Superstorm Sandy's Lasting Impact, 2012-2022

Friday, June 3, 2022, at 3:30PM

Michael Calafati, AIA,
Principal
Michael Calafati Architect, LLC

Timothy Hart
Division Director
Ocean County Parks and Recreation Department

Kinney Clark
Geographic Information Systems Specialist
NJ Historic Preservation Office

Samantha Kuntz, AICP
Preservation Planner
AECOM

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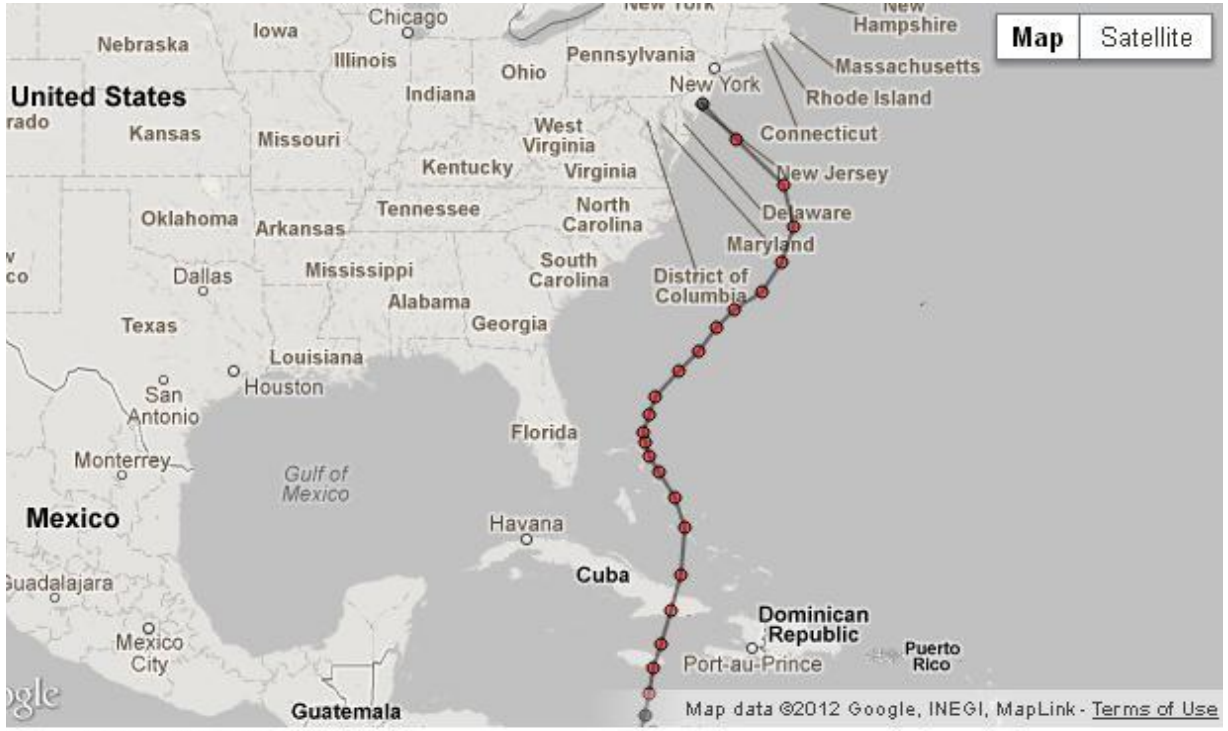
Superstorm Sandy

- Timeline of Events
- The Aftermath
- Sandy's Damage
- Figures & Statistics
- Recovery
- Relief Program Updates
- Clean Up

Target: Jersey Shore



: National Weather Service

Image Credit: National Weather Service

Superstorm Sandy

Timeline of Events – Before Landfall

- 10/24/2012 - Tropical Storm Sandy is upgraded to a Category 1 Hurricane.
- 10/26/2012 - Governor Christie issues an evacuation order for all residents of NJ barrier islands.
- 10/27/2012 - Governor Christie declares a State of Emergency with Executive Order No. 104.
- 10/28/2012 - Sandy merges with a cold front
  - Becomes largest recorded storm in the Atlantic
  - President Obama signs an Emergency Declaration for the State of New Jersey.

Superstorm Sandy

Timeline of Events – Before Landfall

- October 29, 2012
  - The first winds and rain begin to batter coastal New Jersey.
  - A High pressure system forces Sandy northwest toward the Mid-Atlantic States.
  - The Holland Tunnel, George Washington Bridge, and 200 NJ roads are closed.

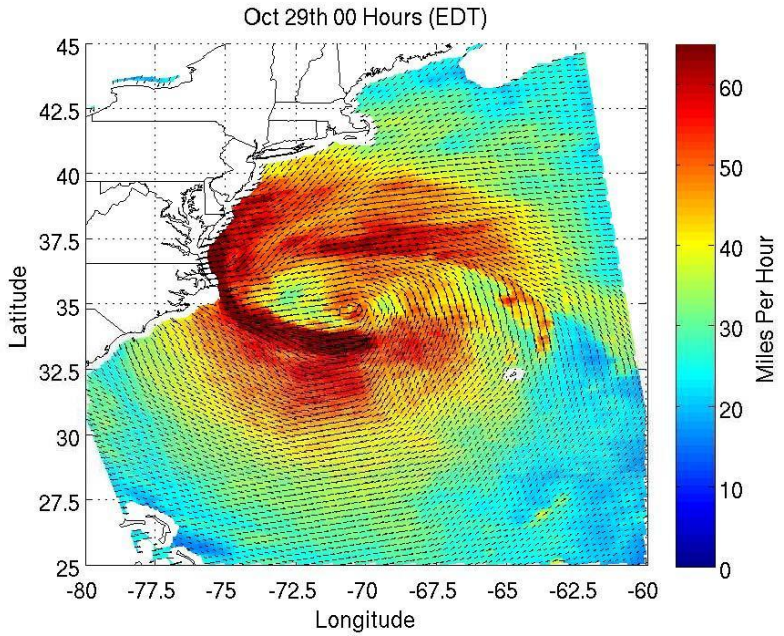


Image Credit: NASA

Superstorm Sandy

Timeline of Events – Landfall

- October 29, 2012—EVENING
  - Sandy makes landfall as a “Post-Tropical Cyclone” just south of Atlantic City.
  - Top wind gust measured in Ocean County: 89 mph (Surf City)
  - Sandy’s storm surge sets high water records
    - The time of landfall coincides with a diurnal high tide.
    - A full moon further exacerbates the storm surge.
    - NOAA recorded storm surges between 5 and 11 feet throughout Ocean County.
    - Storm surge exceeds 15 feet in parts of northern NJ.

Superstorm Sandy

Storm Surge in Ocean County

The extent of Sandy's overland storm surge is shown in blue*

Image Credit: Ocean County Dept. of Engineering

Superstorm Sandy

The Aftermath: Casino Pier, Seaside Heights

Image Credit: Ocean County Dept. of Planning

Superstorm Sandy

The Aftermath: Mantoloking Bridge

Image Credit: Ocean County Dept. of Planning

Superstorm Sandy

Impact on NJ and Ocean County

- Superstorm Sandy caused 185 deaths in the U.S.
  - 35 deaths in NJ
  - 4 deaths in Ocean County
- 2.6 Million NJ residents lost power—a third for at least six days.
- Between 77,000 and 82,000 NJ businesses and homes were damaged or destroyed.
  - Approximately 30,000 residents displaced form their homes in Ocean County – more than any other NJ county.
  - Entire municipalities closed off to the public

Superstorm Sandy

Relief Program Updates: The Disaster Relief Appropriations Act of 2013

- On *January 28, 2013*, Congress provided nearly $51 Billion for Sandy-related aid
- These funds would be divided among several agencies, including:
  - FEMA
  - U.S. Small Business Administration
  - Army Corps of Engineers
  - HUD's Community Development Block Grants (CDBG)
  - U.S. Dept. of the Interior
  - U.S. Dept. of Health and Human Services
- This followed a $9 Billion aid package passed on *January 6, 2013*, for ongoing recovery efforts

Superstorm Sandy

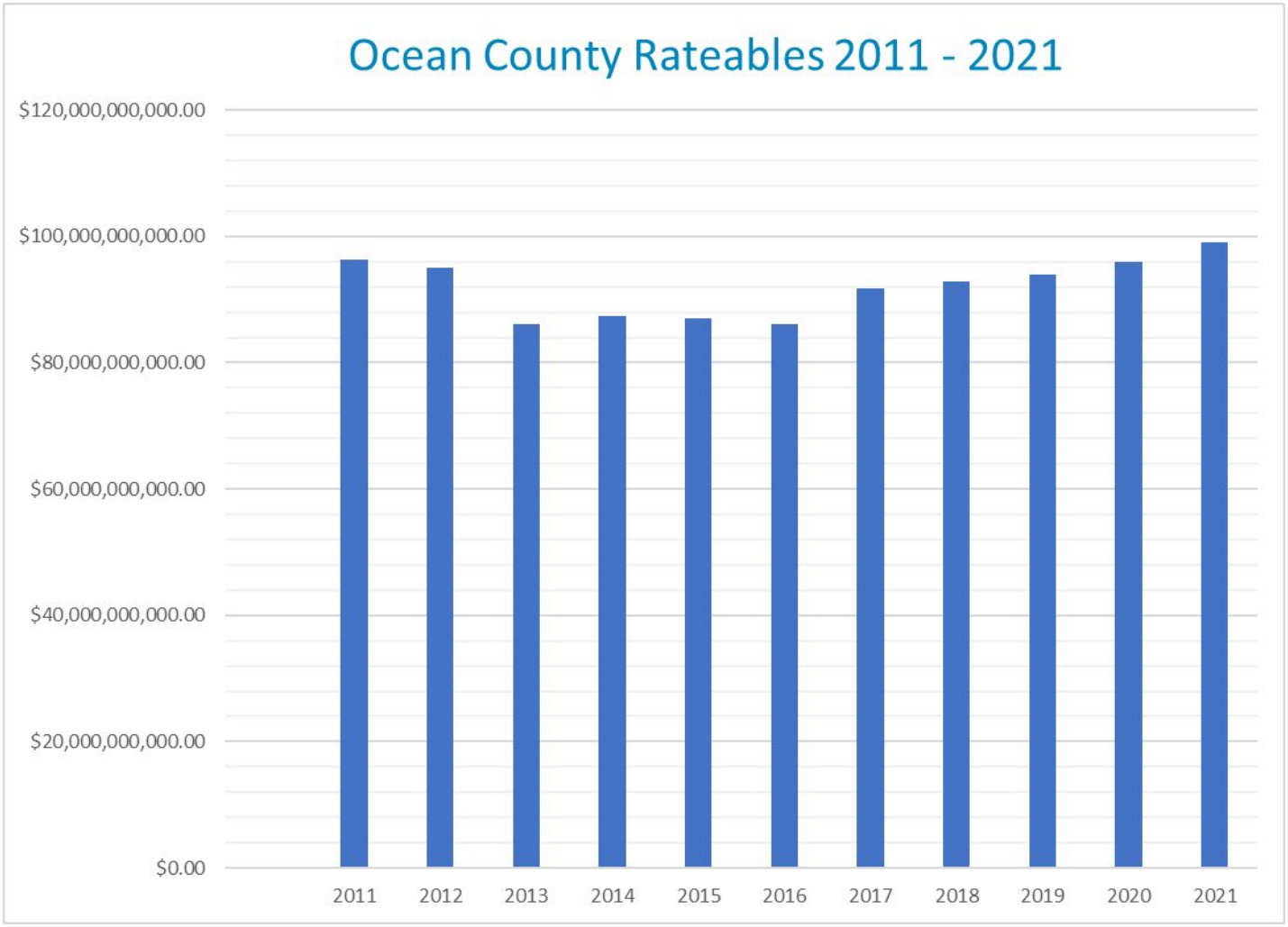
Snapshot of Determinations

Area within SFHA impacted by Superstorm Sandy Only and potentially below compliant Base Flood Elevation

- 30% **NOT SUBSTANTIALLY DAMAGED** (802 Structures)
- 27% **NOT DETERMINED** (691 Structures)
- 29% **761 New Structures/House Raises** since November 1, 2012
- 10% **SUBSTANTIALLY DAMAGED** and **NOT MITIGATED**

  and/or not reviewed for compliance (257 Structures)
- 4% Classified as **Repetitive Loss of Severe Repetitive Loss** by FEMA (95 Structures)

Superstorm Sandy



Superstorm Sandy's Lasting Impact, 2012-2022

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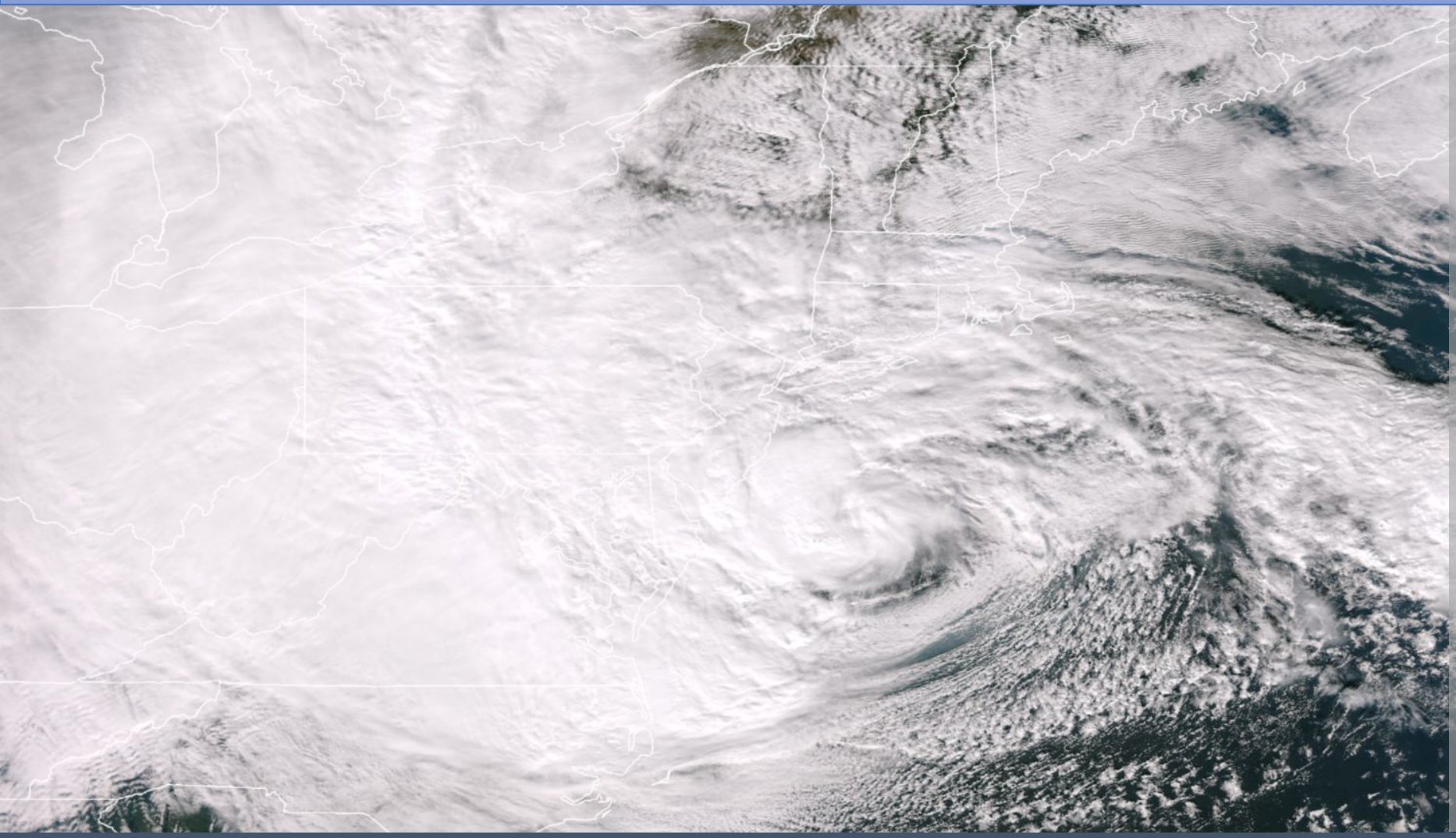
Kinney Clark
Geographic Information Systems Specialist
NJ Historic Preservation Office

Superstorm Sandy: An HPO Retrospective



- Immediate Aftermath
- Recovery Rollout
- Mitigation Era
- Planning For Change

GOES East image of Hurricane Sandy, Oct. 29, 2012, 17:35z *(Credit: NOAA)*

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Immediate Aftermath

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Immediate Aftermath

Immediate Aftermath

December 2012 – June 2014

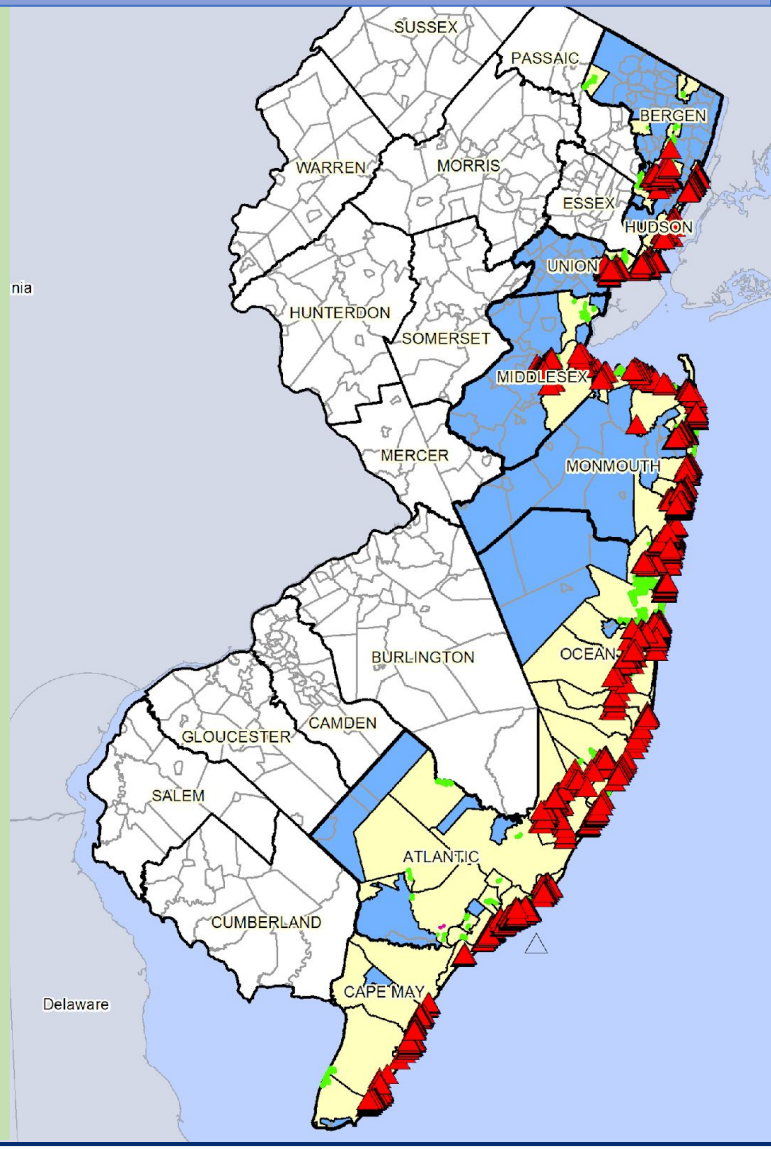
WINDSHIELD SURVEY

- FEMA/HPO cooperative effort
- Identified areas of “Low Potential” for historic resources
- Streamlined recovery funding for “Green Zones”
- Highlighted need for updated survey in Statewide

Immediate Aftermath

SURVEY BY THE NUMBERS:

- 8 Counties
- 109 Municipalities
- Over 1700 Miles Driven
- 100 Square Miles Surveyed
- 65 Square Miles "GREEN"
- Over 10,000 Digital Photos



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FEMA Fact Sheet

Federal Insurance and Mitigation Administration

Historic Structures and the Biggert-Waters Flood Insurance Reform Act of 2012

In 2012, the U.S. Congress passed the Biggert Waters Flood Insurance Reform Act of 2012 (BW 12) which calls on the Federal Emergency Management Agency (FEMA) and other agencies to make a number of changes to the way the NFIP is run. Some of these changes have already been put in place, and others will be implemented in the coming months. Key provisions of the legislation will require the NFIP to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders. The changes will mean premium rate increases for some – but not all – policyholders over time.

Below are some of the Frequently Asked Questions (FAQs) associated with BW 12 and its impact on historic structures.

1. What does BW12 say about historic buildings?

BW 12 makes no special provisions or exceptions for historic buildings. For rating purposes, historic buildings are to be treated the same as any other Pre-FRIM properties.

2. How does BW12 impact the premiums for flood insurance policies for historic structures?

Section 100205 requires the phase-in of full risk rates for the following types of property: non-primary residences, business properties, severe repetitive loss (SRL) properties, properties for which claims payments exceed the fair market value, and substantially damaged or improved properties. Additionally, Section 100205 requires the immediate application of full risk rates to new policies, lapsed policies, and policies for property that has been sold to a new owner since the enactment of BW 12.

Any currently subsidized policies for historic buildings meeting the criteria established in Section 100205 will see premium rate increases. Those structures will have rate increase at a rate of 25% per year until full actuarial rates are achieved.

3. If a historic structure is a primary residence, what impact will this have on its flood policy premium?

All primary residences – including those that are historic buildings – that were built before the initial Flood Insurance Rate Map (Pre-FIRM), and that are located in special flood hazard areas (flood zones A, AE, AH, AO, A1-A30, V, VE, V1-V30) and D zones will see a 16 to 17 percent increase effective on or after October 1, 2013, in order to reduce the amount of subsidy provided to these policyholders.

This percentage increase is based on actuarial analysis and includes the 5 percent Reserve Fund assessment for all policies, excluding Preferred Risk Policies. The Reserve Fund assessment is mandated under Section 100205.

4. Is it possible to get an exemption for a historic building from the mandated rate increases?

No. The wording of Section 100205 does not allow FEMA any discretion in implementing it. FEMA does not have the statutory authority to exempt historic buildings from the mandated rate increases of Section 100205.

5. Did BW12 modify or address any specific aspect of the National Flood Insurance Program's floodplain management provisions pertaining to historic structures?

No. BW 12 did not modify or address any aspect of the NFIP floodplain management provisions pertaining to historic structures.

6. What are the NFIP floodplain management provisions that pertain to historic structures?

The NFIP contains two provisions that provide relief for "historic structures" in Special Flood Hazard Areas from the NFIP floodplain management regulations for new construction and substantial improvements/substantial damage. The two provisions include:

(1) The definition of "substantial improvement" at 44 CFR 59.1, states, "alteration to an 'historic structure' does not constitute a "substantial improvement", provided that the alteration will not preclude the structure's continued

"FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards."

Definition of "Historic Structures"

The definition section of the NFIP [Code of Federal Regulations (CFR) 44 Part 59], defines "historic structure" as "any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

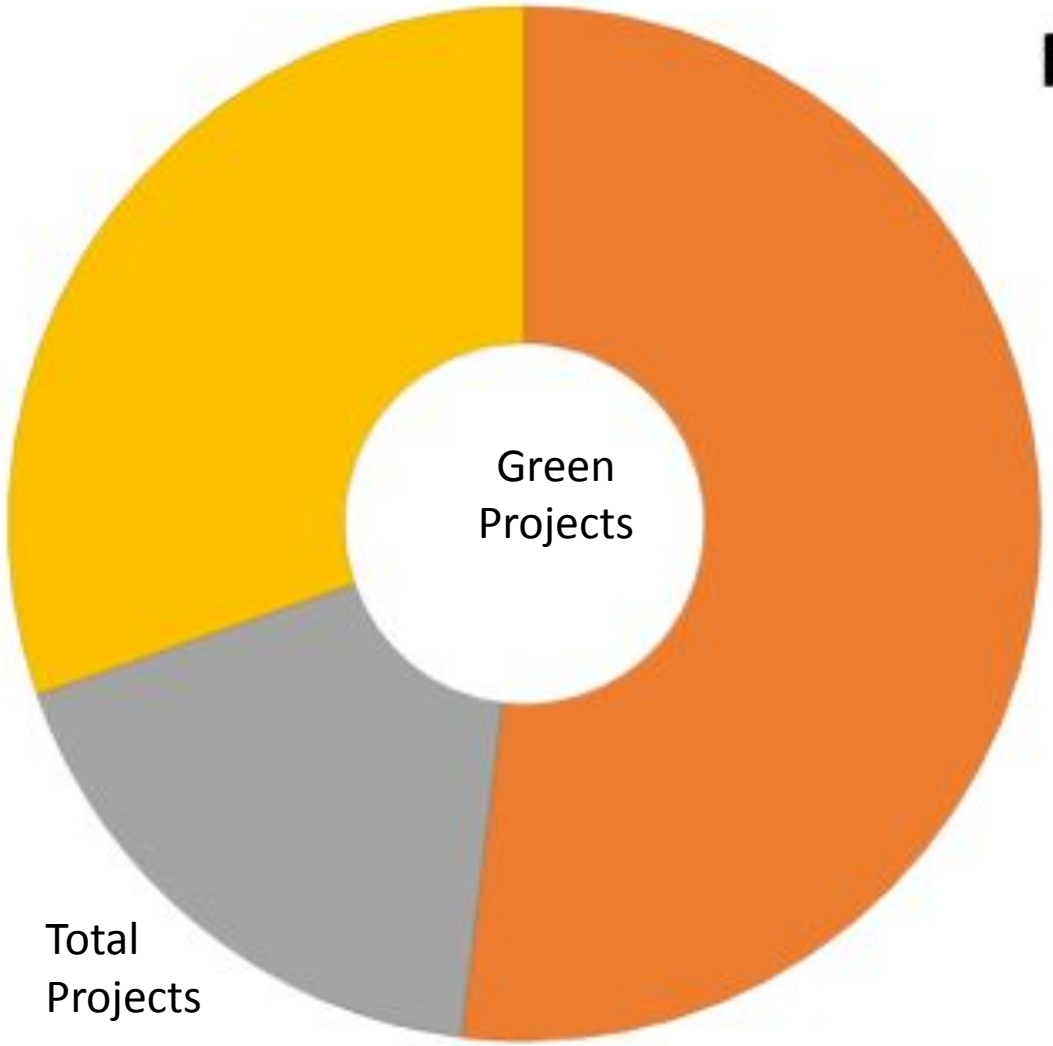
(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: (a) By an approved state program as determined by the Secretary of the Interior or (b) Directly by the Secretary of the Interior in States without approved programs.

This definition was coordinated with the Department of Interior when it was added to the NFIP Regulations in 1989.

Recovery Rollout

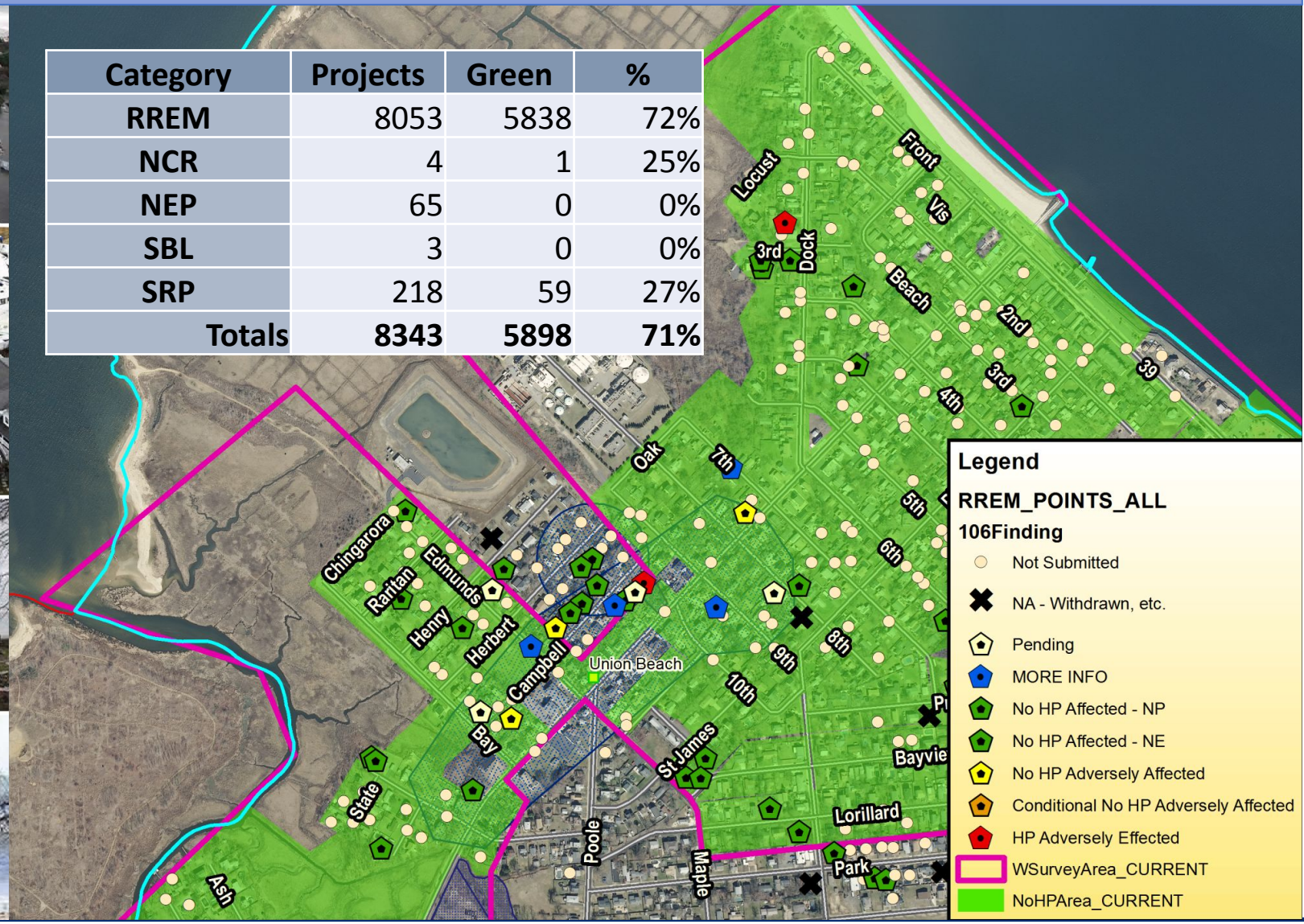


Category	Projects	Green	%
Windshield Survey	123	N/A	0%
PPDR	1368	1164	85%
HMGP Buyouts	406	396	98%
HMGP Elevations	900	680	76%
Total	**2797**	**2240**	**80%**

Recovery Rollout

HUD CDBG-DR PROJECTS

Category	Projects	Green	%
RREM	8053	5838	72%
NCR	4	1	25%
NEP	65	0	0%
SBL	3	0	0%
SRP	218	59	27%
Totals	**8343**	**5898**	**71%**



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Recovery Rollout

Hurricane Sandy Disaster Relief Assistance Grant for Historic Properties

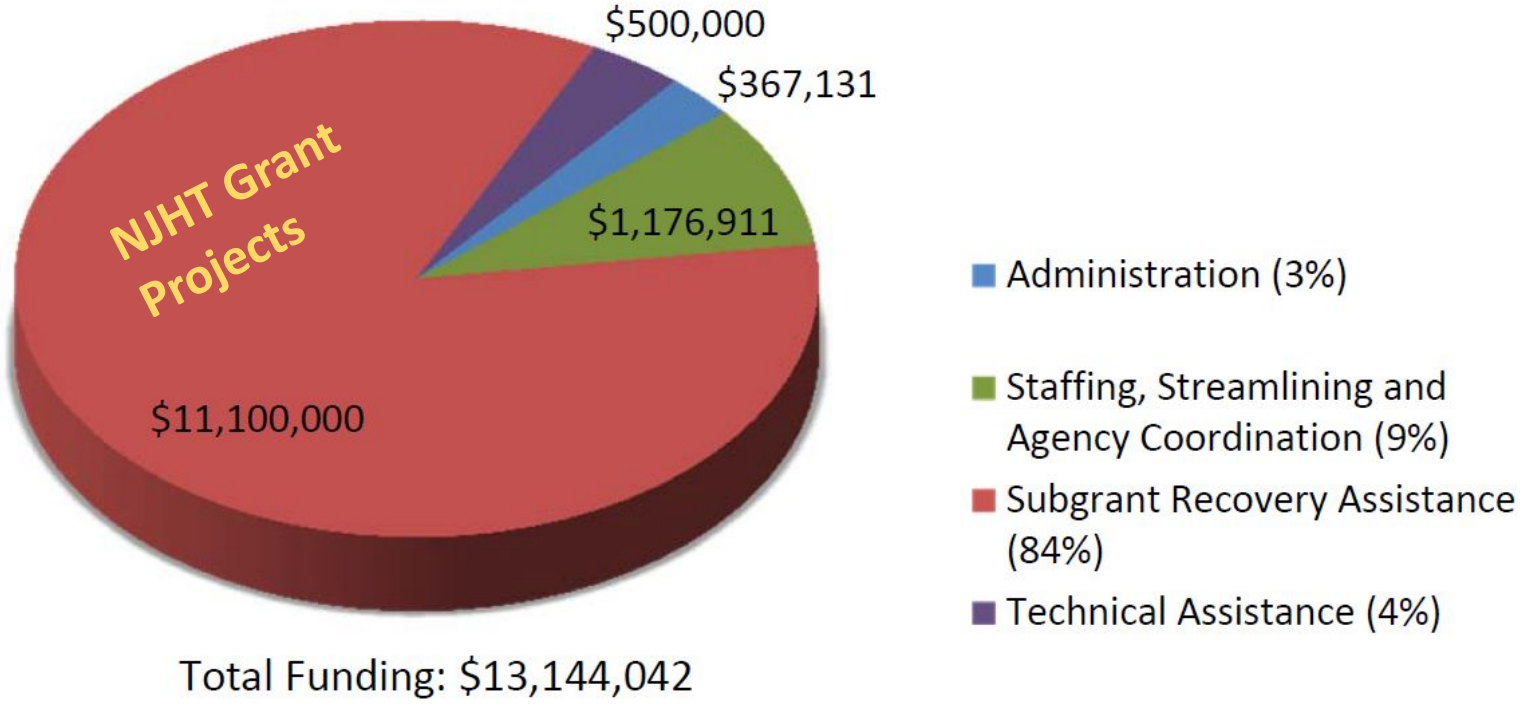
Action Plan Narrative for the Preservation, Stabilization, Rehabilitation, and Repair of Historic Properties

Photo Caption: Monmouth Beach, December 11, 2012

Public Law 113-2

December 20, 2013

Historic Preservation Fund Disaster Recovery Program



Total Funding: $13,144,042

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Re ery Rollout

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REDISCOVERY & RENEWAL

Recovery Rollout

Cumberland Bayshore Survey

Along Pages Run Creek, Lawrence Twp.

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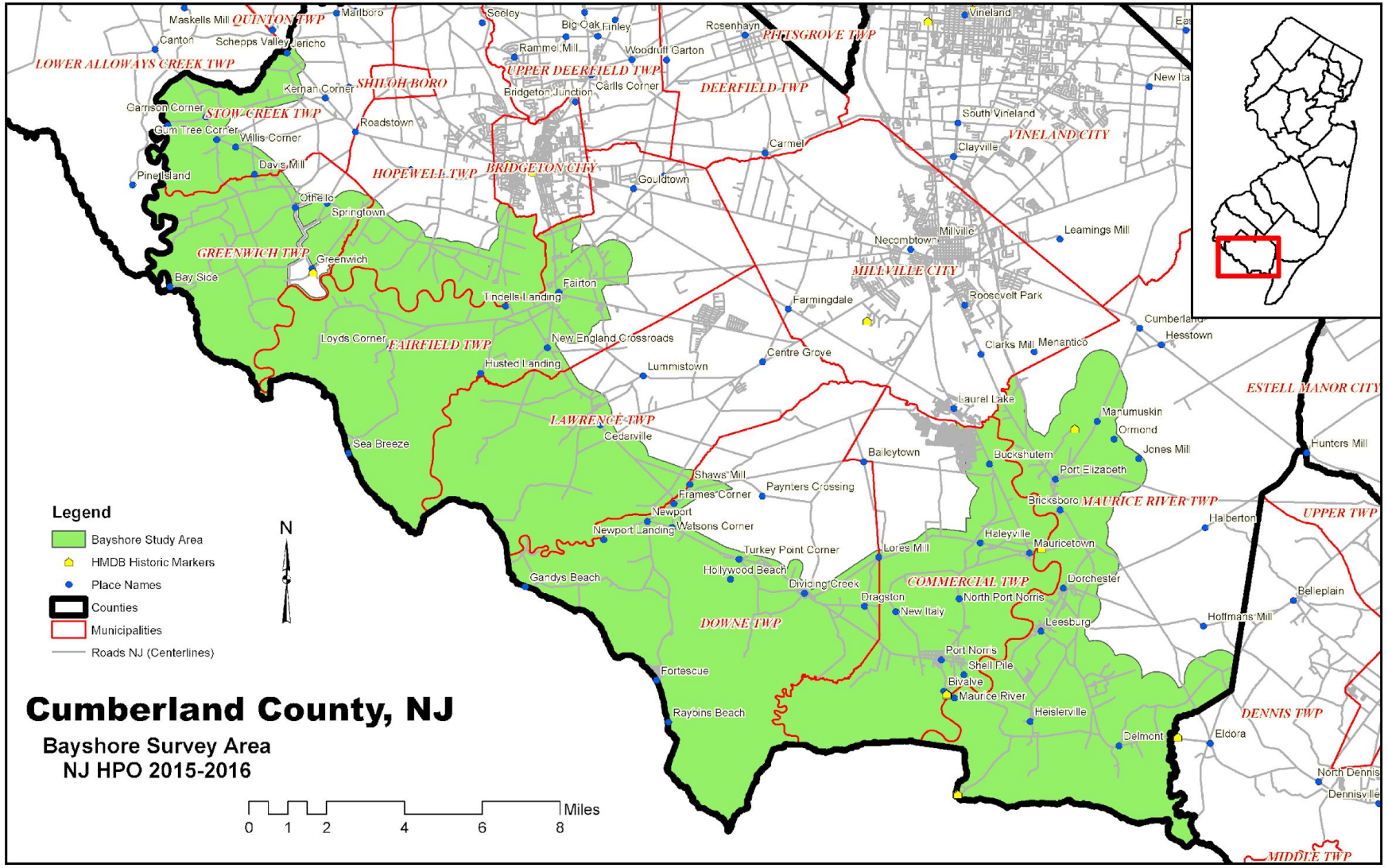
Recovery Rollout



CUMBERLAND BAYSHORE SURVEY

- High Risk / Least Documentation
- Survey Area: ½ mile buffer Sandy surge zone
- In-House Project
- Completion TBD ☹

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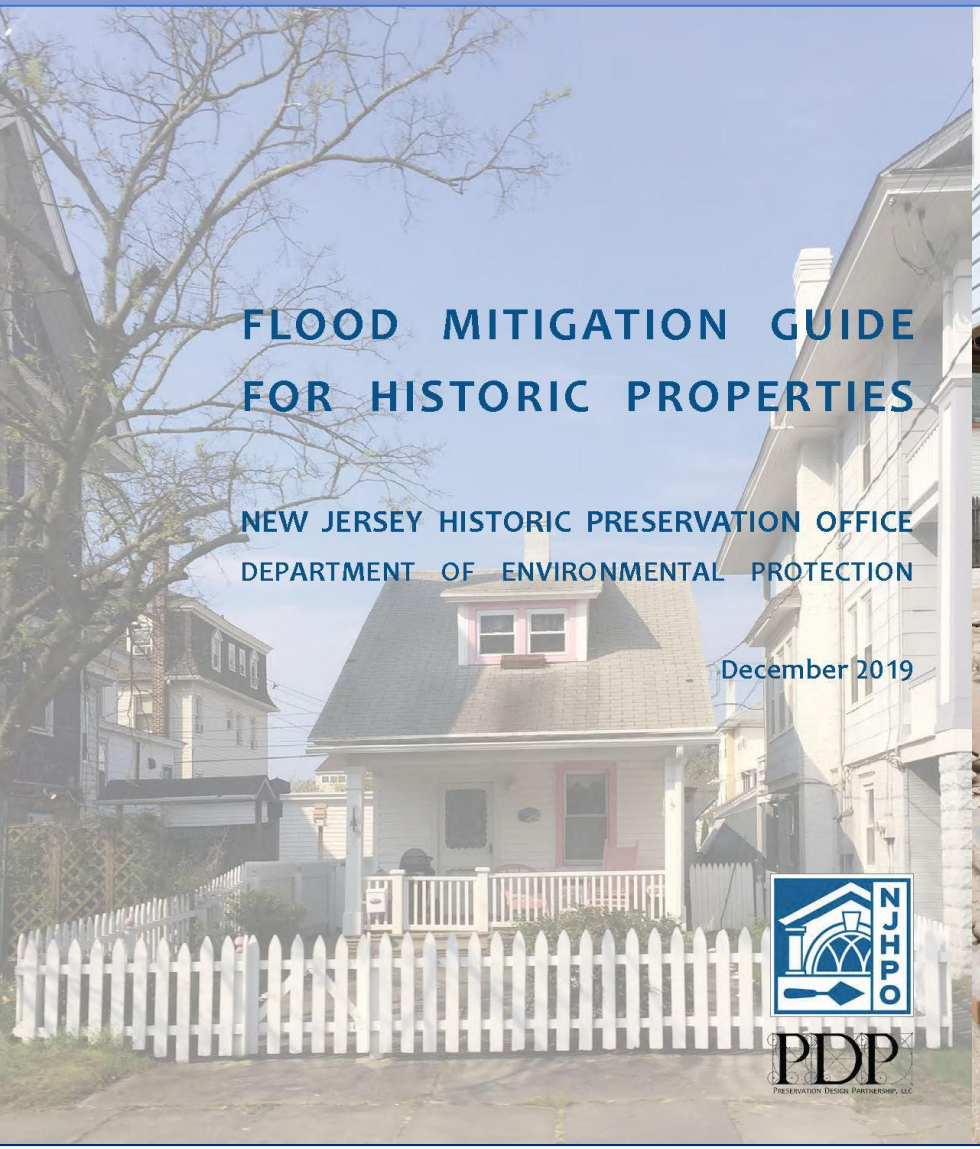
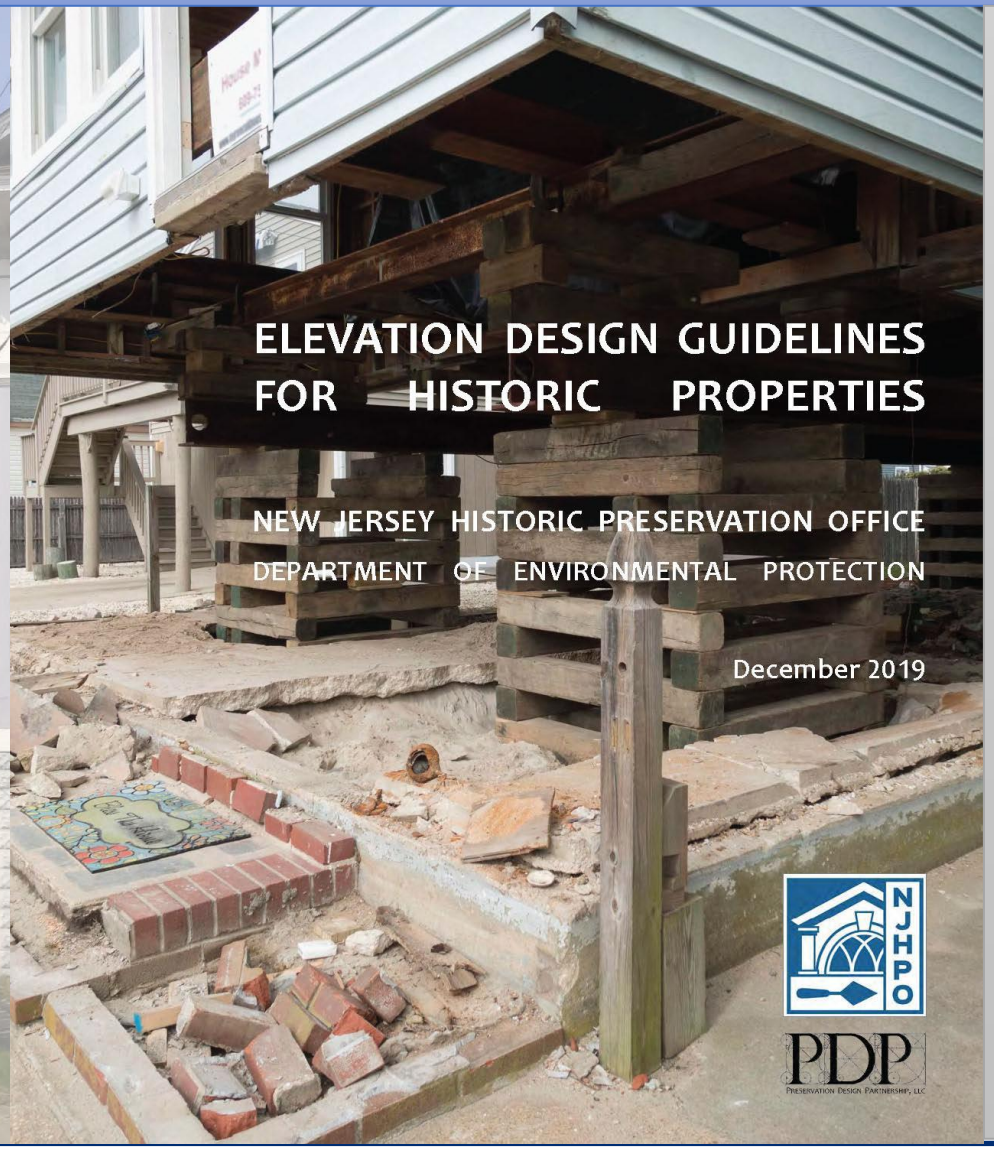
Recovery Rollout





GUIDANCE DOCUMENTS

- Initial focus was Elevation Design Guidelines
- Evolved into companion volumes:
  - Holistic Overview
  - Specific Approach
- Available on HPO Website:

nj.gov/dep/hpo ☺️

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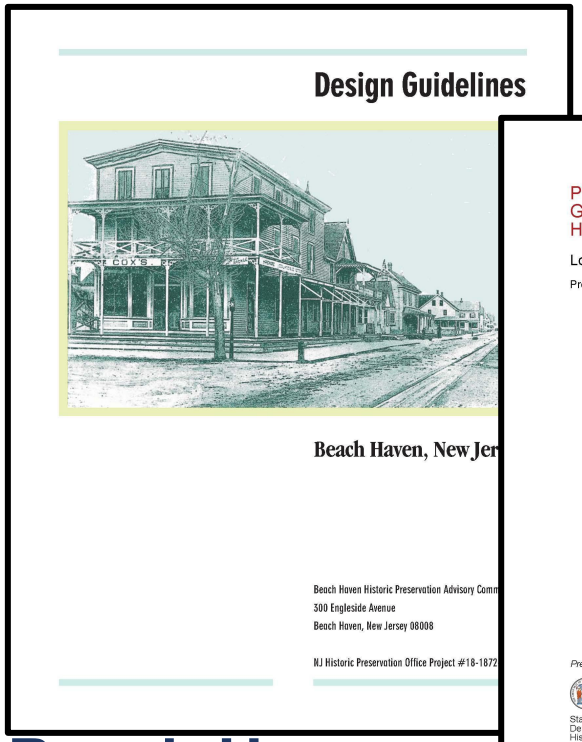
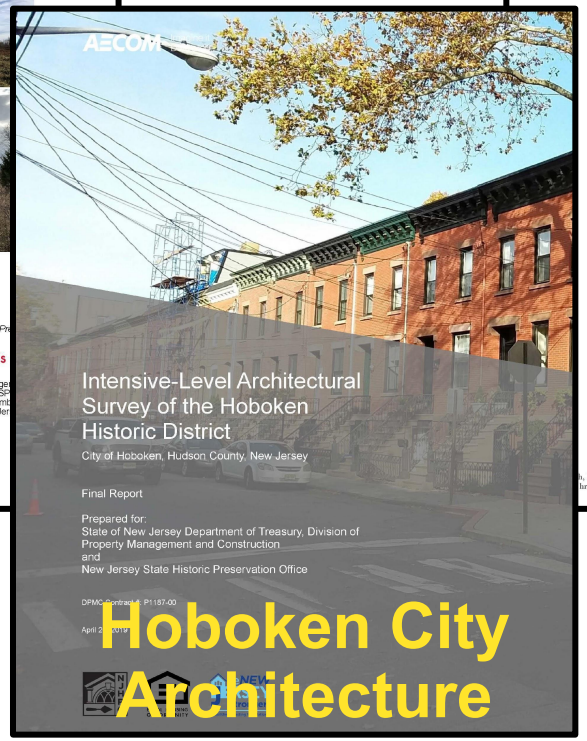
Mitigation Era

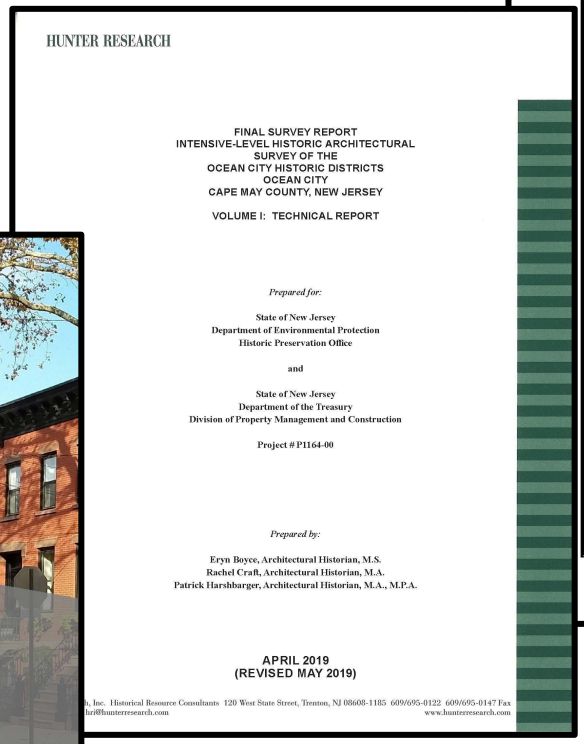


Beach Haven Design Guidelines

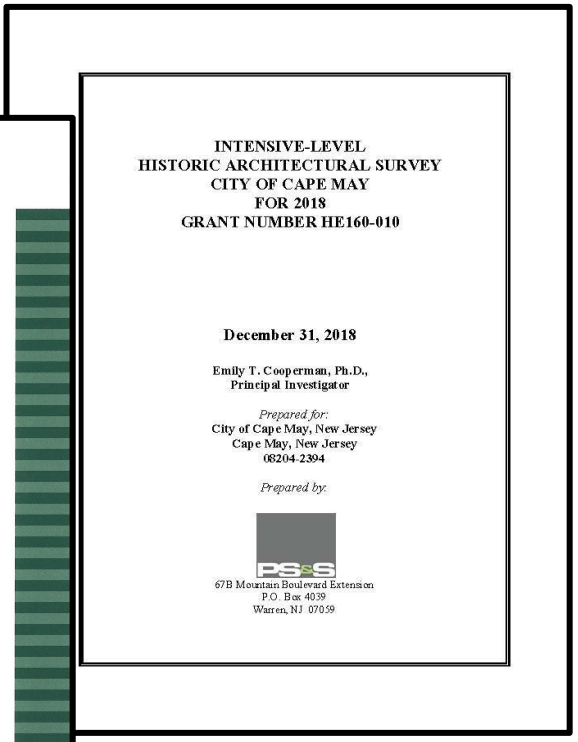
Higbee Beach Archaeology



Hoboken City Architecture



Ocean City Architecture



Cape May City Architecture

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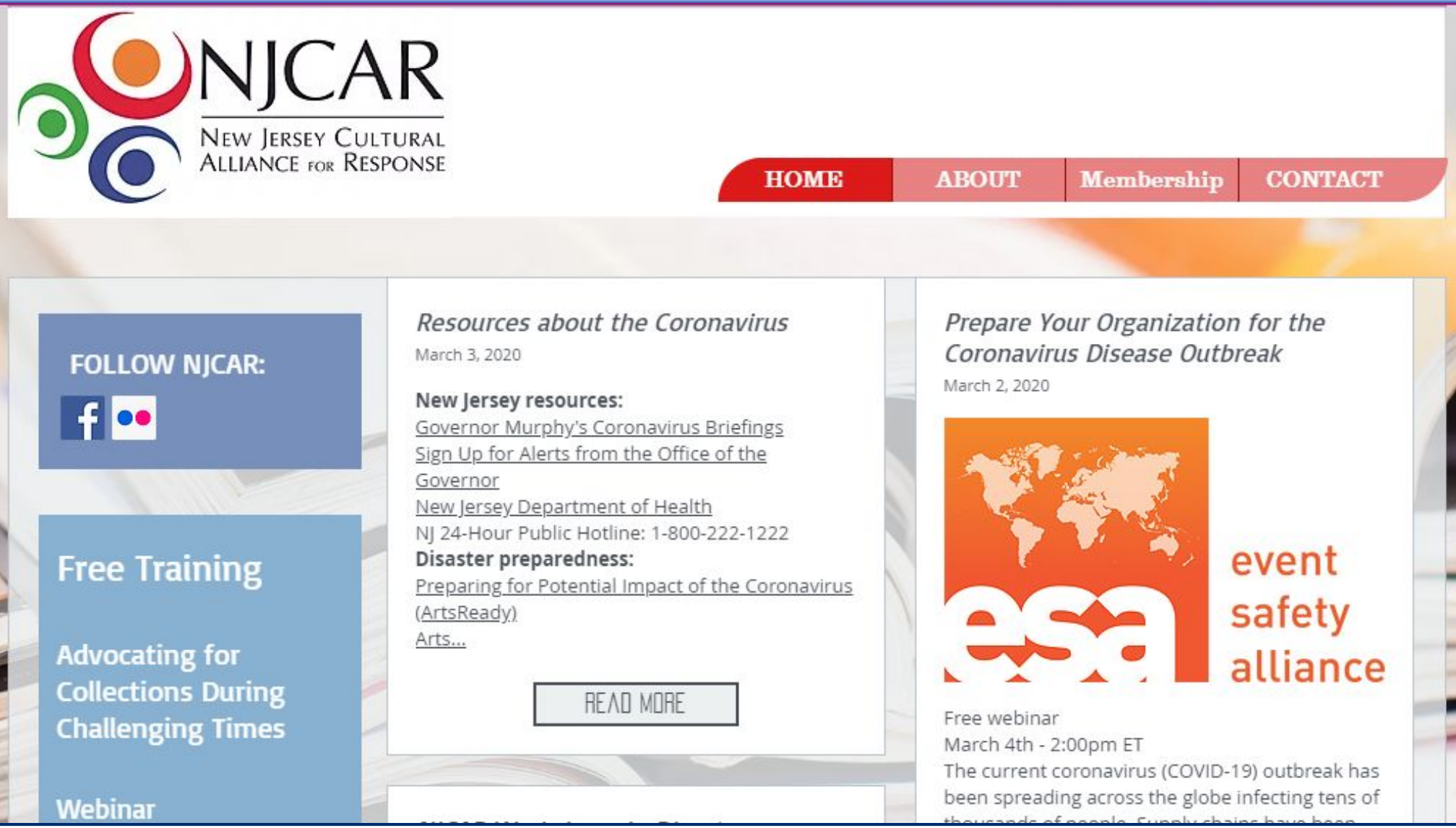
Mitigation Era



NJ Cultural Alliance for Response

NJCAR's primary aims are to prevent and mitigate the loss of cultural and historic resources in the event of a disaster and to serve as a statewide resource.

The functions and duties of NJCAR are to engage in the following activities: Conduct regular steering committee meetings to address pertinent issues regarding emergency preparedness and response.

Mitigation Era

FEMA ARCHAEOLOGICAL DATA COMPILATION

- Archaeological site data dispersed across three agencies
- NJSM Official Registrar
- NJPC Site Files through Pinelands approval process
- FEMA GIS Staff scanned and digitized locations of sites from NJSM, NJPC, and NJHPO
- X Marks the Spot

Mitigation Era

DORES SCANNING:

- HPO Report Collection
- Over 13,200 Volumes
  (and counting)
- Average Growth ~300/Year
- Scanning phase 2019-2022
- Processing ongoing

Mitigation Era

DEP DataMiner

Home | Search | Contact | Help

Home > Search By Category > Historic Preservation > [Planning and Compliance Survey Report Listings by Municipality] > Report Criteria > Report

Planning and Compliance Survey Report Listings by Municipality

Export as PDF Excel

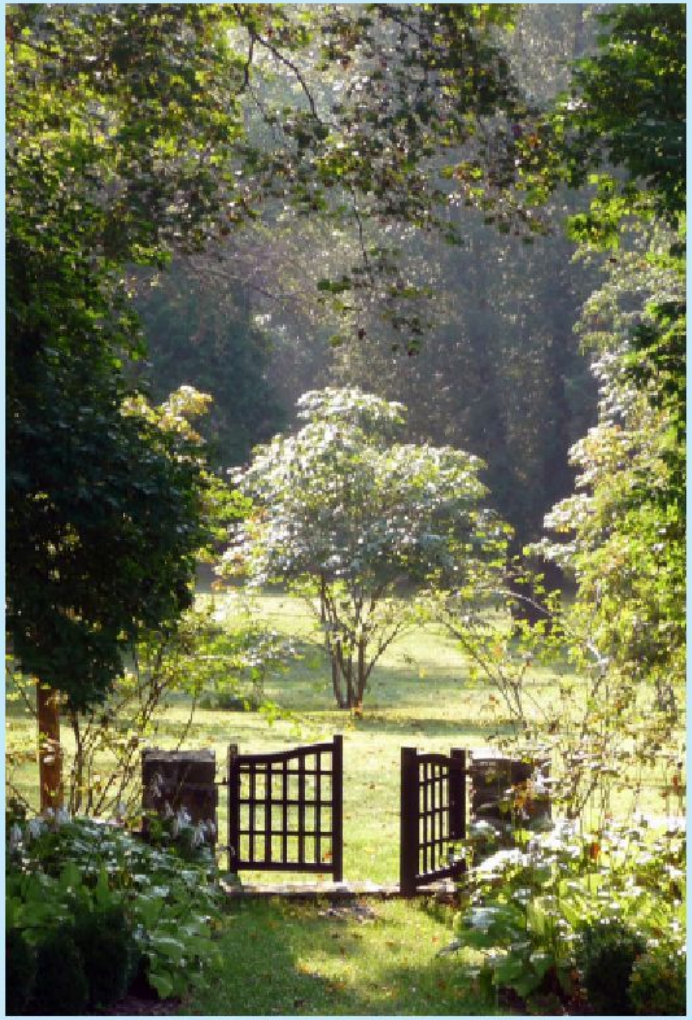
« 1 2 3 4 5 6 7 8 9 10 ... » »»

Project ID	Shelf Code	Survey Type	Title	Year	County	Municipality	Document	Notes
29069168	ATL F 1011a	Alternatives Analysis	Alternatives Analysis Report, Route 30 over Beach Thorofare, Bridge Rehabilitation of Structure No. 0103-152.	2020	Atlantic	Atlantic City	ALT_F_1011a_ID14168	
15458103	ATL F 550	Combined Report	Cutural Resources Investigation, Replacement of U.S. Route 30 Bridge over Penrose Canal, Atlantic City, Atlantic County, New Jersey	1999	Atlantic	Atlantic City	Restricted	

Planning for Change

2013 - 2019

New Jersey Comprehensive Statewide Historic Preservation Plan



NJHPP 2013-2019: GOAL 1:

Use historic preservation as a tool to strengthen and revitalize New Jersey's state and local economies in a sustainable manner.

i. Assist individuals and organizations in disaster preparedness including the effects of sea level rise.

Planning for Change

NJHPP 2022-2027:

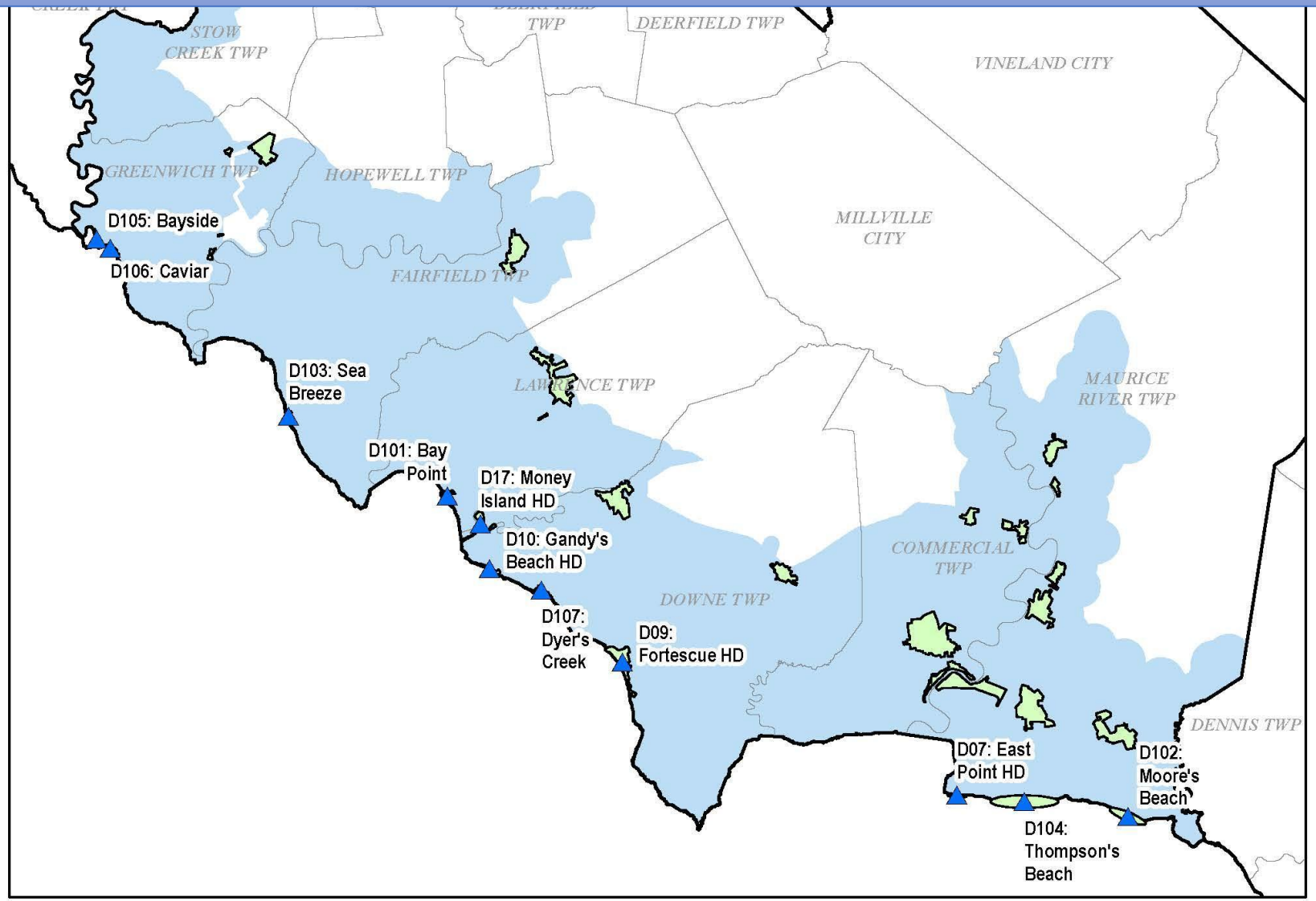
Will need to address…

- Intersection of state and local planning for sea level rise and climate change relative to Historic resources
- Outline comprehensive adaptation strategies (preserve, adapt, relocate, abandon)
- Decision making guidance for these strategies
- Forward looking interventions
- Survey and documentation prioritization

Draft is in development
Expected release 2022

Holgate, Long Beach Island, NJ.

Planning for Change



COASTAL ADAPTATION

- Bayfront Communities
- Blue Acres Buyouts
- How do we document those lost and actively disappearing in order to understand the context of those that survive?

Planning for Change

COASTAL ADAPTATION

- Archaeology at risk
- Site Stewardship
- Monitoring and recordation
- Florida SiteWatch Program

Parting Shot

BUILDING A PLACE FOR HISTORY REDISCOVERY & RENEWAL

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Superstorm Sandy's Lasting Impact, 2012-2022

Friday, June 3, 2022, at 3:30PM

Samantha Kuntz, AICP
Preservation Planner
AECOM

Surveying Hoboken

Resiliency Planning & Historic Resources

Integration of resiliency planning

A better understanding of the historic resources that comprise the historic district can enhance the community's understanding and ability to prepare for, and recover from, future storm events.

Intensive-Level Architectural Survey

1,600 properties surveyed in and immediately surrounding the National Register-eligible Hoboken Historic District

Common Character-Defining Features

Dense residential rowhouse streetscapes (predominantly Neo-Grec), sunken garden-levels with areaway fencing, steep original stoops with basement-level entries, original openings with intact surrounds and enframements, and original cornices.

Summary Findings

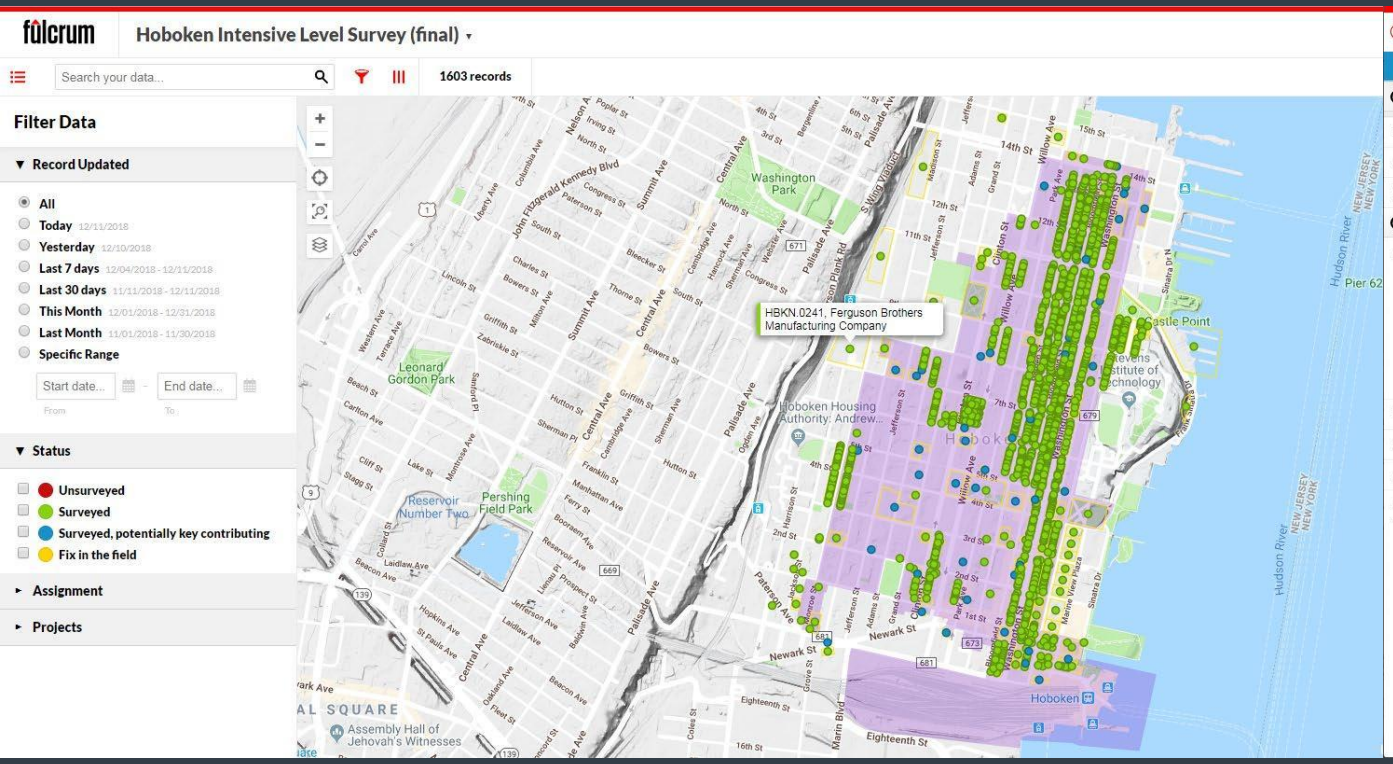
- 1,290 properties recommended contributing to district
- Boundary expansion recommended to capture 62 properties located outside of original boundary
- 2 new historic district recommendations

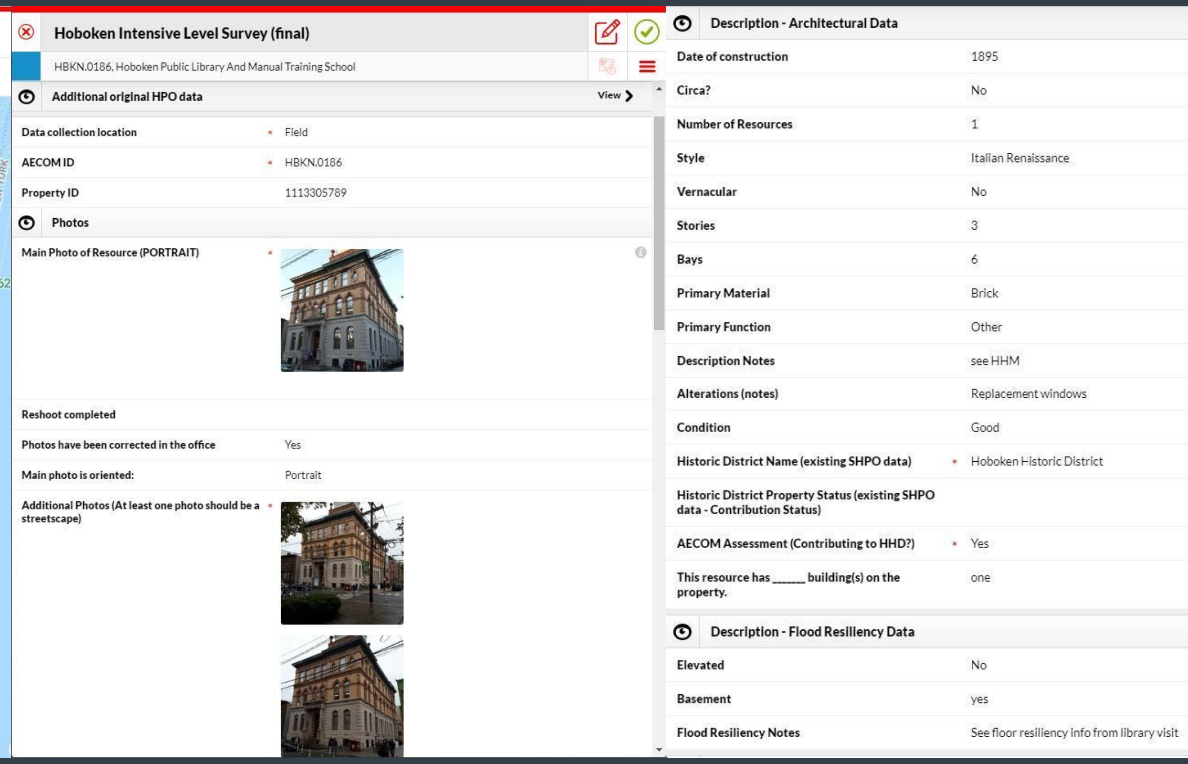
Building Efficiency into Methodology

Conduct survey using cloud-based collection technology via LTE/WiFi enabled tablets

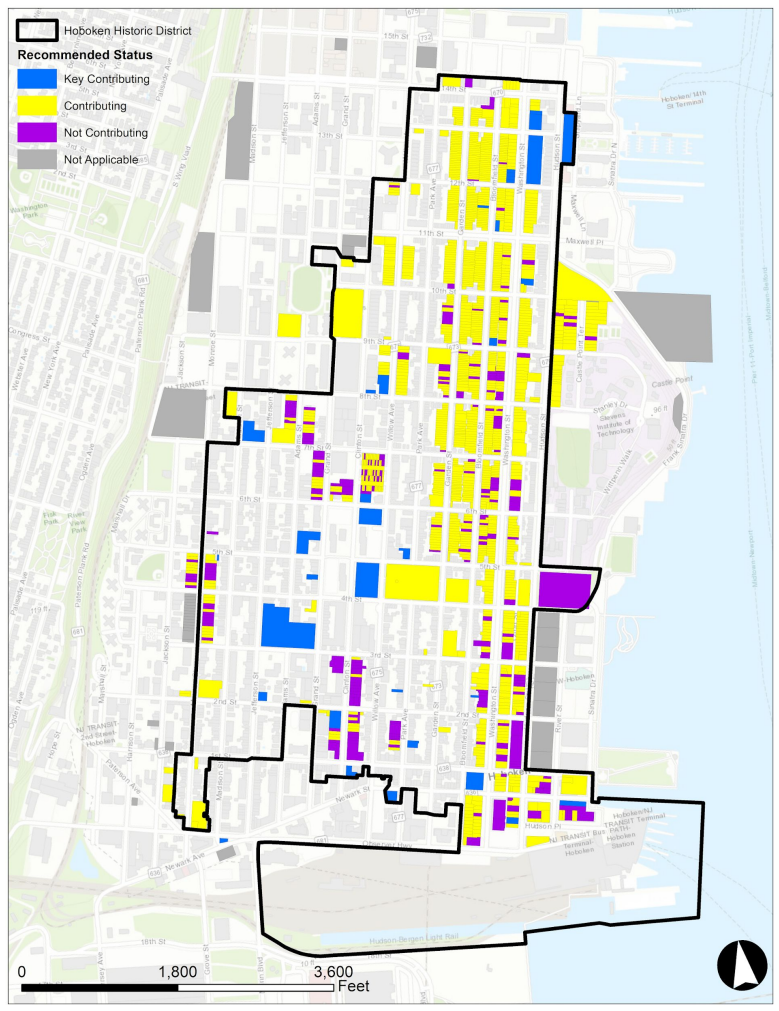
Capture geospatial data, architectural data, and photos in single location

Streamline process from survey to reporting to deliverable by keeping data together

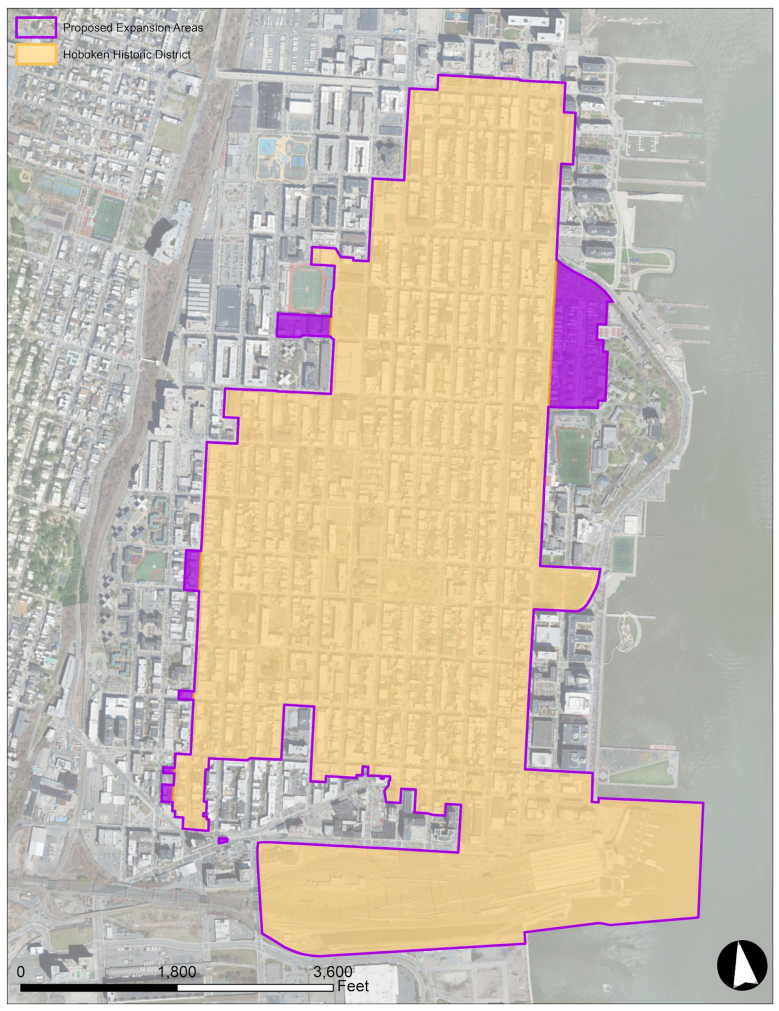




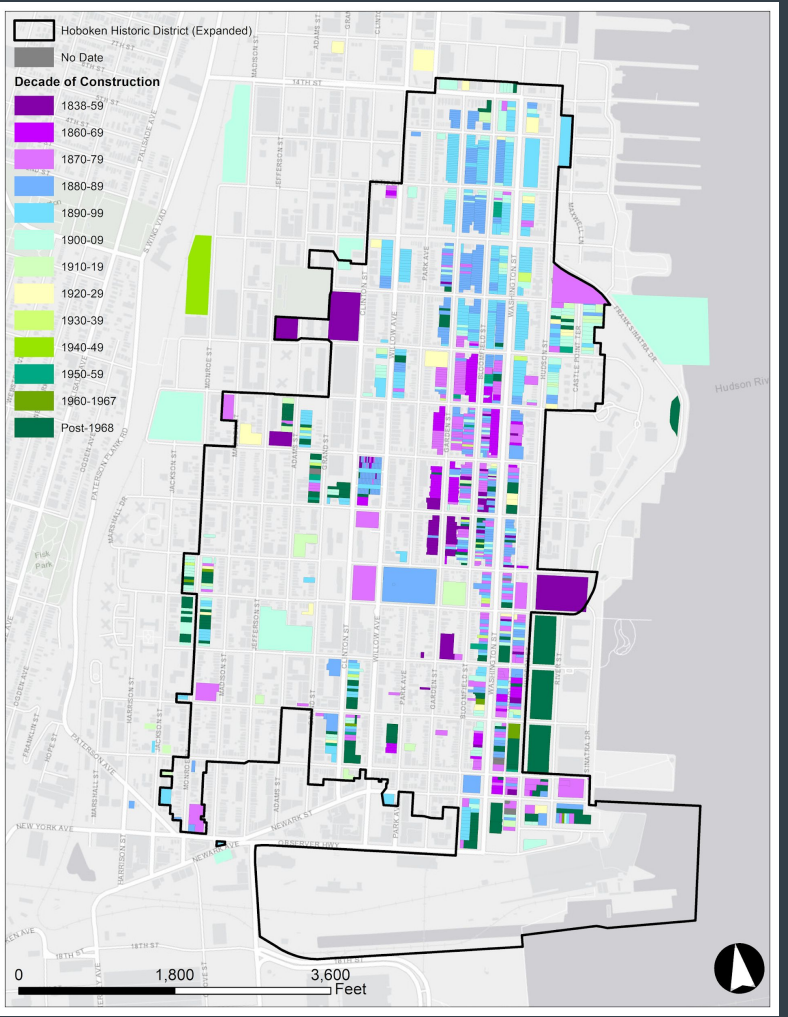
Increased Opportunities for Analysis



Historic resources by contributing status



Historic district boundary evaluation/expansion



Historic development mapping

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Surveying Vulnerable Resources

Integration of resiliency planning into traditional historic preservation surveys is increasingly vital

The process included:

- Documenting character-defining features below Design Flood Elevation (DFE)
- Recording visible mitigation strategies
- Mapping flood vulnerable resources to identify risk

Vulnerability rankings allow clients to prioritize projects and funding = better planning for preservation

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Character-Defining Features (CDFs)

CDFs below Design Flood Elevation (DFE)

- Façade detailing, stonework, carvings
- Secondary entries and thresholds
- Windows and vents

Other Vulnerable CDFs for Consideration

- Roofline features
- Finials, decorative cornice work, corbelled details
- Façade materials
- Shutters, hardware, embellishments
- Shingles
- Landscaping and gardens
- Pathways and circulation patterns

Surveying Vulnerable Resources

Integration of resiliency planning into traditional historic preservation surveys is increasingly vital

The process included:

- Documenting character-defining features below Base Flood Elevation (BFE)
- Recording visible mitigation strategies
- Mapping flood vulnerable resources to identify risk

Vulnerability rankings allow clients to prioritize projects and funding = better planning for preservation

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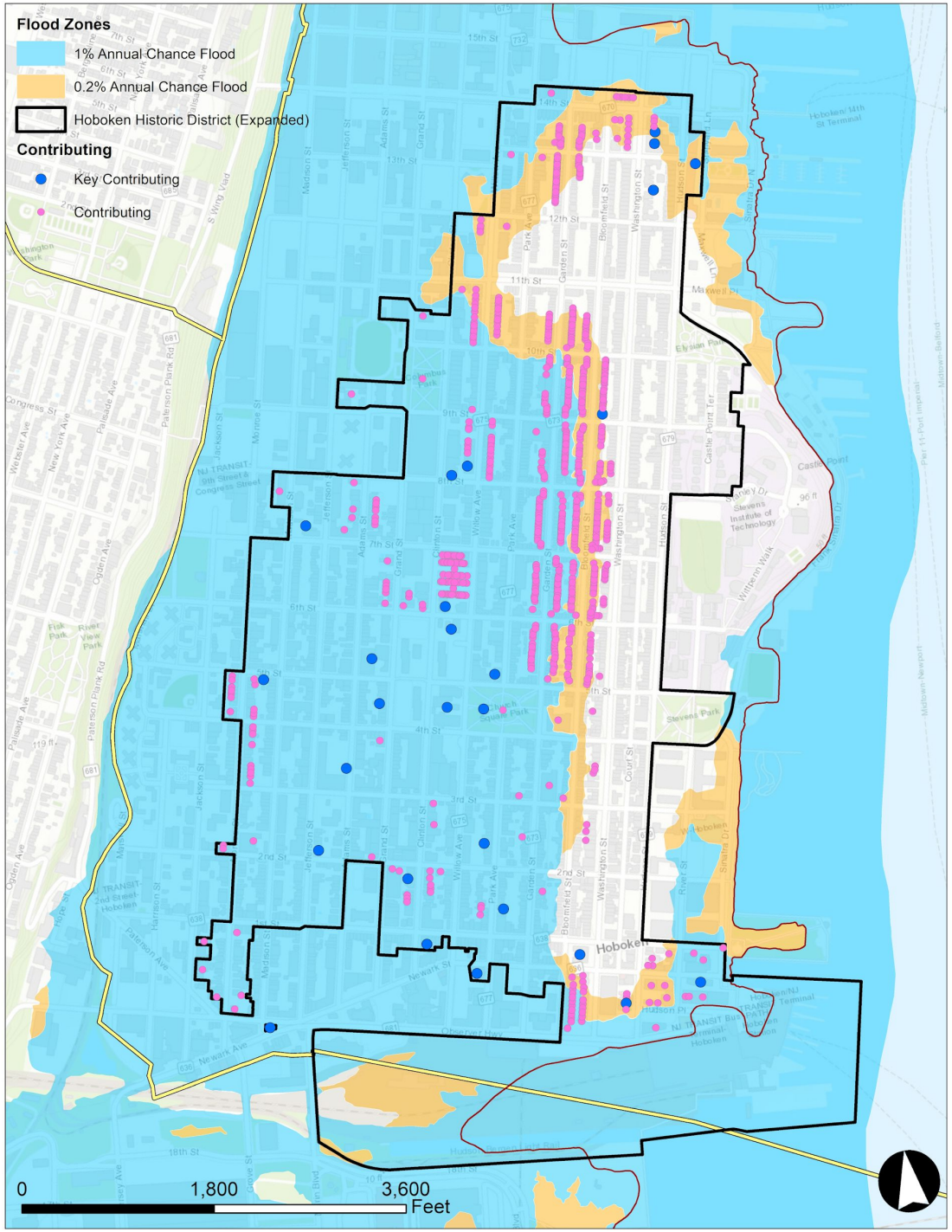
Mitigation Strategies

- Landscaping, pervious surface or groundcover around perimeter to reduce stormwater runoff)
- Brick/concrete infill of openings and entries below DFE
- Concrete fill across lower façade
- Drainage trenches along foundations
- Elevating the primary entry
- Abandoning the lower level, realignment of floors above the DFE
- Building up – rooftop additions



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Vulnerability rankings allow clients to prioritize projects and funding = **better planning for preservation**

AECOM

Findings

980 historic resources – **61%** – located in the Flood Hazard Area (FEMA)

1% Annual Chance (i.e. 100 year flood)

- 306 contributing properties
- 20 key contributing properties
- 128 non-contributing properties

.02% Annual Chance (i.e. 500 year flood)

- 430 contributing properties
- 7 key contributing properties
- 54 non-contributing properties

95 properties with visible interventions

- Garden level/basement window infill
  - Flood vents
- Garden level infill, residential uses moved above DFE
- Rooftop additions
- Landscaping around foundation perimeter
- Drainage trenches

Note: The majority of the reported interventions do not appear to have been driven by the Hoboken Flood Damage Prevention Ordinance (Ord. No. Z-263)

Hoboken Public Library + Manual Training School

Individually NR-listed + Key Contributing to the Hoboken Historic District

1895 Italian Renaissance-style building

Located in the 1% Annual Chance Flood Hazard Area

Extensive flood mitigation efforts undertaken in recent years that are sympathetic to the historic significance and integrity

Model for approach to other resources within the historic district – blend preservation and planning

Hoboken Public Library + Manual Training School

Interventions

- Reconfigured roofline pitch to assist with rainwater runoff
- Water-proof coating on concrete footings to prevent water penetration
- Exterior areaway drainage improvements
- Aerated wainscot panels for air circulation and easy removal to access interior walls
- Flood gates at lower level doors
- Emergency power supply and elevated mechanics above grade
- Backflow preventers, ejector pumps, sump pumps with sump pump alarms
- Garden Rainwater Detention

AECOM

Recommendations

Data compiled by the Intensive-Level Architectural Survey of the Hoboken Historic District may serve as a value tool for building resiliency into local preservation policy, increasing an understanding of the inventory of historic resources and determining how to protect them in the event of flooding or other climate-related hazards

Like many historic urban cores, Hoboken is susceptible to climate-related hazards, which place additional pressure on the preservation of local heritage resources. Resiliency planning for historic properties is a proactive measure that local agencies may undertake to secure the future of their resources

Recommendations to Streamline Preservation and Prevention Efforts

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Streamlining Planning and Preservation Objectives

1

Design a Cultural Resource Hazard Mitigation Plan and/or Flood Hazard Mitigation Design Guidelines for resources within historic districts that are streamlined to local emergency management planning documents

2

Identify additional metrics of vulnerability for historic resources (ex. condition, material, character-defining features below Base Flood Elevation, and projecting features) and establish short, medium, and long term strategies for protection

3

Develop an agreed-upon approach to ensure future development is calibrated for both historic and resiliency needs within the Hoboken Historic District