



Hoboken Resiliency & Readiness Plan

Layers of Protection

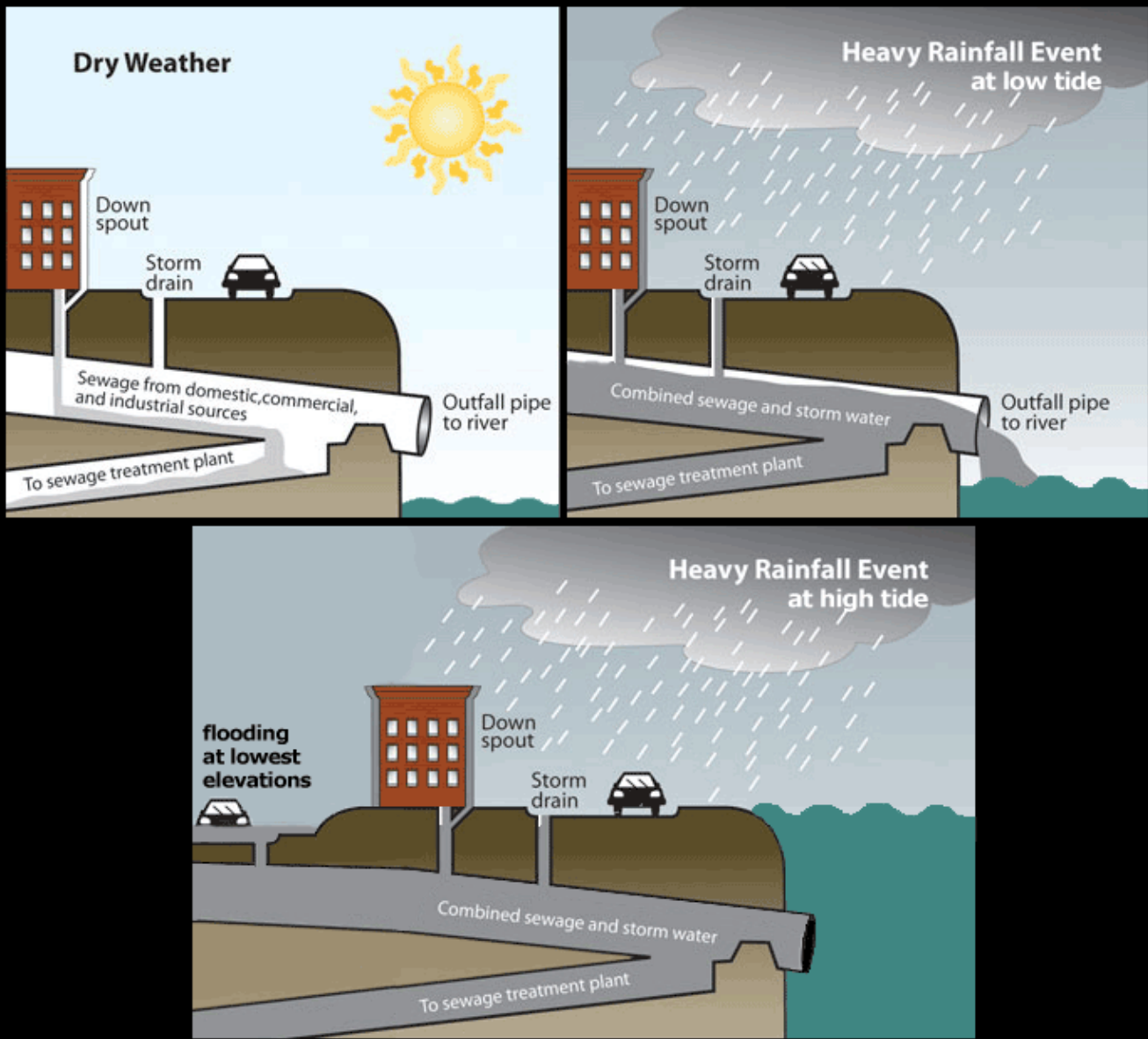
Mayor Dawn Zimmer



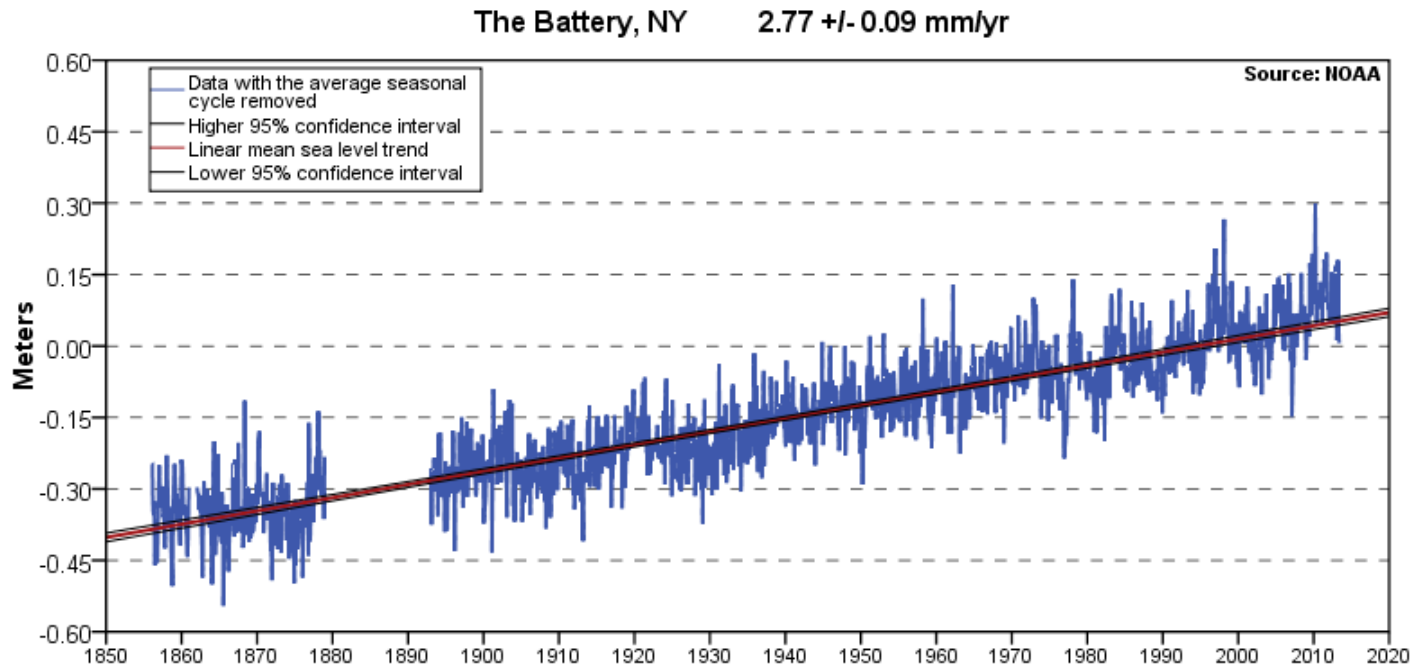
Challenge: Hoboken was once an island outcrop. Surrounding tidal marshes were filled in, but City remains vulnerable to storm surges due to low elevation at the north and south.



Challenge: Areas of Hoboken lie below high tide. Combined sewer system cannot empty out by gravity at high tide, overflowing into the lowest elevation areas.



Challenge: Rising sea levels will increase threat from storm surges and place more of Hoboken below high tide, increasing occurrence of combined sewer flooding during storms.



*“New York Harbor has experienced an **increase in sea level of more than 15 inches in the past 150 years**, with harbor tide gauges showing a rise of between 4 and 6 inches since 1960.*

*Sea level rise affecting the Lower Hudson Valley and Long Island is projected to be 2 to 5 inches by the 2020s and **12 to 23 inches by the end of this century**. However, rapid melt of land-based ice could double these projections in the next few decades, with a **potential rise of up to 55 inches by the end of the century**.” - New York State Sea Level Rise Task Force*

Challenge: Unfair National Flood Insurance Program and Federal/State policies do not recognize unique challenges of urban areas.

- Superstorm Sandy damage in Hoboken:
 - \$100 million in damage to private property
 - \$10 million in damage to City property
 - \$100's of millions in damage to transit system
- National Flood Insurance Program
 - Does not account for realities in urban areas (“basements,” condominium associations, etc)
 - Premiums are expected to rise, while continuing to provide minimal if any meaningful coverage

A comprehensive plan to protect the City could allow Hoboken to be designated a “Shaded X” area by NFIP, which would exempt properties from flood insurance requirements.

Comprehensive Plan

Overview

- Flood pumps
- Storm surge protection/flood barriers
- Energy Resiliency/Operations of Public Safety & Critical Infrastructure
- Hoboken Ready (personal preparedness planning)/CERT Team
- Green infrastructure/Stormwater management

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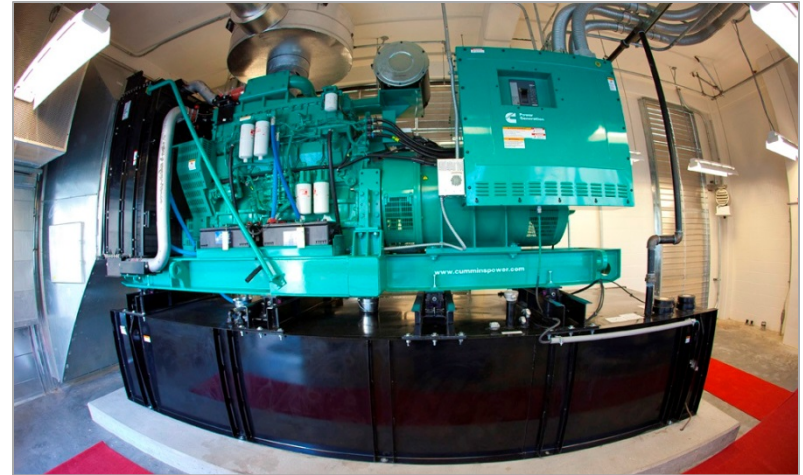
Benefits

- Physically protects Hoboken from flooding
- Financially protects residents and businesses from unfair flood insurance program
- Protects urban character of Hoboken

Comprehensive Plan

Flood pumps

- 3 additional flood pumps for emergency situations – heavy rain and storm surges
- Alternative funding approaches:
 - Coordinating closely with North Hudson Sewerage Authority and advocating for FEMA grant application for 3 pumps
 - Applying for a low-interest loan for 1 pump
 - Including a requirement for funding 1 pump in revised NJ Transit Redevelopment Plan
 - Bonding for pumps not funded through other means



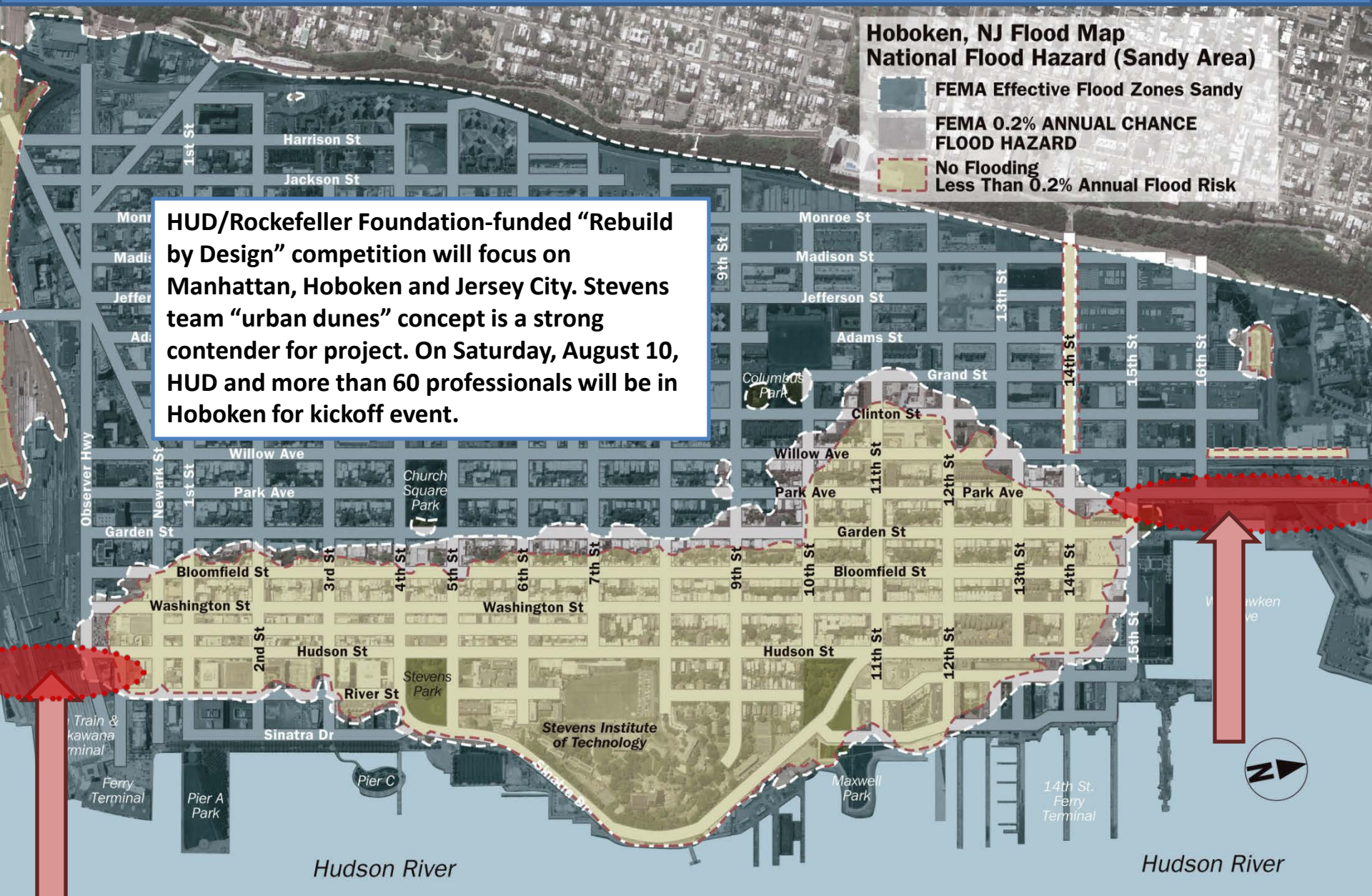
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Storm surge protection



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Storm surge protection: Concept 1 (urban dunes)



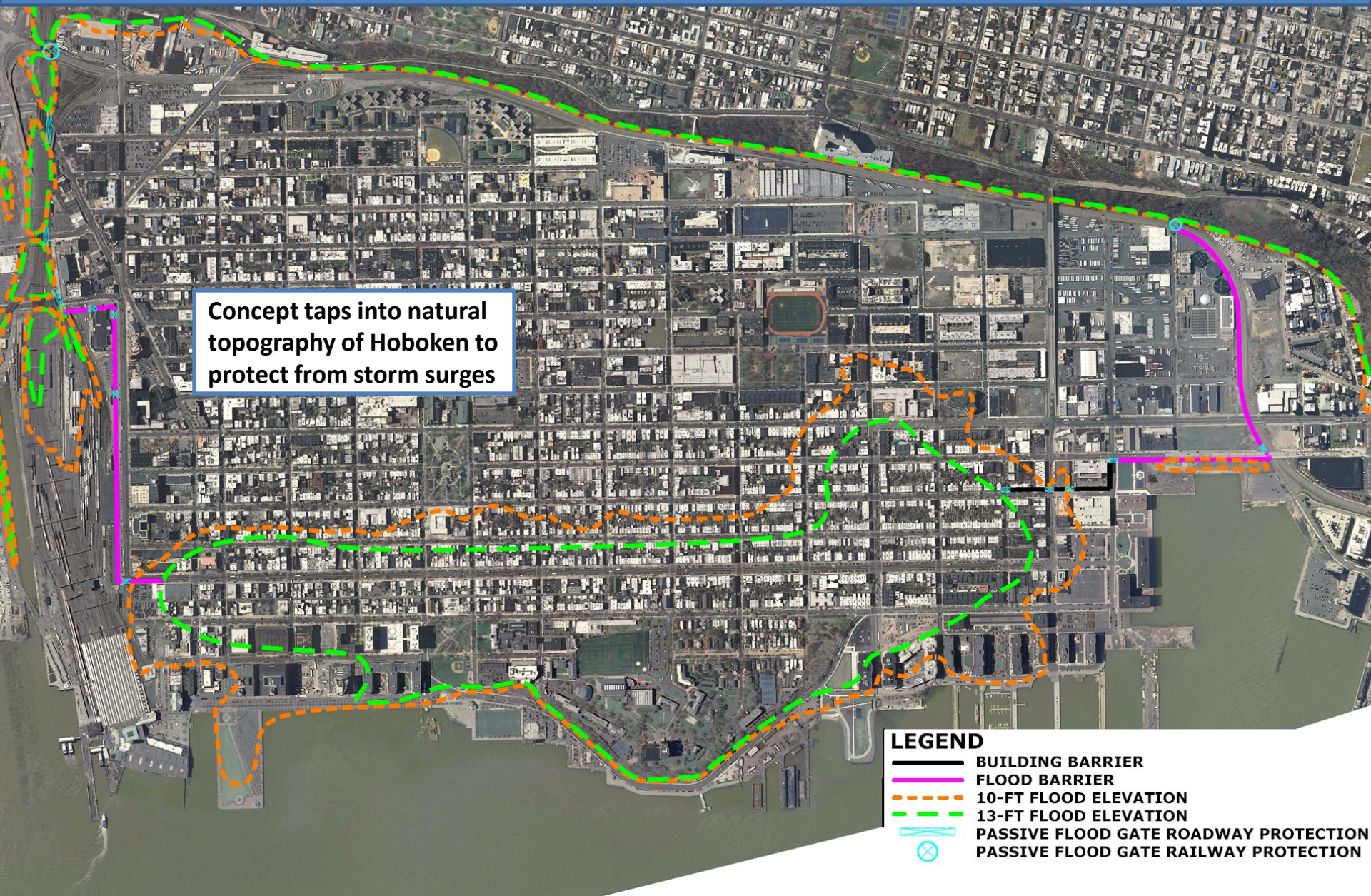
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Storm surge protection: Concept 2



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Storm surge protection: Flood barrier concept

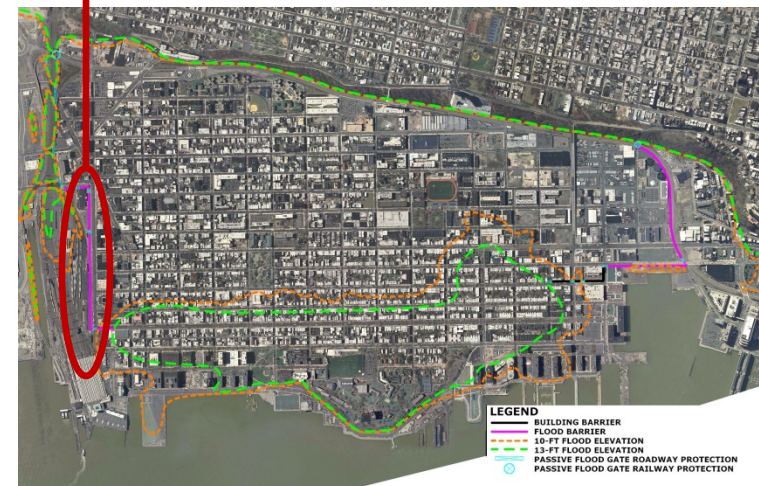
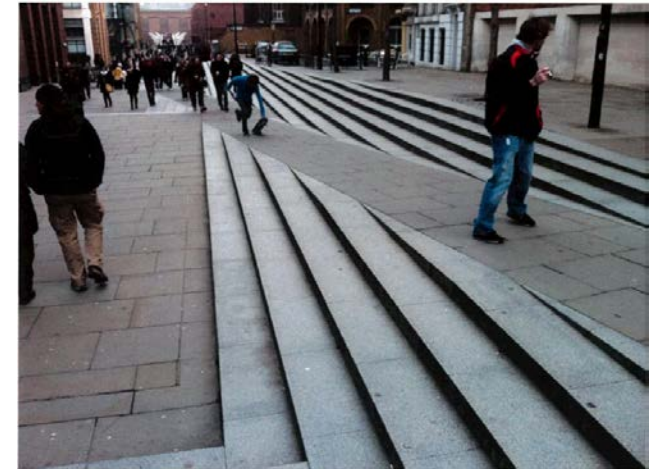


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Storm surge protection: NJ Transit Redevelopment flood barrier

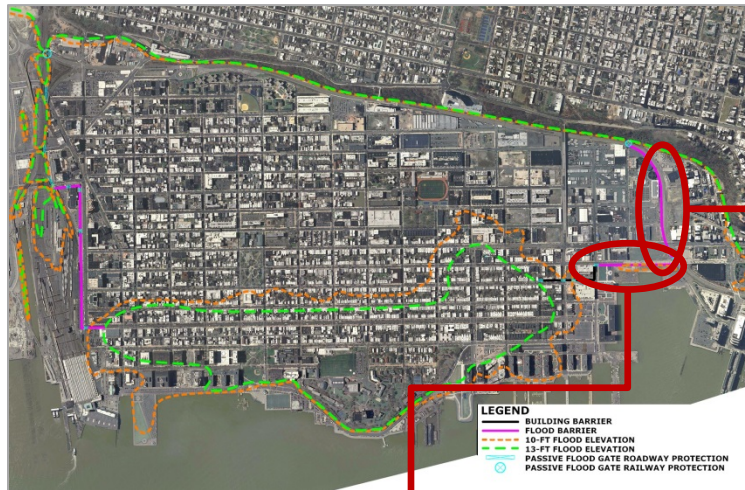


Storm surge flood barrier incorporated into Hoboken Rail Yards Redevelopment Area through elevated building requirement (Base Flood Elevation + 1ft)



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Storm surge protection: Flood barrier concepts



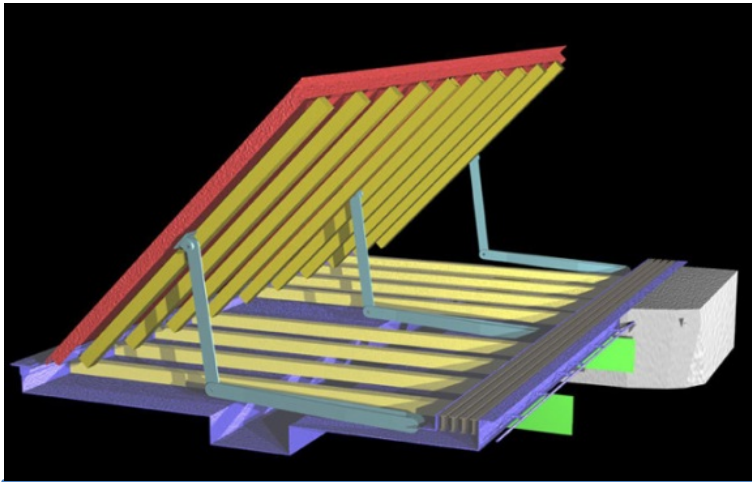
green walls



armored levee - Scheveningen, Netherlands

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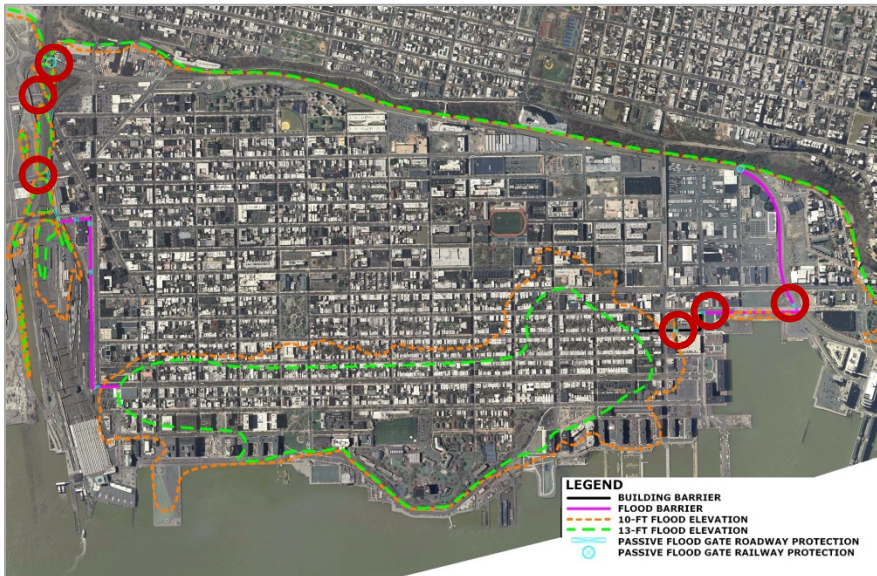
Storm surge protection: Floodbreak flood gate



**Permanent, passive flood protection
(preferred by FEMA over active measures)**



**Lies flat in roadbed/sidewalks to provide
unimpeded access for vehicles & pedestrians.**



LEGEND
— BUILDING BARRIER
--- FLOOD BARRIER
--- 10-FT FLOOD ELEVATION
--- 13-FT FLOOD ELEVATION
— PASSIVE FLOOD GATE ROADWAY PROTECTION
— PASSIVE FLOOD GATE RAILWAY PROTECTION



**Flood gate floats to deploy automatically
without human intervention or power.**

Comprehensive Plan

Storm surge protection: Funding/implementation approach

- Applied for \$33 million FEMA Hazard Mitigation grant.
- Enter into public-private partnerships; require storm surge barrier to be incorporated as part of Hoboken Rail Yards Redevelopment and possible North End Rehabilitation Area.
- Explore concepts to incorporate berm, armored levee, etc as part of Hoboken Cove park design.
- HUD's "Rebuild by Design" competition.

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Energy Resiliency/Operations of Public Safety & Critical Infrastructure

Challenge: Aging substations built in flood zones in 1950's are vulnerable to flooding.

- Permanent emergency backup generators (combined natural gas/diesel) for Police, Fire & City Hall/OEM operations
 - Applied for FEMA Hazard Mitigation Grant
 - Bonding to purchase backup generators
- City supports PSE&G Energy Strong program:
 - Combines 3 Hoboken substations into 2
 - Elevates remaining 2 substations
- Partnership with Dept. of Energy, Sandia National Labs, PSE&G and NJ BPU to develop smart grid



U.S. DEPARTMENT OF
ENERGY



Sandia
National
Laboratories



PSEG



Comprehensive Plan

Hoboken Ready (personal preparedness planning)/CERT team

- Collaboration with CERT/OEM on “Hoboken Ready” kit and outreach program: www.hobokennj.org/ready
- Public outreach through mailers, public meetings, etc. to educate community on preparing for storms and other hazards.
- Expand CERT – next class in the fall.



CERT graduation – April, 2013


Mayor Dawn Zimmer
& Hoboken City Council

**ARE YOU?
HOBOKEN
READY**


Community Emergency
Response Team

Prepare now so you and your family can be ready when the next emergency happens.

1 Be Informed

- Reverse 911: hobokennj.org/emergency
- Nixle alerts: hobokennj.org/alerts
- Hudson County info: <https://hcnj.onthealert.com>
- Special Needs Registry: registerready.nj.gov
- National Weather alerts: weather.gov/subscribe

2 Make a Plan

- Develop a Family Emergency Plan: ready.gov
- Create a plan to shelter-in-place
- Create a plan to evacuate
- In case of flooding, have a plan to move your car
- Have a plan for pets

3 Build a Kit

Top 10 Recommended Items

- ☐ **WATER**
1 gallon per person per day for drinking and sanitation
- ☐ **FOOD**
At least a three day supply of non perishable food
- ☐ **AM/FM/NOAA RADIO**
Battery & hand crank power with USB phone charger
- ☐ **LED FLASHLIGHT**
- ☐ **LED LANTERN**
- ☐ **EXTRA BATTERIES** for 3 days
For radio, flashlight and lantern
- ☐ **FIRST AID KIT**
- ☐ **SANITARY WATER JUG** - 2.5 gallon
- ☐ **WHISTLE**
- ☐ **MANUAL CAN OPENER**

- ☐ N95 dust mask
- ☐ Plastic sheeting and duct tape to shelter-in-place
- ☐ Moist towelettes, garbage bags and plastic ties
- ☐ Prescription medications and glasses
- ☐ Wrench or pliers to turn off utilities
- ☐ Infant formula and diapers
- ☐ Pet food and extra water for your pet
- ☐ Cash or Travelers Cheque and change
- ☐ Matches in a waterproof container
- ☐ Feminine supplies and personal hygiene items
- ☐ Paper cups, plates and utensils, paper towels
- ☐ Paper and pencil
- ☐ Fire extinguisher
- ☐ Books, games, puzzles for children
- ☐ Important family documents: copies of insurance policies, identification & bank account records in a waterproof, portable container.
- ☐ For each person: Sleeping bag or warm blanket, long sleeved shirt, pants, sturdy shoes, and coat.
- ☐ Household chlorine bleach and medicine dropper. Dilute nine parts water to one part bleach to use as disinfectant. In an emergency, treat 1 gallon of water with 16 drops of bleach. Do not use scented, color safe or bleaches with added cleaners.
- ☐ Emergency reference material such as a first aid book or information from ready.gov

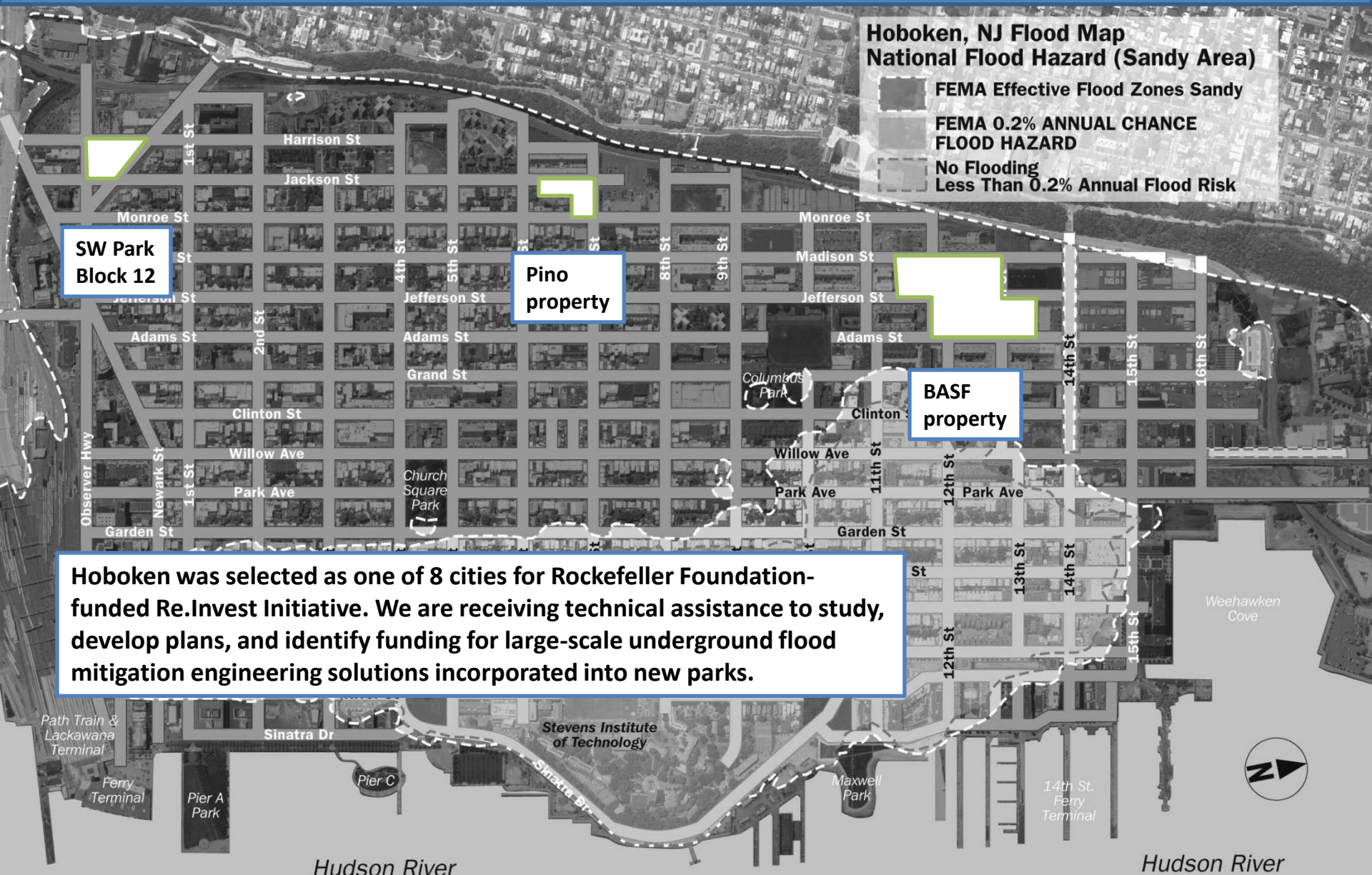
For more information go to: hobokennj.org/ready

The information and suggestions listed herein are not all inclusive, and there is no guarantee that any particular action will be successful under all circumstances. This notice is intended to help with emergency preparedness. It offers no guarantees and warrants no particular outcomes under any circumstances.

Hoboken Ready flyer

Comprehensive Plan

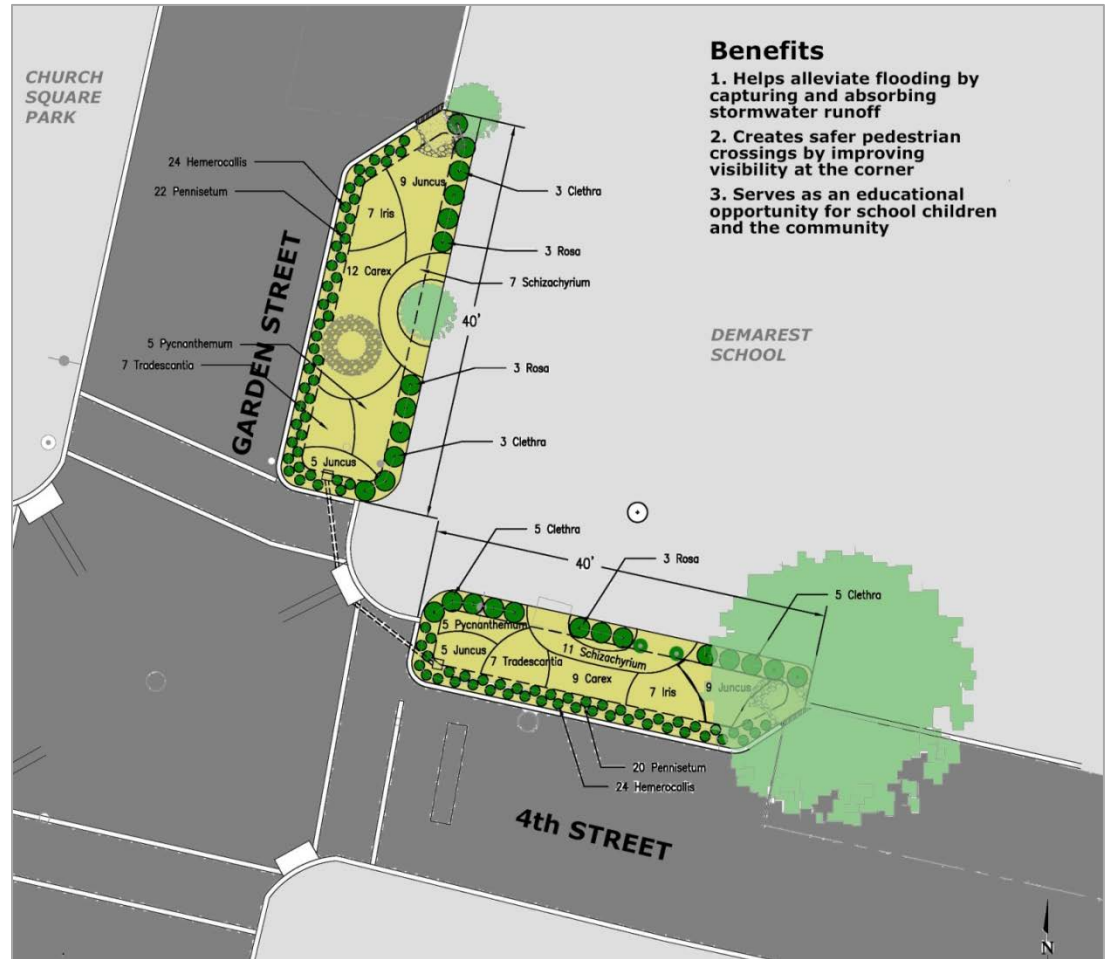
Green infrastructure/Stormwater management: Land acquisition for open space



Comprehensive Plan

Green infrastructure/Stormwater management: Rain Garden Curb Extensions

- Demonstration project to raise awareness
- Two rain garden curb extensions at 4th Street & Garden Street
- Design and construction funded by Sustainable Jersey Grant



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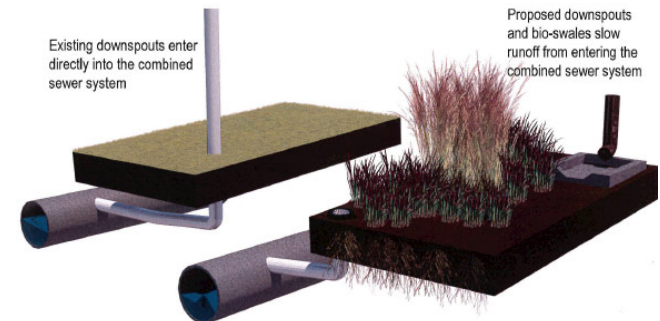
Green infrastructure/Stormwater management: City Hall Sustainability Plan



City Hall Sustainability Workshop



Sustainable City block demonstration project incorporates cistern, rain gardens, and community garden to capture stormwater runoff. Designed by Rutgers Center for Urban Environmental Sustainability (CUES).



Comprehensive Plan

Green infrastructure/Stormwater management

- Ongoing Planning Initiatives
 - **Green Element of Master Plan** will provide guidance for stormwater management, utilities, infrastructure and other sustainability priorities (being developed by Planning Board). Implement recommendations through zoning changes.
 - **Green Infrastructure Strategic Plan** will feature stormwater management and flood control strategies (Funded by \$90,000 grant from Together North Jersey).
 - Through **Re.Invest Initiative**, developing specific plans for incorporating stormwater retention into new parks in Western Hoboken (\$500,000).



Next Steps

- Extensive Hoboken Ready community outreach
- Move forward with loan application for 2nd flood pump
- Continue actively advocating for FEMA grants through State and Federal government
- Move forward with new projects at south and north ends of Hoboken to protect from storm surge
- Apply for Rockefeller Foundation 100 Resilient Cities Centennial Challenge (\$1 million)
- Move forward with land acquisition for parks and flood mitigation

