

## Levees Frequently Asked Questions

### What is a levee?

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. Levees provide a degree of support to prevent flood plain communities from being flooded. In the Broome County area, new flood maps indicate that 12 sections of the county's levees no longer meet federal requirements for minimum flood protection.

The new maps do *not* indicate that the levees are predicted to *fail*. The levees did their job during the 2006 flood. Rather, the levees do not meet federal requirements for flood protection because they do not extend three feet above (higher than) the base flood elevation (base flood elevation is the level that water is anticipated to rise to during a one-hundred year flood). This phenomenon is referred to as "freeboard." Levees without three feet of "freeboard" do not meet federal requirements and the structures behind them are considered to be in a flood zone. For example, if the base flood elevation in a given location is 1070 feet and the levee at that spot is 1073 feet, sufficient freeboard exists and structures behind the levee are not considered to be in a flood hazard area. If the levee is at 1071 feet, there would be insufficient freeboard, and structures behind it would be considered in the flood hazard area. This is the case with some of the levees in the greater Binghamton area.

### What does it mean for a levee to be certified? How does levee certification differ from levee accreditation?

A levee is certified if evidence—typically a statement by a licensed professional engineer or Federal agency responsible for levee design—has been presented showing that the structure meets current design, construction, maintenance, and operation standards to provide protection from the one-percent-annual-chance flood. The levee owner is responsible for ensuring that the levee is being maintained and operated properly and for providing evidence of certification.

If it can be shown that a levee provides the appropriate level of protection, then FEMA will "accredit" or recognize, the levee as providing adequate protection on flood hazard maps, and the area behind the levee will be shown as a moderate risk zone (shaded X zone on flood hazard maps). FEMA accredits levees that meet the criteria and maps areas behind them as having a certain risk level, but FEMA does not perform the actual certifications.

### What happens if a levee is decertified or cannot be certified, and how does this impact FEMA's accreditation process?

FEMA has a responsibility to the public to identify the risks associated with levees that have not been certified, or that can no longer be certified. If a levee cannot be certified as providing protection from the 1-percent-annual-chance flood, the levee will not be accredited by FEMA. De-certified or uncertified levees will not be depicted on flood maps as providing the required level of protection. The areas behind the uncertified levees are mapped as high-risk areas, and flood insurance is mandatory for buildings behind the levee with a federally backed or federally regulated mortgage.

It is important to note that neither certification nor accreditation guarantees protection. All flood hazard maps showing levees will carry a warning that overtopping or failure is possible, and that flood insurance and adherence to evacuation procedures are strongly recommended.

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

A levee is built parallel to a body of water (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 levees, dams may serve purposes other than flood control, such as providing water for irrigation, community water supplies, recreation, and hydroelectric power.

Another flood protection structure is the floodwall, which 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.

## **Why is it important to understand the risks associated with levees?**

There are currently thousands of miles of levees across the country affecting millions of people, so it is important for individuals to understand the risks associated with living behind levees and the steps they can take to address these risks. It is important to note that **no levee provides full protection from flooding** – even the best flood-control system or structure cannot completely eliminate the risk of flooding. Levees are designed to provide a *specific level of protection*, and larger flood events can cause them to be overtopped, or fail. Levees 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 to their design. Maintenance can become a serious challenge as a levee system gets older. When levees do fail, they fail catastrophically – the damage may even be more significant than if the levee wasn't present.

## **Who is responsible for building and maintaining levees?**

There is no one entity solely responsible for levee construction and maintenance. Some levees were originally built by citizens to protect their properties from flooding. Others were built by various Federal, State, or local entities. The US Army Corps of Engineers (USACE) has designed and constructed many of the Nation's levees, and is responsible for the maintenance of federally-owned levees that are in the USACE system. Not all of the levees built by the USACE are federally owned, however. In most instances, levee ownership has been transferred to the State or to another local or regional authority, which then becomes responsible for documenting and maintaining the levee.

## **What is FEMA doing to address levee issues?**

FEMA is responsible for identifying flood risks in areas behind levees through flood analysis and flood hazard mapping projects, including updating the Nation's flood hazard maps through an effort called Flood Map Modernization. In addition, FEMA has criteria for recognizing levees as providing protection against the 1-percent-annual-chance flood. However, FEMA does not actually *examine or analyze structures* to determine their performance in a given flood event. The levee owner must provide documentation to show that a levee meets current design, operations, and maintenance criteria. If the levee cannot be shown to meet FEMA criteria, the levee will not be mapped as providing adequate protection on the Digital Flood Insurance Rate Map (DFIRM) currently in effect.

In addition to identifying risks behind levees, FEMA works in conjunction with its federal, state, local, and professional/technical partners to bolster flood risk mitigation in communities across the country. Finally,

because the risks associated with levees are real, FEMA strongly encourages flood insurance protection and adherence to evacuation procedures in *all* areas behind levees.

### **Where can I go for more information about a levee in my area?**

There are several locations where you may be able to find information about a levee in your community:

- ***Check your current DFIRM*** to see if your levee or other flood control structure is already shown on the map as providing protection against the 1-percent-annual-chance flood. Community officials – such as Town Supervisors or Building Inspectors -- will have copies of the local FIRM on file or you can order your own copy from the FEMA Map Service Center at 1-800-358-9616.
- ***Call your local officials to request information about levees in your area.*** Because most levee ownership and maintenance responsibilities have been turned over to communities, local agencies should have information about the levee and its operations and maintenance schedule.
- ***Check with your USACE office.*** To find contact information for your local district 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 levees in your area, and may have additional information about other levees as well.