Middlesex County, NJ Coastal Hazard Analysis Flood Risk Review Meeting

August 21, 2013

RiskMAP
Increasing Resilience Together

Agenda for Today

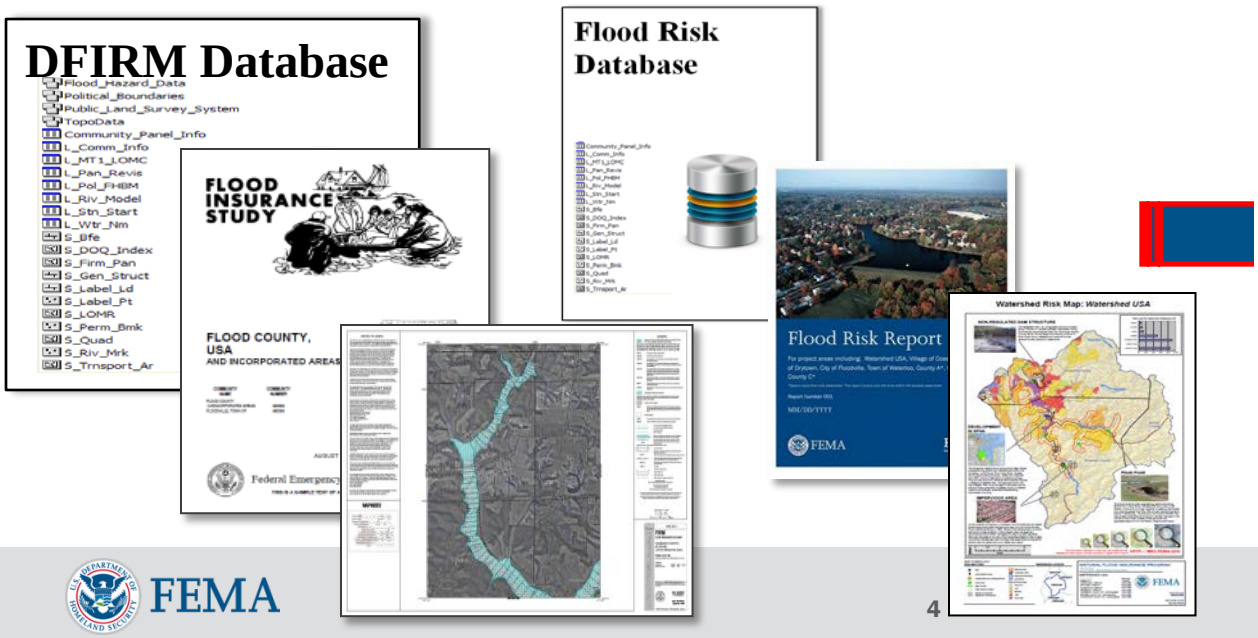
- **Kick-off and Introductions**
- **Risk MAP Program Overview**
- **Hazard Mitigation Planning Process and Mitigation Actions**
- **Overview of Non-Regulatory Flood Risk Products and Datasets**
- **Coastal Flood Risk Study and Mapping**
- **Flood Risk Communications**
- **USACE & USGS**
- **Breakout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

Why We're Doing This: Hazard Mitigation

- **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**



Middlesex County, New Jersey
Multi-Jurisdictional Hazard Mitigation Plan

prepared by:

Middlesex County
Office of Emergency Management

Local Hazard Mitigation Plans (HMPs)

Risk MAP

Risk MAP Products and Datasets

Hazard Mitigation Plan

- Uses Risk Information
- Identifies Projects/Actions
- Integrated with Other Community Plans

Other Community Plans

- Comprehensive plans
- Capital Improvement
- Stormwater Management Plans
- Emergency Operations
- Sustainability / Climate Change Plan

Mitigation Actions/Projects

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

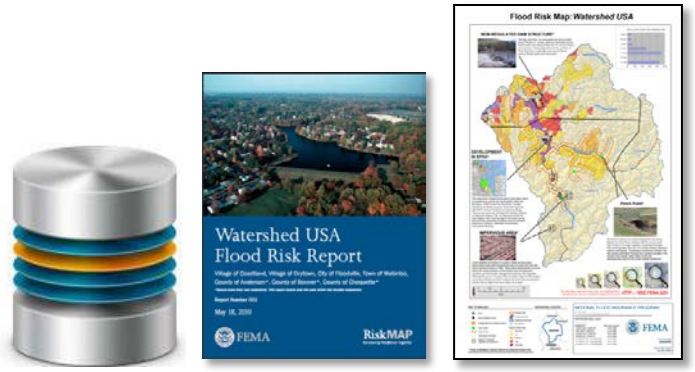
Erosion control

What Action Will You Take?

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




Non-Regulatory Coastal Flood Risk Products and Datasets

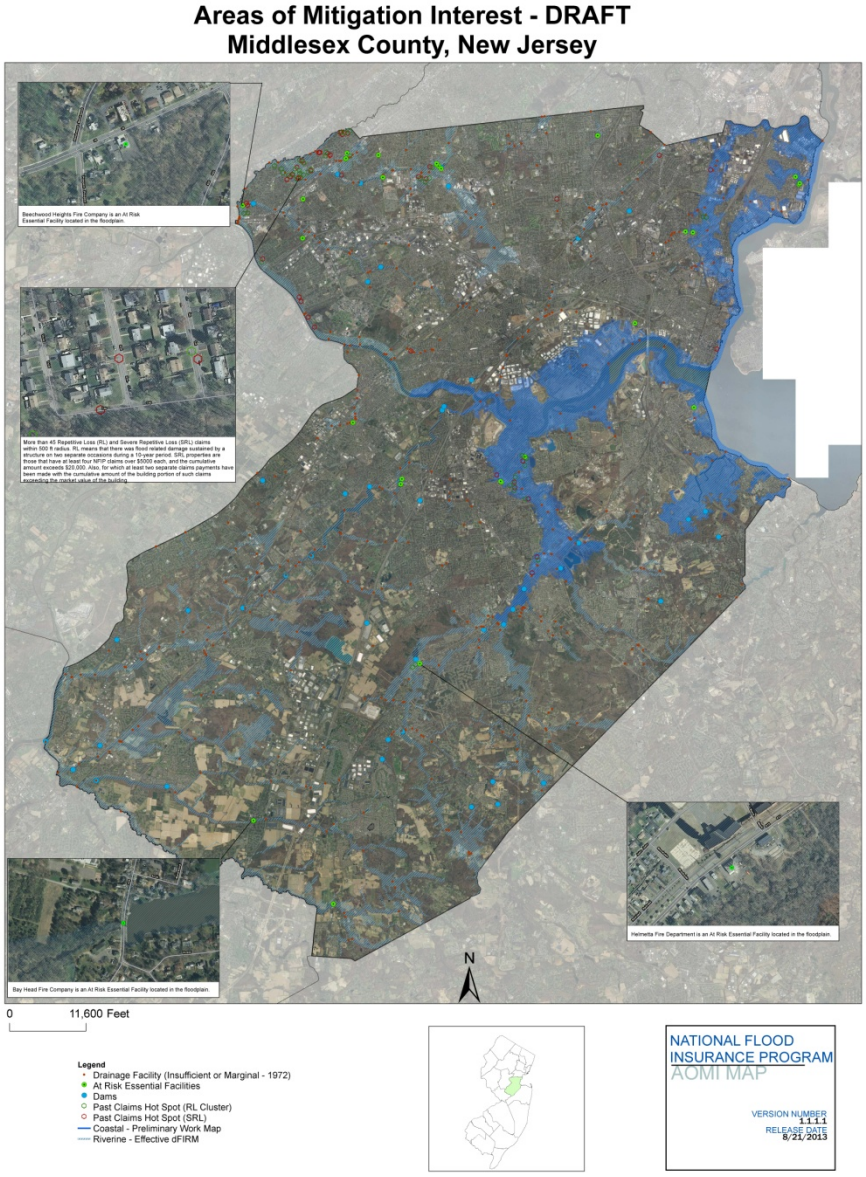


- **Flood Risk Products**
  - Flood Risk Report, Map, and Database
- **Flood Risk Datasets**
  - Changes Since Last FIRM (CSLF)
  - Coastal 1% Depth Grid
  - Areas of Mitigation Interest (AOMI)
  - Flood Risk Assessment (refined Hazus analysis)

Changes Since Last FIRM – Identifying Actions

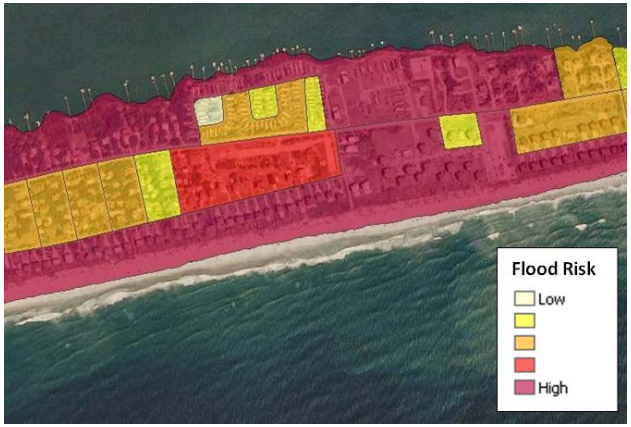
Depth Grids – Identifying Actions

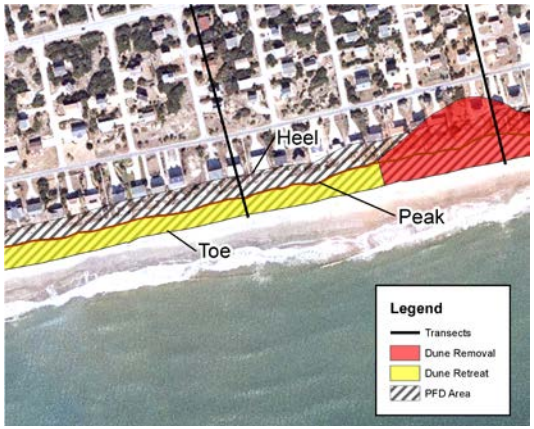
Areas of Mitigation Interest – Identifying Actions

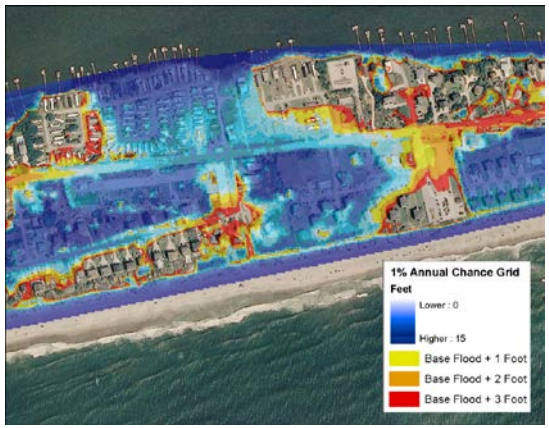


Non-Regulatory Coastal Flood Risk Products and Datasets

- **To be provided in the near future:**
  - Coastal Flood Risk Assessments
  - Primary Frontal Dune (PFD) Erosion Areas
  - Coastal Increased Inundation Areas
  - Risk MAP report, map, database

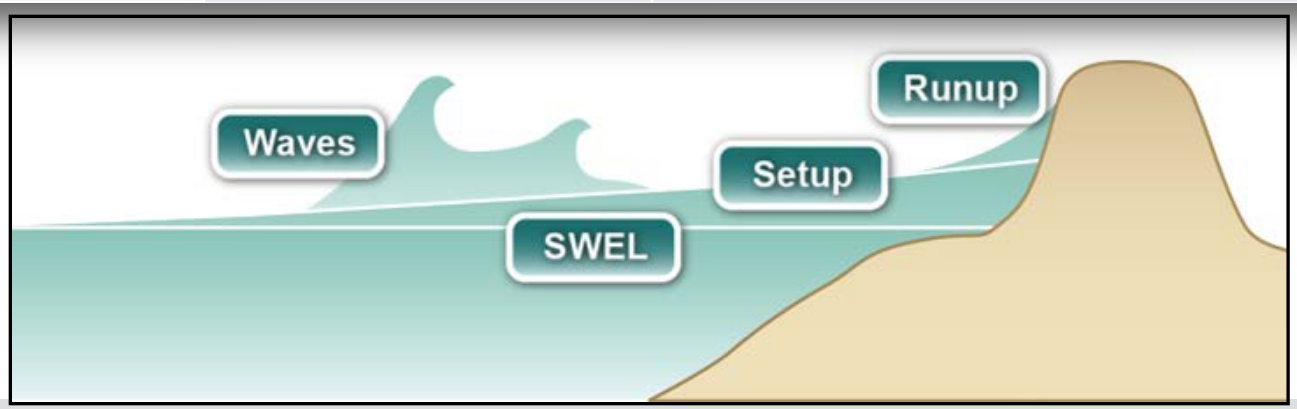




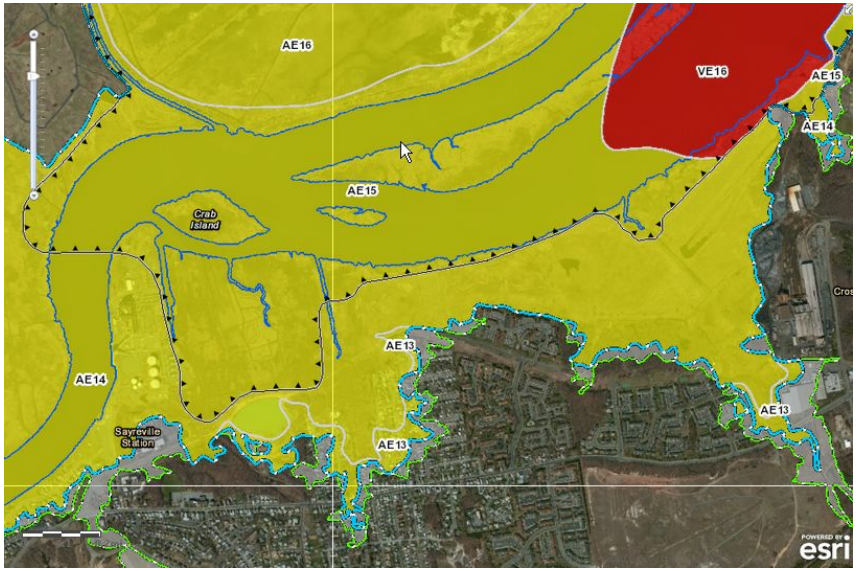


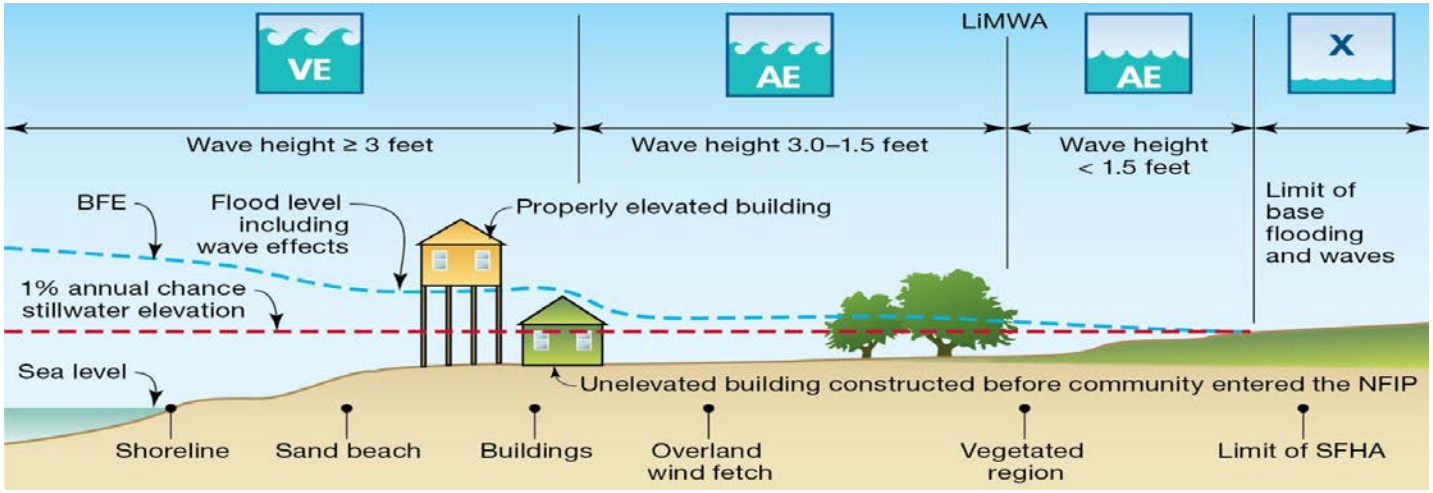
Effective vs. New Coastal Study

Coastal Study Component	Effective Study (2009)	New Study (2013)
Topographic data	1970's to 1980's	2006/2007 LiDAR
SWELs	1970's to 1980's	2010 FEMA study
Modeled transects	25	134
Wave setup	No	Yes
Wave runup	No	Yes
LiMWA	No	Yes



Mapping


AE16
VE16
AE15
AE14
AE15
Crab Island
AE13
AE14
AE13
AE13
Sayreville State...
esri


VE
AE
LiMWA
AE
X
Wave height ≥ 3 feet
Wave height 3.0–1.5 feet
Wave height < 1.5 feet
Limit of base flooding and waves
BFE
Flood level including wave effects
Properly elevated building
1% annual chance stillwater elevation
Sea level
Unelevated building constructed before community entered the NFIP
Shoreline
Sand beach
Buildings
Overland wind fetch
Vegetated region
Limit of SFHA

Wave Runup

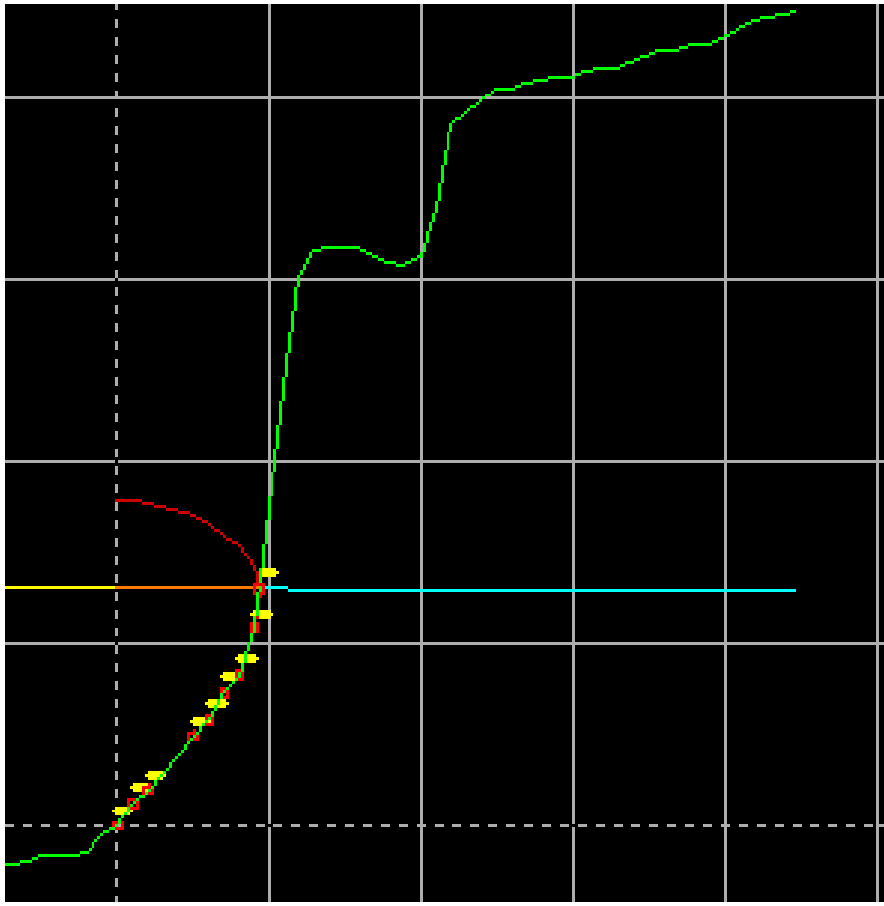
- **Runup modeled for beaches, bluffs, cliffs and coastal structures**
- **Calculate top 2% of runup elevations (vs. previous studies using mean runup)**
- **Methods:**

  Runup 2.0, TAW, CSHORE

Wave Runup

How runup is mapped?

Profile view of Transect



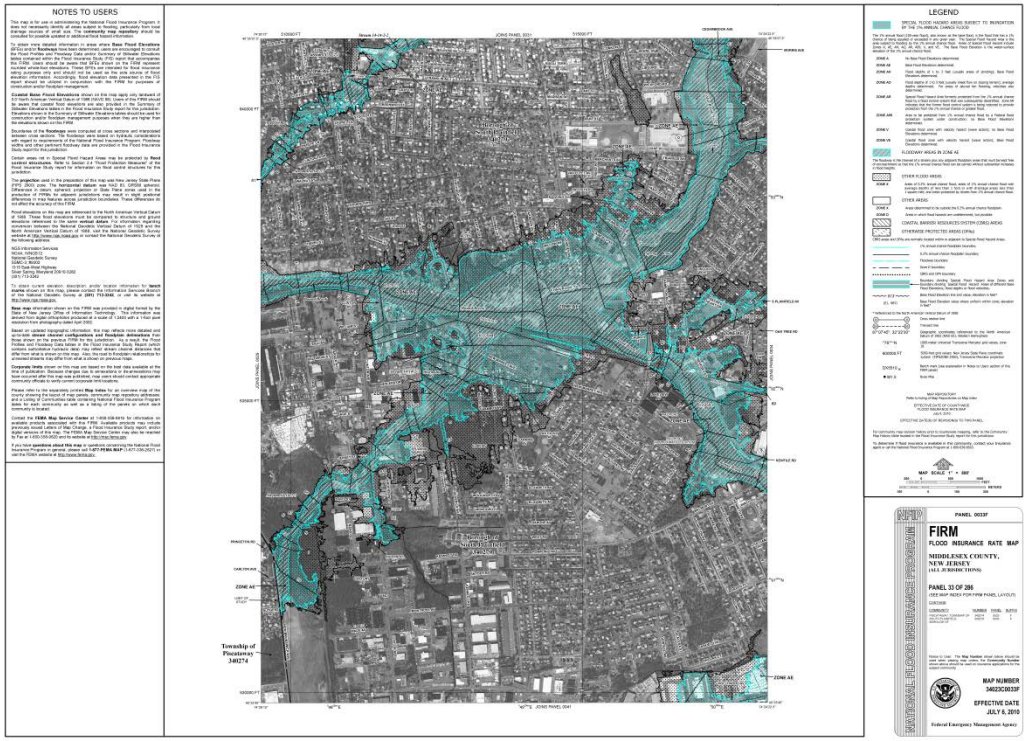
LiMWA on the Map

- **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

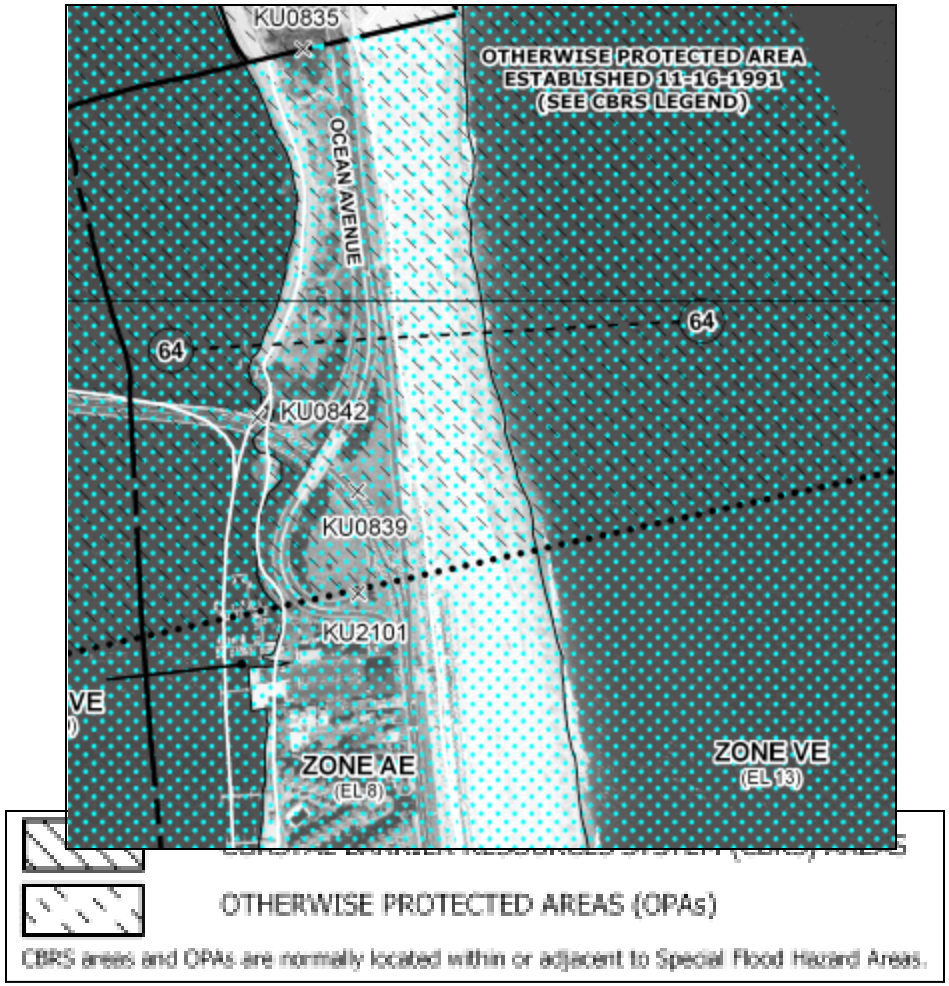
Middlesex County, NJ
Preliminary Work Map

Preliminary FIRM



Coastal Barrier Resources System

- Consists of coastal barriers and “otherwise protected areas”
- Federal spending and financial assistance for development is restricted in these area
  - **Flood insurance is <u>not</u> 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



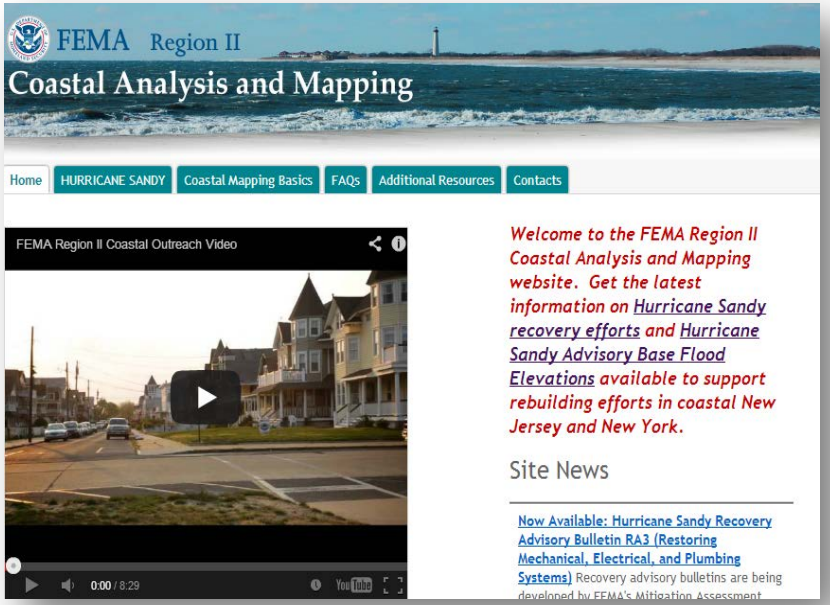
Risk Communications

- **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

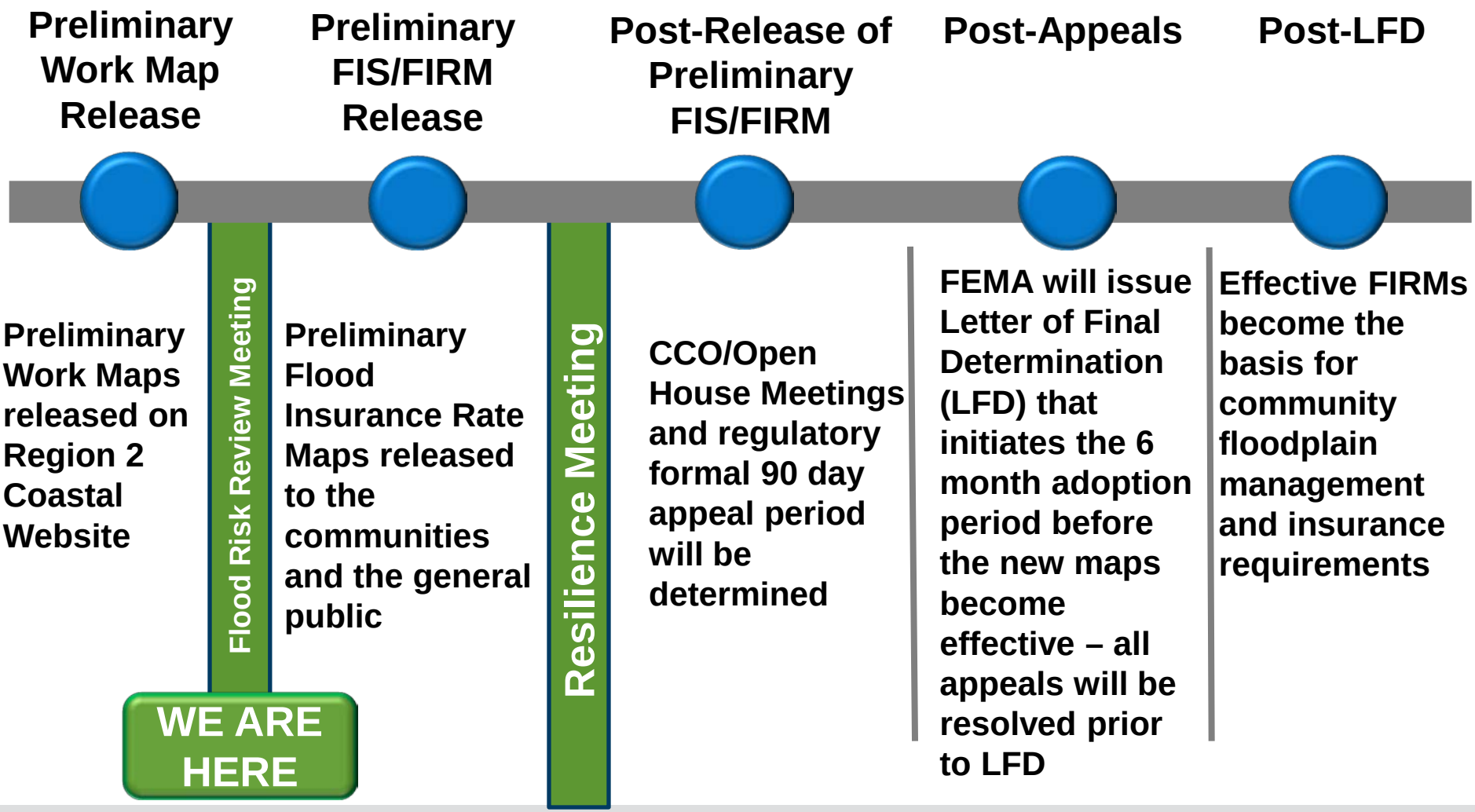
- **Visit our Website: www.region2coastal.com**
- **Outreach factsheets**
- **Frequently Asked Questions**
- **Coastal Risk Educational Videos**
- **Best Available Data (Preliminary Work Maps)**
- **Non-Regulatory Products and Datasets**



Timeline for Middlesex County – Past

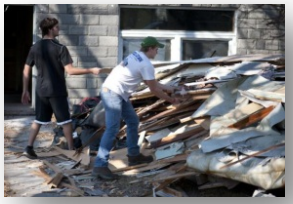
- **NJ/NYC Coastal Flood Risk Study – started in 2009**
- **Meetings with local officials:**
  - Introduction to Risk MAP – August, 2011
  - Hazard Mitigation Assistance – December, 2011
  - Risk Assessment – February, 2012
- **Post-Sandy:**
  - ABFEs – December, 2012
    - Multiple meetings with local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

Timeline for Middlesex 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

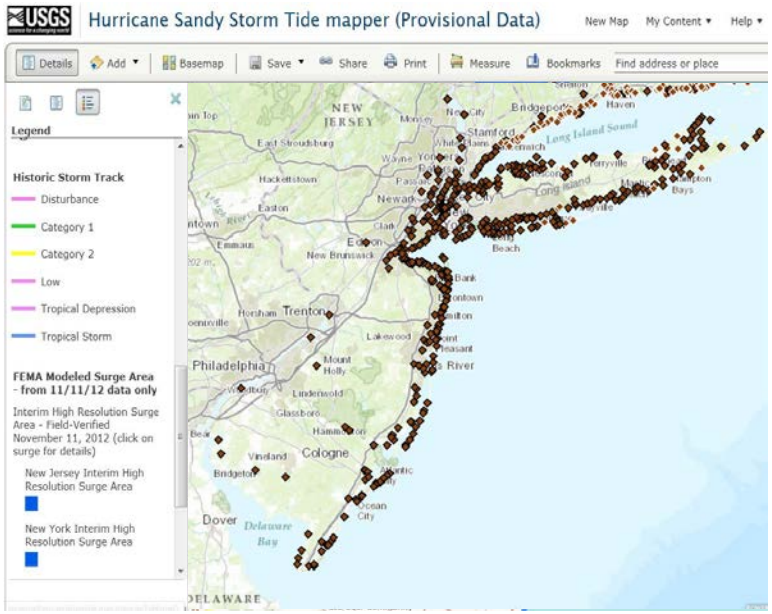
The USGS studies the effects of hurricanes, tropical storms and flooding in general to better understand potential impacts on communities and to protect the environment, human life and property.

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**
- **CSLF & Depth Grids**
- **AOMI & Hazard Mitigation Planning and Actions**
- **State**
- **USACE and USGS**

Thank you for your participation!

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

FEMA

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