

Delaware Valley Regional Planning Commission

Philadelphia, PA

April 25, 2016

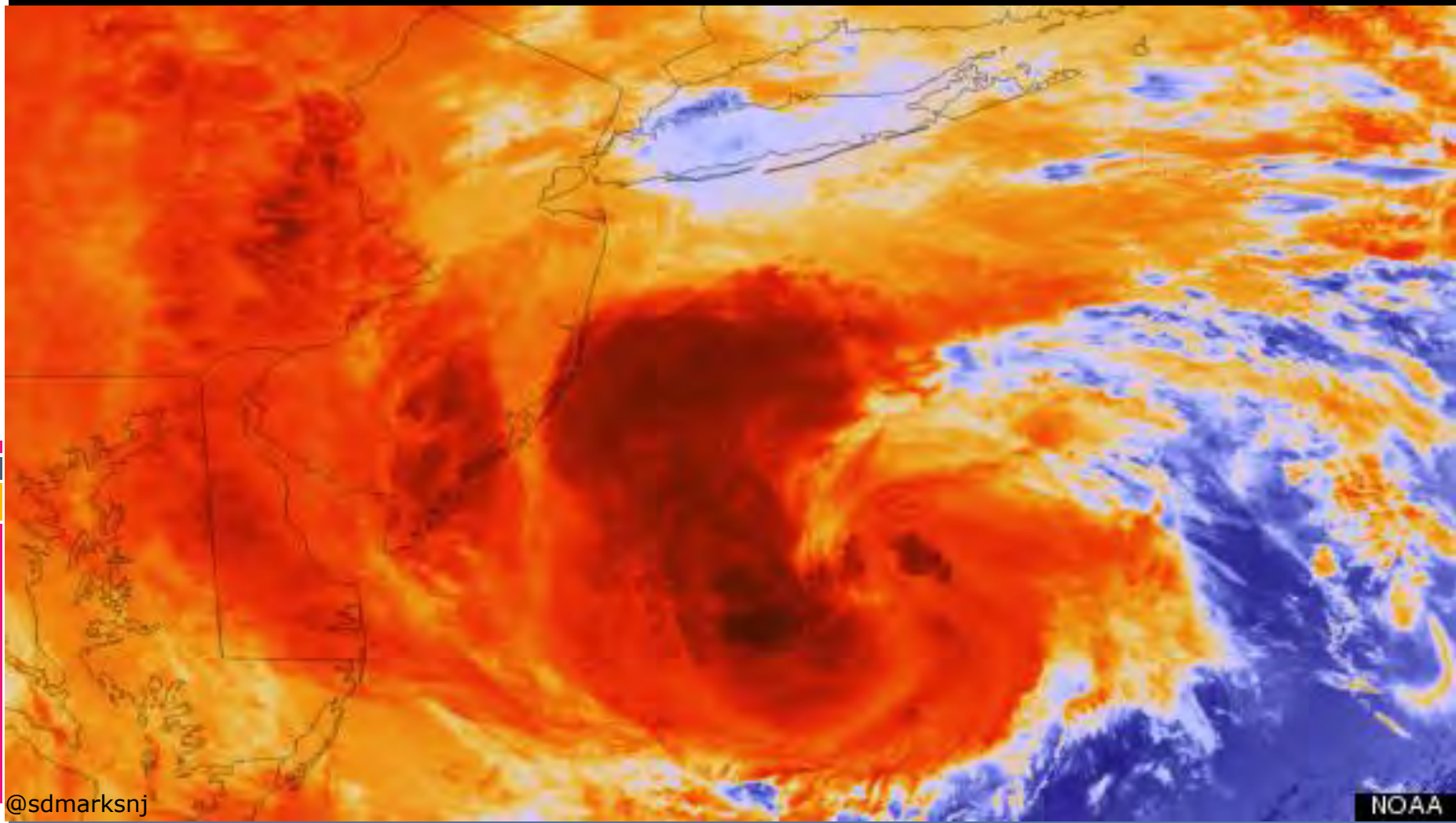
12:30 p.m.

Stephen D. Marks

Municipal Manager

City of Hoboken, NJ

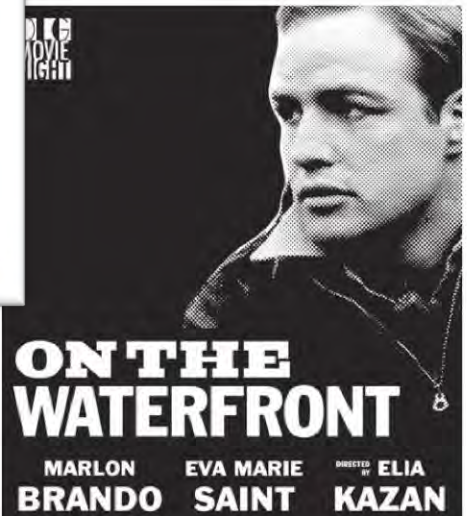
Integrating Hazard Mitigation and Comprehensive Planning Workshop





THE AMERICAN NATIONAL GAME OF BASEBALL
GRAND MATCH FOR THE CHAMPIONSHIP AT THE EXETER FIELDS

Welcome to Hoboken



SAT. FEB. 2 • 7:00 PM • OLG SCHOOL HALL
ADVANCE TICKETS \$10 • AT THE DOOR \$13
INCLUDES PIZZA, POPCORN & REFRESHMENTS

GENERAL

Population: 52,575

Households: 26,855

Real Property Ratable Base: \$9.7 Billion

Area: 1.275 Square Miles

Landmass within Flood Zone (A): 63.85%

Landmass within Flood Zone (V): 7.41%

Landmass within Flood Zone (X): 7.66%

HURRICANE SANDY

FEMA (IA) Program: \$100 million+

FEMA (PA) Program: \$25 million+

SBA Program: \$1.6 million

Flooded Homes + Businesses = >1,800

Automobiles Damaged/Destroyed = >2,000

National Flood Insurance Program (NFIP)

NFIP Policies in Hoboken: 8,729

NFIP Total Liability in Hoboken: \$2,033,208,700

NFIP Annual Premiums in Hoboken: \$6,579,183

NFIP Claims through 12/31/14: 1,859

NFIP Closed Losses: 1,371

NFIP Total Payments: \$48,992,364.81

SEVERE AND REPETITIVE LOSS DATA

161 Repetitive Loss Properties

14 Severe Repetitive Loss Properties

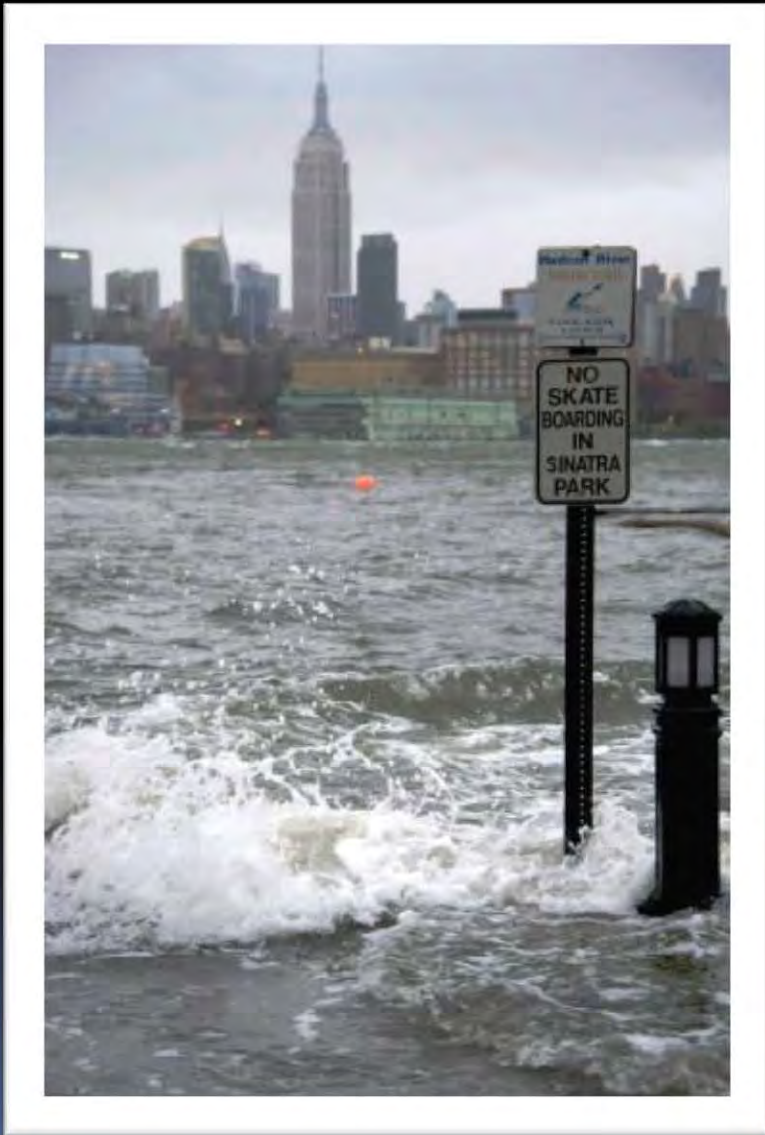
407 Claims

Claims Paid: \$10,638,702

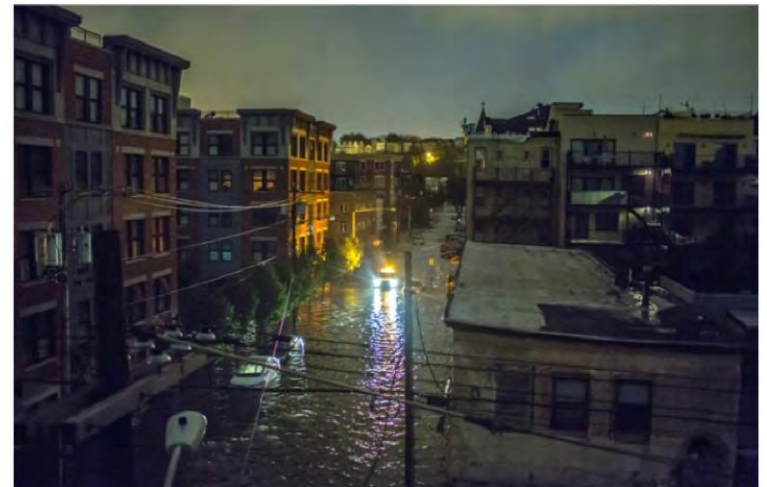
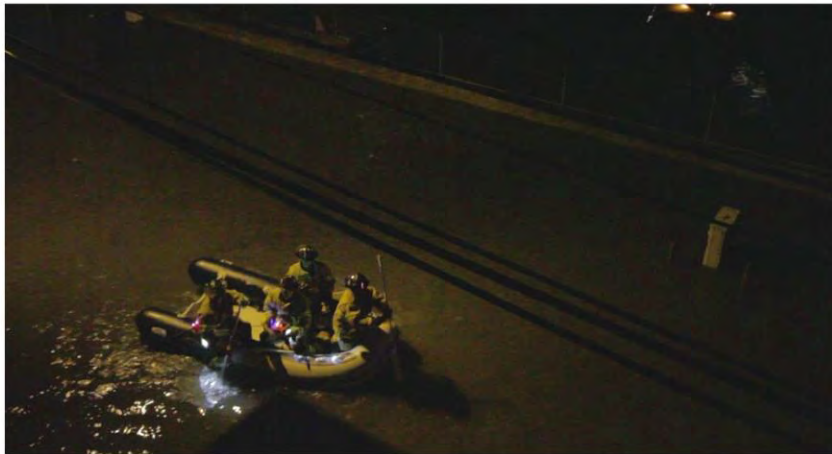
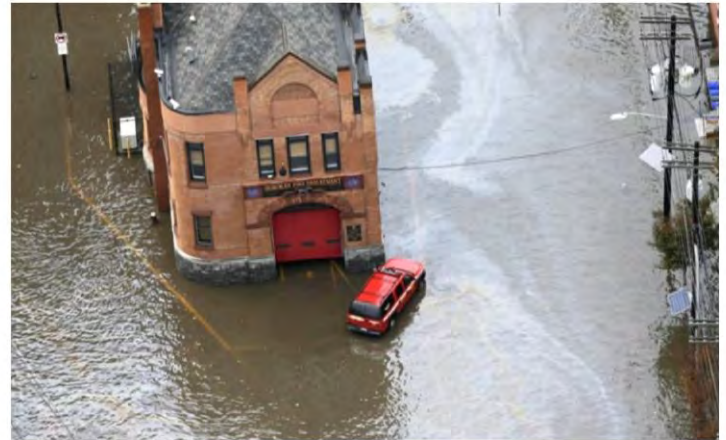
1. Flooding from more intense storms and sea level rise will continue to adversely effect coastal communities .



2. Tidal waterfronts are particularly vulnerable.



3. Emergency Responders need better Training, Equipment & Facilities.





4. Electrical Substations Need to be Elevated and Protected.



5. Evacuation Routes Must Remain Passable.



6. Transit Facilities need better Protection.



© 2012 The Port Authority of NY & NJ

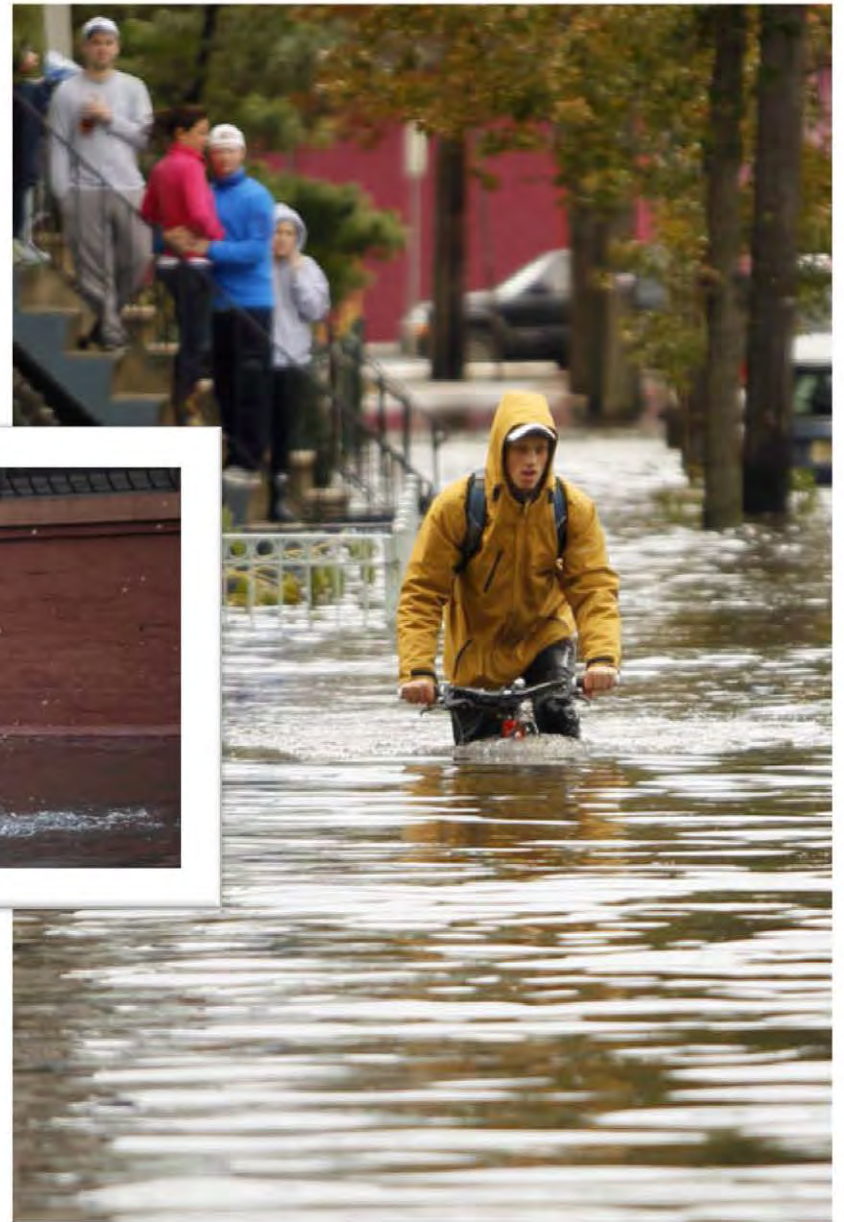


7. Rolling Stock should be moved to higher ground (Transit Agencies need better climate adaptation and contingency plans).



8. Communities cannot evacuate all residents before/during events.





9. There is Not Enough Shelter Space ~ Emergency Shelters Should be Regionalized



10. Small businesses are particularly at risk.

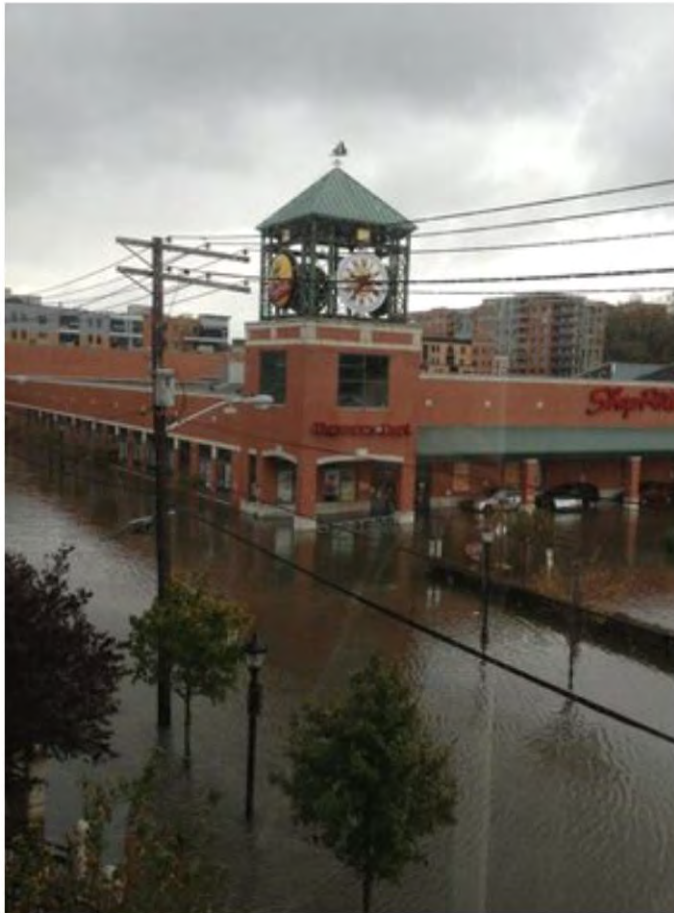


Not-so-Edible Arrangements



PUMPING OUT THE POURHOUSE





11. Even major sectors & industries are vulnerable.

Supply chain logistics are fragile and subject to disruption.



12. Food and Fuel Distribution Interrupted.



13. Public Information Breakdown

(Public notice by message board and town hall meeting)



14. Tele-communications Breakdown (Cell phone service failures).



15. After the Hurricane comes a Tsunami of Debris



16. The problem demands Federal and State Leadership and Resources

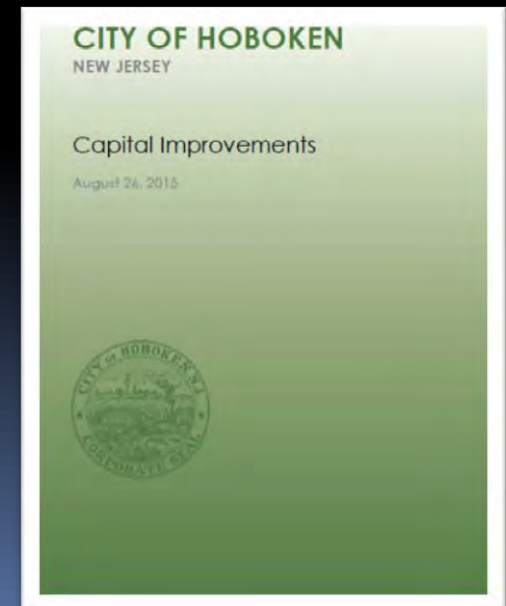
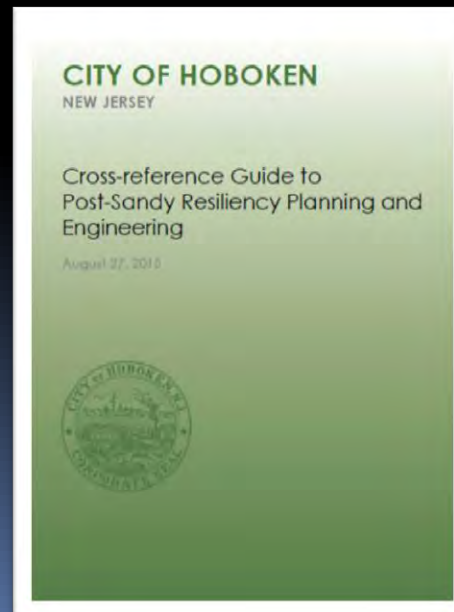
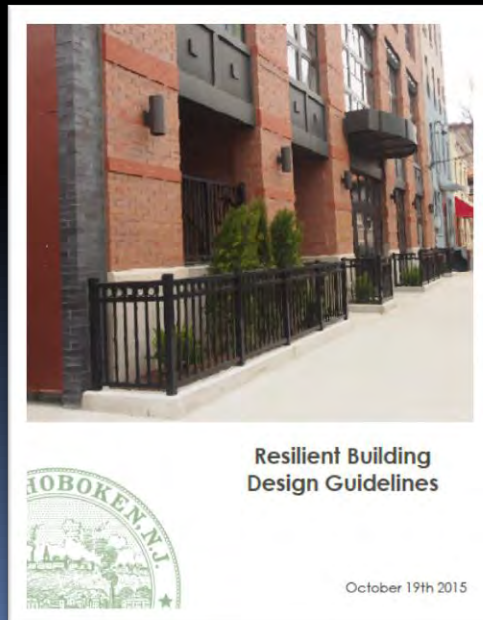


HOBOKEN'S 12 POINT RESILIENCY PLAN

1. DISASTER RECOVERY PLAN

\$200,000 CDBG/DR

- Community Design Standards
- Develop Codes, Ordinances and Standards
- Resilient Capital Improvement Plan
- Hazard Mitigation Plan
- Open Space, Recreation
and Historic Preservation Plan



HOBOKEN'S 12 POINT RESILIENCY PLAN

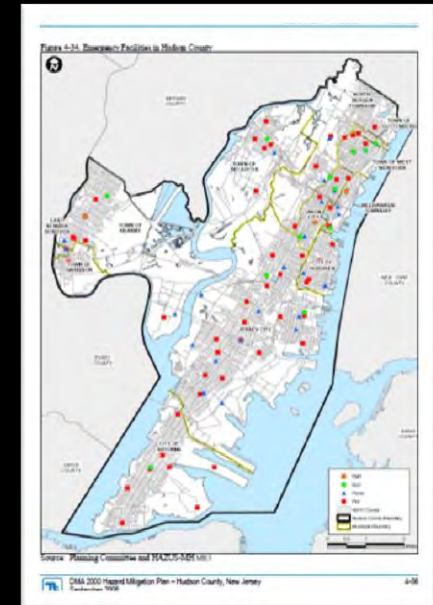
1. UPDATED HOBOKEN ANNEX TO HUDSON COUNTY ALL HAZARDS MITIGATION PLAN



Volume I
September 2008



Prepared By:
Tetra Tech EM, Inc.
100 Enterprise Drive, Suite 400
Rockaway, NJ 07866



7.) PROPOSED HAZARD MITIGATION INITIATIVES

Initiative	Applies to New or existing assets	Hazard(s) Mitigated	Objectives Met	Local Agency	Estimated Cost	Source of Funding	Timeline
CH-1	Where appropriate, support retrofitting, purchase, or relocation of structures located in hazardous areas to protect structures from future damage.	Building	Flood	2, 6	City	Low FEMA, HUD, LISC, RFC, H&UP or FICM Grant and City operating budget for cost share	Long
CH-2	Consider participation in CMAA program.	New & Existing	Flood	6, 8, 11	City	Low City Budget	Short
CH-3	Participate in update of the Hudson County Multi-Jurisdictional All Hazards Mitigation Plan. Effort to maintain compliance with and good standing in the National Flood Insurance program.	New & Existing	All	All	City	Medium City Budget	Long
CH-4	Continue to review, enhance and implement existing emergency plans. Create/encourage maintenance and agreement with neighboring communities.	New & Existing	Flood	5, 9, 11, 12	City	Low City Budget	Short
CH-5	Continue to review, enhance and implement existing emergency plans.	Existing	All	3, 4, 7, 8, 12	City	Medium City Budget	Long
CH-6	Obtain County-wide initiative identified in Section 5.1 of the County Annex.	New & Existing	All	4, 7, 12	City	Medium City Budget	Long
CH-7	Support County-wide initiative identified in Section 5.1 of the County Annex.	New and Existing	All Hazards	All Objectives	City	Low Existing programs and grant funding	Short Term Ongoing

Hoboken's 12 Point Resiliency Plan

2. Resiliency Task Force / CERT Team



Hoboken's 12 Point Resiliency Plan

3. Public Information Campaign Emergency Preparedness Begins at Home



Hoboken's 12 Point Resiliency Plan

4. Floodplain Management Ordinance Updated

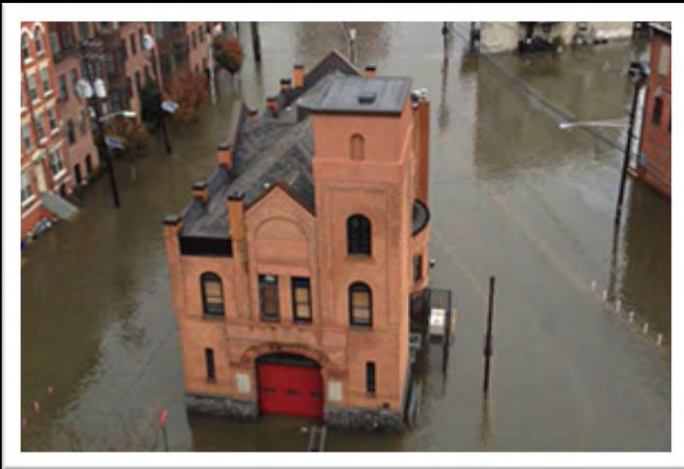


Resilient Building
Design Guidelines

October 19th 2015

Hoboken's 12 Point Resiliency Plan

5. Installation of Emergency Backup Generators



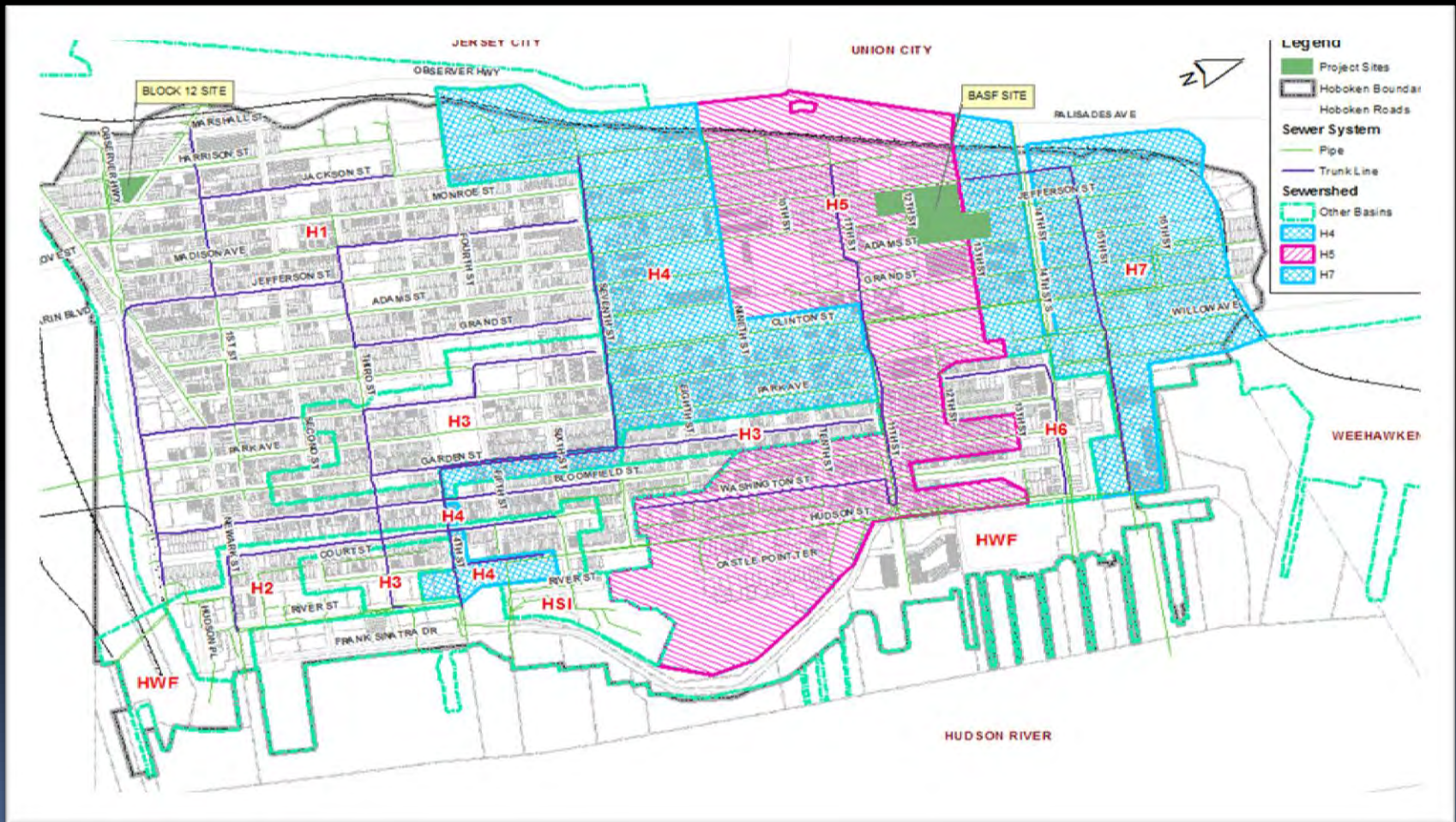
Hoboken's 12 Point Resiliency Plan

6. Floodproof Critical Community Facilities



Hoboken's 12 Point Resiliency Plan

7. Analysis of Existing Sewersheds (Emnet Report)



Hoboken's 12 Point Resiliency Plan

8. Installation of Flood Pumps



Hoboken's 12 Point Resiliency Plan

9. Green Infrastructure Strategic Plan



Hoboken's 12 Point Resiliency Plan

9a. Urban Parks for Stormwater Detention



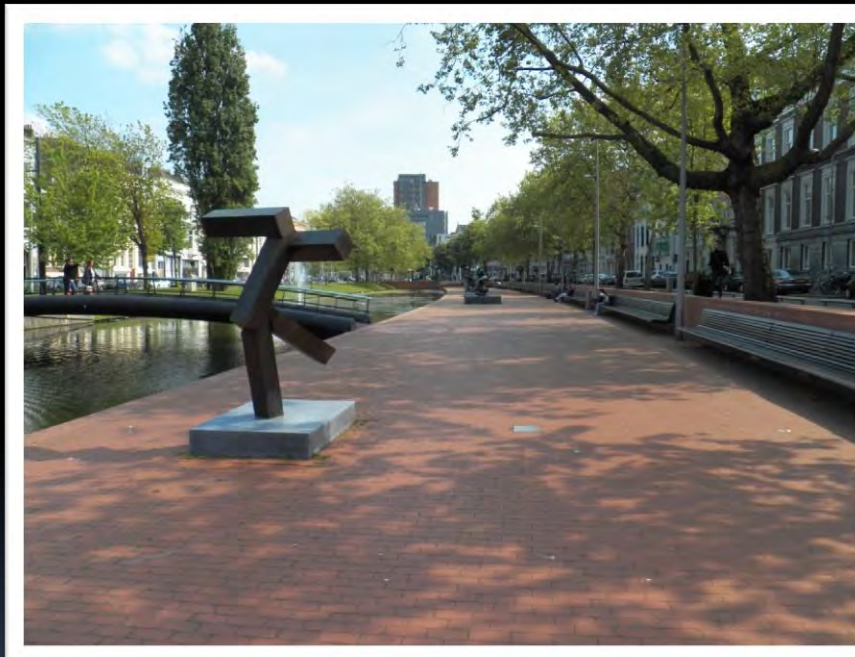
Dry weather



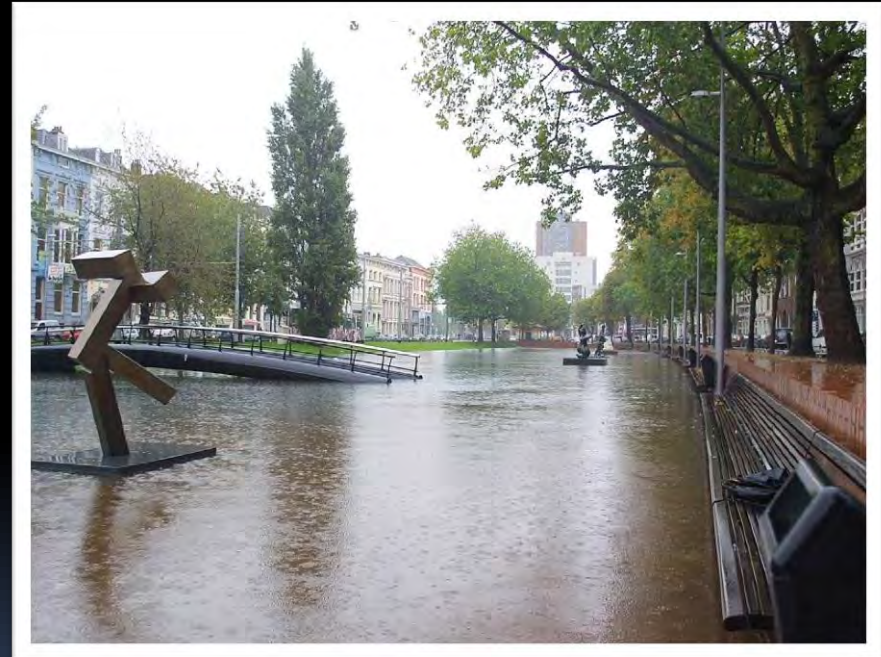
Wet weather

Hoboken's 12 Point Resiliency Plan

9b. Open Space for Floodplain Management (Spillways)



Dry weather



Wet weather

Hoboken's 12 Point Resiliency Plan

9c. City Hall Demonstration Project



Hoboken City Hall Watershed Landscape
July 23, 2013

Cues Team
James Bykowski, MLA
Wolfram Hoefler, Dr.-Ing.
Derek D'Amico, Dr.P.

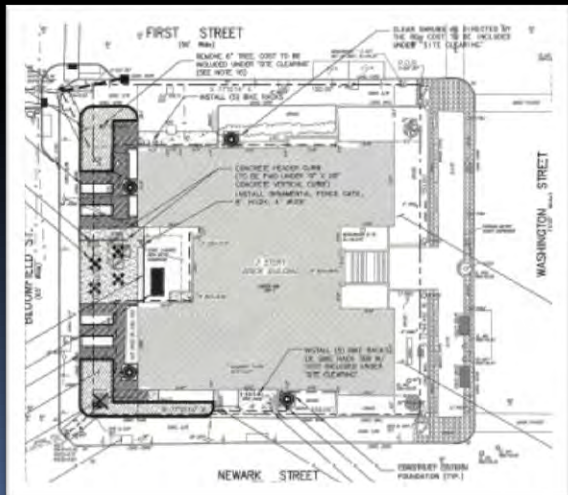


Use Plants to Absorb Rainwater
increases Infiltration
reduce Total Runoff

Elimination of existing downspouts
enter directly into the combined sewer system

Propose permeable and bio-swales
slow runoff from entering the combined sewer system

Elimination of existing downspouts:
Reduces stormwater runoff volume and flow rate. Increases groundwater infiltration and recharge. Designed to convey surface runoff. Increases infiltration from stormwater runoff. Increases permeable city infrastructure.

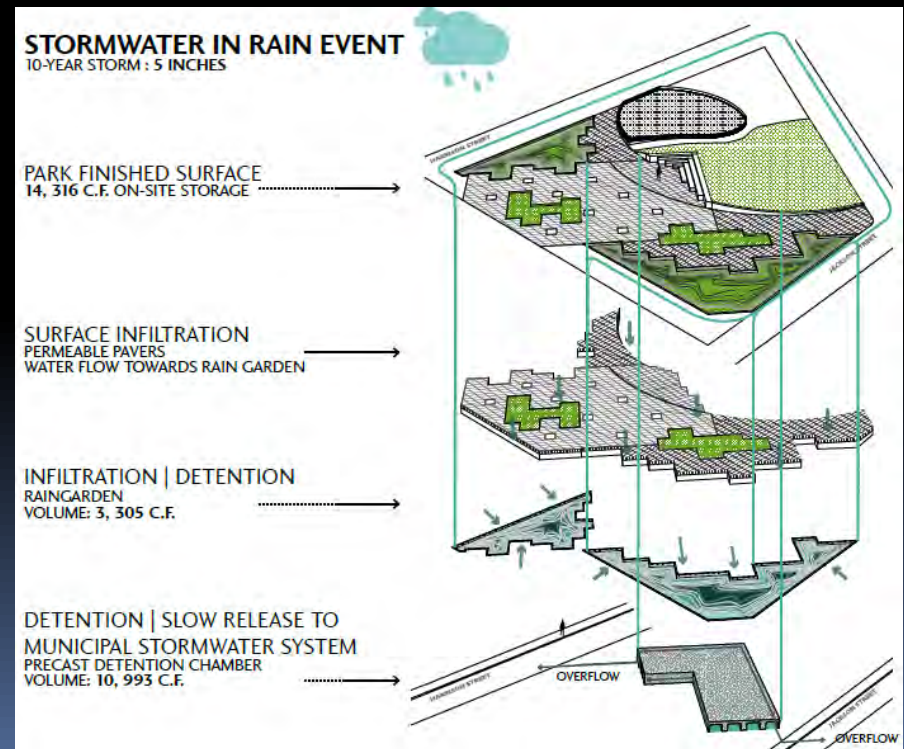


Hoboken's 12 Point Resiliency Plan

9d. Southwest Resiliency Park

Block 12

Designed to manage a 10 year storm event (5" of rain/ 80,000 gallons of stormwater)

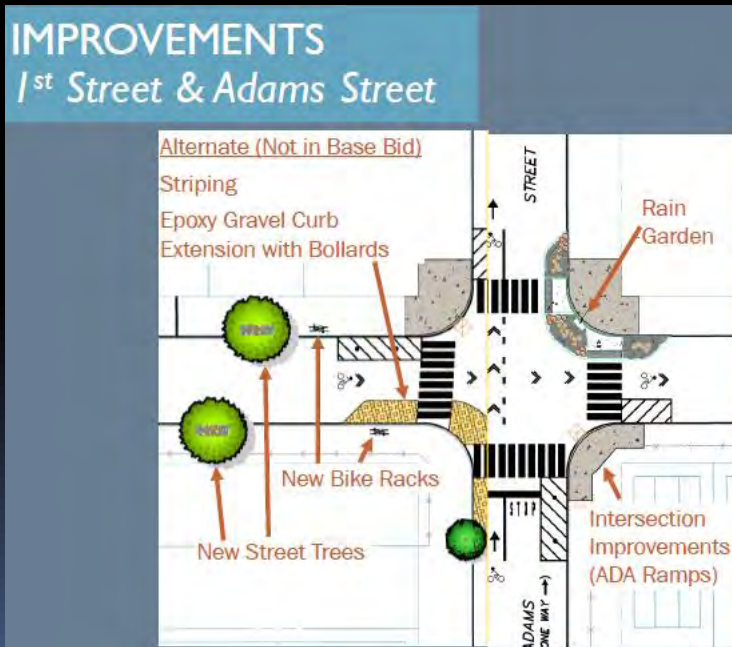


Hoboken's 12 Point Resiliency Plan

9e. Green Streets

First Street
Streetscape Revitalization

Washington Street
15 Rain Gardens = 22,792 CF



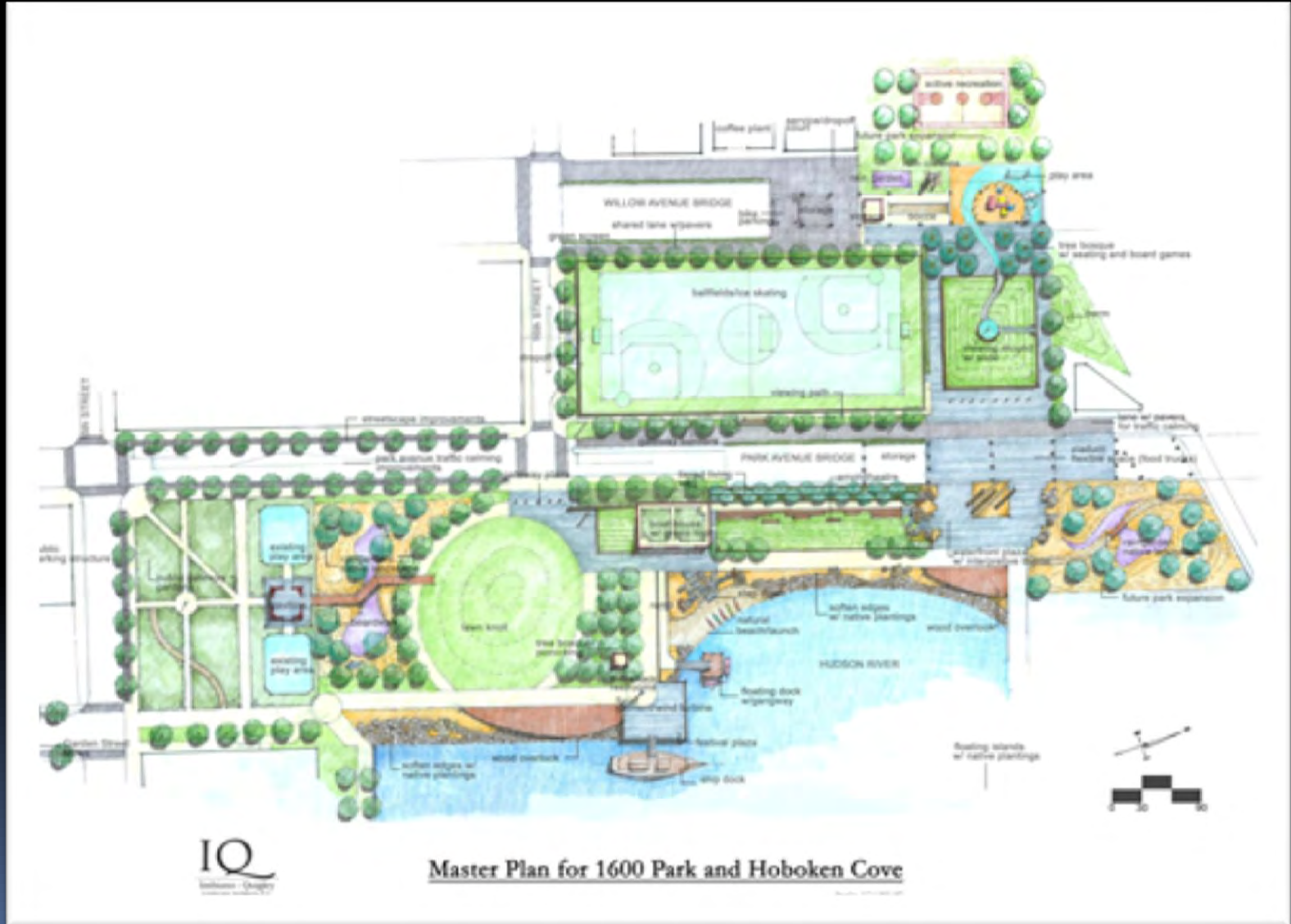
Hoboken's 12 Point Resiliency Plan

10. Coastline Protection: Levees/Flood Barriers

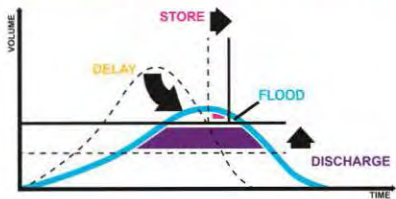


Hoboken's 12 Point Resiliency Plan

10. Coastline Protection: Levees/Flood Barriers



Rebuild By Design



RESIST

TERRACED EDGE



BULKHEAD



DEPLOYABLE FLOOD WALL



DELAY

PARKLAND / TERRACED EDGE



GREEN ROOF



BIOSWALE



STORE

CISTERN



BIORETENTION BASIN



CONSTRUCTED WETLANDS



DISCHARGE

STORMWATER PUMP



STORM DRAIN



FEBRUARY 2016

REBUILD BY DESIGN

• RESIST • DELAY • STORE • DISCHARGE •
HUDSON RIVER

COMMUNITY MEETING - PROJECT ALTERNATIVES UPDATE

ALTERNATIVE 3



— Resist - Alternative 3 — Existing Structures ■ Delay, Store, Discharge

*For more information on Alternative 3, please see the project boards

REBUILD BY DESIGN HUDSON RIVER • RESIST • DELAY • STORE • DISCHARGE •

Dewberry Division of Environmental Protection

PROJECT TIMELINE - FEASIBILITY & NEPA

The Feasibility Study allows us to design a soundly engineered project. The NEPA* Process looks at environmental and community impacts.

*NEPA: National Environmental Policy Act

we are here



REBUILD BY DESIGN HUDSON RIVER • RESIST • DELAY • STORE • DISCHARGE •

Dewberry Division of Environmental Protection

DELAY, STORE, & DISCHARGE

Using "green" and "grey" stormwater management strategies to achieve community benefits while reducing flooding from rainfall.

Retrofitted Parks



Bio-retention Basin



Storage & Pump Station



REBUILD BY DESIGN HUDSON RIVER • RESIST • DELAY • STORE • DISCHARGE •

Dewberry Division of Environmental Protection

Hoboken's 12 Point Resiliency Plan

11. Smart City Wifi Kiosks (“Milemesh”)



Hoboken's 12 Point Resiliency Plan

12. Energy Resiliency: Micro-grid Energy Surety Design Methodology ("ESDM")



Hoboken's 12 Point Resiliency Plan

12. Hoboken Micro Grid UBS/LBS

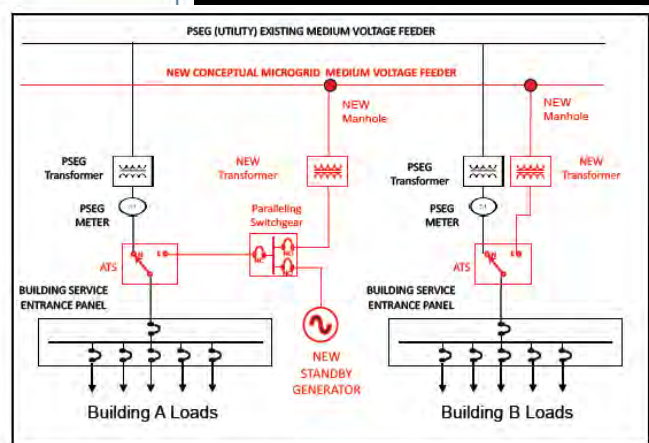
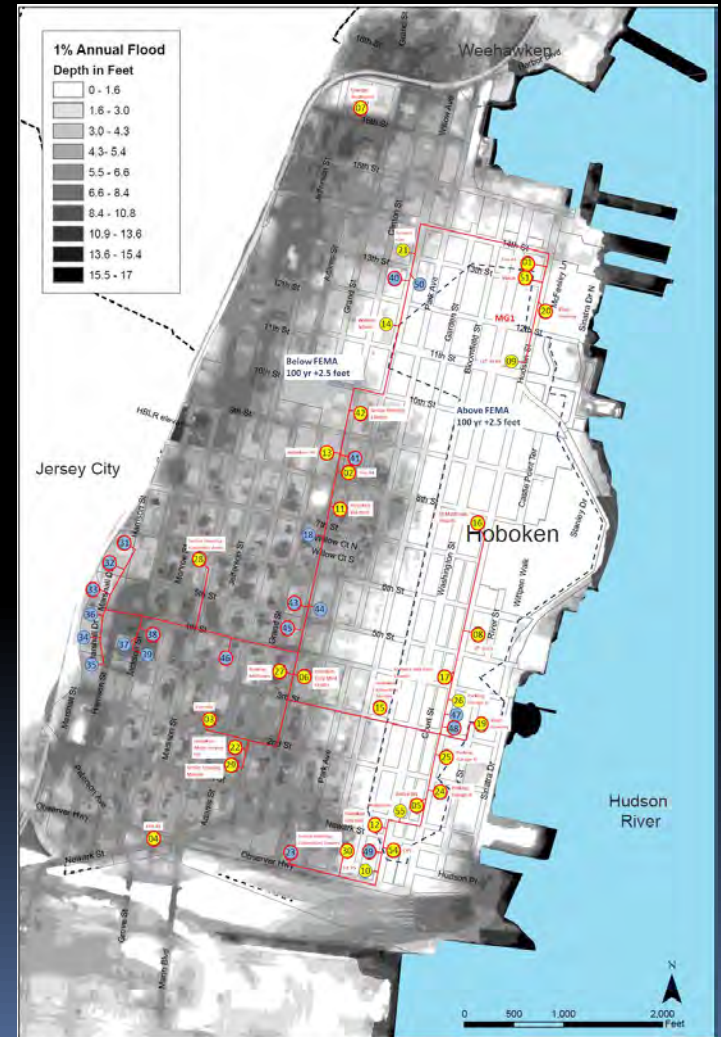
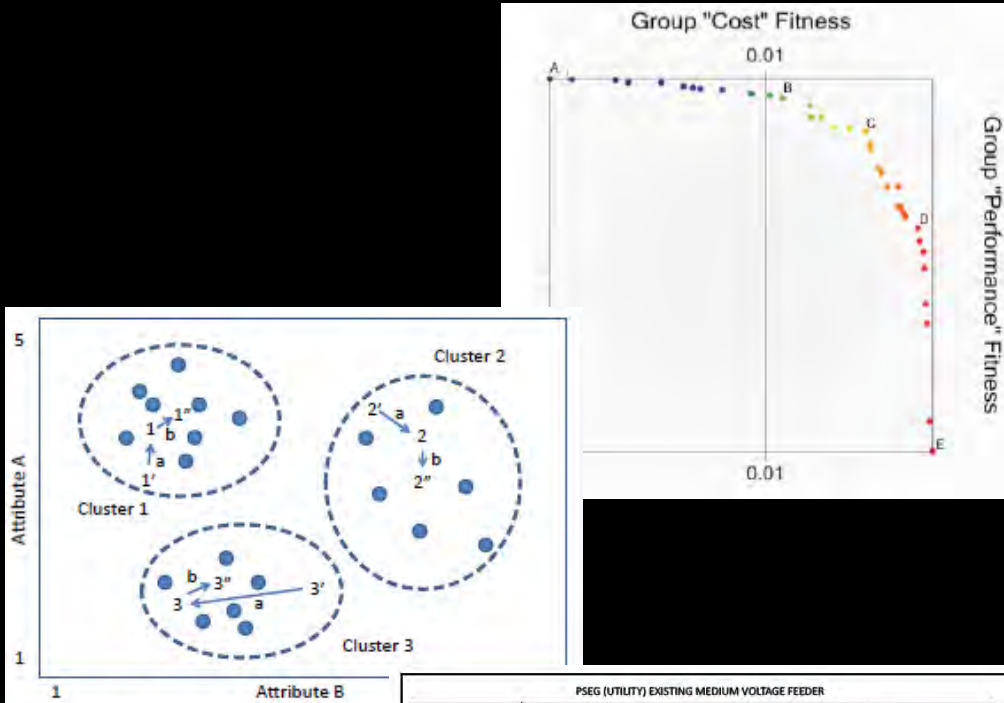



Figure F.3: Details showing how connections are made to create microgrids



**“IN PREPARING FOR BATTLE I HAVE
ALWAYS FOUND THAT PLANS ARE
USELESS, BUT PLANNING IS
ESSENTIAL”**

-- DWIGHT D. EISENHOWER





THANK YOU

Stephen D. Marks



@SDMarksNJ