Staying Afloat: FEMA and Flood Insurance Changes

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MMA Annual Meeting & Trade Show
Jan. 24-25, 2014
WHG Involvement

Environmental, Scientific & Engineering Work in Coastal Zone

- Flood Insurance Restudies for FEMA
- Technical review of FEMA FISs and FIRMs
- Appeals filed for areas of Plymouth County
- Currently reviewing maps for City of Boston
- Science & engineering based analyses
- Accurate assessment of flood risks
Topics for Discussion

• FEMA’s Flood Mapping in MA

• Controlling engineering factors

• Updates to recent maps & associated map changes

• Focus areas for technical review

• Areas for improvement
**Preliminary Maps**
- coastal counties
- issued 2012-2013
- updated previous maps 2009-2012
- updated Barnstable Co. maps 1984-1999

**Effective Maps**
- Norfolk Co. and parts of Plymouth Co. 7-2012
Post-Preliminary Phase Timeline

Typical Post Preliminary Phase takes approximately 20 months to complete

- Preliminary: November 15, 2013
- CCO Meeting: Est. April 2014
- 1st Publication: Est. April 2014
- 2nd Publication: Est. July 2014
- Appeal Period Closes: Est. January 2015
- Compliance Period: 6 months

Review and Appeal Period: 90 days
Coastal Flood Hazard Analyses

5 Primary Components

- Stillwater level (storm surge) + wave setup
- Erosion
- Overland wave propagation
- Wave runup & overtopping
- Primary frontal dune
Open Coast Water Levels

Stillwater/storm surge (SWL)
- Army Corps flood profiles
- Long-term tide gage data

Wave Setup
- Nearshore slope
- Deepwater wave heights

TWL = SWL + wave setup
Erosion

Dune Erosion
- Retreat
- Removal

Coastal Structures
- Non certified
- Failure
Overland Wave Propagation

- land features
- vegetation
- buildings
- open water
Wave Runup & Overtopping

- shoreline slope
- roughness
- freeboard
Primary Frontal Dune

- mound or ridge
- change in slope
- VE zone limit
Updates to Recent Mapping

Elevation Data
• LiDAR 2010-2011

Primary Frontal Dune
**Updates to Recent Mapping**

**Wave Setup**
- $TWL = SWEL + \text{wave setup}$

**Wave Runup (updates older maps)**
- 2% runup
Implications

Wave Setup: Increased SFHA & BFES
Implications

Wave Runup: Increased BFEs
Map Review Focus Areas

SWELs (100-yr water levels)
Input wave heights
PFD delineation
Erosion/structure failure
Roughness for wave runup calcs
Landform characterization
Account for attenuation of TWL
Storm Surge Modeling Zoom
Storm Surge Modeling Zoom
Conclusions

Review Maps
Seek Advise
Work Cooperatively with FEMA
Accurate Mapping Allows
• targets flood insurance where it is needed
• identifies pre disaster mitigation needs

Questions
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