



FEMA



Salem County, NJ Coastal Hazard Analysis Flood Risk Review Meeting

December 11, 2013

RiskMAP
Increasing Resilience Together



Agenda for Today

- **Kick-off and Introductions**
- **Risk MAP Program Overview**
- **Hazard Mitigation Planning Process and Mitigation Actions**
- **Overview of Non-Regulatory Flood Risk Products and Datasets**
- **Coastal Flood Risk Study and Mapping**
- **Flood Risk Communications**
- **USACE & USGS**
- **Breakout Group Sessions**

FEMA's Risk MAP Program

- Risk Mapping, Assessment and Planning 2010 - 2014
- Builds on Map Mod digitized Flood Insurance Rate Map (FIRM) successes
- Will deliver quality data that **increase public awareness and lead to action that reduces risk to life and property**
- Regulatory Products: Flood Insurance Study (FIS) and FIRM (Coastal re-mapping)
- New Non-Regulatory Products and Datasets



Mapping



Assessment



Planning



Hazard Mitigation & Your Hazard Mitigation Plan

- Hazard Mitigation is defined as any sustained **action taken to reduce or eliminate long-term risk** to life and property from hazards
- Use new Risk MAP information to help with identifying mitigation actions when updating your Hazard Mitigation Plan

DFIRM Database

- ☑ Flood_Hazard_Data
- ☑ Political_Boundaries
- ☑ Public_Land_Survey_System
- ☑ TopoData
- ☑ Community_Panel_Info
- ☑ L_Comm_Info
- ☑ L_MT1_LOMC
- ☑ L_Pan_Revis
- ☑ L_Pol_FIRM
- ☑ L_Riv_Model
- ☑ L_Sin_Start
- ☑ L_Vtr_Nm
- ☑ S_Bfe
- ☑ S_DOC_Index
- ☑ S_Firm_Pan
- ☑ S_Gen_Struct
- ☑ S_Label_Ld
- ☑ S_Label_Pt
- ☑ S_LOMR
- ☑ S_Perm_Bmk
- ☑ S_Qued
- ☑ S_Riv_Mrk
- ☑ S_Tnsport_Ar

Flood Risk Database

- ☑ Community_Panel_Info
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- ☑ S_MT1_LOMC
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FLOOD INSURANCE STUDY

FLOOD COUNTY, USA AND INCORPORATED AREAS

Federal Emergency Management Agency

Flood Risk Report

FEMA

Watershed Risk Map: Watershed USA

FEMA

Salem County, New Jersey
Multi-Jurisdictional Hazard Mitigation Plan

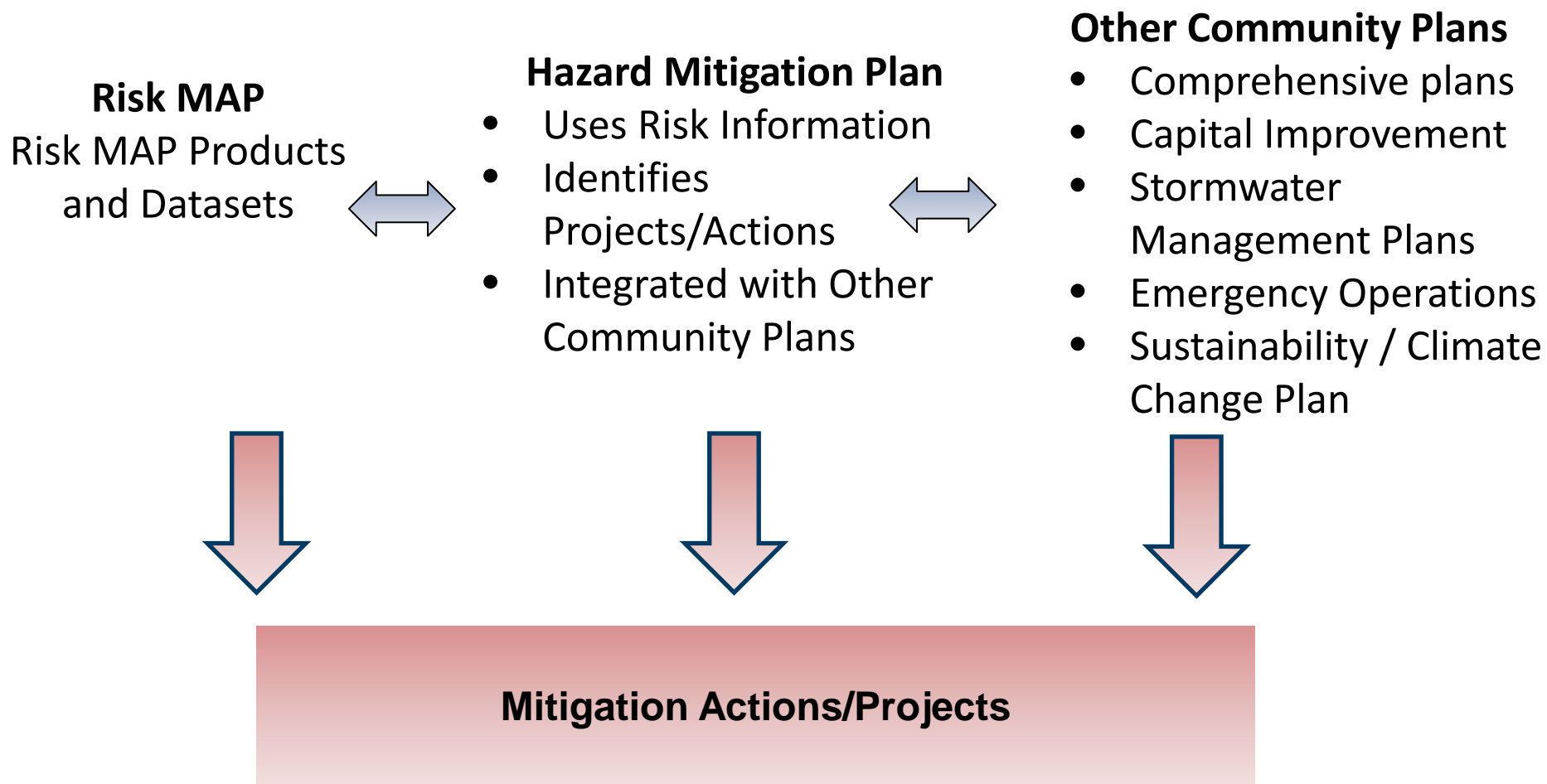
prepared by

Salem County New Jersey
Office of Emergency Management

Third Final Draft Appendices - September 20, 2010

Approved: October 7, 2011
Expires: October 7, 2016

Local Hazard Mitigation Plans (HMPs)



Mitigation Actions – Types, Examples



STRUCTURE AND INFRASTRUCTURE PROJECTS

Acquisition
Elevation
Retrofits
Drainage

LOCAL PLAN AND REGULATIONS

Zoning
Building Codes
Ordinances
Open Space Plan

COMMUNITY IDENTIFIED PROGRAMS

Firewise
StormReady
NFIP
CRS

NATURAL SYSTEM PROTECTION

Stream and wetland restoration
Erosion control

What Action Will You Take?

- What are some **areas of mitigation interest** in your community?
- Can you think of any **mitigation projects**?
- **Review draft Areas of Mitigation Interest and provide feedback** to NJDEP and FEMA representatives during the working session



FEMA Workshops and Technical Assistance

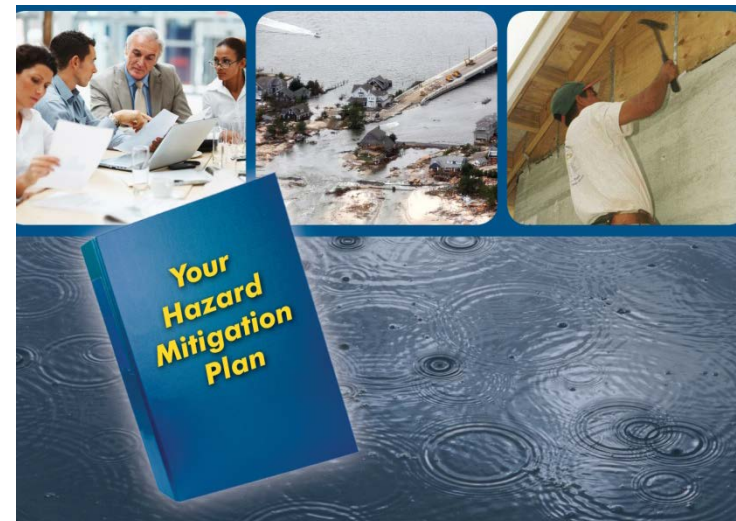
A community's Hazard Mitigation Plan is only as good as its **mitigation strategy**.

Mitigation Strategy Workshop:

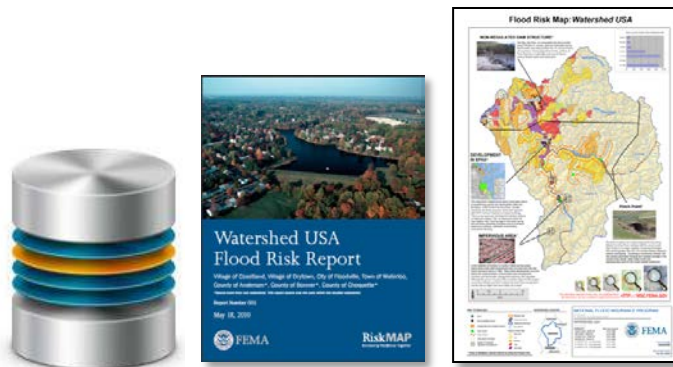
- Develop actions
- Build a strategy for successful implementation
- Coordination
- Link your natural hazard risk, action and implementation
- Use FEMA worksheets and examples
- Communicate directly with FEMA planners

Technical Assistance:

- To help communities integrate non regulatory products into the current hazard mitigation plan



Non-Regulatory Coastal Flood Risk Products and Datasets



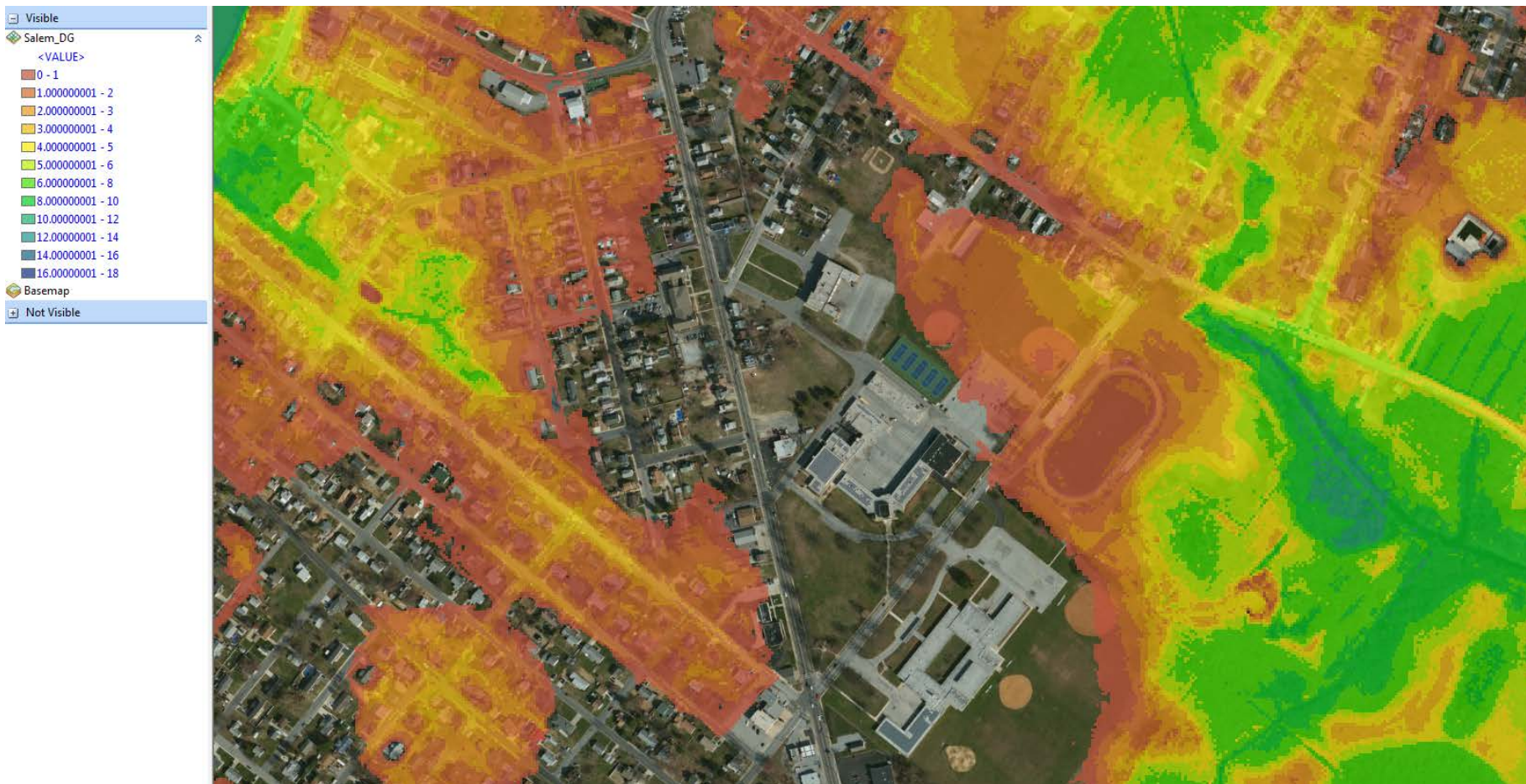
■ Flood Risk Products

- Flood Risk Report, Map, and Database

■ Flood Risk Datasets

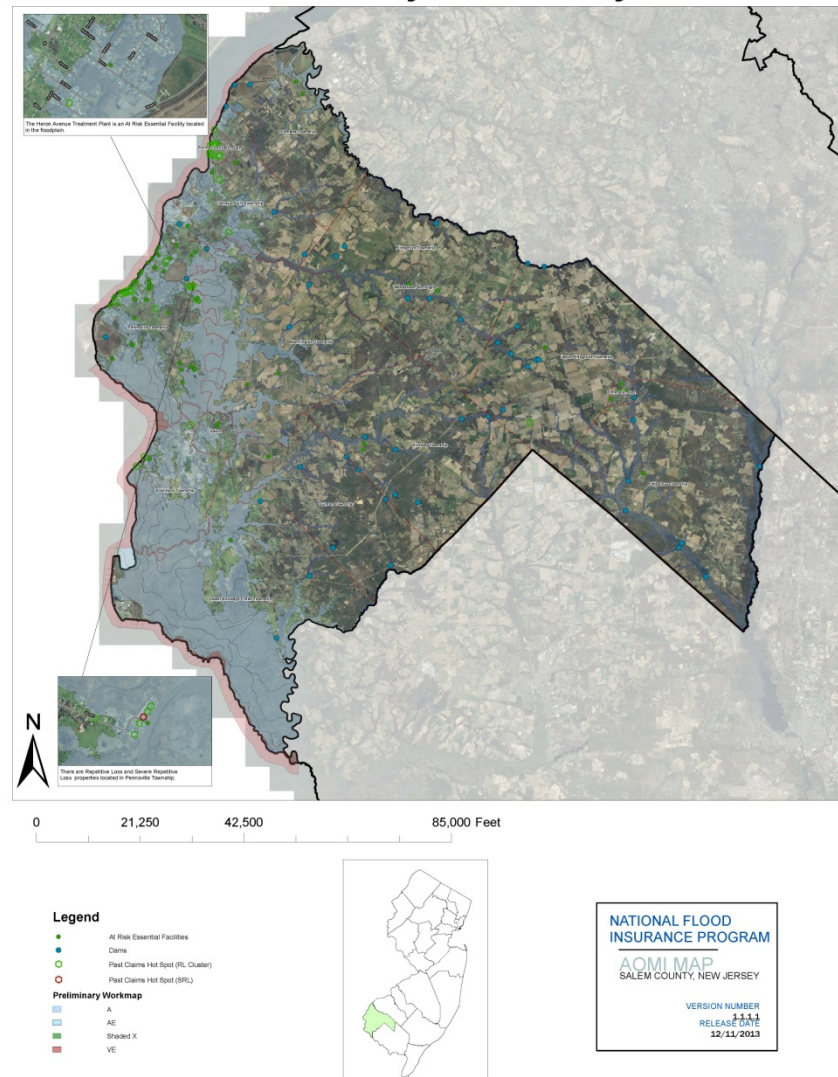
- Coastal 1% Depth Grid
- Areas of Mitigation Interest (AOMI)
- Changes Since Last FIRM (CSLF)
- Flood Risk Assessment (refined Hazus analysis)

Depth Grids – Identifying Actions



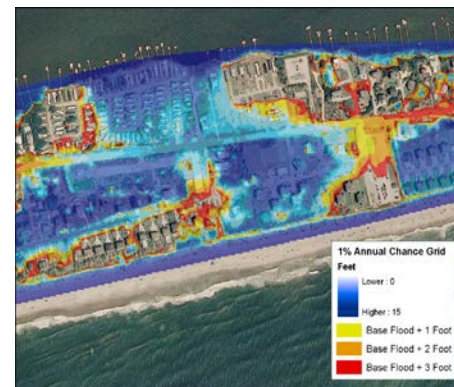
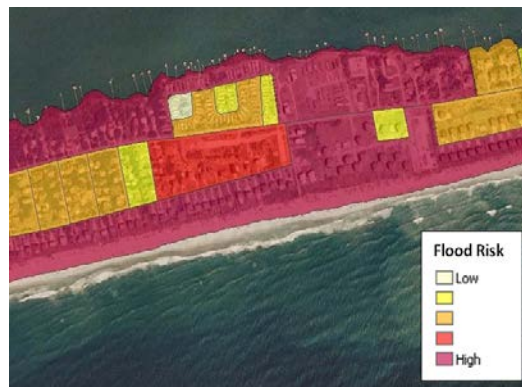
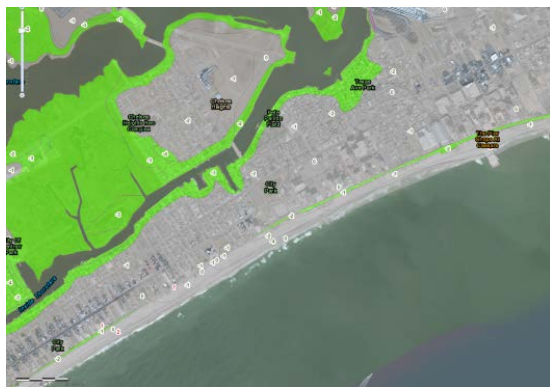
Areas of Mitigation Interest – Identifying Actions

Areas of Mitigation Interest DRAFT Salem County, New Jersey



Non-Regulatory Coastal Flood Risk Products and Datasets

- **To be provided in the near future:**
 - Changes Since Last FIRM
 - Water Surface Elevation Change Grids
 - Coastal Flood Risk Assessments
 - Coastal Increased Inundation Areas
 - Risk MAP report, map, database



Draft Flood Risk Tools

- Region2coastal.com

The screenshot shows the website's navigation bar with links for Home, Hurricane Sandy, Coastal Flood Study, Coastal Mapping Basics, FAQs, Additional Resources, and Contacts. The 'Coastal Flood Study' menu is open, listing options like 'Coastal Flood Study Overview', 'View Best Available Flood Hazard Data', 'What is My BFE? Address Lookup Tool (Formerly What is My ABFE?)', 'Flood Risk Tools', 'Understanding Vertical Datums', and 'Presentations'. The 'Flood Risk Tools Communities' section is highlighted, with a hand cursor pointing to the 'Flood Risk Tools' link. Below the navigation, there is a paragraph of text, a section titled 'What are Flood Risk Tools and How Can They be Used?', and another titled 'When will the Flood Risk Tools be Released?'. The text discusses the purpose of flood risk tools, their availability on a rolling basis by county, and the timing of their release relative to community meetings.

Home Hurricane Sandy **Coastal Flood Study** Coastal Mapping Basics FAQs Additional Resources Contacts

Flood Risk Tools Communities

Besides the updated Flood Insurance Study (FIS) and Flood Hazard Analysis and Mapping (FHAM) for the coastal flood study area, the New Jersey Department of Environmental Protection, is also providing communities with additional tools they can use to better understand and plan for flood risk.

What are Flood Risk Tools and How Can They be Used?

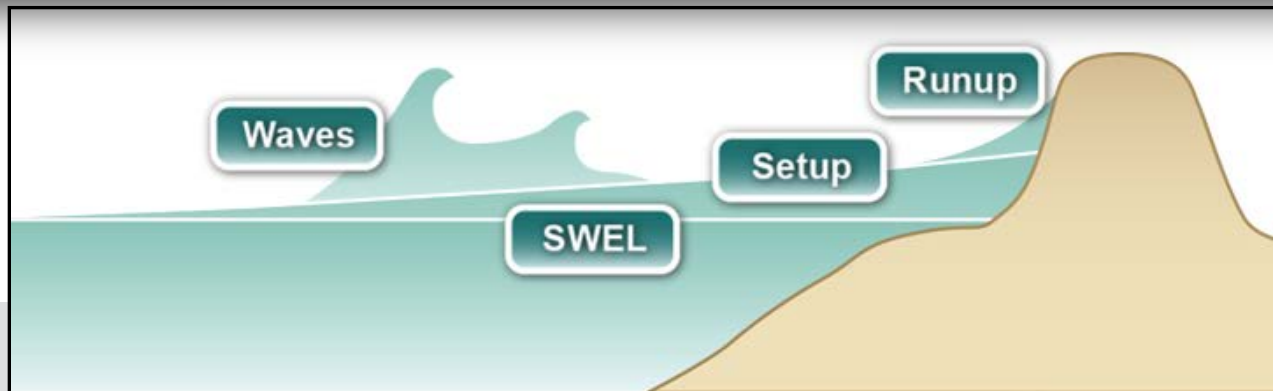
Flood risk tools can help community officials in planning efforts to reduce (or “mitigate”) flood risk, communicate with the public, and create a dialogue with neighboring communities about ways to reduce future flood risk. There are different types of flood risk tools (also referred to as Risk MAP non-regulatory products), including GIS datasets and maps as well as supporting reports. Each is described on the [Flood Risk Tools Descriptions page](#). These tools are not directly tied to regulatory development and insurance requirements of the National Flood Insurance Program like the FIRM and FIS report are but are nonetheless important resources to support community planning efforts.

When will the Flood Risk Tools be Released?

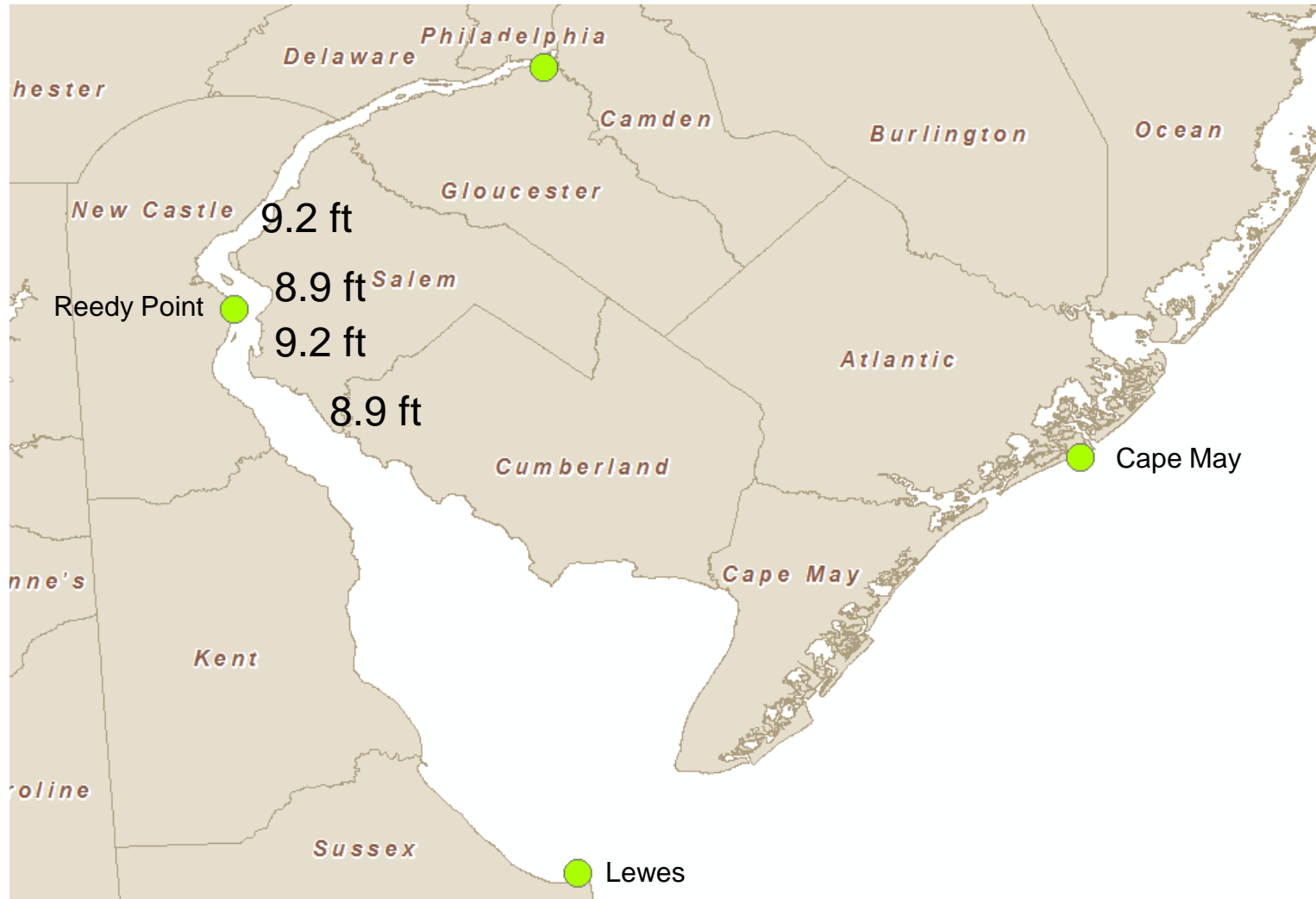
The flood risk tools are in the process of being released on a rolling basis by county. **Draft** versions of certain tools will initially be released at the time of [Flood Risk Review](#) and [Flood Resilience](#) meetings for each community. Final versions of the tools will be released at the time of the [CCO meeting](#). (See graphic below).

Effective vs. New Coastal Study

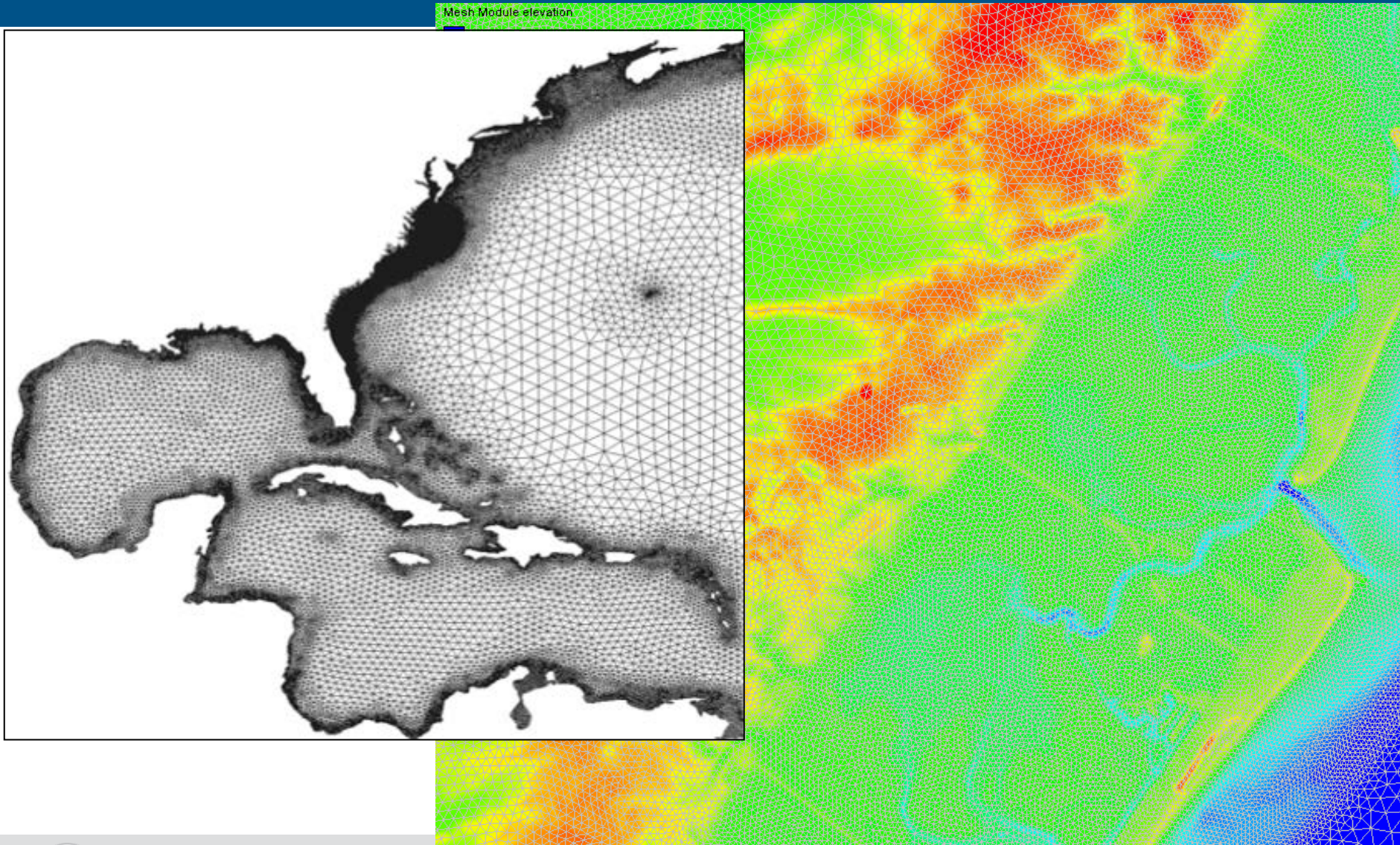
| Coastal Study Component | Effective Study (1981-1999) | New Study (2013) |
|-------------------------|-------------------------------------|------------------|
| Topographic data | 1960' s to 1970's | 2008, USGS |
| SWELs | 1964, tidal gage frequency analysis | 2012, USACE |
| Modeled transects | 0 | 183 |
| Wave setup | No | Yes |
| Wave runup | No | Yes |
| LiMWA | No | Yes |



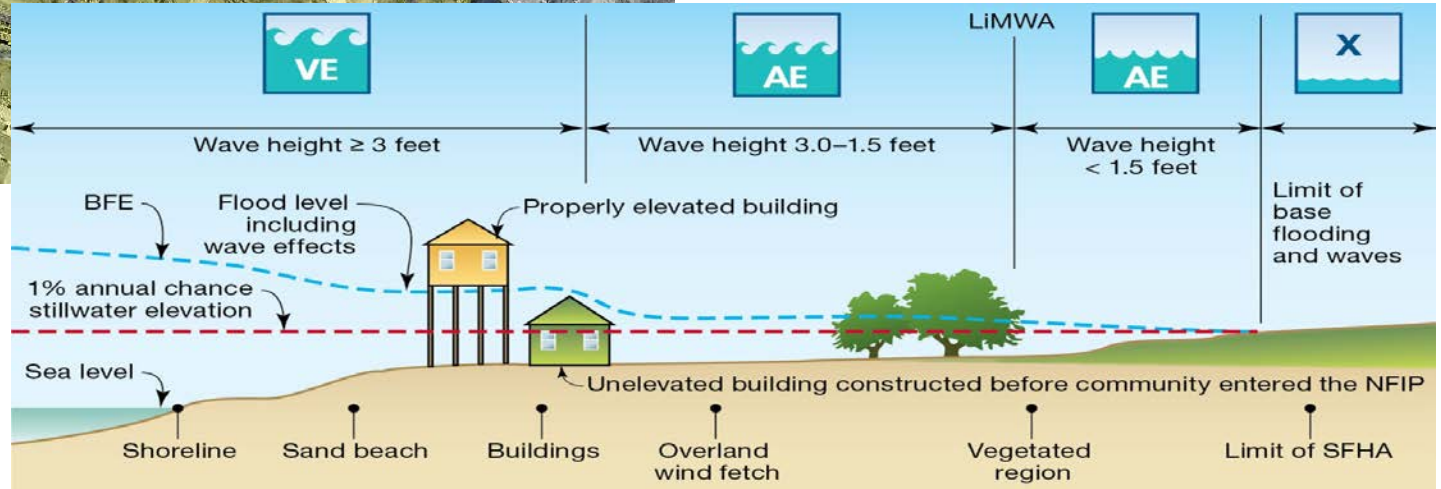
Previous Flood Study



New Storm Surge Model



Mapping



Coastal Study Process



Wave Runup

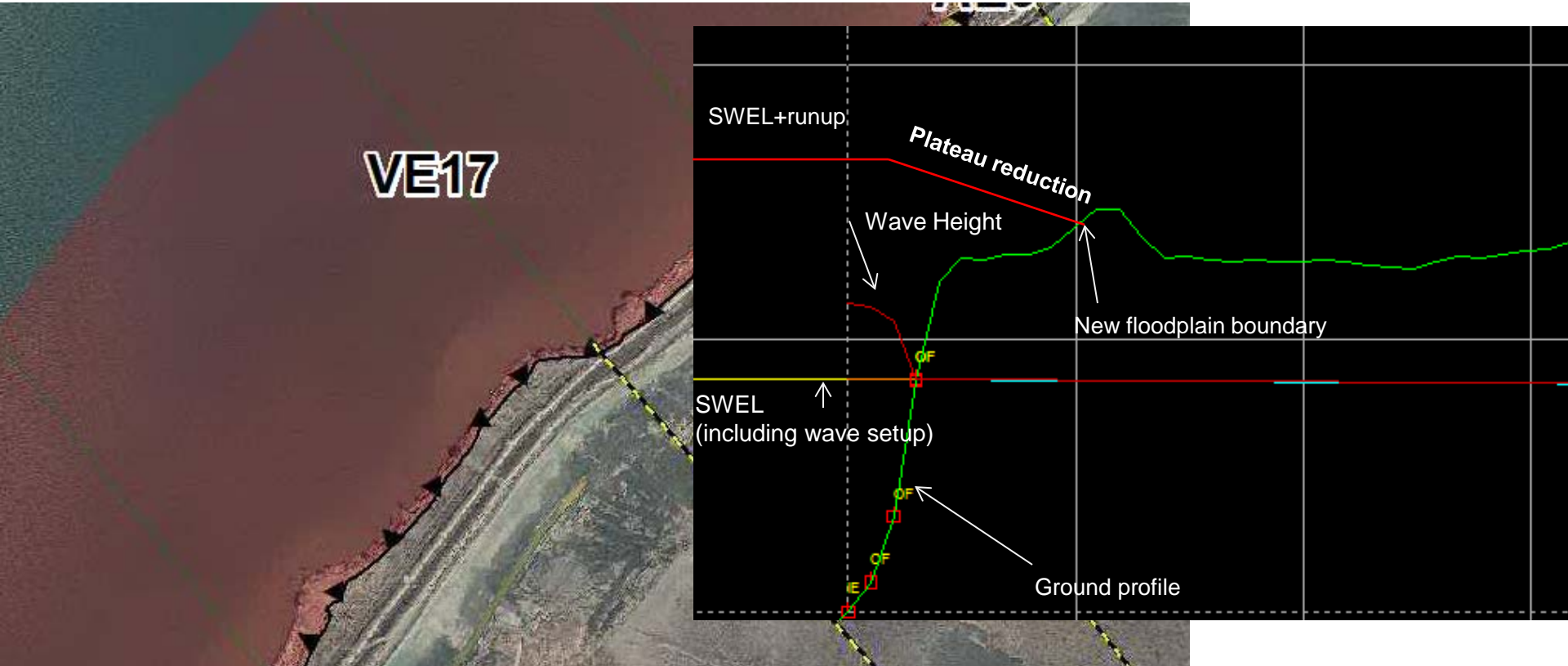
- Runup modeled for beaches, bluffs, cliffs and coastal structures
- Calculate top 2% of runup elevations (vs. previous studies using mean runup)
- Methods:
Runup 2.0, TAW, CSHORE



Wave Runup

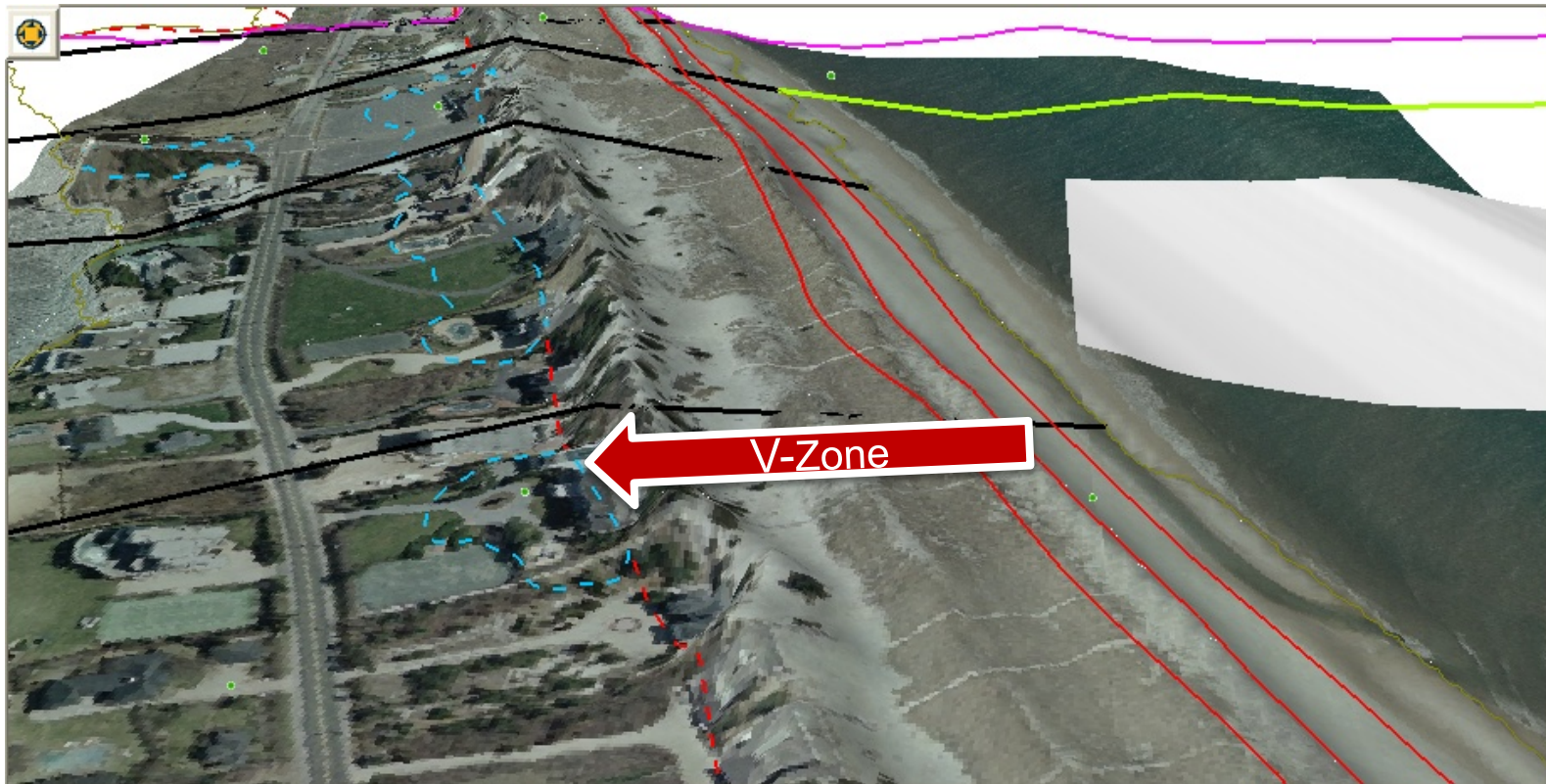
How is runup mapped?

Profile view of Transect

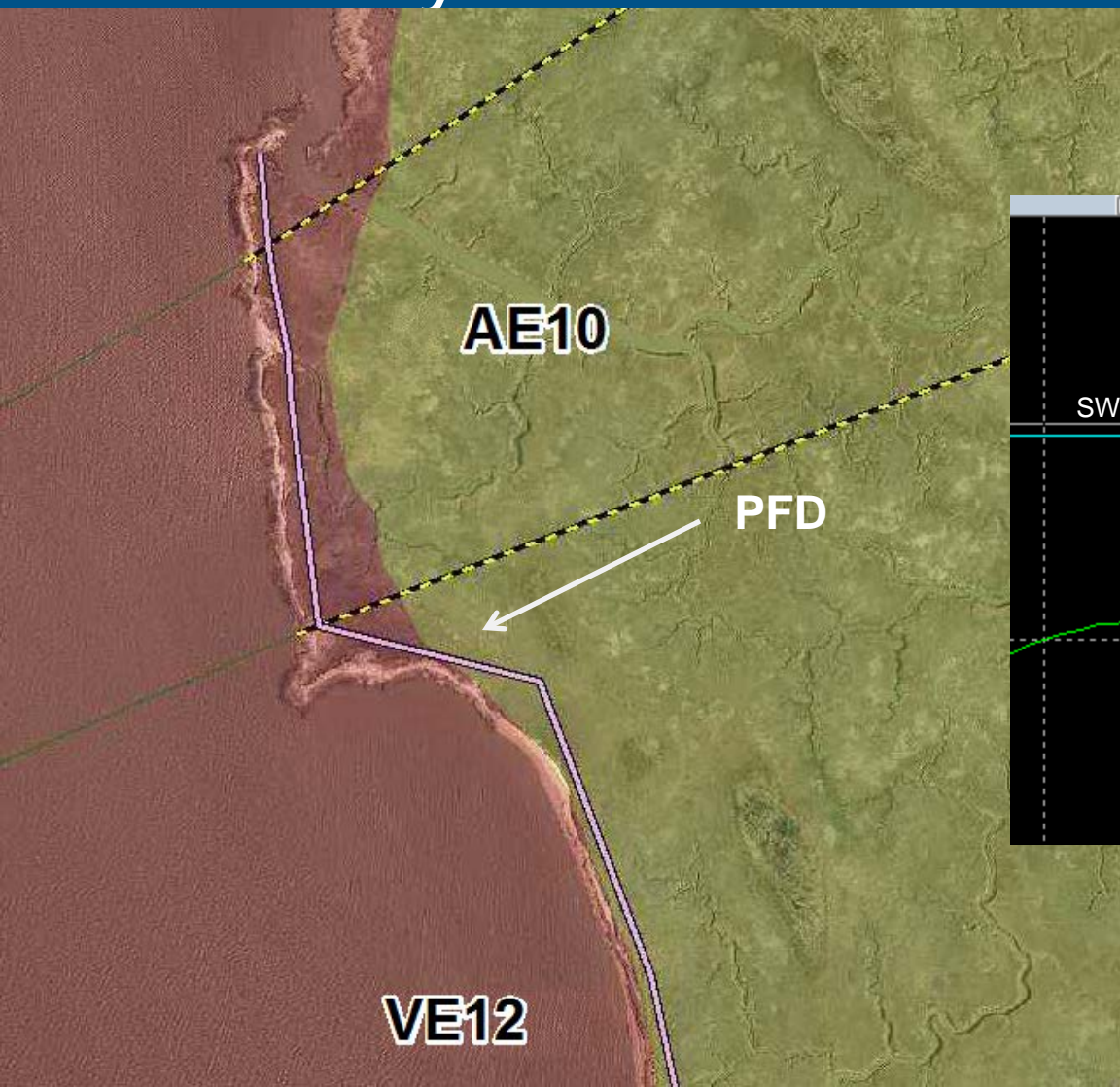


Primary Frontal Dune & VE-Zones

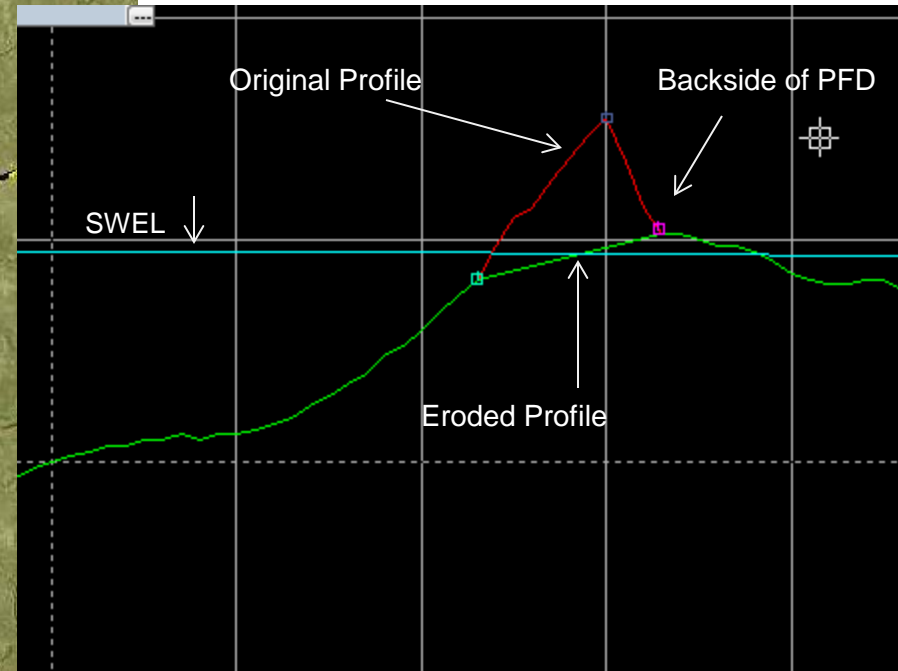
- PFD line represents the landward extension of the Zone VE coastal high hazard velocity zone.



Primary Frontal Dune



Profile view of Transect



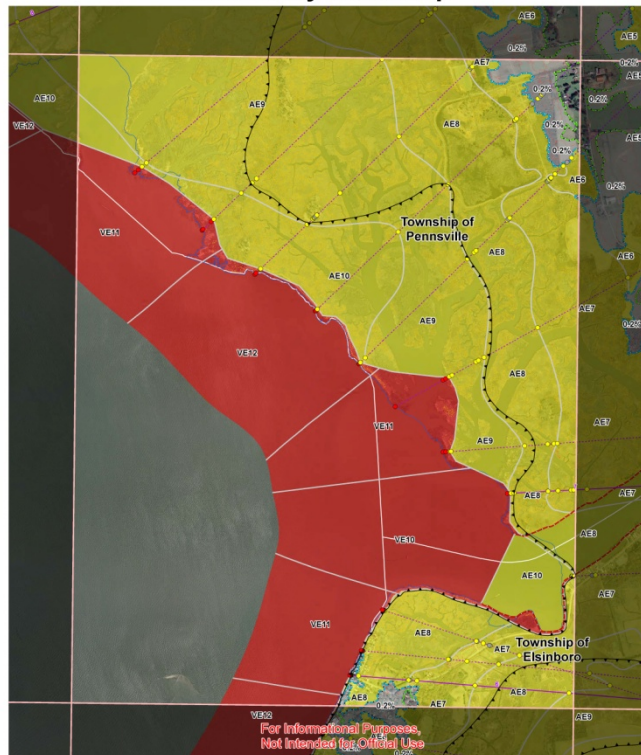
LiMWA on the Map

- LiMWA sits inside of a Zone AE
- LiMWA can cross Zone AE lines
- Triangles point to higher waves
 - Indicates where wave height exceeds 1.5ft
- Also referred to as Coastal A Zone



Preliminary Work Map vs. Preliminary FIS/FIRM

Salem County, NJ
Preliminary Work Map



Flood Hazard Information

- 0.2% Annual Chance Boundary
- 1% Annual Chance Boundary
- Flowline
- LMMA
- Reverse BFE
- VE
- AE
- AD
- Shaded X (0.2% Floodplain)
- Hurricane Sandy High Water Mark (HWM)

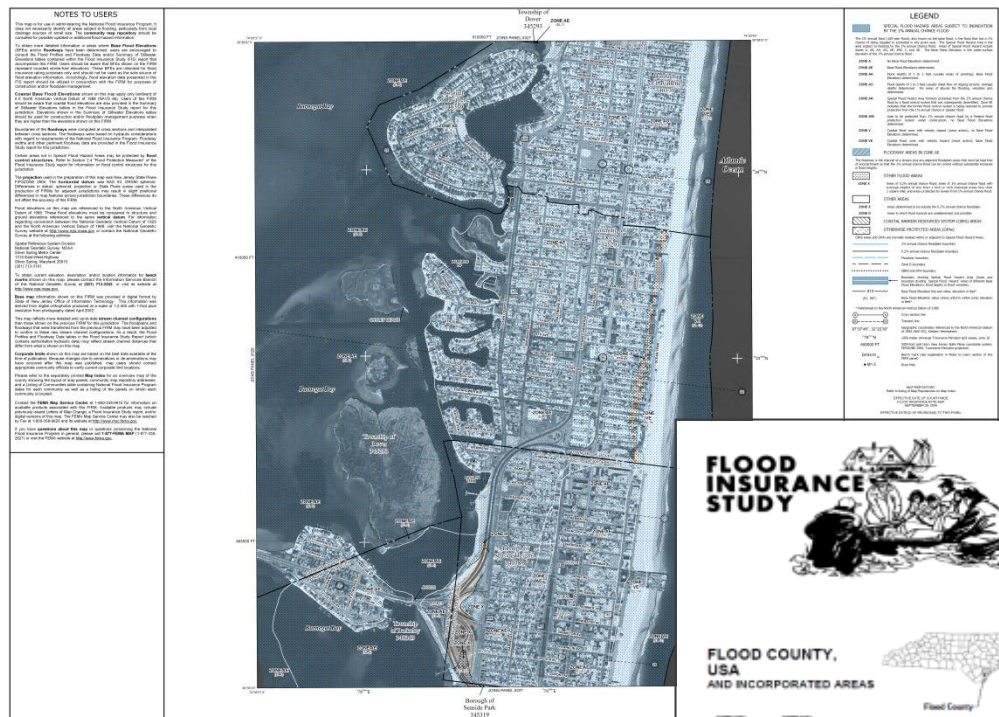
Elevation information is provided in feet NAVD83. High water marks are provided for reference to a historical storm event. They are not intended to be used for validation of the coastal mapping and are not expected to match the coastal BFEs.

Panel 0134

- Published Transacts
- Mapping Transacts
- PSD Line
- Division
- Transact Station
- Political Boundary
- Elevation
- 4
- 8
- 12
- 16

FEMA Risk Mapping, Assessment, and Planning Partners

Sample Preliminary FIRM & FIS



FLOOD INSURANCE STUDY

FLOOD COUNTY, USA AND INCORPORATED AREAS

AUGUST 19, 2006

Federal Emergency Management Agency
This is a sample form for a Flood Insurance Study.

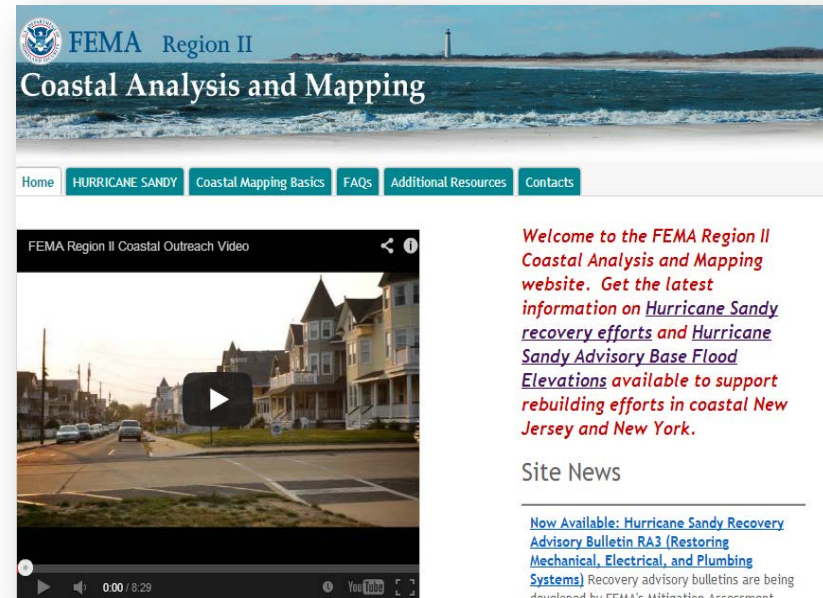
Risk Communications

- **Federal/State/Local goals:**
 - Creating safer communities reducing risk to lives and property
 - Effectively communicate risk and increase public awareness, leading citizens to make informed decisions regarding risk

- **Key factors contributing to successful achievement of these goals are:**
 - Community engagement and exchange of flood risk information
 - Effective collaboration through partnerships
 - Strategic communications plan development

Risk Communications - Resources

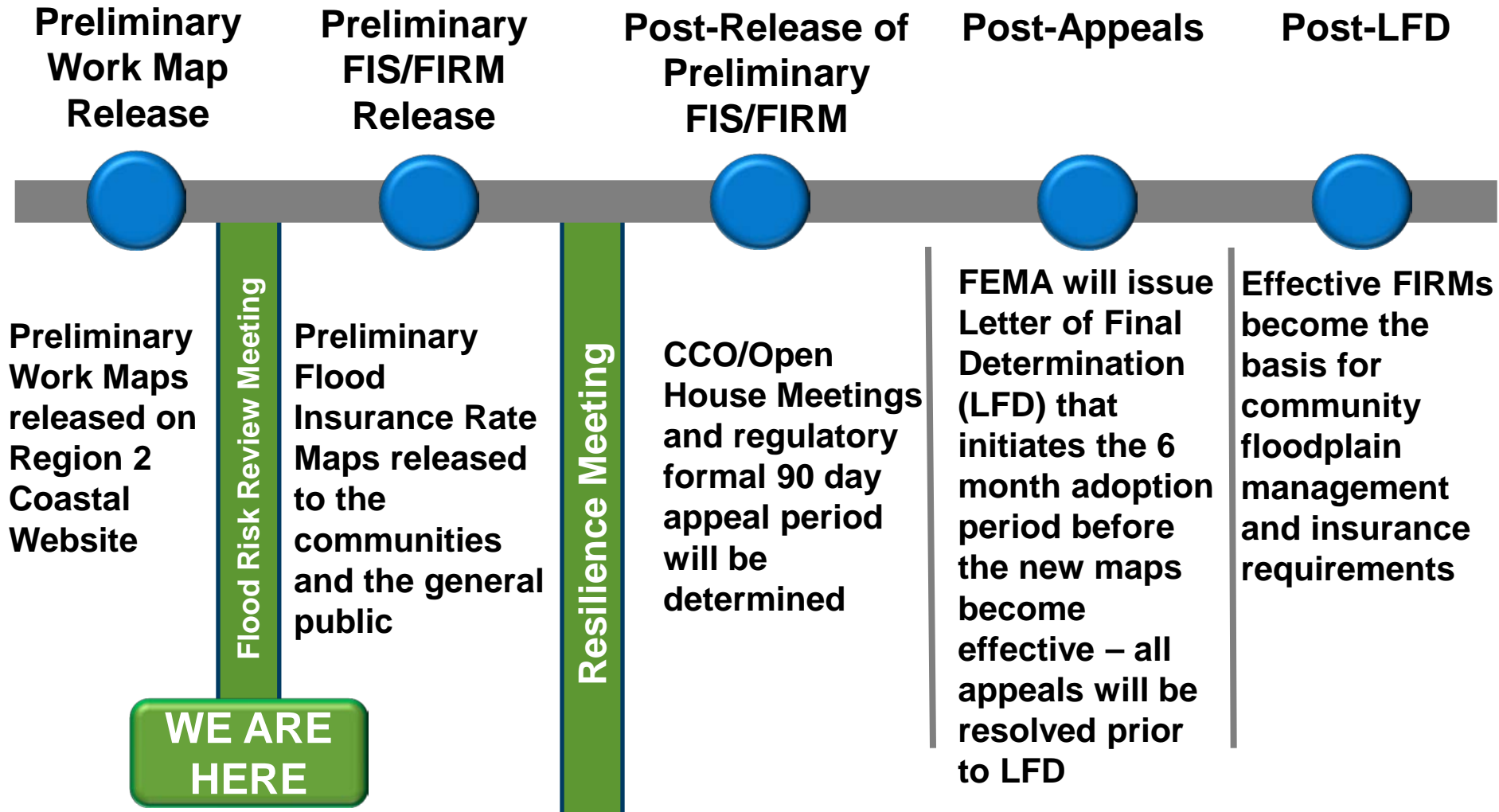
- Visit our Website:
www.region2coastal.com
- Outreach factsheets
- Frequently Asked Questions
- Coastal Risk Educational Videos
- Updated Flood Hazard Data (Preliminary Work Maps)
- Non-Regulatory Products and Datasets



Timeline for Salem County – Past

- **NJ/NYC Coastal Flood Risk Study – started in 2009**
- **Meetings with local officials:**
 - Introduction to Risk MAP: Feb, 2011; April, 2013
- **Post-Sandy:**
 - Preliminary Work Maps – July, 2013
 - In-person meeting with local officials

Timeline for Salem County – Future



Conclusion: Community Resilience

Risk Changes Over Time

FEMA Provides Best Available Data

Community Officials Adopt Higher Standards

Property Owners Build to Higher Standards

More Resilient Communities Created



Together, we all can create stronger and safer communities



US Army Corps of Engineers (USACE)

- **Relevant Projects and Studies**

- Flood Control and Coastal Emergencies (FCCE)
Repair/Restore of Constructed Projects
- Authorized/Unconstructed Projects
- Ongoing Studies
- Project Performance Evaluation & Comprehensive Study

- **Other On-going Initiatives**

- Participation in the Hurricane Sandy Rebuilding Taskforce
- Continued collaboration w/State and Federal partners on various risk reduction and resiliency building initiatives, workshops, and guidance

US Geological Survey (USGS)

The Nation's science agency – response to Hurricane Sandy

The USGS studies the effects of hurricanes, tropical storms and flooding in general to better understand potential impacts on communities and to protect the environment, human life and property.

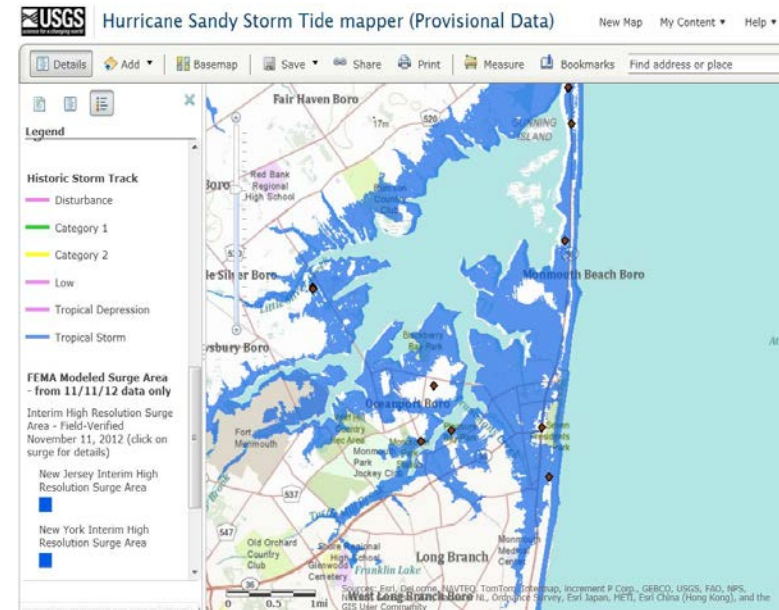
The current storm-surge sensor deployment program began in 2005 after Hurricane Katrina.

Storm mapper provisional data delivery



Rapid deployment gages

Storm tide sensors



USGS Data Collection

- The USGS deployed 230 storm surge sensors along the East Coast. (148 - surge, 9 - wave, 65 BP, and 8 - RDGs)
- The USGS recovered 228 sensors (only lost 2 surge sensors)
- The USGS identified over 900 individual high-water-mark sites and surveyed about 615 of those sites
- The USGS flagged and surveyed about 170 HWM sites along the coast of New Jersey
- The data collected by the USGS during and after Hurricane Sandy was used to verify the extent of flooding along the east coast

Breakout Groups

- **Modeling / Engineering**
- **Depth Grids & Changes Since Last FIRM**
- **Areas of Mitigation Interest & Hazard Mitigation Planning and Actions**
- **State**
- **USACE & USGS**

Please don't forget to turn in your evaluation sheets!



FEMA