FEMA REGION III COASTAL HAZARD STUDY
Impacts and Rollout
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Robin Danforth, FEMA Region III
David Bollinger, FEMA Region III
Jeff Gangai, RAMPP
Christine Worley, RAMPP
Today’s Discussion

- Overview and Status of Region III Coastal Study
  - Why a new coastal study is needed
  - Storm Surge Analysis
  - Wave Height Analysis
  - Coastal Study Timeline

- Outreach Efforts
  - Outreach Strategy
  - Coastal Outreach Advisory Team (COAT)
  - Community Meetings
  - Outreach Materials and Websites

- Coastal Study Results and Impacts

- Questions/Discussion
Why a Region III Coastal Study Project?

- Coastal flood risk information is out-of-date
- New Coastal Guidelines need to be implemented
- Update base data such as topographic dataset and aerial imagery to high resolution products and seamless Digital Elevation Model (DEM)
- Take advantage of higher performance numerical modeling
- Take advantage of improvement in GIS technologies to allow for more accurate FIRMs
Where is the Study Occurring?

- All of Region III coastal counties/cities (Atlantic Ocean, Chesapeake Bay, Delaware Bay and their tributaries)
Region III Storm Surge Project completed late 2011

Jeff Hanson      Mike Forte
Region III Storm Surge Project Managers
USACE-FRF
Wave Height Analysis will be completed Summer 2013

- **Modeling set-up**
  - Transect Layout
  - Field Reconnaissance
  - Obstruction carding
  - Development of a seamless (topo/bathy) Digital Elevation Model (DEM)

- **Wave height analysis**
  - Starting wave conditions (wave height and period)
  - Wave setup – Determined from the ADCIRC model
  - Dune/Bluff erosion
  - WHAFIS modeling for overland wave height computation
  - Wave Runup
  - Coastal Hazard Mapping
Wave Runup

How runup is mapped

Terrain shows different slope at the shore
Elements of a Coastal Floodplain

- **BFE (Base Flood Elevation)**: Flood level including wave effects. 
- **1% annual chance stillwater elevation**: Sea level elevation with a 1% chance of being exceeded in any given year.
- **VE (Vulnerability Exposure)**: Wave height ≥ 3 feet.
- **AE (Area of Exposure)**: Wave height 3.0–1.5 feet.
- **LiMWA (Limited Mitigation and Adaptation)**: Wave height < 1.5 feet.
- **Limit of base flooding and waves**: Beyond this point, waves and flooding are not considered.
- **Shoreline**: Coastal boundary.
- **Sand beach**: Beach area adjacent to the shoreline.
- **Buildings**: Structures at risk.
- **Overland wind fetch**: Area exposed to strong winds.
- **Vegetated region**: Land with vegetation.
- **Limit of SFHA (Special Flood Hazard Area)**: Area identified as being at high risk of flooding.
Region III Coastal Study Timeline

Surge Study Results
• Late 2011

Coastal Hazard Analysis Results
• Early 2012–Summer 2013

Preliminary FIRMs
• Summer 2012–Early 2014

Public Comment Period
• Spring 2013–Summer 2014

Letter of Final Determination
• Fall 2013–Late 2015

New Effective Coastal DFIRMs
• Spring 2014–Summer 2016
OUTREACH
Region III Coastal Outreach Strategy

- Mapping Project Scope and Outreach Components
- Critical Info for Participating Coastal Counties/Communities
- Current Mapping-Related Initiatives in Region III
- Coastal Outreach Advisory Team
- Key Stakeholders
- Outreach Implementation Plan
- Flood Risk Open House Plan
Coastal Outreach Advisory Team

The roles of the COAT:

- Share local data or new information
- Relate study information and status to other stakeholders
- Provide input on outreach methods, target groups, etc.
- Identify potential contentious issues
- Provide input on coastal study methodology
Coastal Outreach Meetings

- 5 Regional Technical Storm Surge Study Meetings
- Stakeholder Meetings – COAT
- 5 Community Meetings per Coastal County or City
  - Initial Coastal Community Coordination Meetings
  - Flood Study Review Meetings
  - Final Community Coordination Meetings
  - Open Houses (Including Public)
  - Resilience Meetings
Coastal Community Coordination Meetings

- All 54 Initial Community meetings held
- 31 Flood Study Review meetings held to date.
- 17 CCO meetings held to date.
- Meeting summaries prepared for each meeting that recorded county and community comments
- Main comments/questions:
  - Mapping:
    - Multiple LFD/effective dates and thus multiple adoption periods and ordinance revisions.
    - Some are being combined (Harford, Caroline, Kent, Queen Anne’s, Worcester, Wicomico, Prince George’s Counties, MD, DE studies)
    - Others are waiting until countywide studies go effective (Calvert, Charles and Talbot Counties, MD)
  - Will BFEs and floodplain widths be increased?
  - Was sea level rise accounted for?
Main comments/questions (continued)

- **Ordinances:**
  - New VE Zones
  - New model floodplain ordinance in MD & VA
  - Adopting higher standards based in the LiMWA

- **Costs to communities:**
  - Changing ordinances
  - Notifying property owners
  - Answering questions

- **Insurance**
  - Support for insurance questions and outreach
    - CD with FEMA brochures and FAQs
    - MD counties directed to www.mdfloodmaps.org
Coastal Study Outreach Materials

- Outreach factsheets
  - General Coastal Flood Study
  - Technical Analysis and Mapping
  - LiMWA
- Quarterly Newsletter
- Outreach meetings
  - PowerPoint Slides
  - CD Handouts
Coastal Study Outreach Websites

- Website – www.r3coastal.com
- Flood Information Portal - http://www.r3coastal.com
Impacts - Results

- Comparisons to the effective data and resultant base flood elevations and mapping can now be made for many counties and cities.
  - Some increases, but many decreases in BFEs
  - Generally a reduction in BFEs in the upper Chesapeake Bay
  - Generally an increase in BFEs in the lower Chesapeake Bay
Lowered BFEs in the Upper Chesapeake Bay

- Concerns from Community Officials on dropping BFEs
- One-Page Fact Sheet for communities and public
- In depth technical white paper for FEMA and RAMPP with talking points
- COAT Input:
  - How to communicate?
    - Topographic Information Update
    - Refined Surge Modeling
    - Isabel Greater than 1% event
  - Messaging?
    - Freeboard
    - Future Risks
    - Insurance Benefits
Hurricane Sandy in Region III

- Bypassing storm for study area
- Similar storms simulated in population set
  → Overall would have minimal impacts on statistics and 1% annual chance levels
- Dorchester, Somerset, Wicomico and Worcester counties hit hardest
- Crisfield, Maryland
Hurricane Isabel Inundation Mapping

- Surges levels from ADCIRC model
- Provides historical point of reference
- USACE and USGS High Water Marks added to workmaps
- Soon to be posted on www.r3coastal.com
Impacts – Results (continued)

- Reduction in 0.2% floodplain in inland bays in DE
- Added Zone AO shallow flooding areas in DE based on historic information
- Some counties with new VE Zones
- Created new LiMWA symbology
Questions/Discussion