Great Lakes Coastal Analysis and Mapping Guidance Updates Comparison

TOPIC	REFERENCE SECTION IN APPENDIX D.3 (MAY 2012)	SUMMARY OF 2012 UPDATE (MAY 2012)	SUMMARY OF EFFECTIVE GUIDANCE (FEBRUARY 2002)
Water Levels	D.3.4.4	• Recommends storm surge **modeling** • Considers **water level variability** over the period of **1960 to 2010** • Measured data for model calibration • **Ice cover** impacts considered	• USACE ***Revised Report on Great Lakes Open-Coast Flood Levels*** (1988) • **Water level variability not addressed** • No consideration of **ice cover**
Incident Wave Conditions	D.3.4.3	• Recommends **lake-wide wave modeling** • Measured data for model calibration • Shoreline buffering protection provided by **Ice cover** considered	• **Hindcast data (WIS)** recommended source • **½-year** (Lake Ontario) and **3-year** (Lakes Erie, Huron, Michigan, Superior) identified as **appropriate wave conditions** for flood insurance study • **Wave period** identified as critical characteristic • No consideration of **ice cover** protecting shoreline from waves
Nearshore Wave Transformation	D.3.4.3.2	• **2-D wave modeling** recommended for **shoaling areas** of complex bathymetry • **1-D wave modeling** (CSHORE) for **surf zone**	• Simplified assessments for sheltered waters based on **fetch analysis** (Automated Coastal Engineering System) recommended
Erosion	D.3.7	• **Setting specific approaches provided** • **CSHORE** model recommended for assessing surf zone processes • Beach **morphology change** due to lake level cycles	• Qualitative assessments based on **historic response data** as available • Recommendations for **sandy dune and bluff** presented
Coastal Structures	D.3.8	• Evaluation based on ***Criteria for Evaluating Flood Protection Structures for NFIP Purposes*** (FEMA, 1990) • Treatment of **failed and removed** coastal armoring structures • **Coastal levees**	• Evaluation based on ***Criteria for Evaluating Flood Protection Structures for NFIP Purposes*** (FEMA, 1990)
Wave Setup	D.3.5.1	• 1-D model (**CSHORE**) recommended	• No consideration of **wave setup**
Wave Runup	D.3.5.2	• 1-D model (**CHSORE**) recommended • **Mase equation** for areas where 1-D model not applicable • **Coastal Engineering Manual** (CEM) for vertical structures and stepped walls/embankments	• FEMA Great Lakes Wave Runup Model (**GLWRM**)
Wave Overtopping	D.3.5.3	• Coastal Engineering Manual (CEM) & **EurOtop**	• Provides references for overtopping analysis
Flood Hazard Mapping	D.3.9	• **VE Zones not mapped without prior FEMA approval**	• Definition of SFHA and mapping guidelines

Draft updated Appendix D.3 is available at http://www.fema.gov/plan/prevent/fhm/dl_vzn.shtm. Please submit your comments via email to FEMA-GS@fema.dhs.gov.