

PROJECT Summary

PS.1 Purpose of Study

The Federal Emergency Management Agency (FEMA) is responsible for preparing Federal Insurance Rate Maps (FIRMs) that delineate flood hazard zones and Base Flood Elevations (BFEs) in coastal areas of the United States. These areas are among the most densely populated and economically important areas in the nation.

FEMA guidance for coastal flood hazard mapping resides in Appendix D of the “Guidelines and Specifications for Flood Hazard Mapping Partners.” A project to update the guidance for analyzing and mapping coastal flood hazards was initiated in 2003. The study consisted of three phases:

- Phase 1: to evaluate and report on the existing FEMA procedures for delineating coastal flood hazard areas in three major coastal regions of the United States (Atlantic, Gulf of Mexico, and Pacific)
- Phase 2: to develop recommended guidelines and procedures for mapping flood hazards on the Pacific coast, where only limited guidance was available previously
- Phase 3: to update coastal flood hazard mapping guidance for the Atlantic and Gulf of Mexico coasts

The purpose of this report is to complete the third phase of this project and implement as many of the short-term enhancements and needed revisions to the existing Appendix D guidance for the Atlantic and Gulf of Mexico Coasts, including the coastal methodology recommendations contained in FEMA Policy Memorandum No. 37 (PM 37), dated August 1, 2005.

This project was authorized cooperatively by FEMA Headquarters and FEMA Region VI, as the follow-up to previous phase 1 and 2 projects supported by FEMA Regions IX and X. The Phase 3 Project Coordinator was Gary Zimmerer, Project Engineer for FEMA Region VI. Michael Baker Jr., Inc, the National Service Provider to FEMA for Map Modernization, assumed the lead consultant and manager role for the project.

PS.2 Description of Needs for Atlantic And Gulf Coast Regions

Guidelines for the Atlantic and Gulf Coasts were assembled from elements developed over the course of many years, with the initial guidance established in 1989; however, no comprehensive assessment had been done to evaluate their effectiveness in hazard mapping since the last published effort in 1995. A comprehensive review of the existing guidelines was needed, in light of recent experience and new technology, and was recommended in the Phase 1 Summary Report. Procedures need to be modified or developed to incorporate experience from previous studies and appeals, information on actual damages, and post-storm verification data. In addition, the existing procedures needed review because recent research and new data has produced an improved understanding of ocean and coastal processes. The existing procedures

included little guidance on the analysis of storm meteorology, storm surge, or wave setup. In addition, the guidelines may need to be expanded to address flood hazards in coastal areas not directly exposed to ocean swell and waves generated by distant weather conditions, such as bays and estuaries.

PS.3 Project Approach and Schedule

The Phase 3 project approach included a team of technical experts (Technical Working Group or TWG), which was assembled from the core group of Phase 1 and 2 experts. The Phase 3 TWG is composed of coastal experts from private industry, academic and research institutions, Federal agencies, Flood Insurance Study (FIS) contractors, map coordination contractors, and FEMA Headquarters and regional engineers. A list of the members is provided at the end of this summary. This group was organized to implement a collaborative approach to follow up on the recommendations of the Phase 1 Summary Report, to identify new needs and priorities for improved coastal flood hazard mapping procedures, to consider potential alternatives, and to develop recommendations based on a consensus among coastal experts.

The project schedule was established based on FEMA's targets for the Map Modernization Plan. The project approach recognized that improvements to the Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update would need to be prioritized to maintain the adopted schedule. Only limited improvements could be incorporated into Appendix D during Phase 3, since development and testing of more extensive improvements would require several years of technical study and research, and/or regulatory changes within the NFIP. The Phase 3 studies and report formulation were initiated at the first workshop in December 2005 after delays caused by Hurricane Katrina. A second workshop was held in May 2006, and a final peer review workshop in was held in August 2006. The Final Draft Guidelines for the Atlantic Ocean and Gulf of Mexico Coastal Update are appended to this Project Summary.

PS.4 Summary

These Guidelines offer insight and recommend methods to analyze hurricane and northeaster flood events in the Atlantic and Gulf Coastal regions in a reasonable and consistent way. However, they require technical judgment and experience in their application and do not generally offer a prescriptive technique that can be applied uniformly in all study areas. The Guidelines are intended to apply to a range of settings, but they cannot address all settings and conditions, due to the variability of the Atlantic and Gulf Coasts. They include some new methods that were developed over a one-year period by the TWG, but most guidelines are updates to existing methodologies. Methods were selected and developed through collaboration and consensus, but some of these methods had not yet been fully tested in FISs at the release date of this document. Therefore, the TWG recommends that the new methods and guidelines be thoroughly tested in a variety of settings.

Experience and judgment in coastal engineering is required in order to apply the procedures provided in the Atlantic Ocean and Gulf of Mexico Coastal Update. The Mapping Partner may determine that minor modifications or deviations from the Guidelines are necessary to adequately define the coastal flooding conditions and map flood hazard zones in specific areas.

In these cases, documentation of these differences is required as part of the intermediate and final study submittals.

The project approach relied heavily on the collaboration of TWG members within a compressed schedule. It is envisioned that the next phase of guidelines development for coastal flood hazards will be guided by advancements that are occurring in the coastal field due to the catastrophic events of the 2005 Hurricane Season. Advancements in current technology are being made at a rapid pace and these Guidelines need to be revisited in the future to incorporate these changes. In addition, the next phase of the guidelines development should include the long-term TWG recommendations for testing, extending, and refining the procedures referenced in the Phase 1 Summary Report. FEMA recognizes that the Guidelines are an evolving documentation of the study procedures for the NFIP and may not necessarily be consistent with study methodologies for other Federal or State agency purposes.

PS.5 Acknowledgements

FEMA gratefully acknowledges the significant effort, collaboration, and interaction of the members of the TWG to produce this highly technical work product. Members of the TWG are listed below in alphabetical order.

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Technical Working Group

The following individuals (listed alphabetically) participated in the TWG to prepare focused studies, attend workshops, and prepare reporting for the Phase 1 Summary Report; some also participated in the preparation of the Final Draft Guidelines.

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