



# The NFIP and Levee Systems

## Frequently Asked Questions

### **Q: What is a levee?**

**A:** A levee is a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

### **Q: What is a levee system?**

**A:** A levee system is a flood protection system that consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices

### **Q: How are levees different from dams and other flood protection structures?**

**A:** A levee is built parallel to a waterway (most often a river) in order to protect lives and properties behind it from some level of flooding. A dam built for flood protection is usually designed to lower the amount of water going downstream of the dam during a flood by containing excess water and releasing it slowly over time. Unlike most levees, dams may serve purposes other than flood control, such as providing water for irrigation, community water supplies, recreation, and hydroelectric power.

Another type of flood protection structure is the floodwall, which the Department of Homeland Security, Federal Emergency Management Agency (FEMA), considers and assesses the same as a levee for risk identification purposes. Floodwalls are similar to levees in that they are built parallel to a waterway in order to provide protection from flooding. They are usually found in more urban areas and are made of stone or concrete. Structures like floodwalls that are built in coastal areas and used to protect from tides and wave action are called sea walls.

### **Q: When were levees first constructed? Why have we become dependent on levees and levee systems?**

**A:** Levees were first built in the United States more than 150 years ago. Farmers, traditionally drawn to the rich soils of floodplains, put many of the earliest levees in place to protect agricultural areas from frequent flooding. Since then, other levee systems have been built to protect urban areas. These systems were typically built to the higher standards used by the U.S. Army Corps of Engineers (USACE). As rural areas of the United States have undergone development and urbanization, businesses and homes have increasingly replaced farms, and now there are properties located behind levee systems that may not provide a sufficient level of flood protection. Both lives *and* properties landward of many of the Nation's levee systems—that is, in levee-impacted areas—now depend on an adequate assessment of the current level of protection provided and related flood risks.

### **Q: Why is it important to understand the risks associated with levee systems?**

**A:** Thousands of miles of levee systems across the United States impact millions of people; therefore, it is vital that individuals understand the risks associated with living or working in levee-impacted areas and the steps they can take to mitigate—or lessen—these risks. Everyone should understand that no levee system provides full protection from all flood events – even the best flood protections system cannot completely eliminate the risk of flooding. Levee systems are designed to provide a *specific level of protection*, and larger flood events can cause them to be overtopped, or fail. Levee systems also decay and deteriorate over time. Regular maintenance and periodic upgrades are needed to ensure that they retain their level of protection and continue to perform as designed. Maintenance can become a serious challenge for a levee owner as a levee system gets older. When levee systems do fail, they often fail catastrophically – the resulting damage, even loss of life, may be more significant than if the levee system had not been built.



**Q: Who is responsible for building and maintaining the levee systems?**

**A:** No one entity is solely responsible for levee system design, construction, operation, and maintenance. Some levee systems were originally built by citizens to protect their properties from flooding. Others were subsequently built by various Federal, State, or local entities. The USACE has designed and built many of the Nation's levee systems, and is responsible for the maintenance of federally owned levees that are in the USACE program. Not all of the levee systems built by the USACE are federally owned, however. In most instances, levee system ownership has been transferred to the State or to another local or regional authority, which then becomes responsible for documenting, operating, and maintaining the levee system.

**Q: Is the current interest in levee system safety related to Hurricane Katrina?**


**A:** The devastation caused by Hurricanes Katrina and Rita brought the issues of levee system policy, flood hazard management, and flood insurance to the forefront of public debate and discussion. However, as administrator of the National Flood Insurance Program (NFIP), FEMA has long been active and concerned with the protection of life and property in levee-impacted areas. Recognizing the importance of accurate risk assessment for the areas impacted by the thousands of miles of levee systems across the United States, FEMA established detailed requirements — documented in the Code of Federal Regulations at Title 44, Chapter 1, Section 65.10 — to guide the evaluation of levee systems and the mapping of levee-impacted areas on NFIP flood maps in 1986. To assure standard levee system evaluation and mapping practices, FEMA issued guidance to its contractors and mapping partners. The current guidance is provided in Appendix H of the comprehensive *Guidelines and Specifications for Flood Hazard Mapping Partners* dated April 2003. FEMA issued Procedure Memorandum 34 (PM 34) — *Interim Guidance for Studies Including Levees*—on August 22, 2005. PM 34 re-emphasized FEMA's 20-year old levee system evaluation and mapping policy and regulations and provided additional guidance to help communities and other levee owners meet NFIP standards, before Hurricane Katrina hit the Gulf Coast.

**Q: What is FEMA doing to address levee system issues?**

**A:** FEMA is responsible for identifying flood hazards and assessing flood risks in levee-impacted areas through engineering studies and mapping projects, including updating the existing NFIP flood maps through an effort called Flood Map Modernization (Map Mod). The result of the Map Mod effort will be modernized maps, called Digital Flood Insurance Rate Maps (DFIRMs) In addition, FEMA has established criteria for recognizing levee systems as providing a 1-percent-annual-chance or greater level of flood protection. However, FEMA does not actually *examine or analyze structures* to determine their condition or how they will perform during a given flood event. FEMA relies on communities and other levee owners to provide data and documentation to show that a levee system meets NFIP design, operations, and maintenance criteria. If the levee system cannot be shown to meet these regulatory criteria, FEMA will show the levee system not providing 1-percent-annual-chance flood protection on the DFIRM. In addition to identifying risks in levee-impacted areas, FEMA works in conjunction with its Federal, State, local, and professional/technical partners to bolster flood risk mitigation in communities nationwide. Finally, because the risks associated with levee systems are real, FEMA strongly encourages flood insurance protection, adherence to evacuation procedures, floodproofing, and other protective measures in *all* levee-impacted areas. FEMA is emphasizing the need for property owners to consider such measures through notes on affected DFIRM panels.

**Q: What does it mean for a levee system to be certified? How is accreditation different?**

**A:** A levee system is certified if evidence—typically a statement by a licensed professional engineer or Federal agency responsible for levee system design—has been presented showing that the system meets current design, construction, maintenance, and operation standards to provide protection from the 1-percent-annual-chance flood. The levee owner is responsible for ensuring that the levee system is being maintained and operated properly and for providing evidence of certification. If it can be shown that a levee system provides the appropriate level of protection, FEMA will “accredit” the levee system as providing adequate protection on the DFIRM and the levee-impacted area will be shown as a moderate-risk area, labeled Zone X (shaded). FEMA accredits levee systems that meet the NFIP criteria and maps areas behind them as having a certain risk level, but does not perform the actual certifications.



**Q: What happens if a levee system is decertified or cannot be certified? How does this impact the FEMA accreditation and mapping process?**

**A:** FEMA has a responsibility to the public to identify the risks associated with levee systems that have not been certified, or that can no longer be certified. If a levee system cannot be certified as providing protection from the 1-percent-annual-chance flood, FEMA will not accredit the levee system or will de-accredit a levee system that had previously been shown as providing a 1-percent-annual-chance level of flood protection on an NFIP map. Because FEMA will not accredit the de-certified or uncertified levee systems, these systems will not be depicted on DFIRMs as providing a 1-percent-annual-chance level of protection. FEMA will remap the levee-impacted areas landward of these levee systems as high-risk areas, called Special Flood Hazard Areas (SFHAs). Flood insurance is required in SFHAs for any mortgage that is federally backed, regulated, or insured.

It is important to note that neither certification nor accreditation guarantees flood protection. All DFIRM panels showing accredited and provisionally accredited levee systems will carry notes indicating that overtopping or failure of any levee system is possible, and that flood insurance protection, floodproofing, and other protective measures in *all* levee-impacted areas should be considered.

**Q: What is a Provisionally Accredited Levee (PAL) designation?**

**A:** The inability to provide full and prompt documentation of a levee system's status does not necessarily mean that the levee system does not provide the level of protection for which it was designed. It also does not mean that the DFIRM should show the levee system as providing 1-percent-annual-chance flood protection. FEMA has created the PAL designation to facilitate the certification and accreditation process for communities with levee systems that are *reasonably expected to continue to provide* 1-percent-annual-chance flood protection.

The clarified procedures for PALs are documented in FEMA Procedure Memorandum No. 43 (PM 43)—*Guidelines for Identifying Provisionally Accredited Levees*—dated March 16, 2007. A PAL is a designation for a levee system that FEMA has previously accredited with providing 1-percent-annual-chance flood protection on an effective FIRM, and for which FEMA is awaiting data and/or documentation that will show the levee system's compliance with NFIP regulations. Before FEMA will apply the PAL designation to a levee system, the community or levee owner will need to sign and return an agreement that indicates that the data and documentation required for compliance with the NFIP regulations, as documented at Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations, will be provided within a specified timeframe. The timeframe will depend on the levee system's status. A PAL is shown on a DFIRM as providing 1-percent-annual-chance flood protection, and the impacted area landward of the PAL is shown as a medium-risk area, labeled Zone X (shaded), except for areas subject to residual flooding, such as ponding areas, which will be shown as high-risk areas (i.e., SFHAs). A note clarifying the provisional nature of the PAL designation and the Zone X (shaded) area will also be provided on the DFIRM. Under the clarified procedures provided in PM 43, levee owners will have up to 24 months to obtain and submit necessary data and documentation.

**Q: How do the PAL designations for levee systems affect the communities in which they are provided?**

**A:** Providing communities with current flood risk information is one of the primary goals of the NFIP and the Map Mod effort. In meeting this goal, the issue of whether levee systems provide 1-percent-annual-chance flood protection needs to be taken into account. However, gathering all data and documentation regarding a levee system's condition can sometimes take months. If the issuance of DFIRMs were delayed until the required data and documentation were compiled and submitted, the existing NFIP flood maps would remain in effect, and more up-to-date flood risk information would not be available for other parts of the community. As such, many citizens would not have the most reliable information on which to base decisions regarding their flood risk, including the purchase of flood insurance.

The PAL designation allows the map release and review process to proceed while data and documentation are being gathered. The previously cited note on the DFIRM alerts community officials and the public to the levee system's provisional status and associated risks—including the potential risk of failure or be overtopping. FEMA updated the levee notes that will appear on the DFIRMs by issuing Procedure Memorandum No. 45—*Revisions to Accredited Levee and Provisionally Accredited Levee Notations* on May 12, 2008.



**Q: What if the levee system has maintenance deficiencies?**

**A:** For levee systems in the USACE Program, the USACE has initiated a national levee inventory and assessment program to identify condition, location, level of protection, and maintenance activities. This inventory will assist in the assessment of the risk to public safety associated with levee systems nationwide. The USACE and FEMA are working together throughout the inventory and assessment phase to coordinate this effort with Map Mod activities.

For levee systems within its program, the USACE determines which levee systems will be offered a one-time-only 1-year “maintenance deficiency correction period.” This period was established to allow public sponsors/levee owners to correct levee system maintenance deficiencies before the levee system is placed in an inactive status in the USACE Rehabilitation & Inspection Program and becomes ineligible for Public Law 84-99 rehabilitation assistance.

For maintenance-deficient levees *not* in the USACE program, PM 43 allows for a one-time-only 1-year maintenance deficiency correction period. This 1-year period provides the levee owner and/or community with the time necessary to correct the maintenance deficiencies and provide data and documentation demonstrating that these deficiencies have been corrected. If the data and documentation demonstrating that the maintenance deficiencies have been corrected is submitted within the 1-year timeframe, the levee system could be eligible for the PAL designation. However, if the necessary data and documentation are not submitted within the 1-year timeframe, then FEMA will show the area will be mapped as high risk and flood insurance will be required for buildings behind the levee with a loan from a federally regulated or insured institution. The maintenance deficiency correction period outlined in PM 43 is designed to afford non-USACE levees the same correction period as USACE levees.

**Q: Where can I go for more information about a levee system in my area?**

**A:** You may be able to find information about a levee system in your community from several locations:

- **Check the current FIRM or DFIRM for your community to see if a levee system or other flood protection system is already shown as providing 1-percent-annual-chance flood protection.** Community officials will have copies of the FIRM or DFIRM on file in the Community Map Repository. To learn the location of the Community Map Repository in your community, you can call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-887-336-2627). You can also view the effective FIRM or DFIRM for your community on the FEMA Map Service Center Website, located at <http://msc.fema.gov>, or you may order your own copy by calling the FEMA Map Service Center, toll free, at 1-800-358-9616.
- **Call your local officials to request information about levee systems in your area.** Because most levee ownership and maintenance responsibilities have been turned over to communities, local agencies should have information about the levee system, including its operations and maintenance schedule.
- **Check with your local USACE district office.** To find contact information for your local USACE district office, you can visit [www.usace.army.mil/howdoi/where.html](http://www.usace.army.mil/howdoi/where.html). The USACE will have information about any federally owned levee systems in your area, and may have additional information about other levee systems as well.

**Q: Where can I go for more general information on levee systems?**

**A:** Check the levee-dedicated pages on the FEMA Website, which are accessible through the following gateway: [www.fema.gov/plan/prevent/fhm/lv\\_intro.shtm](http://www.fema.gov/plan/prevent/fhm/lv_intro.shtm). On these pages, generally organized by stakeholder group, you can review an array of guidance and informational resources, including:

- Section 65.10 of the NFIP regulations;
- Appendix H of FEMA’s *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Procedure Memorandum No. 34, *Interim Guidance for Studies Including Levees*; Revised Procedure Memorandum No. 43, *Guidelines for Identifying Provisionally Accredited Levees Guidelines and Specifications for Flood Hazard Mapping Partners*; and Procedure Memorandum No. 45, *Revisions to Accredited Levee and Provisionally Accredited Levee Notations*; and
- Levee-related Fact Sheets, Frequently Asked Questions, and brochures.