Utilization of Modeling Products

- Near Term: Design Criteria and Evaluation of Without Project Future Conditions ; Incorporation of Sea Level Rise and Climate Change for Design and Adaptation

- Long Term: Waves and Water Levels for Risk Assessment and Design for future analysis and studies; Incorporation of Sea Level Rise and Climate Change for Design and Adaptation

Agencies'* Design Criteria – Post-Sandy

- NYC Transit (Subways): SLOSH CAT2 (latest)

- Con Edison (Power): Highest of these three:

  a) peak flood levels observed at the facility

  b) CAT1 SLOSH

  c) 2007 FEMA 100 yr flood map

- NYC DEP (Water, Waste Water): New FEMA maps issued Post-Sandy – assessments based on 1% and 0.2% annual probability

- Sea Bright Borough NJ :

  ► Electric Panels for Storm Sewer: Raise Panel 2 ft above ABFE (1%)

  ► Properties: Flood Proofing : Raising 2 ft above ABFE (1%)

- Stony Brook University Professor – Consequences:

  ► 1/1000 yr for Storm Surge Barriers

  ► 1/250 yr for New Building Codes

  ► 1/100 yr for Build Better Resilience

  ► 1/25 to 1/50 Enhanced Wetlands

- NYC Special Initiative for Rebuilding and Resilience: ABFE (1%) + 3ft

- Federal Criteria for Rebuilding: 100 yr +1 ft

*As described at an ASCE Seminar – Brooklyn, NY April 2013

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Design Criteria For Parametric Design at Initial Construction in NACCS

- For Nature Based Infrastructure:
  - ▶ 25 year water level (in ft NAVD)
- For Non- Structural (Floodproofing and Buyouts):
  - ▶ 100 yr water level (in ft NAVD) + 3 ft (both flood plain and house raising, etc.)
- For Structural Solutions (not barriers):
  - ▶ 100 yr water level (in ft NAVD) +3 ft
- For Storm Surge Barriers:
  - ▶ 1000 yr water level (in ft NAVD)

Utilization of Modeling Products: Water Levels, Sea Level Change and Climate Change

- Water Levels Developed to date based on evaluation of NOAA data sets for 30 stations across the study area, use for evaluation of future conditions

- Also, use of FEMA best-available water level data for 25/100/500 yr return periods for design of risk Reduction features

- Applying an additional +3 ft height design criteria for 100 yr return period designs

- Sea Level Change and Climate Change for Design and Adaptation for Analysis of current and future Corps projects

Utilization of Modeling Products: CSTORM

- Summary: An expanded suite of storm simulation and statistical analysis tools is being applied in support of the North Atlantic Comprehensive Coastal Study. Specifically, the CSTORM-MS and CSTORM–DB are being used to define the coastal storm probability space for the study area to for coastal risk assessment and project design.

- CSTORM data will develop water levels for future, more detailed studies by the completion of the NACCS study (Jan 2015).

- The product of this simulation work will serve the coastal engineering and management communities of practice from VA to ME for years to come

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