FEMA

Burlington County, NJ Flood Risk Review Meeting

May 28, 2014

RiskMAP
Increasing Resilience Together

Agenda for Today

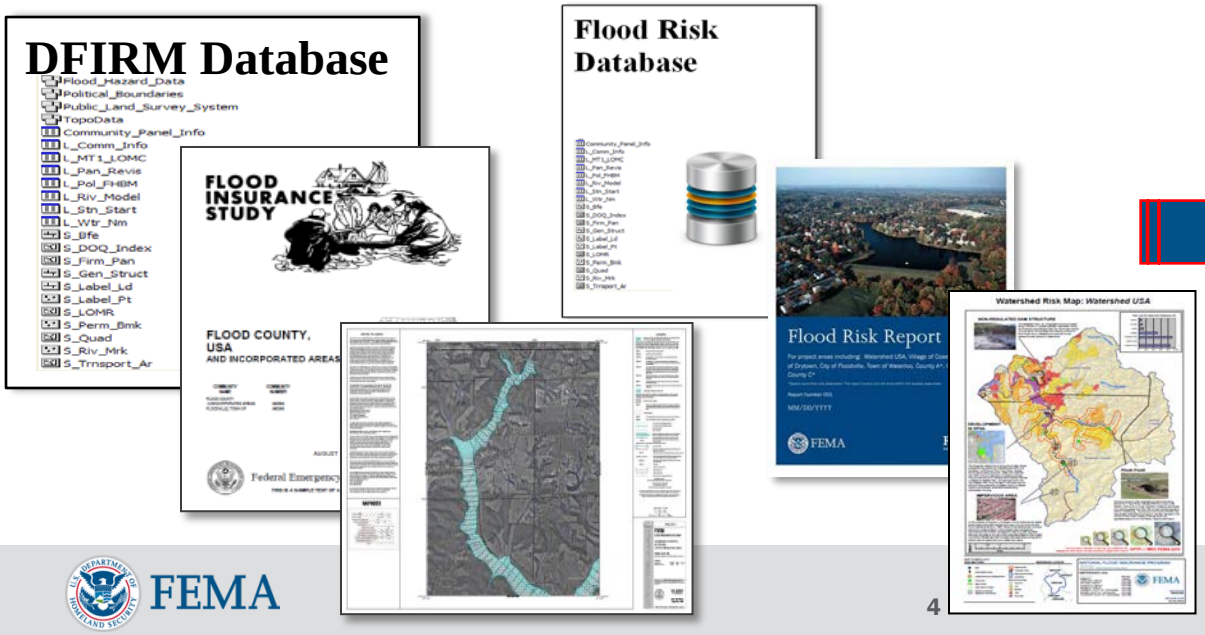
- **Kick-off and Introductions**
- **Risk MAP Program Overview**
- **Hazard Mitigation Planning Process and Mitigation Actions**
- **Overview of Non-Regulatory Flood Risk Products and Datasets**
- **Coastal Flood Risk Study and Mapping**
- **Flood Risk Communications**
- **USGS**
- **Breakout Group Sessions**

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**

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**



Burlington County's Hazard Mitigation Plan

Currently being updated

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

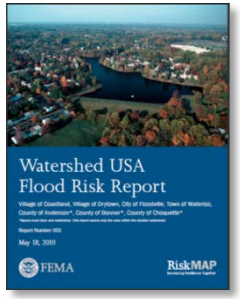
Erosion control

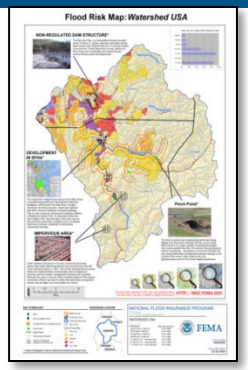
What Action Will You Take?

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



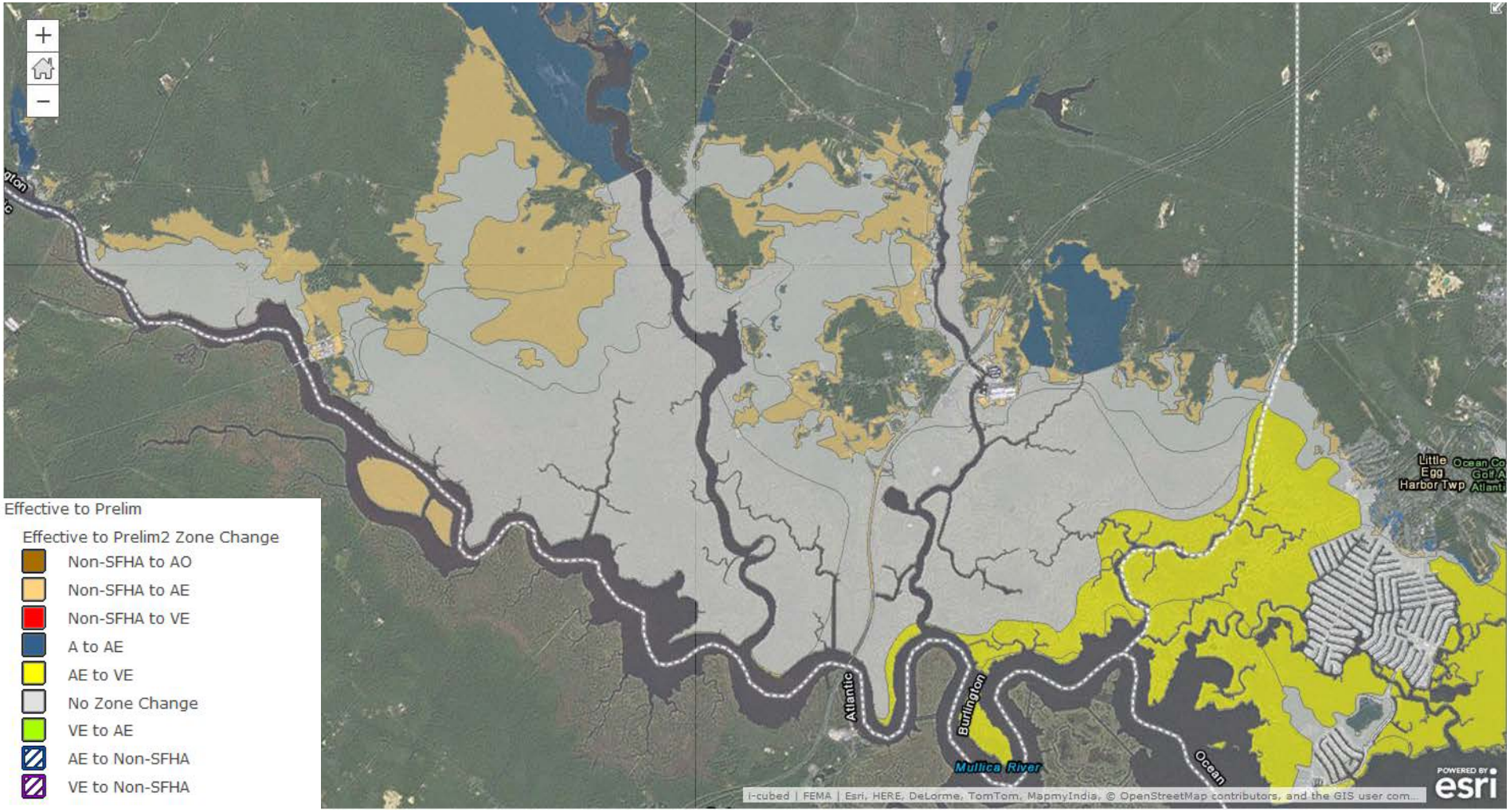

Non-Regulatory Coastal Flood Risk Products and Datasets



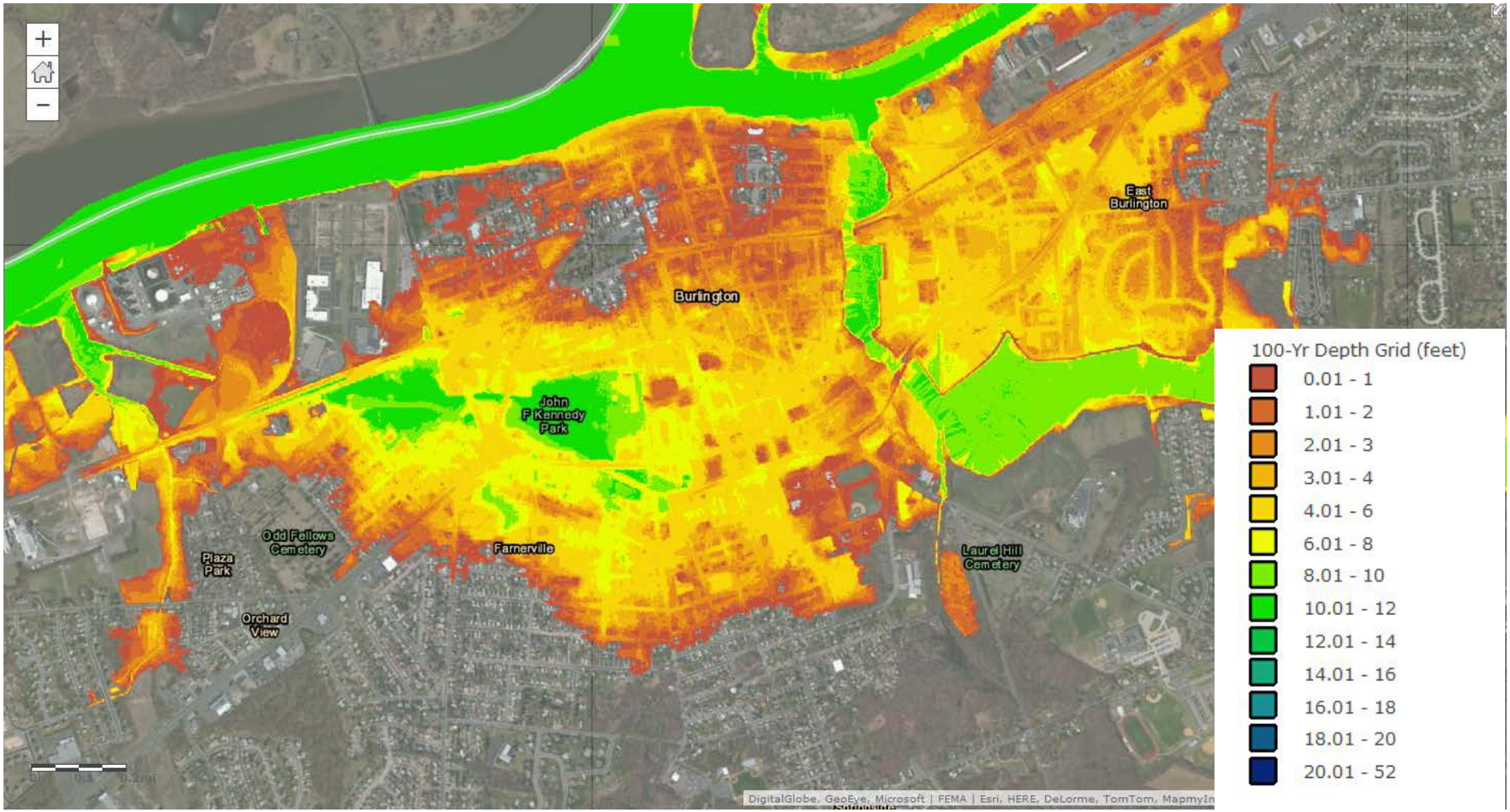


- **Flood Risk Products**
  - Flood Risk Report, Map, and Database
- **Flood Risk Datasets**
  - Changes Since Last FIRM (CSLF)
  - Coastal 1% Depth Grid
  - Areas of Mitigation Interest (AOMI)
  - Coastal Flood Risk Assessment (refined Hazus analysis)
  - Coastal Increased Inundation Areas

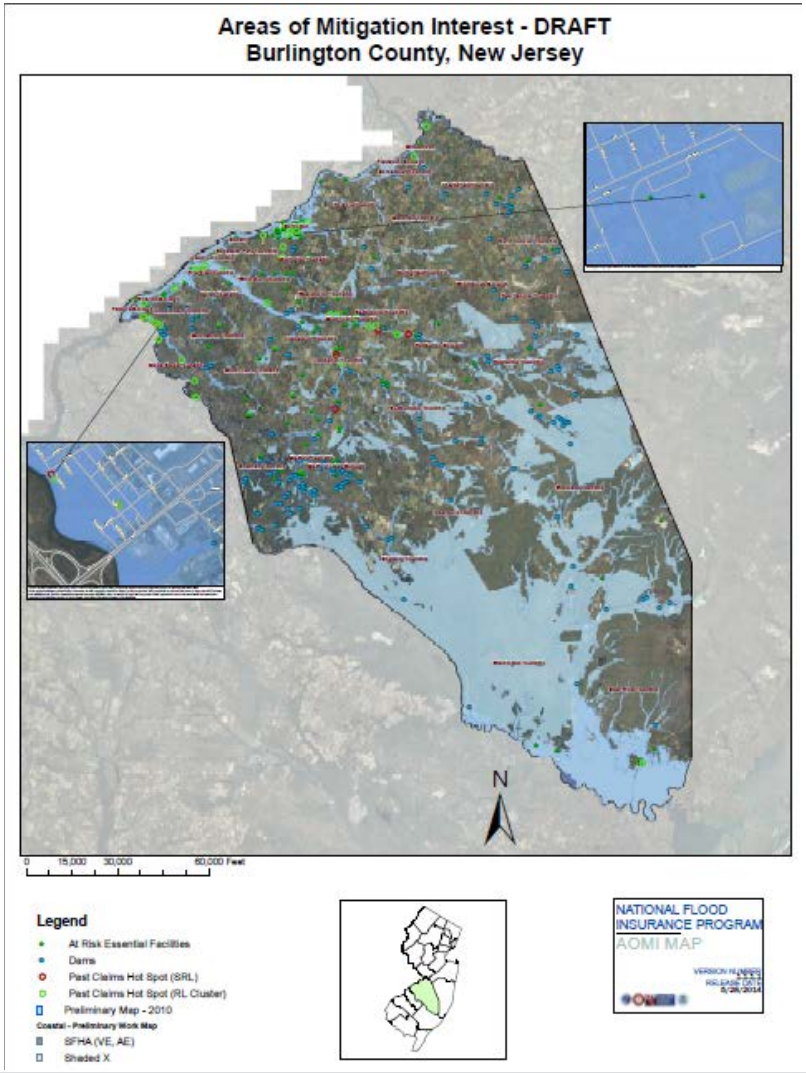
Changes Since Last FIRM – Identifying Actions



Depth Grids – Identifying Actions

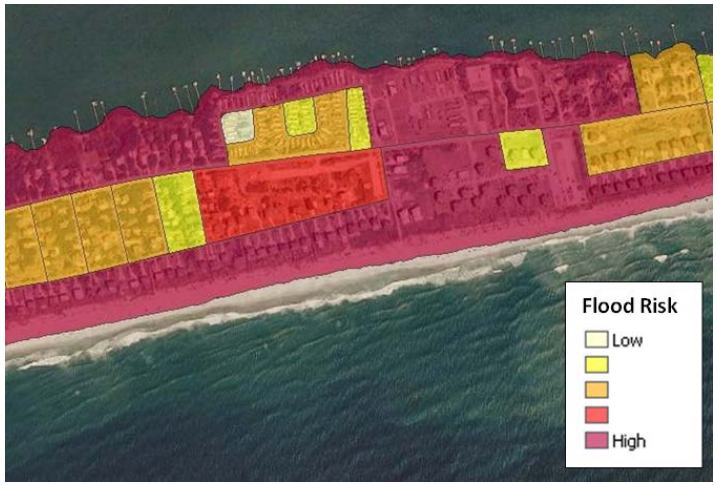


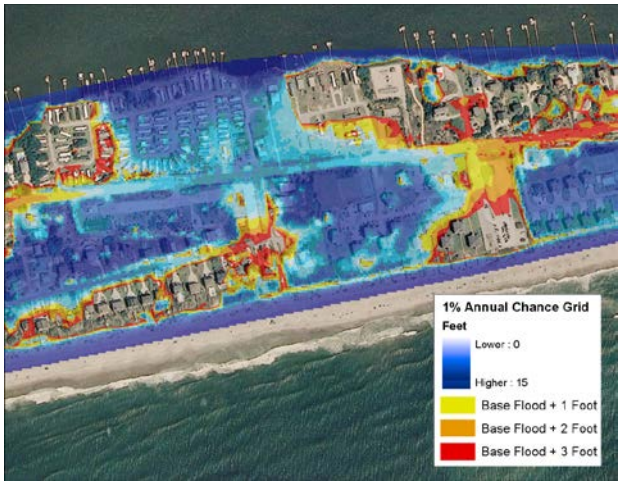
Areas of Mitigation Interest – Identifying Actions



Non-Regulatory Coastal Flood Risk Products and Datasets

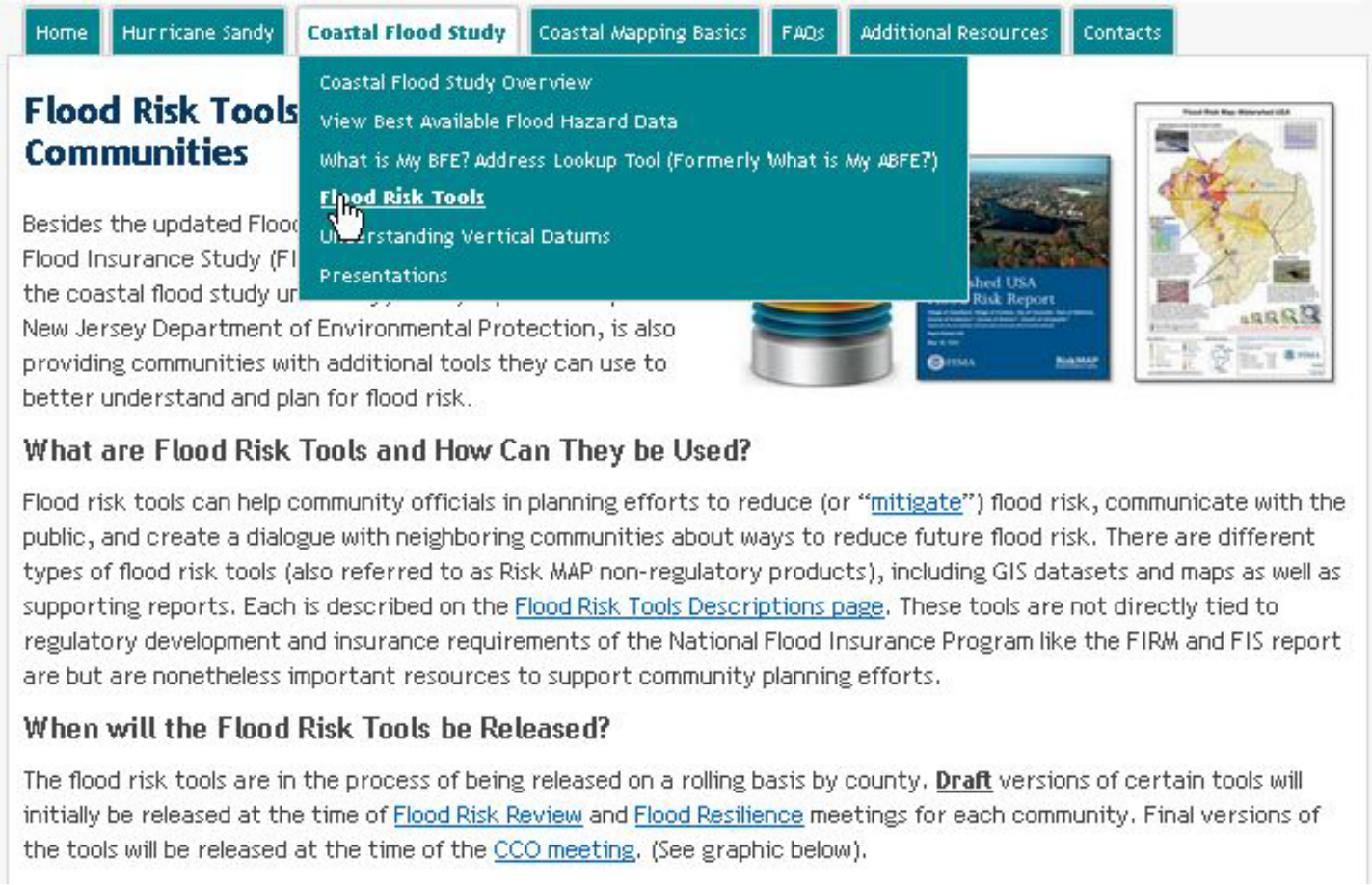
- **To be provided in the near future:**
  - Coastal Flood Risk Assessments
  - Coastal Increased Inundation Areas
  - Risk MAP report, map, database





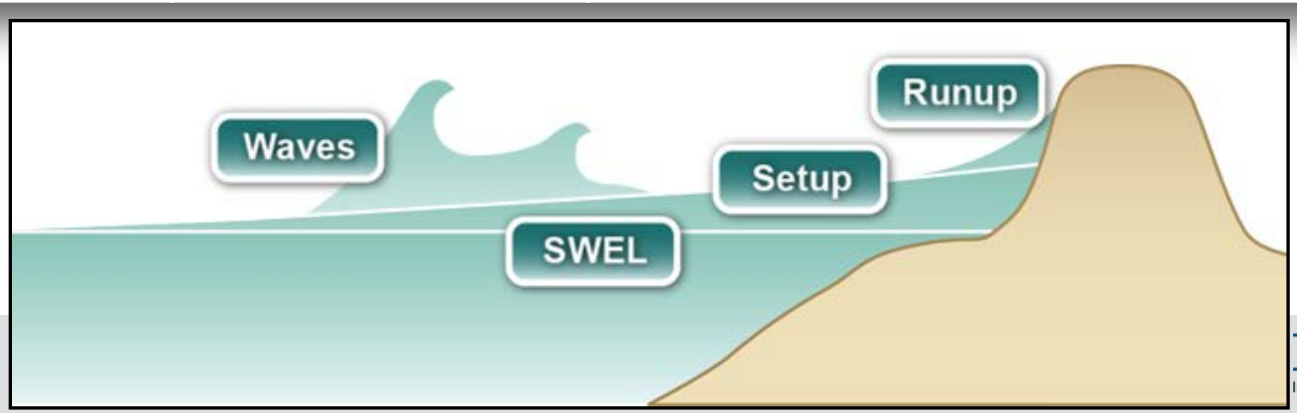
Draft Flood Risk Tools

- **Region2coastal.com**

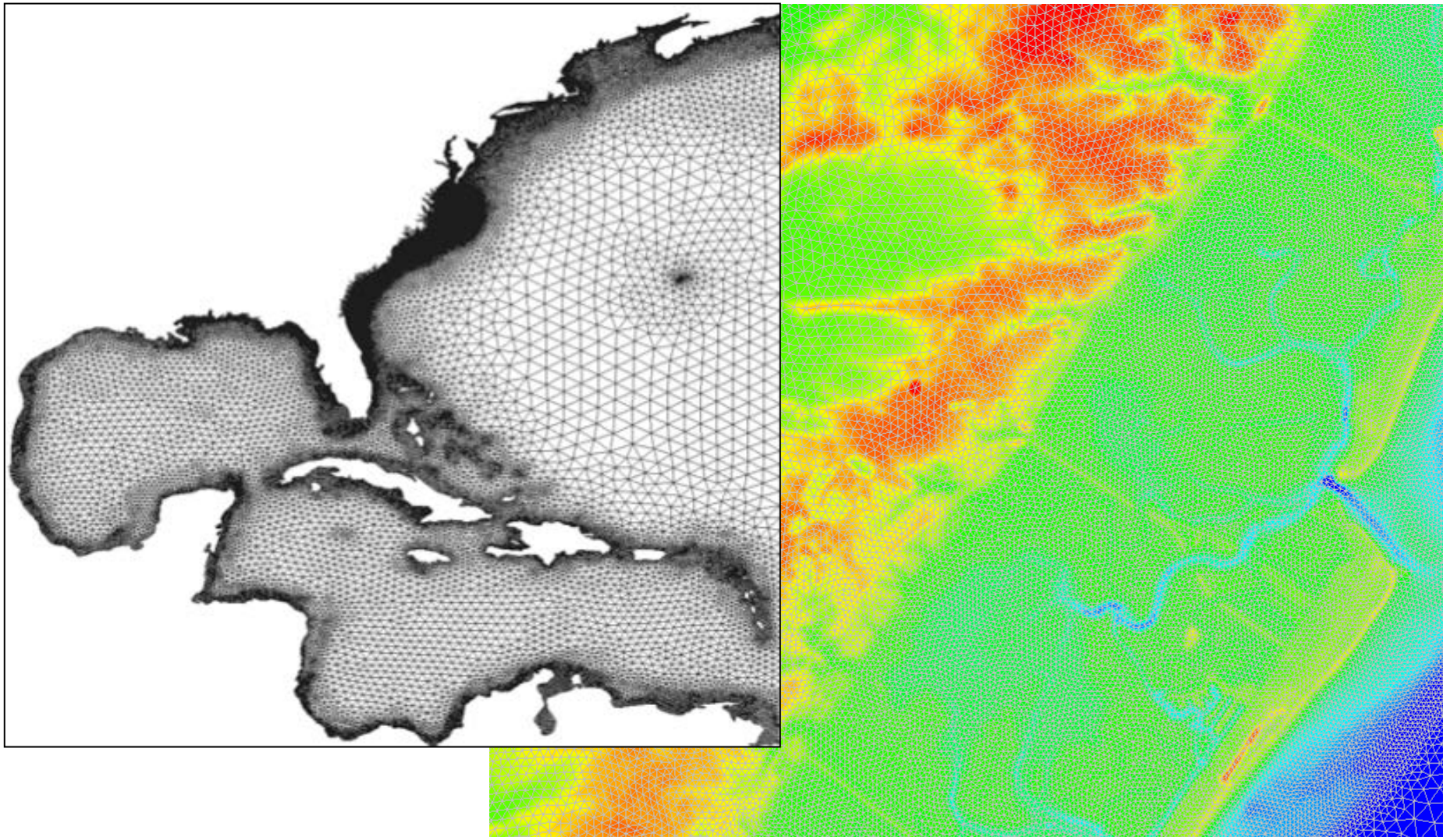


Effective vs. New Coastal Study

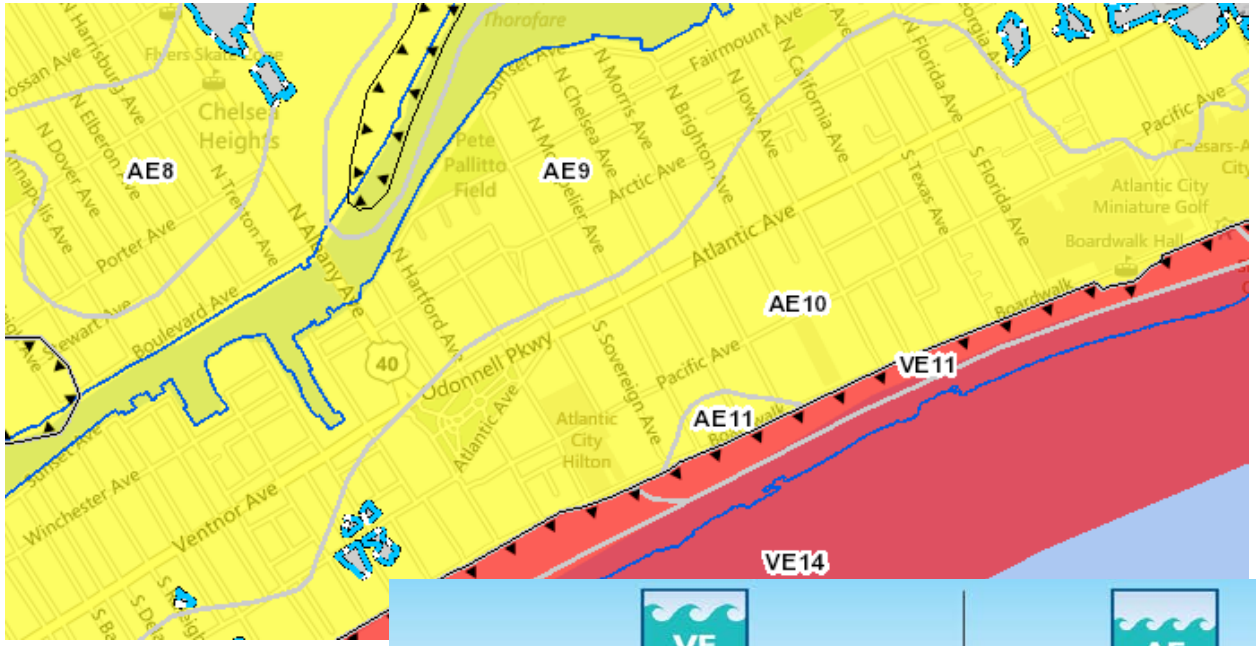
Coastal Study Component	Effective Study (USACE – 1984)	New Study (2013)
Topographic data	1990	2011
SWELs	1984	2012 FEMA Region III / USACE – Delaware River 2012 FEMA Region II – Atlantic Ocean
Modeled transects	No	7
Wave setup	No	Yes
Wave runup	No	Yes
LiMWA	No	Yes

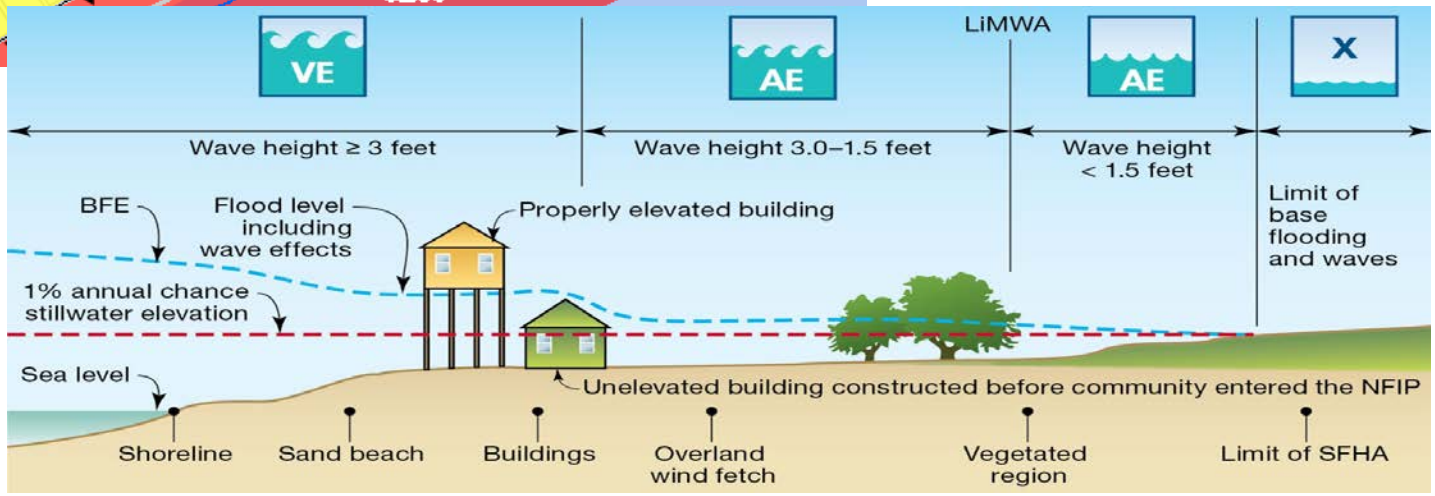


New Storm Surge Model



Mapping


AE8
AE9
AE10
AE11
VE11
VE14
Atlantic Ave
Pacific Ave
Ventnor Ave
Winchester Ave
Boardwalk
Atlantic City Miniature Golf
Atlantic City Hilton
Chelsea Heights
Pete Pallitto Field
Odonnell Pkwy
N Albany Ave
N Hartford Ave
S Sovereign Ave
S Texas Ave
S Florida Ave
N Florida Ave
N Brighton Ave
N Iowa Ave
N California Ave
Fairmount Ave
Arctic Ave
Porter Ave
Boulevard Ave
N Dover Ave
N Elberon Ave
N Harrisburg Ave
N Trenton Ave
N Chelsea Ave
N Morris Ave
Thorofare
Pacific Ave
40


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

Coastal Study Process

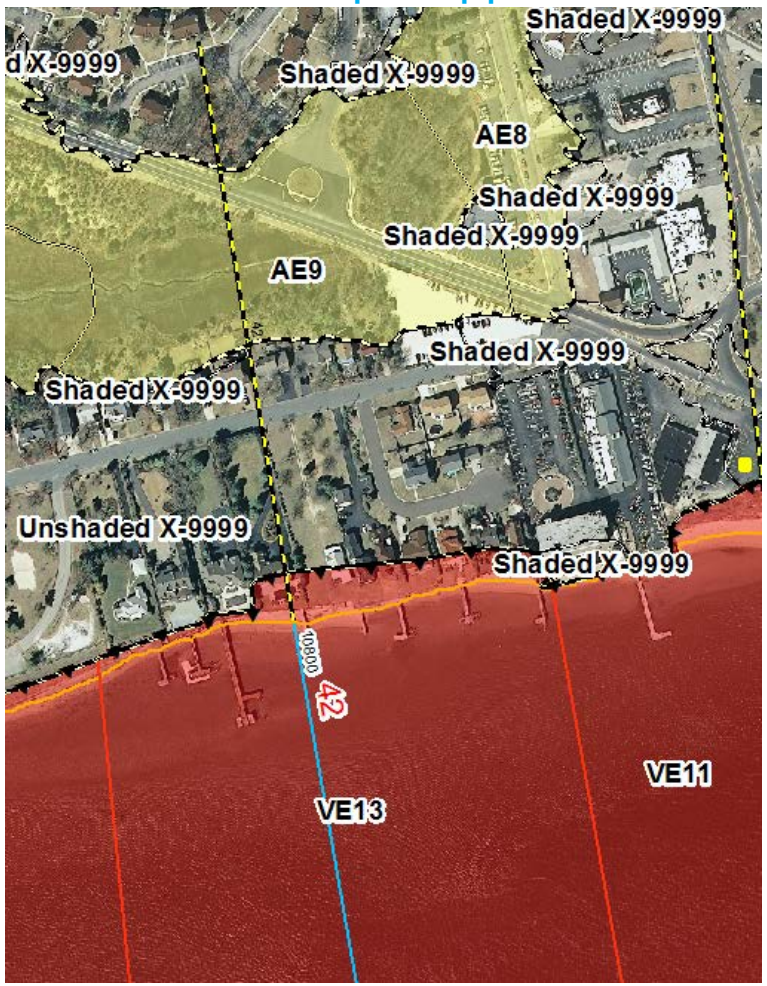
Wave Runup

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

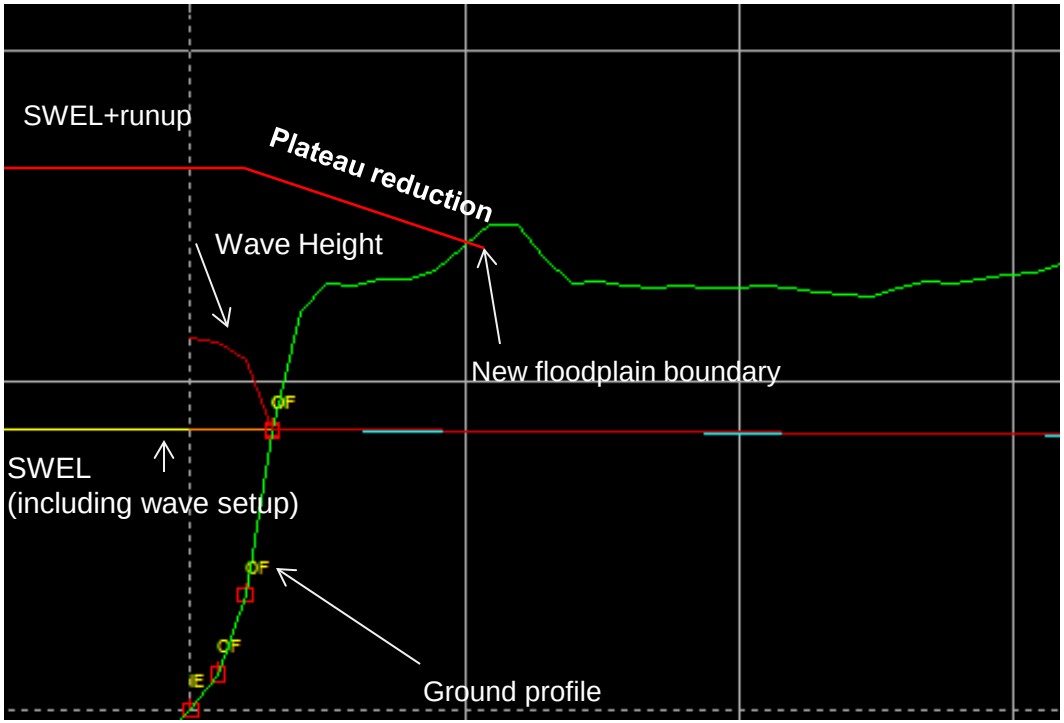
  Runup 2.0, TAW, CSHORE

Wave Runup

How is runup mapped?

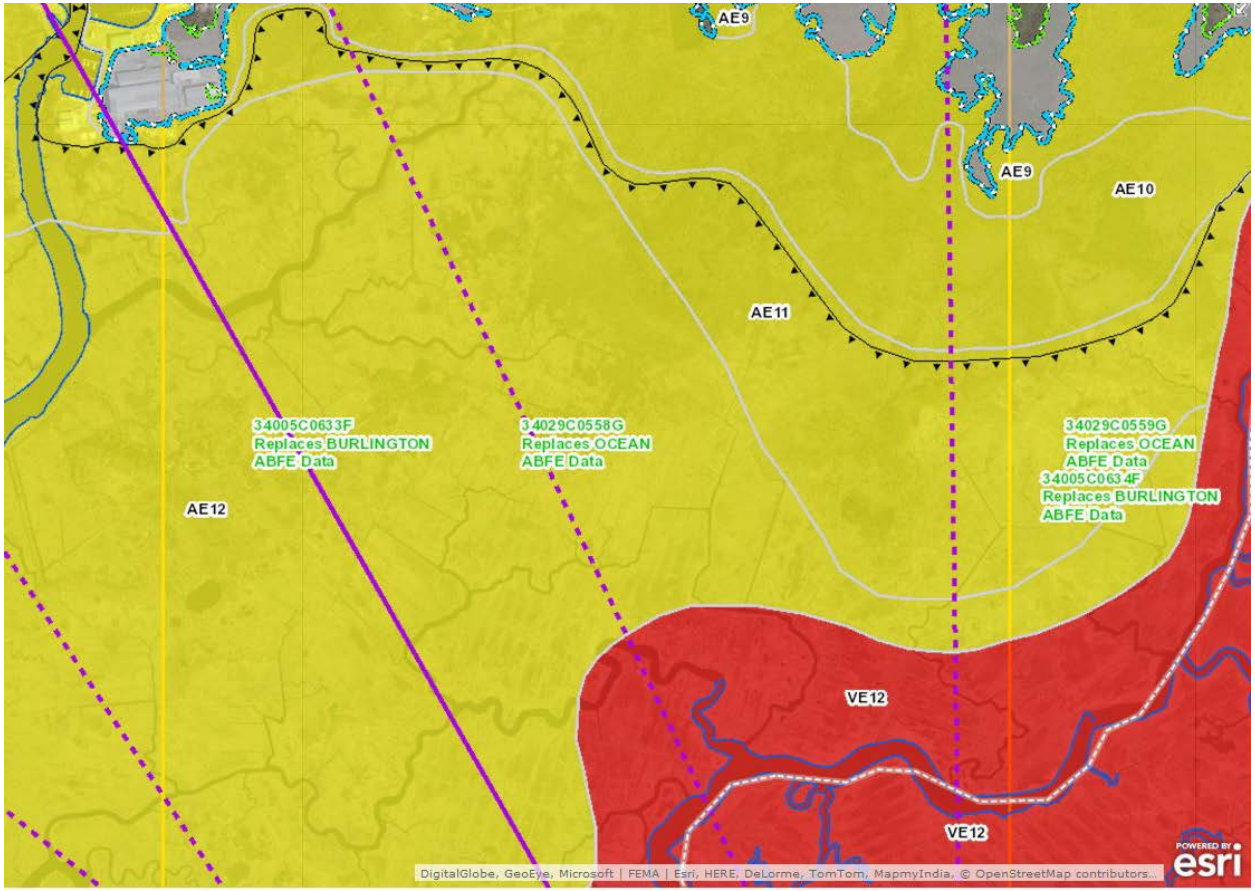


Profile view of Transect



LiMWA on the Map

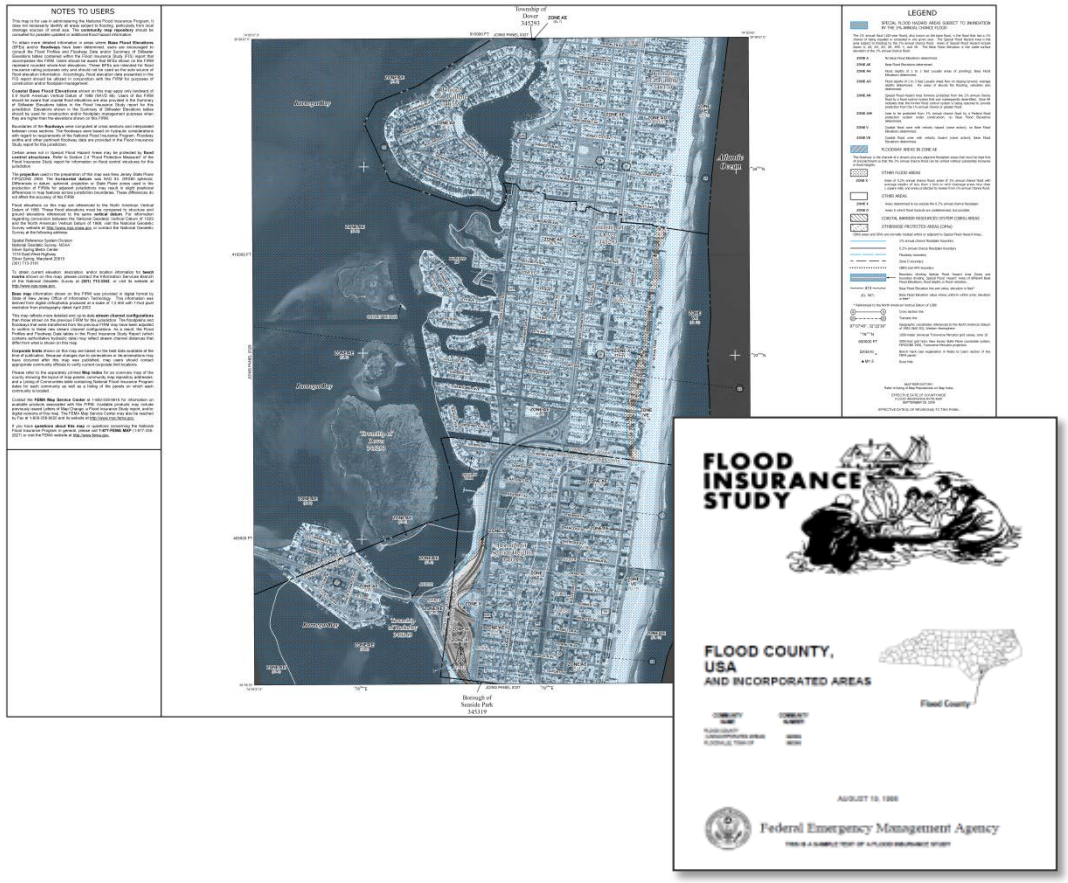
- **LiMWA sits inside of a Zone AE**
- **LiMWA can cross Zone AE lines**
- **Triangles point to higher waves**
  - Indicates where wave height exceeds 1.5ft
- **Also referred to as Coastal A Zone**



Preliminary Work Map vs. Preliminary FIS/FIRM

Burlington County, NJ
Preliminary Work Map

Sample Preliminary FIRM & FIS



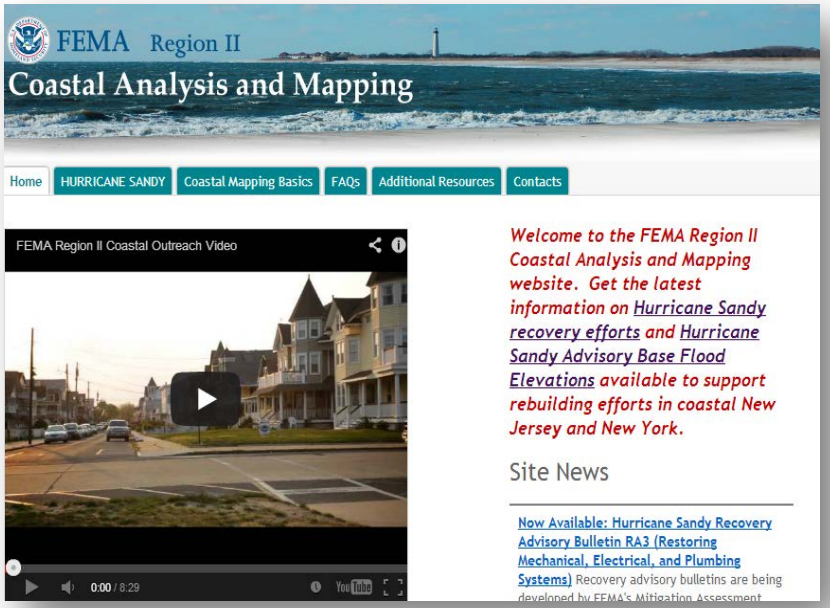
Risk Communications

- **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

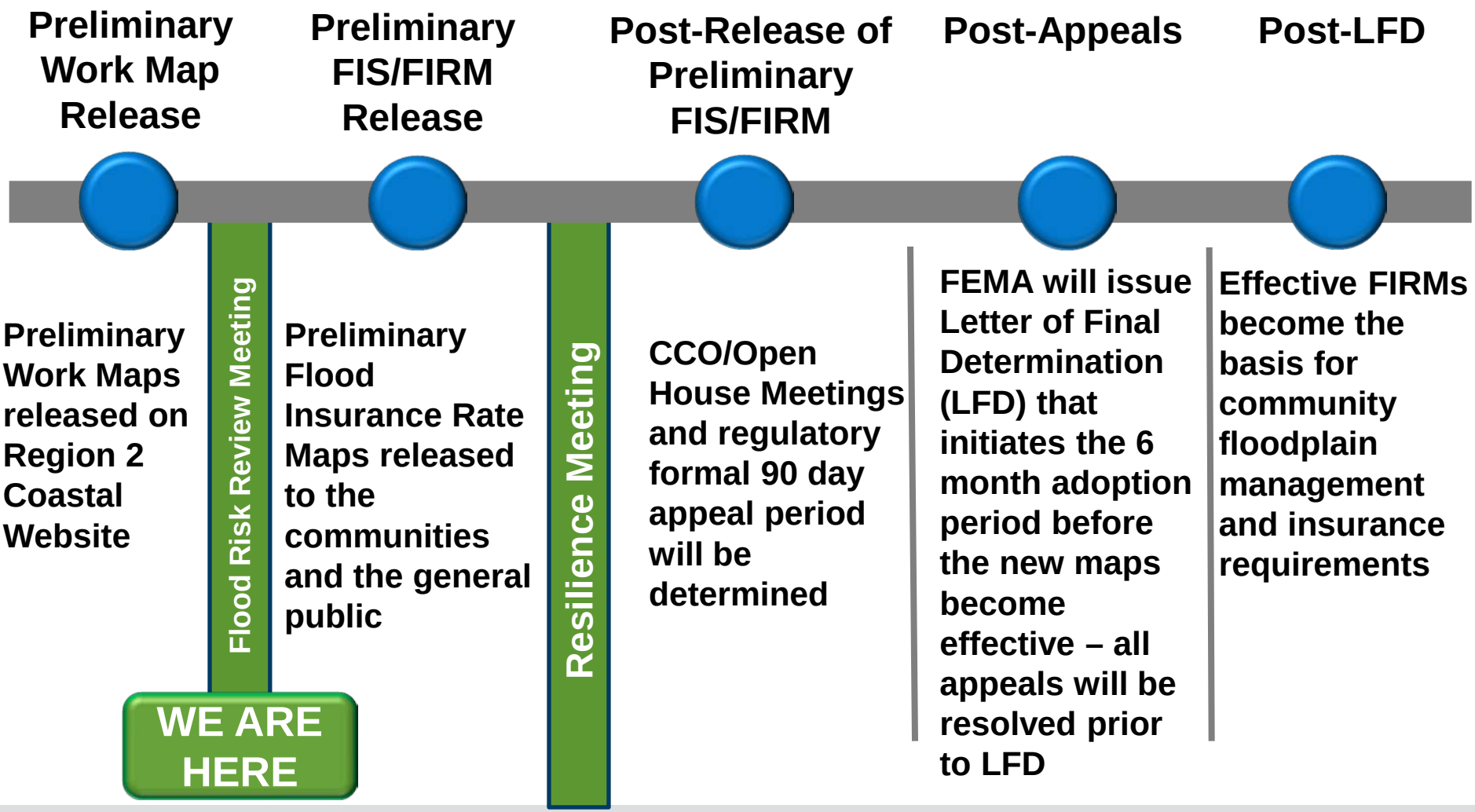
- **Visit our Website: www.region2coastal.com**
- **Outreach factsheets**
- **Frequently Asked Questions**
- **Coastal Risk Educational Videos**
- **Updated Flood Hazard Data (Preliminary Work Maps)**
- **Non-Regulatory Products and Datasets**



Timeline for Burlington County – Past

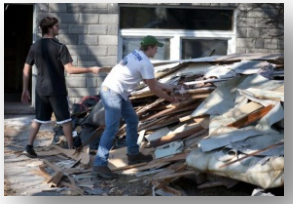
- **NJ/NYC Coastal Flood Risk Study – started in 2009**
- **Meetings with local officials:**
  - Introduction to Risk MAP: Nov, 2010
  - Risk MAP Project Status Update: Apr, 2013
  - Discovery Meeting: May, 2013
- **Post-Sandy:**
  - Preliminary Work Maps – March, 2014
    - Webinar with local officials

Timeline for Burlington 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

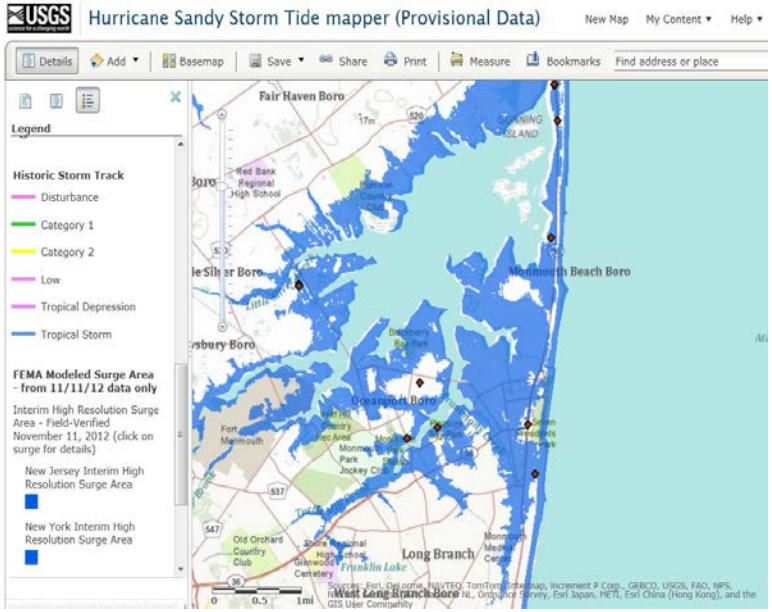
The USGS studies the effects of hurricanes, tropical storms and flooding in general to better understand potential impacts on communities and to protect the environment, human life and property.

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

Rapid deployment gages

Storm tide sensors

Storm mapper provisional data delivery



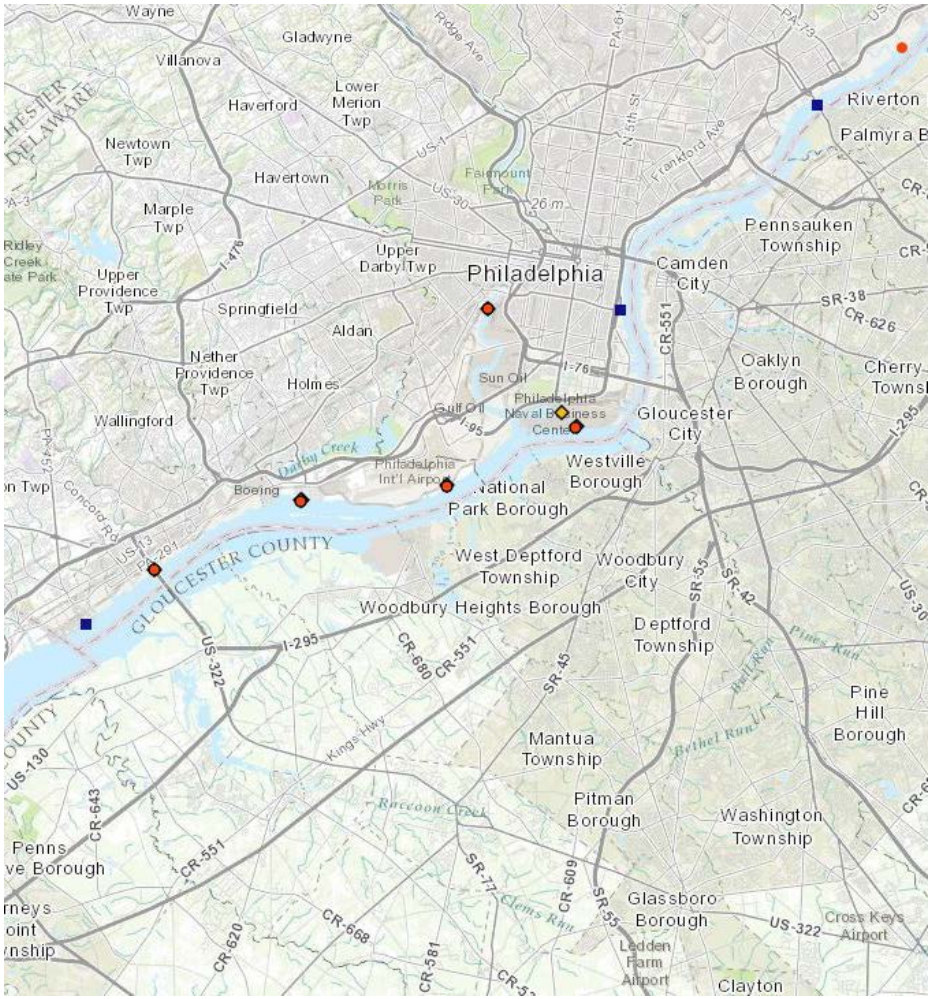
USGS Data Collection

- 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.

http://water.usgs.gov/floods/events/2012/sandy/sandymapper.html

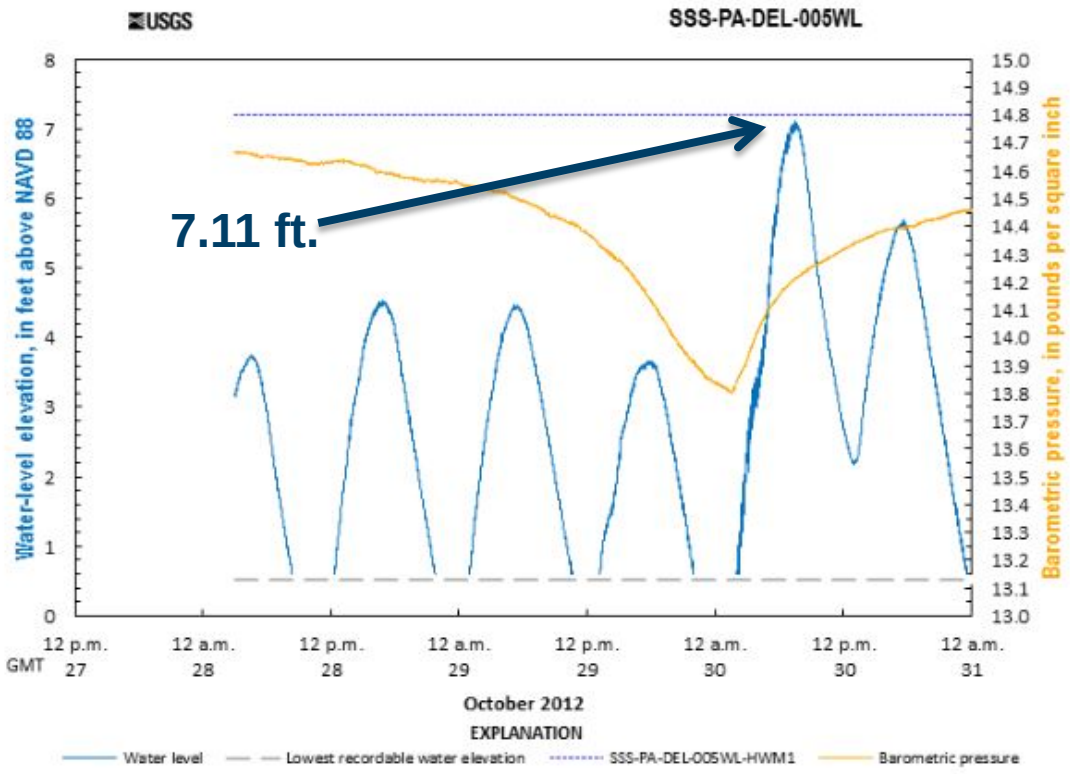
USGS Sensors in the Delaware River and Bay

- The New Jersey and Pennsylvania Water Science Centers deployed about 12 sensors from Delaware Bay up to the Philadelphia area
- Peaks on the Maurice and Cohansey Rivers in NJ were about 6.3 and 6.5 ft
- Peaks near Marcus Hook (Chester) and Phila, PA were about 7.0 to 7.2 ft



USGS Storm Tide Sensor Data

Delaware River at Philadelphia, PA (across from Gloucester Co. N J)



http://water.usgs.gov/floods/events/2012/sandy/sandymapper.html

Breakout Groups

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

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

FEMA