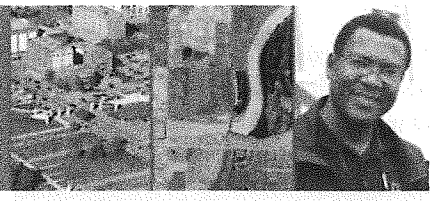
FEMA



New Levee Analysis and Mapping Approaches Being Developed

As part of its effort to reform the National Flood Insurance Program (NFIP), the Federal Emergency Management Agency (FEMA) is exploring more precise approaches for identifying flood hazards in areas impacted by levees.

When preparing a flood risk study, FEMA treats accredited levees (levees that meet the requirements of Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 C.F.R. § 65.10)) as providing protection against a 1-percent-annual-chance (or 100-year) flood event. In other words, FEMA assumes that an accredited levee will prevent the flow of water from getting behind the levee during a 1-percent-annual-chance flood. Levees that cannot be shown to meet the criteria in 44 C.F.R. § 65.10 are non-accredited. FEMA's current approach when preparing a study for non-accredited levees assumes the flow of water to be both behind the levee as well as on the side of the flooding source.

FEMA has made a commitment to assess the approach currently used to analyze areas behind non-accredited levees and to develop alternative approaches to modeling the flood hazards in these areas on Flood Insurance Rate Maps (FIRMs). FEMA also will not issue Letters of Final Determination (LFDs) for communities impacted by levees or levee systems where FEMA employed the current approach for non-accredited levees. All ongoing mapping projects, including countywide projects, Physical Map Revisions (PMRs) and Letters of Map Revision (LOMRs) in areas of non-accredited levees may be affected by this decision.

What We Are Doing

FEMA is currently reviewing the available technical approaches for the analysis and modeling of flood hazards in the vicinity of levees. The purpose of this effort is to identify the flood risk behind non-accredited levees from the 1-percent-annual-chance-flood for flood insurance, floodplain management, and flood risk communication purposes. FEMA is updating its current levee modeling approach in a systematic manner to more precisely identify the Special Flood Hazard Areas (SFHAs) behind levees. To ensure the approaches are cost-effective and accurately identify the flood hazard, FEMA will create a series of scenarios which may include analyses of breaching or overtopping of levee systems.

For more information:

The NFIP
Looking for more information on the National Flood Insurance Program? Visit: www.fema.gov/nfip.

You can also find information about your flood risk and how to find a flood insurance agent at: www.FloodSmart.gov.

FEMA Library
The FEMA Library is a database of publicly available FEMA resources. Many are available for download, including:

Requirements of 44 CFR Section 65.10:Mapping of Areas Protected by Levee Systems
http://www.fema.gov/library/viewRecord.do?id=2741.

FEMA'S Levee Responsibilities:

FEMA is responsible for
establishing appropriate risk zone determinations and reflecting these determinations on FIRMs; establishing minimum standards that must be met to have a levee recognized as providing protection. On its FIRMs, FEMA will only recognize those levee systems that are shown to be accredited and meet these minimum standards.

FEMA is *not* responsible for
designing, operating, certifying, or maintaining levee systems; examining levees; or determining how a structure or system will perform in a flood event.

FEMA is *not* seeking regulatory changes to 44 C.F.R. § 65.10 during this process. Levee owners will still be required to provide levee certification documentation as outlined in 44 C.F.R. § 65.10 for levee systems to be shown on the map as accredited.

How We Are Doing It

FEMA has established a Project Team to evaluate general approach scenarios, assess the feasibility and implementation of potential options, and communicate the results and seek feedback from internal and external audiences. The multidisciplinary Project Team includes representatives from FEMA, the U.S. Army Corps of Engineers (USACE), and experts from the academic and engineering communities with technical expertise and relevant experience.

FEMA has reviewed levees throughout the nation to develop appropriate guidance and is preparing approaches for non-breaching, breaching, and overtopping scenarios to more precisely analyze the flood risk on the landward side of levee systems. During the development of these approaches, each method will be reviewed for implementation feasibility. The following high-level criteria are being taken into account as these approaches are in development:

- Program Requirements and Obligations
- Integrity of Analysis Approach
- Repeatability of Results
- Local Documentation and Engagement Requirements
- Cost-effectiveness

Methods that are determined to be feasible will be designated as "prototype methods" and tested in proof of concept case studies. The case studies will test the approaches and provide theoretical and real world results. We will use data from ongoing projects affected by the new levee analysis approaches to run through different theoretical scenarios to fully test the new approaches.

Once the case study results are completed and reviewed for feasibility, FEMA will convene a panel of recognized experts (the "Independent Scientific Board" or ISB) through the National Institute of Building Sciences (NIBS). The ISB will serve as an independent third party to review and provide comments on the new approaches and the case study results.

Once FEMA reviews the comments and makes the appropriate revisions to the approaches , we will finalize guidance. If appropriate, the guidance will identify the additional requirements and documentation needed to enable FEMA to select a proper scenario approach for analysis. FEMA will make the approaches available later in the year for public review and comment, including review and comment by state and local officials.

How the USACE Will Be Involved

The USACE will play an integral role throughout the entire process of developing new analysis methods. FEMA and the USACE are committed to ensuring the public and affected communities are receiving consistent, current and timely information throughout the development and review process.

How Ongoing Projects May Be Affected

FEMA Headquarters has provided guidance to its Regional Offices outlining the process to determine if a map activity should be placed on hold during the development of the new levee analysis approach. At this time it is difficult to determine when projects placed on hold will resume.

For Projects Awaiting the New Guidance

FEMA will be looking at a range of scenarios that are typical for levees. Once the guidance has been finalized, FEMA will engage with local community officials and levee owners for additional documentation required to properly categorize affected levees.

Although analysis and modeling of these levee areas has been placed on hold while we develop additional approaches, the flood risk that these levee systems were built to reduce still remains. Local community officials and/or the associated communities should remain engaged in flood risk management activities. Additionally, FEMA encourages the purchase of flood insurance to further reduce the financial risk to those who live behind the levee systems.

Communities currently preparing the required certification documentation or working to rehabilitate or construct required improvements along their levee systems should continue progress on these activities. Communities should inform their FEMA Regional Office of any schedule updates or milestones reached.