line of protection
• Or placed on storm drains as a stand-alone measure

Tideflex TF-1 Check Valve
Building Retrofit Measures
Install mechanical equipment on upper floor
Building Elevation

• Raise main floor above flood elevation + freeboard + SLR
• Methods include pilings and extended foundation walls
• Well-suited for small lots in urban areas
• FEMA’s preferred method of retrofit

Post-Sandy elevation project, Highlands, NJ
Building Elevation

- Multi-family unit elevated on extended foundation walls
- Creates garage (not living) space beneath

Multi-unit structure built in compliance with local floodplain management requirements, Highlands, NJ
Building Elevation

- Lower flood heights require less substantial elevation and alteration of structure

*Structure on edge of floodplain, Highlands, NJ*
Wet Floodproofing

- Allows floodwaters to enter structure through vents or break-away walls
- Portion of building to be flooded is typically concrete
- Reduces hydrostatic pressure
- Not recognized by FEMA for residences
- For low-flow and low depth of flooding (3 feet or less)

_Flood louver in concrete crawl space_
Dry Floodproofing

- Make building watertight below flood levels
- Generally restricted to commercial and institutional buildings
- Sealants, shields, gates, and other forms (effective depth varies)
- Not recognized by FEMA for residences

_FloodBreak self-deploying barrier in operation_
How do we evaluate (categorize/prioritize) projects?
Items to consider:

NY Rising Guidelines:
• Feasibility (L/M/H)
• Cost (L/M/H)
• Risk Reduction (L/M/H)
• Co-Benefits (L/M/H)
• Funding Availability (L/M/H)
• Public Support (L/M/H)

• Other project initiatives already underway
Online info

Community Reconstruction Program Website
http://stormrecovery.ny.gov/community-reconstruction-program

Gerritsen Beach and Sheepshead Bay Community Reconstruction Website:

Or search for NY Rising and follow the links