



FEMA



# Cape May County, NJ Coastal Hazard Analysis Flood Risk Review Meeting

November 13, 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

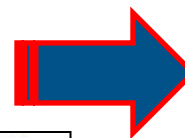
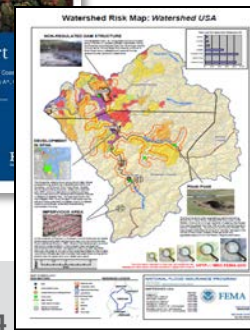
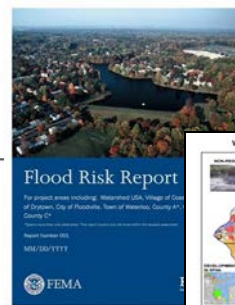
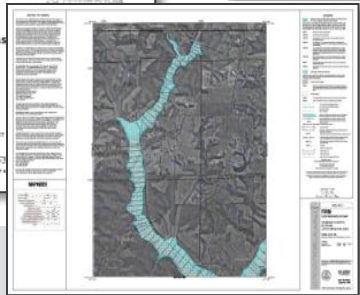
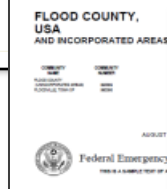
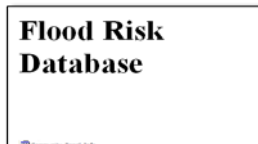
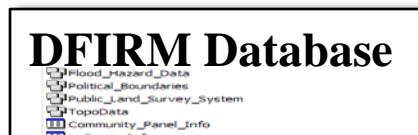


Planning



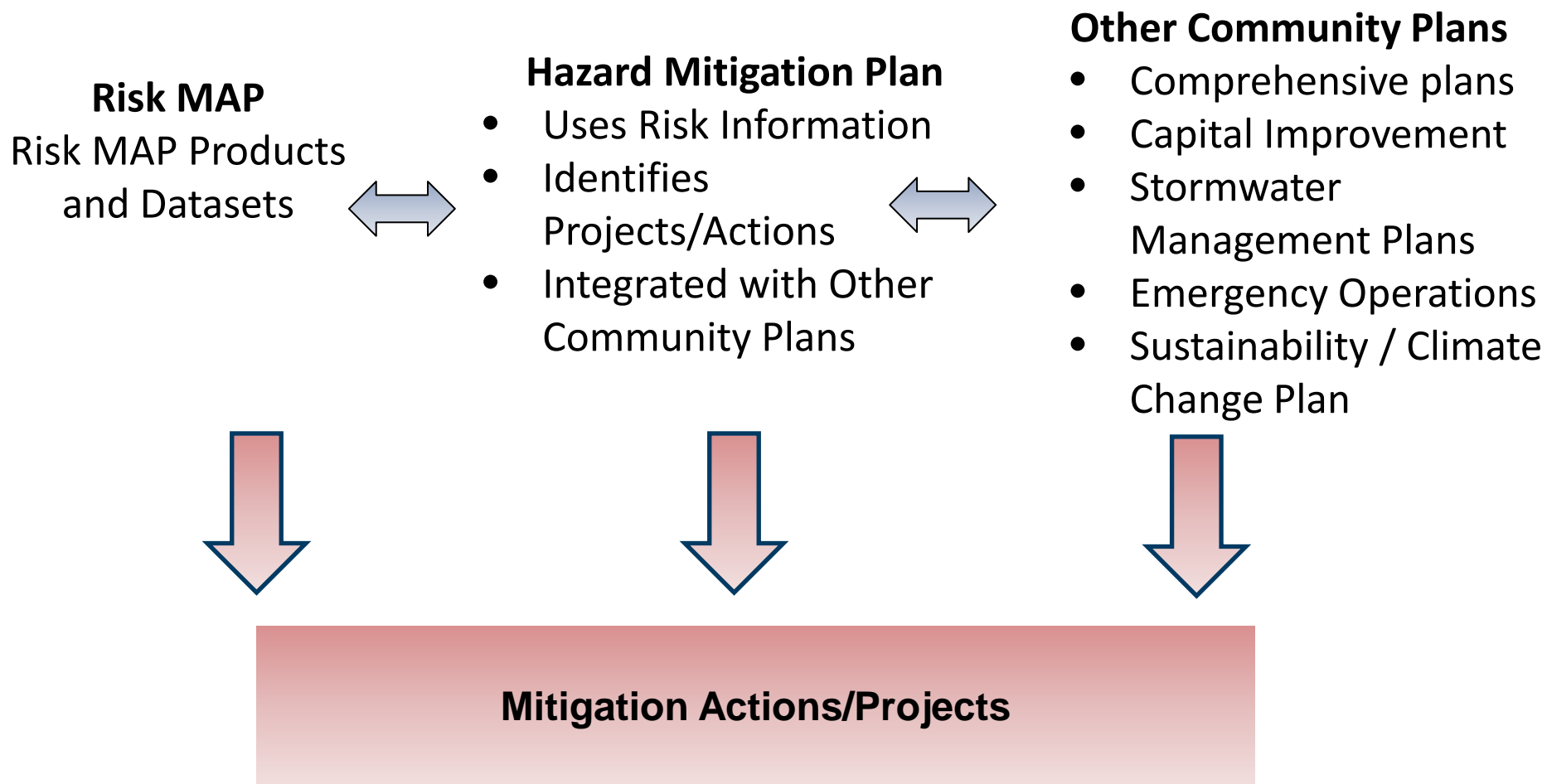
# Hazard Mitigation & Your Hazard Mitigation Plan

- 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



Approved: January 14, 2011  
Expires: January 14, 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

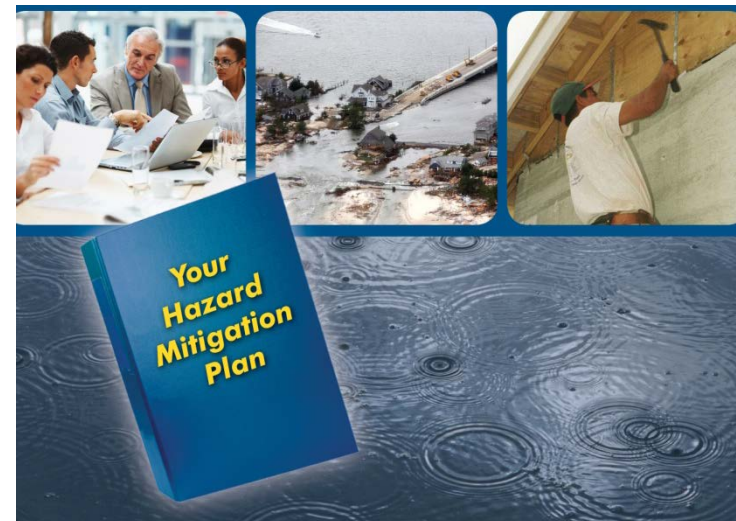
A community's Hazard Mitigation Plan is only as good as its **mitigation strategy**.

## 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

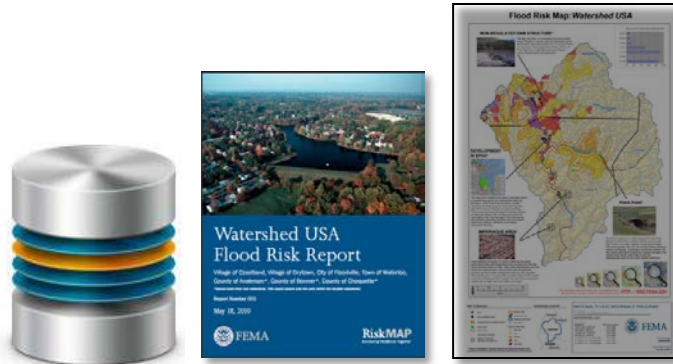
## Technical Assistance:

- 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

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


# Changes Since Last FIRM – Identifying Actions

## Legend

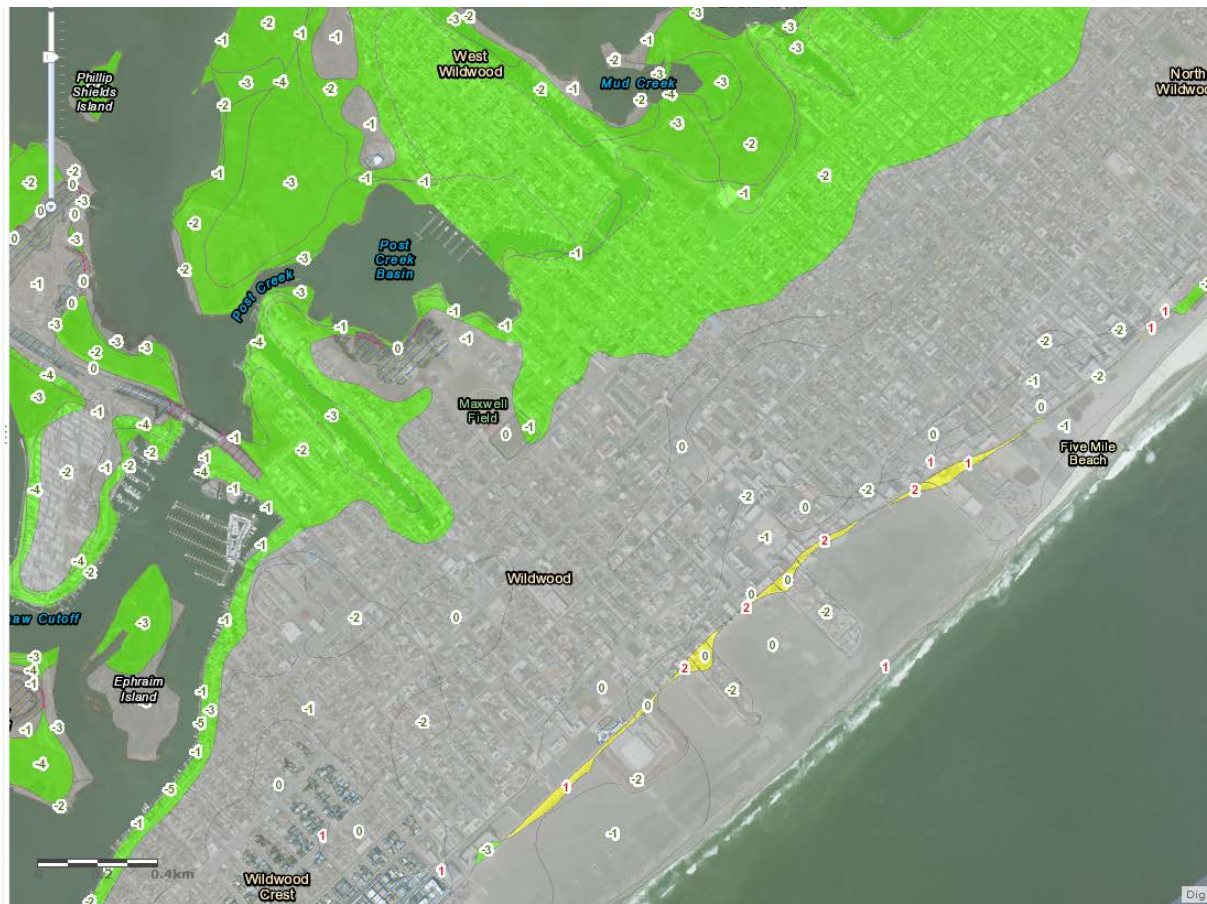
### Effective\_ABFE\_Prelim\_Change

#### ABFE to Prelim

##### ABFE to Prelim2 Zone Change

-  Non-SFHA to AO
-  Non-SFHA to AE
-  Non-SFHA to VE
-  No Zone Change
-  V to AE
-  V to AO
-  A to VE
-  A to Non-SFHA
-  V to Non-SFHA

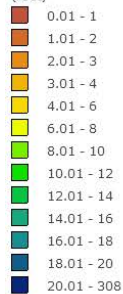
Esri.com · Help · Terms of Use · Privacy · Contact Us · Report Abuse



# Depth Grids – Identifying Actions

Depth\_Grids\_CapeMayCountyNJ

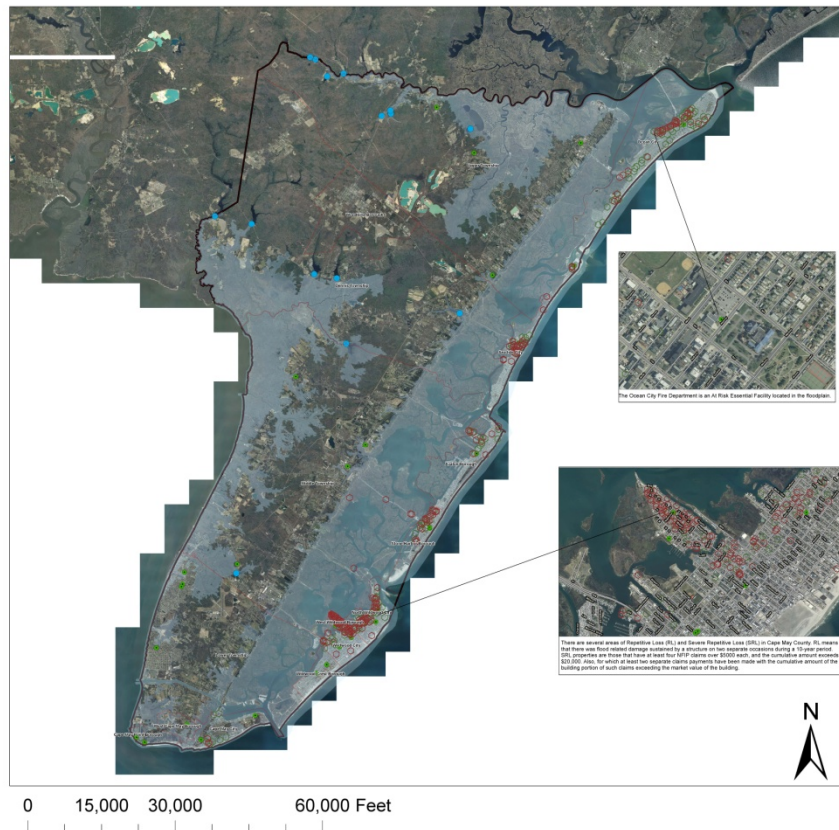
CapeMay 100-Yr Depth Grid  
(feet)





# Areas of Mitigation Interest – Identifying Actions

## Areas of Mitigation Interest - DRAFT Cape May County, New Jersey



The Ocean City Fire Department is an Air Risk Essential Facility located in the location.

There are several areas of Repeatable Loss (RL) and Repeatable Loss (RL) in Cape May County, NJ, where that area was first related damage assessment by a structure on two separate occasions during a 10 year period. RL properties are those that at least had 1000 claims over \$5000 each, and the cumulative amount exceeds \$20,000. Also, in order to meet the minimum claims threshold, two claims made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

- Legend**
- Air Risk Essential Facilities
  - Dams
  - Past Claims Hot Spot (PL Cluster)
  - Past Claims Hot Spot (PL)
  - Coastal - Preliminary Risk Map
  - Municipalities



NATIONAL FLOOD INSURANCE PROGRAM

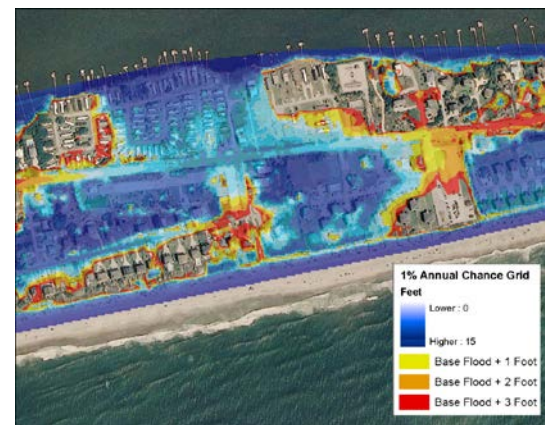
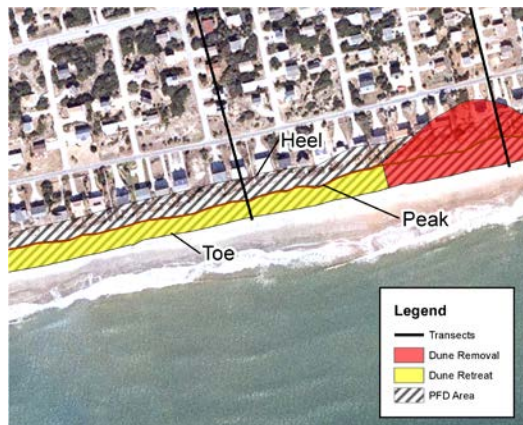
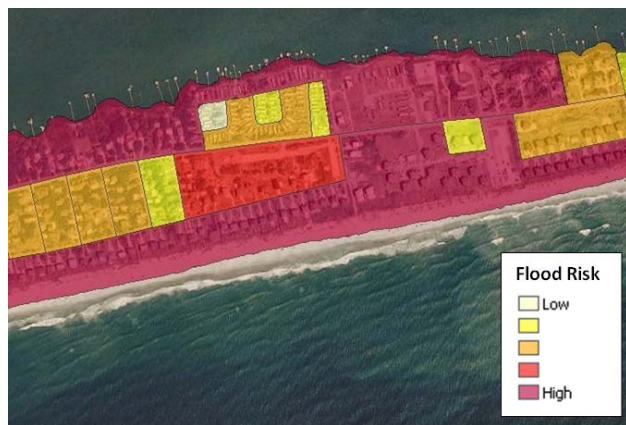
AOMI MAP

VERSION NUMBER 1.1.1.1

RELEASE DATE 11/13/2013

# Non-Regulatory Coastal Flood Risk Products and Datasets

- **To be provided in the near future:**
  - Water Surface Elevation Change Grids
  - Coastal Flood Risk Assessments
  - Primary Frontal Dune (PFD) Erosion Areas
  - 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' link is highlighted with a mouse cursor. Below the navigation, the 'Flood Risk Tools Communities' section is visible, featuring a hand icon, a stack of blue and yellow discs, a 'Draft USA Risk Report' cover, and a map titled 'Flood Risk Map - Watershed USA'. The text below the navigation bar reads: 'Besides the updated Flood Insurance Study (FIS) and the coastal flood study update, 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.'

## Flood Risk Tools Communities

Besides the updated Flood Insurance Study (FIS) and the coastal flood study update, 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?

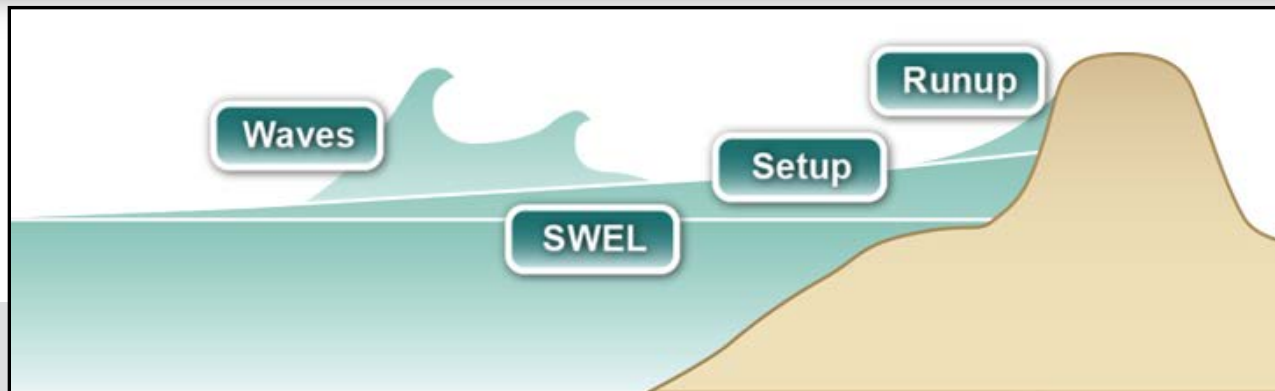
Flood risk tools can help community officials in planning efforts to reduce (or “mitigate”) flood risk, communicate with the public, and create a dialogue with neighboring communities about ways to reduce future flood risk. There are different types of flood risk tools (also referred to as Risk MAP non-regulatory 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?

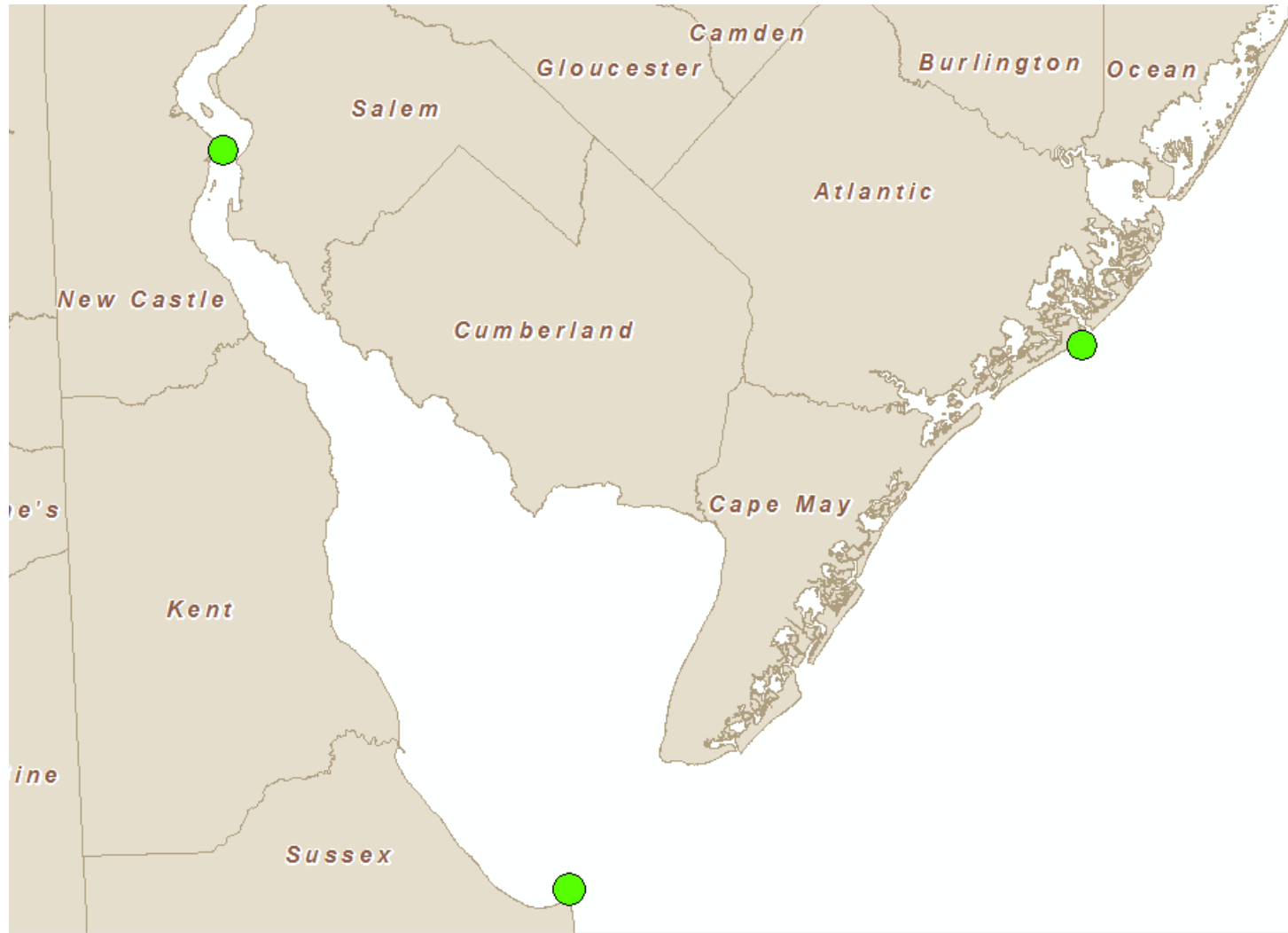
The flood risk tools are in the process of being released on a rolling basis by county. **Draft** versions of certain tools will initially be released at the time of [Flood Risk Review](#) and [Flood Resilience](#) meetings for each community. Final versions of the tools will be released at the time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

# Effective vs. New Coastal Study

Coastal Study Component	Effective Study (1982-1996)	New Study (2013)
Topographic data	1970's to 1980's	April 2008, USGS
SWELs	1970's to 1980's	2012 FEMA study
Modeled transects	55	289
Wave setup	No	Yes
Wave runup	No	Yes
LiMWA	No	Yes

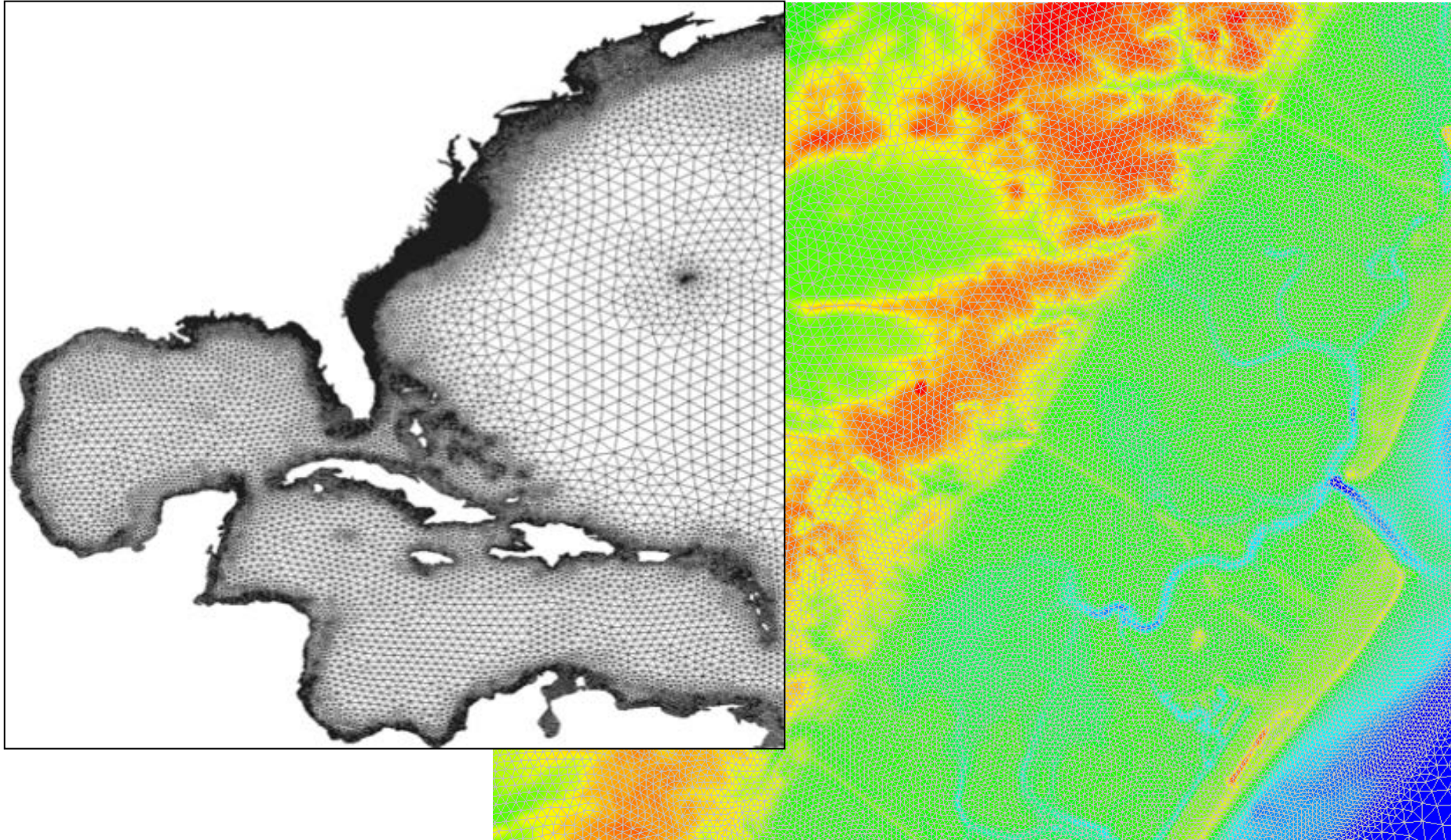


# Previous Flood Study



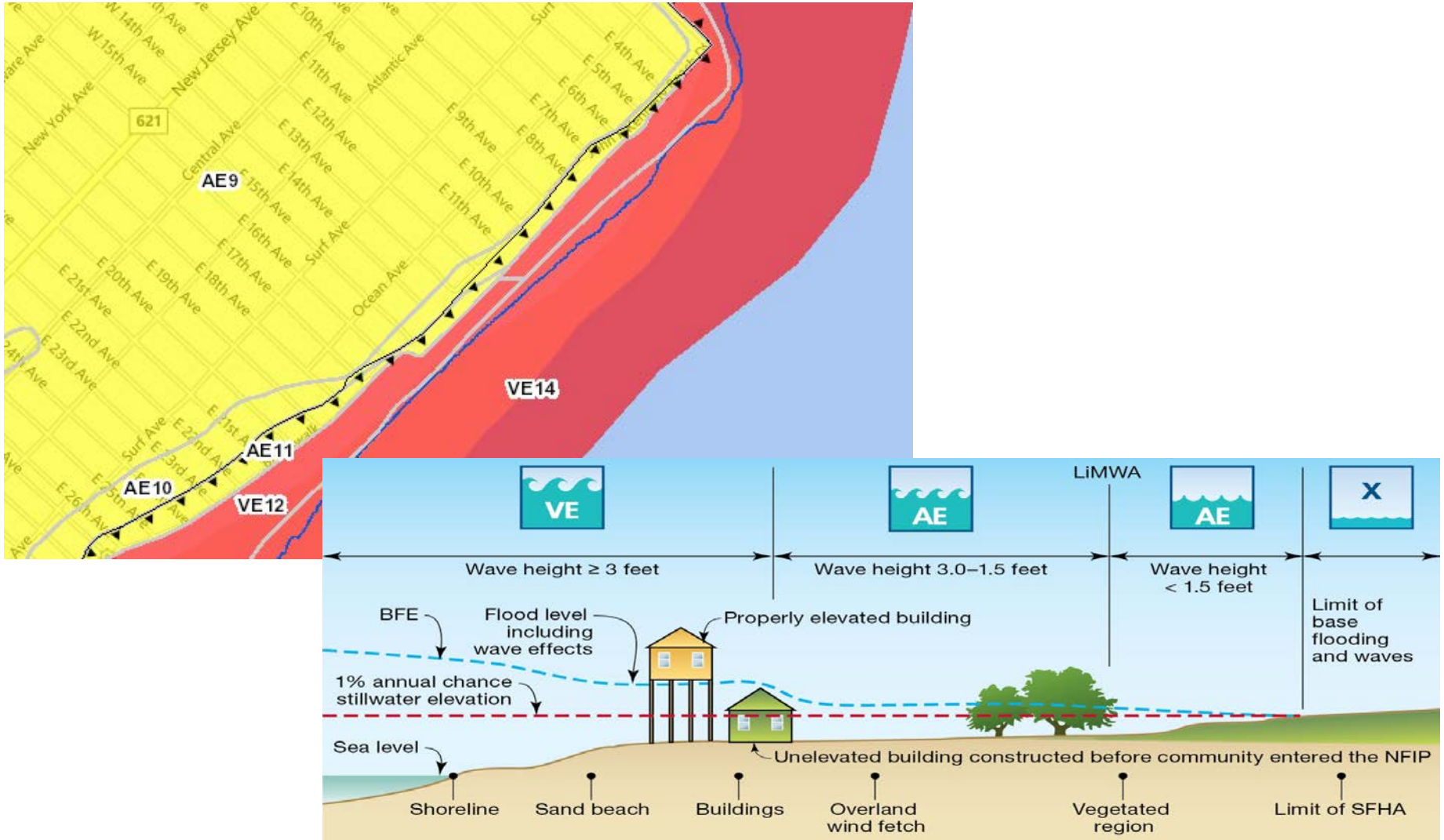


# New Storm Surge Model





# Mapping





# Coastal Study Process



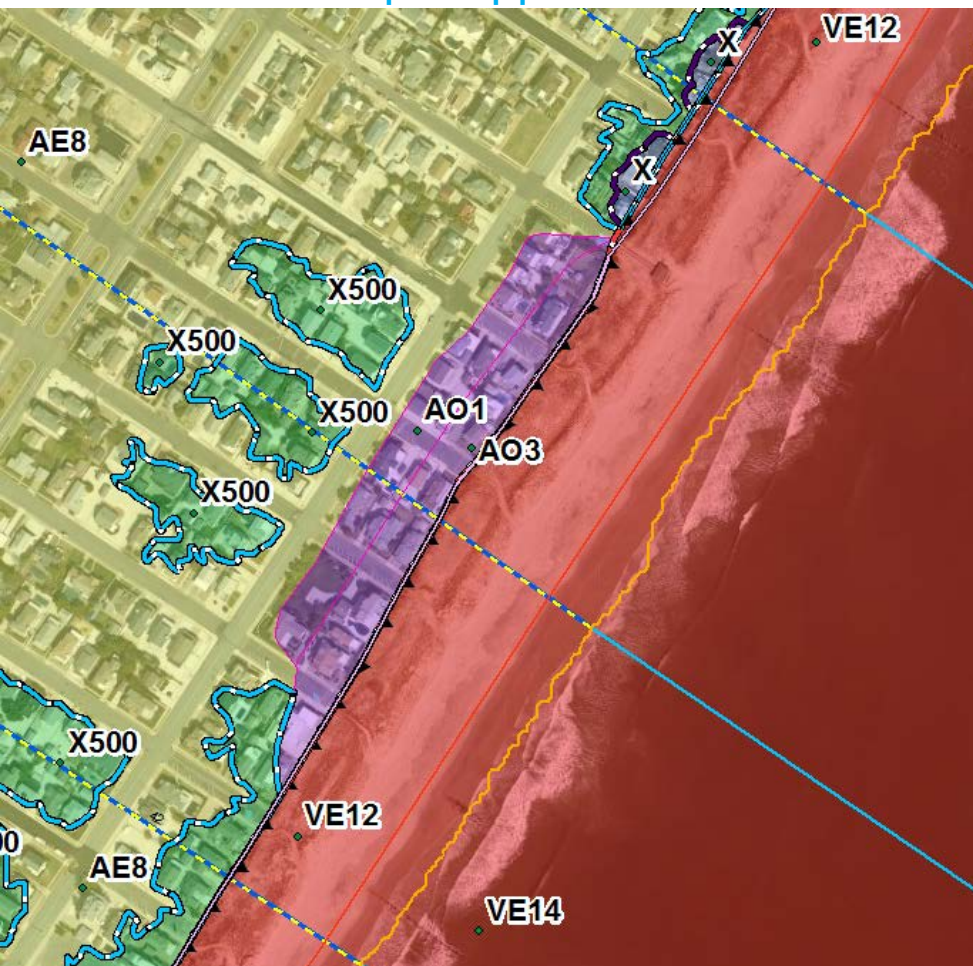
# Wave Runup

- 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

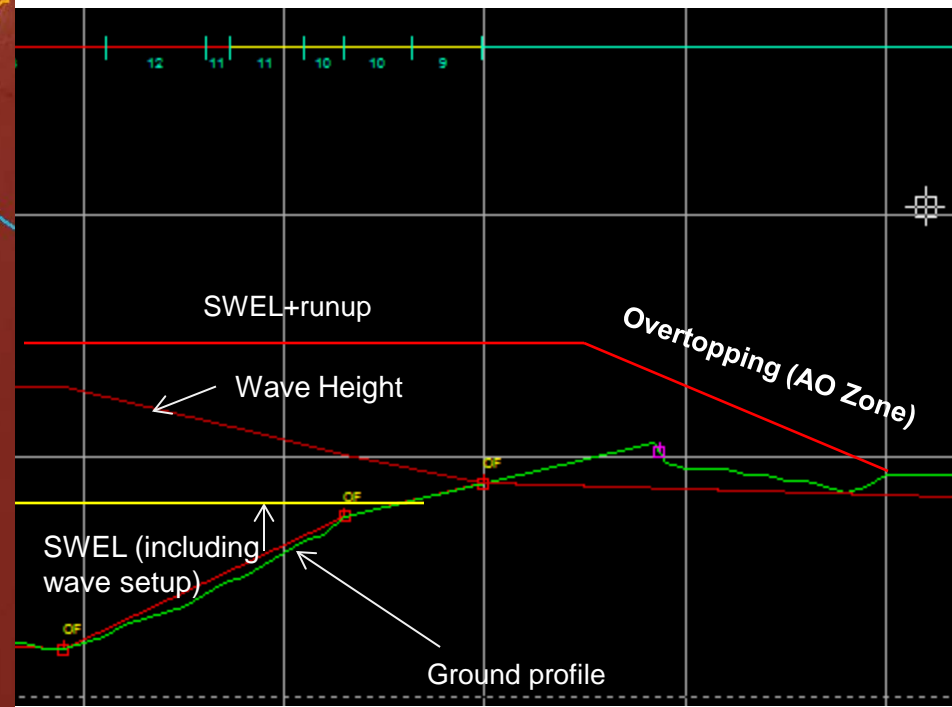


# Wave Runup

How is runup mapped?



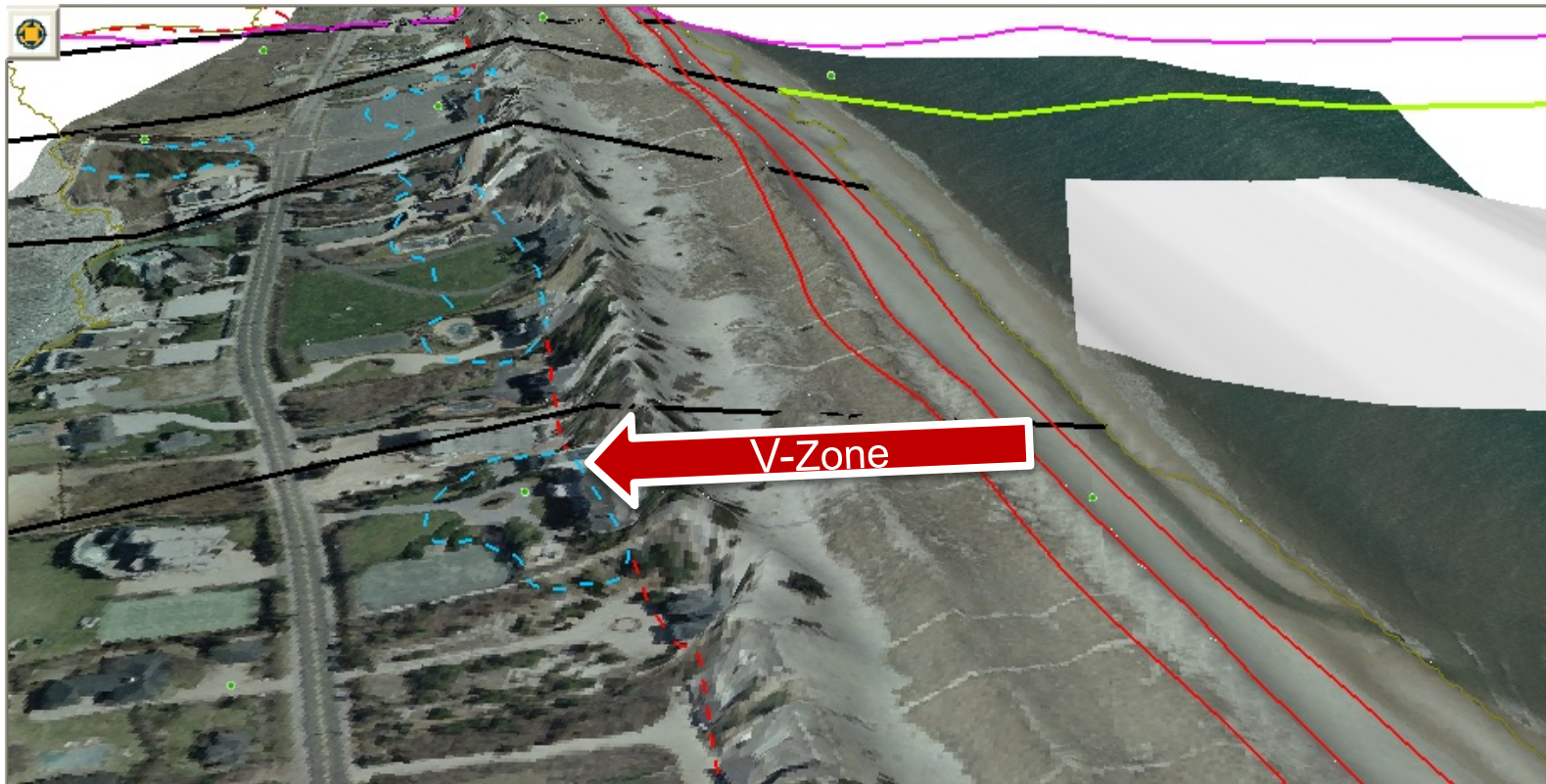
Profile view of Transect



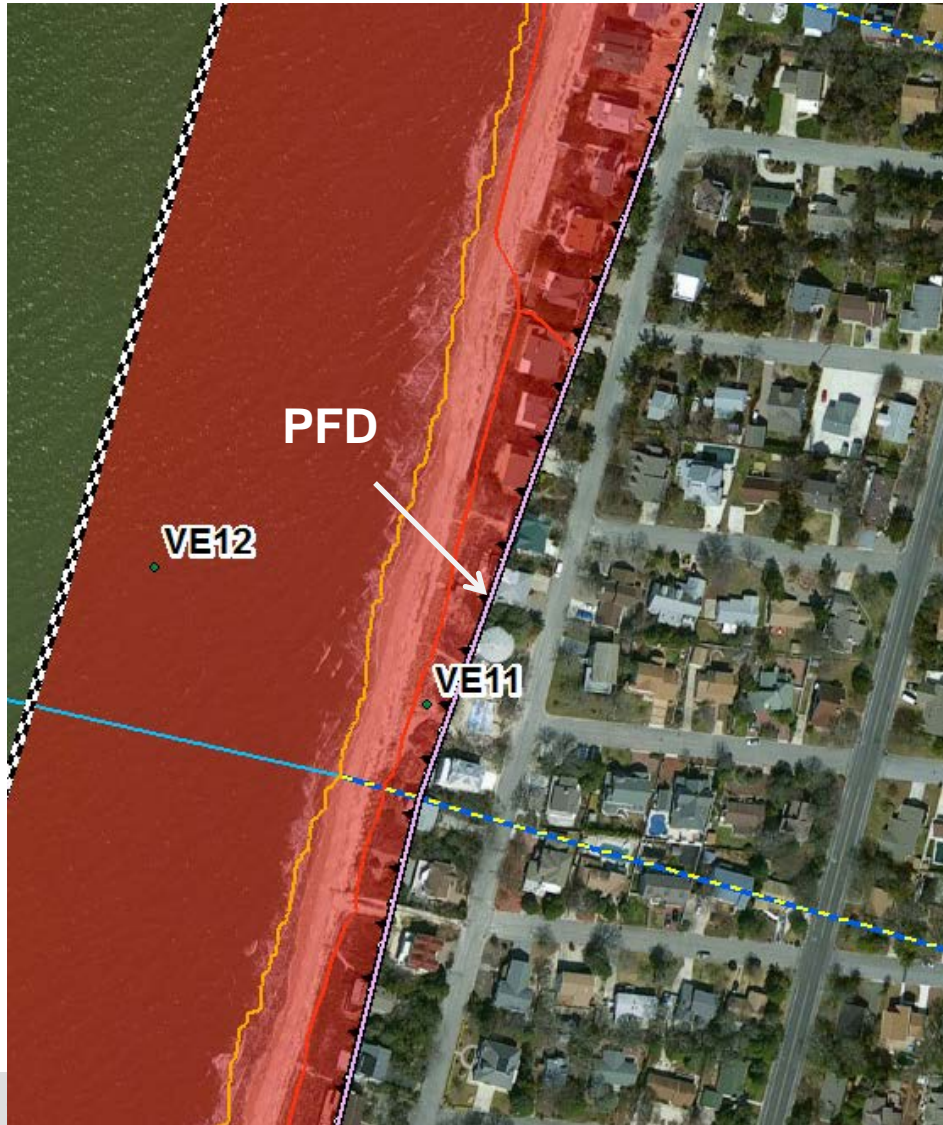


# Primary Frontal Dune & VE Zones

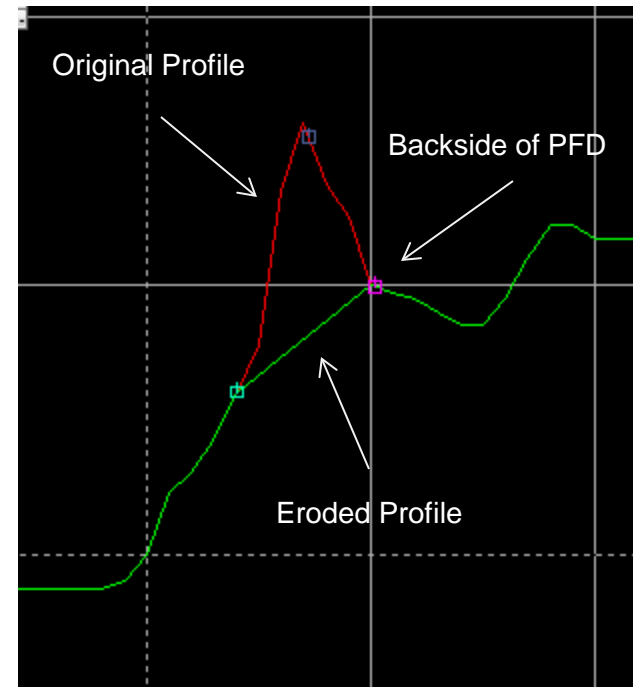
- PFD line represents the landward extension of the Zone VE coastal high hazard velocity zone.



# Primary Frontal Dune



Profile view of Transect

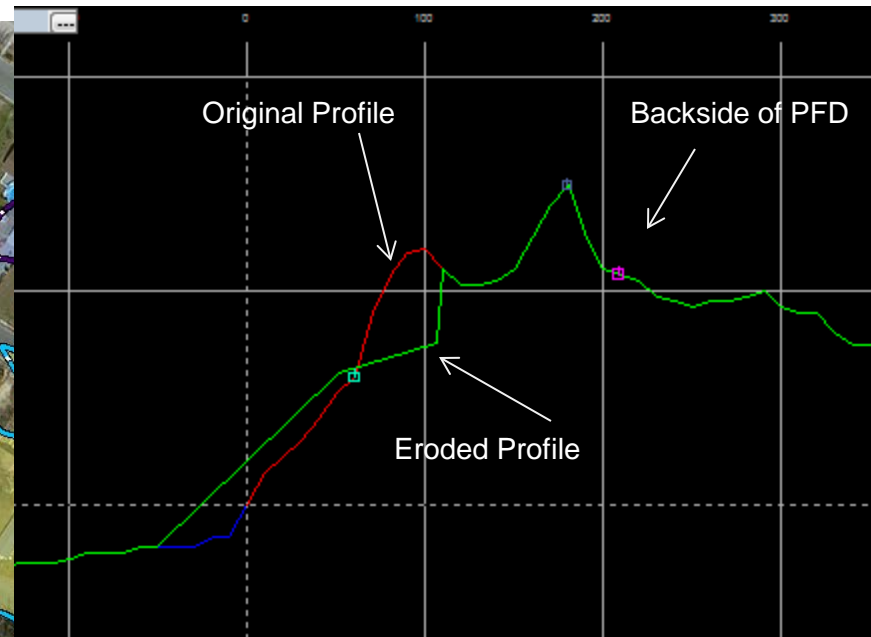
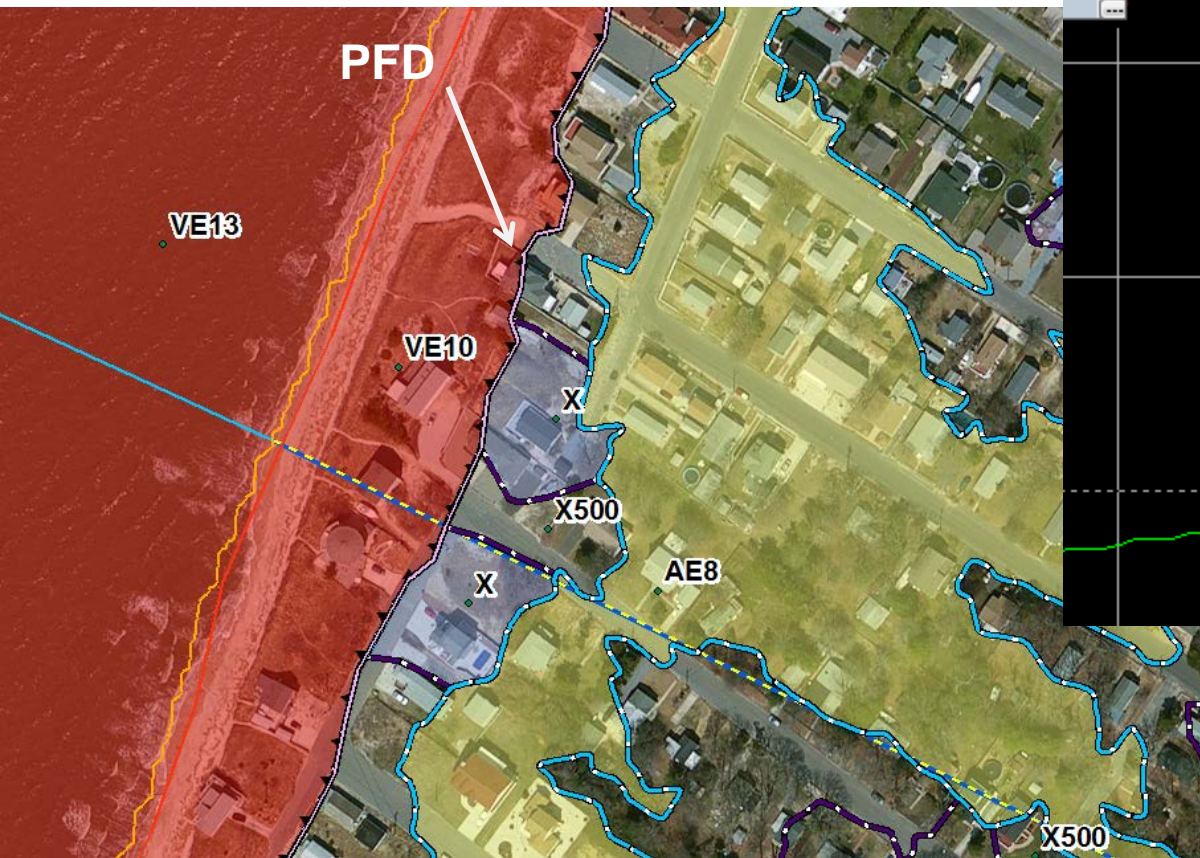




# Primary Frontal Dune

## Ground Elevation higher than BFE

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

Cape May County, NJ  
Preliminary Work Map



**Flood Hazard Information**

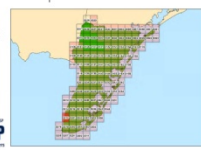
- 2.2% Annual Chance Boundary
- 1% Annual Chance Boundary
- Gutter Line
- LMWA
- AE
- VE
- AD
- Shaded X (0.2% Floodwater)
- Hurricane Sandy High Water Mark (HWM)
- Elevation information is provided in feet NAVD83
- High water marks are provided for reference to a historical storm event
- They are not intended to be used for validation of the coastal mapping and are not expected to match the coastal DPCs.

**Panel 0277**

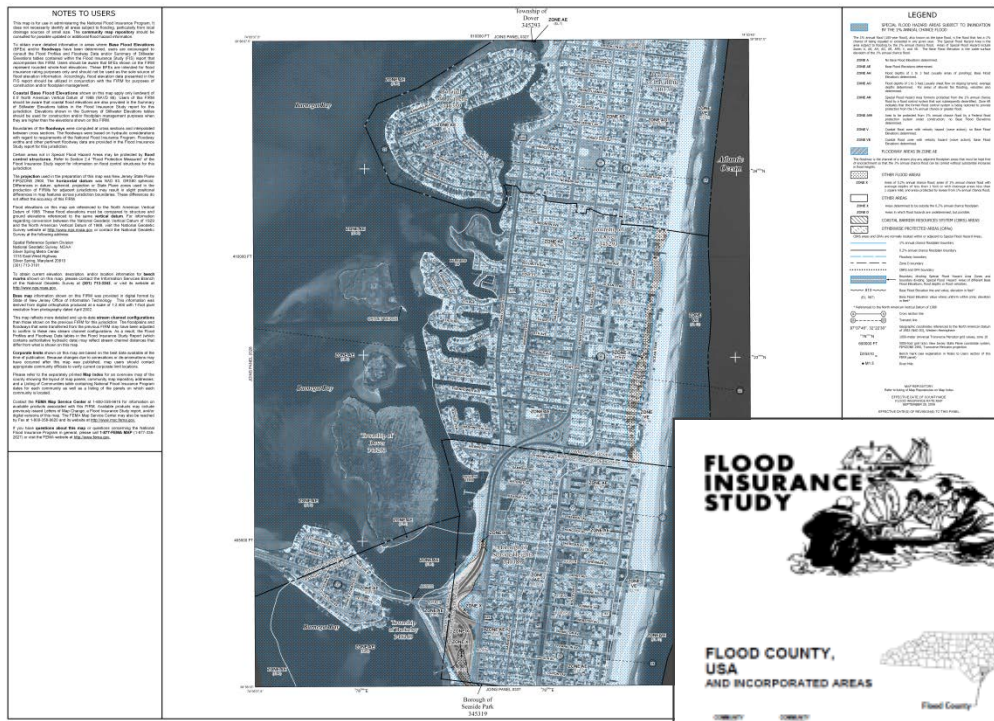
This preliminary work map contains coastal flood hazard information only, riverine flood hazard information not included

**FEMA**

**RMP**



Sample Preliminary FIRM & FIS



**FLOOD INSURANCE STUDY**

**FLOOD COUNTY, USA AND INCORPORATED AREAS**

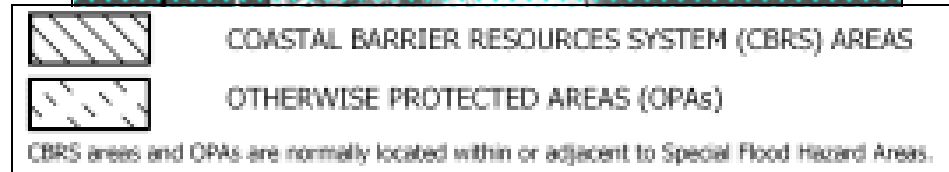
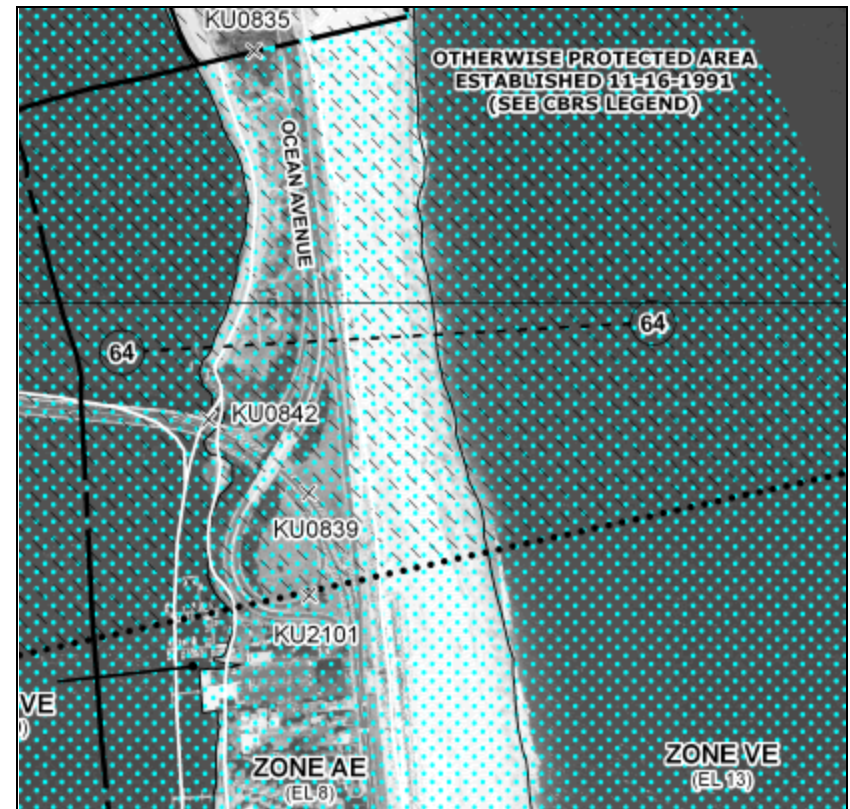
August 19, 1988

Federal Emergency Management Agency

THIS IS A SAMPLE COPY OF A FLOOD INSURANCE STUDY

# Coastal Barrier Resources System

- Consists of coastal barriers and “otherwise protected areas”
- Federal spending and financial assistance for development is restricted in these areas
  - **Flood insurance is not available if a structure was built or substantially improved/damaged after CBRS designation date**
- Official boundaries of CBRS are the official maps from the U.S. Fish and Wildlife Service



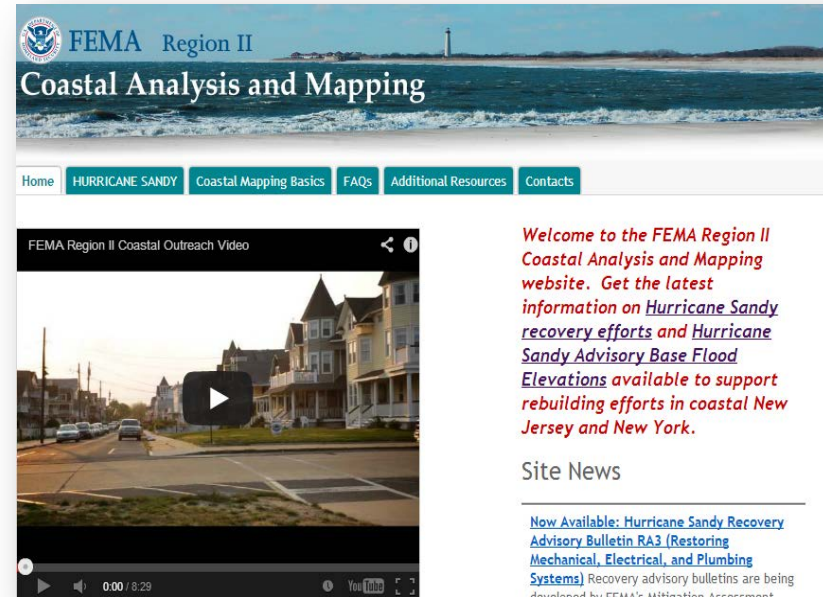
# Risk Communications

- **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

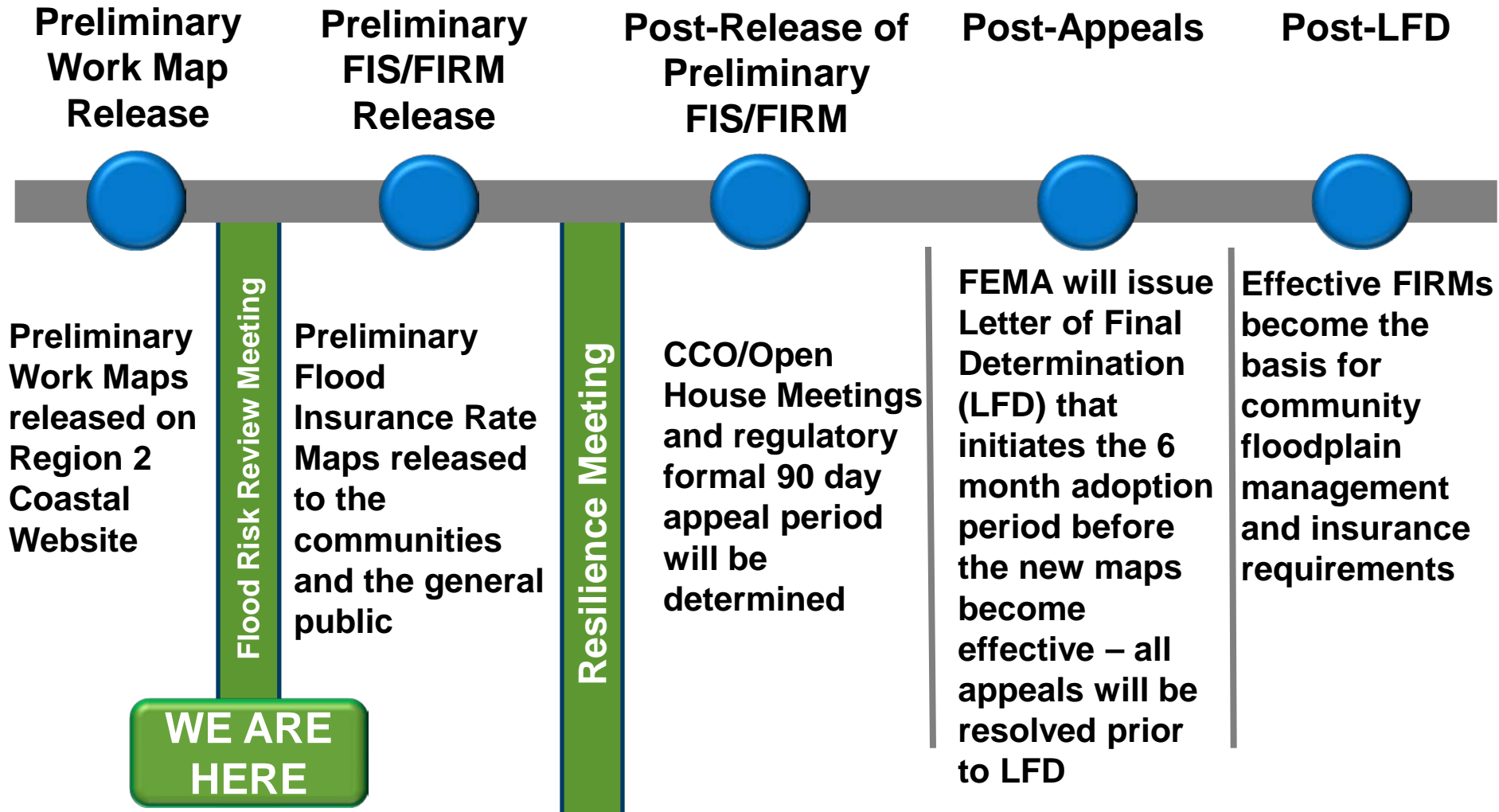
- Visit our Website:  
[www.region2coastal.com](http://www.region2coastal.com)
- Outreach factsheets
- Frequently Asked Questions
- Coastal Risk Educational Videos
- Best Available Data (Preliminary Work Maps)
- Non-Regulatory Products and Datasets



# Timeline for Cape May County – Past

- **NJ/NYC Coastal Flood Risk Study – started in 2009**
- **Meetings with local officials:**
  - Introduction to Risk MAP: July, 2011
  - Risk Assessment Workshop: December, 2011
- **Post-Sandy:**
  - ABFEs – December, 2012
    - Multiple meetings with local officials and public
  - Preliminary Work Maps – August, 2013
    - Webinar with local officials

# Timeline for Cape May 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.

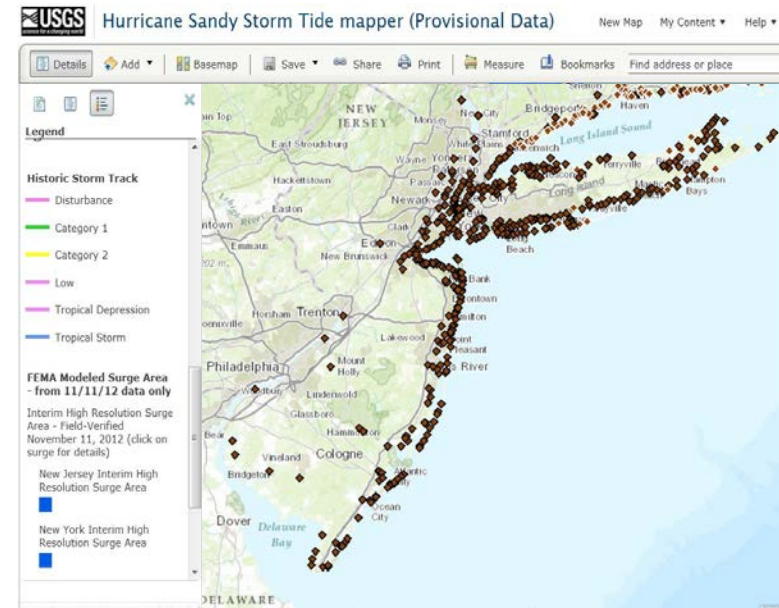


Rapid deployment gages

Storm tide sensors



Storm mapper provisional data delivery



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

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





# FEMA