



FEMA

ANALYSIS AND MAPPING PROCEDURES FOR NON-ACCREDITED LEVEES

FEMA has been engaged in a comprehensive review of its National Flood Insurance Program to identify reforms that will enable us to better address flood risks. A part of that review has included working with Members of Congress and other stakeholders regarding FEMA's approach to mapping flood hazards with respect to non-accredited levees. FEMA recognizes that levee systems that do not fully meet the requirements for accreditation may still provide a measure of flood risk reduction.

As a result, FEMA is introducing a new approach of targeted modeling procedures to replace the previous “without levee” approach, that did not recognize a non-accredited levee as providing any level of protection to communities behind the levees during the base (1-percent-annual-chance) flood. These procedures better characterize actual conditions that a community may encounter when addressing non-accredited levees or levee systems.

FEMA devised this new approach by leading a multidisciplinary project team comprised of representatives from FEMA, the U.S. Army Corps of Engineers, and experts from the academic and engineering communities to evaluate technical options for non-accredited levees. The FEMA-led team explored a broad spectrum of levee analysis and mapping procedures. Based on the results of the development, testing, review, and public comment effort, FEMA created and is implementing a levee analysis and mapping approach that is flexible and will produce more precise flood hazard maps and supporting data where levee systems are involved.

The final approach is outlined further below in this document.

NEXT STEPS

FEMA will use these new procedures to produce Flood Insurance Rate Maps (FIRMs), Flood Insurance Study reports, and related products for communities and Tribes impacted by non-accredited levee systems. A core goal of the new procedures includes identifying more precisely the flood hazard associated with levee systems and reflecting the results in the mapping. An important outcome of the effort is also increasing the credibility of FIRMs where non-accredited levee systems exist.

The new approach, accompanied by operating guidance, will be applied to a limited number of projects (approximately 25) during Fiscal Year 2013, and other future mapping projects will be prioritized as the projects are completed and additional funding is available.

FEMA Regional Offices will be in contact with communities to initially identify participants for a discussion about their local levee system and to facilitate a Local Levee Partnership Team as needed. This team will be comprised of FEMA and community representatives to provide input and guide the implementation of the approach.

NEW RISK MAPPING PROCEDURES FOR AREAS BEHIND LEVEES

Levees are not always considered one single structure, but instead, often comprised of multiple levee reaches. Many non-accredited levee systems do not have the same characteristics throughout their length. A levee reach is defined as any continuous length of a levee system to which a single new procedure may be applied. The following new procedures will allow more precise modeling by analyzing the level of 1-percent-annual-chance flood protection each levee reach can provide, allowing for better accuracy in mapping flood hazard areas:

Sound Reach Procedure: A Sound Reach can be modeled assuming the levee reach, or section of a levee, will remain in place during the 1-percent-annual-chance flood without water going through, under, or over the levee. Its impact, and that of the surrounding levee reaches, and the interior drainage analysis that results from rain and other flooding behind the levee, can be reflected in how the final Special Flood Hazard Area (SFHA) is delineated. Sound Reaches differ from an accredited levee system because they are part of a levee system that as a whole cannot meet accreditation requirements.

Freeboard Deficient Reach Procedure: Freeboard Deficient Reaches may not meet the regulatory freeboard criteria. Freeboard is the vertical distance between the top of the levee and the 1-percent-annual-chance flood. This procedure can be modeled assuming the 1-percent-annual-chance flood will not exceed the top of the levee, and the levee reach will remain in place during the 1-percent-annual-chance flood. This impact, and that of the surrounding levee reaches, and the interior drainage analysis that that results from rain and other flooding behind the levee, can be used to more accurately delineate SFHAs potentially affected by Freeboard Deficient Reaches.

Overtopping Procedure: The Overtopping Procedure can be applied when the 1-percent-annual-chance flood is above the levee crest for a reach, and the appropriate technical justification can be provided that the 1-percent-annual-chance flood event will not cause structural failure.

Structural-Based Inundation Procedure: The Structural-Based Inundation Procedure recognizes that levees with structural integrity issues may provide some flood-risk reduction benefits by impeding the flow of water to some degree. For these levee reaches, FEMA will rely on modeling of breaches along the levee reach to more accurately depict the SFHA.

Natural Valley Procedure: The Natural Valley Procedure will be used in two ways: behind the entire levee system to determine the areas where there are possible but undetermined flood hazards (also known as Zone D); and as a potential procedure applied to individual reaches of the levee system where the flow of water is not impeded by the reach, or when no structural data on the levee reach is available. These impacts can be used to determine the SFHA on the land area behind the levee reach.