

# WHAT IS A LEVEE?

## NFIP Definitions of Levees and Levee Systems

The National Flood Insurance Program (NFIP) defines a **levee** in Title 44, Chapter 1, Section 59.1 of the Code of Federal Regulations ([44 CFR 59.1](#)) as “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 reduce risk from temporary flooding.” The NFIP regulations define a **levee system** as “a flood protection system which 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.” For the purposes of this document, levees and levee systems are referred to as “levees.”

## Participating Communities and Levees

More than 22,000 communities participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP offers federally backed flood insurance to homeowners, renters, and business owners in these communities. Communities that voluntarily join the NFIP are required to adopt floodplain management ordinances that minimize damage to properties in Special Flood Hazard Areas ([SFHAs](#)). SFHAs are areas that would be inundated by the 1-percent-annual-chance flood. The NFIP requires all new or substantially improved residential and commercial structures in the mapped SFHAs to be constructed at or above the elevation of the 1-percent-annual-chance flood, including SFHAs landward of levees.

Working together, the U.S. Army Corps of Engineers and FEMA staff identify thousands of miles of levees in the United States that affect the lives of millions of people by providing a specific level of flood risk reduction. As shown by the green areas on Figure 1, levees are located across the Nation, but some States and communities rely on them more extensively than others. The green shading in Figure 1 indicates areas where levees are located.

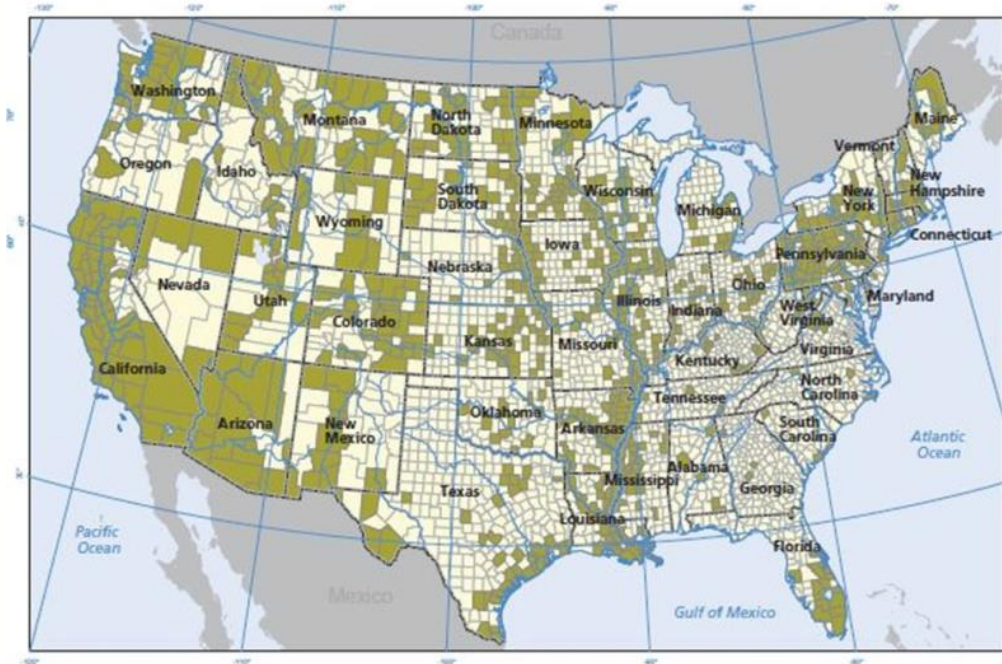
## Additional Information

You can contact your local government agencies, such as the public works department or flood control district, to stay informed about the status of levees and their locations in your community.

- For more information on levee systems and links to levee-related fact sheets, please visit [Living with Levees: It's a Shared Responsibility](#).
- To see how levees work and how they can fail, please visit [FloodSmart Levee Simulator](#).
- For more information on flood insurance for your home or business or to find an insurance agent, please visit [www.FloodSmart.gov](http://www.FloodSmart.gov).
- For more information about what to do before, during, and after a flood, please visit [FloodSmart Preparation and Recovery Overview](#).
- For more information on flood hazard mapping, please visit the [NFIP: Flood Hazard Mapping page](#).

## RISK MAPPING, ASSESSMENT, AND PLANNING PROGRAM (RISK MAP)

The Federal Emergency Management Agency's Risk MAP Program delivers quality data that increases public awareness and leads to action to reduce risk to life and property. Risk MAP is a nationwide program that works in collaboration with States, Tribes, and Local communities using best available science, rigorously vetted standards, and expert analysis to identify risk and promote mitigation action, resulting in safer, more resilient communities.



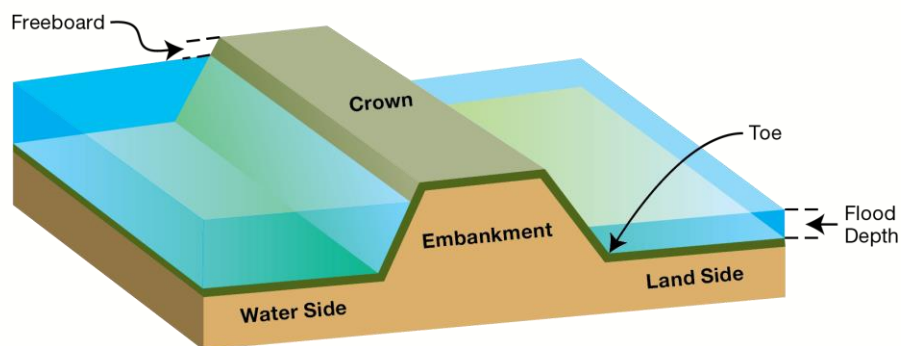
**Figure 1. Areas of the United States with Levees (August 2009)**

## Anatomy of Levees

Levees are designed to reduce flood risk from flooding events; however, they do not eliminate the risk entirely. It is always possible that a flood will exceed the capacity of a levee, no matter how well the structure is built. Levees are designed to manage a certain amount of floodwater and can be overtopped or fail during flood events

exceeding the level for which they were designed. Levee failures can also be caused by structural failures resulting from improper maintenance, inadequate foundations, seismic activity, erosion, seepage, or burrowing animals. When a levee fails, the result can be more catastrophic than if the levee had never been constructed.

Levees and floodwalls are typically built parallel to a waterway, most often a river, to reduce the risk of flooding on the landward side. Floodwalls, which are typically made of concrete or steel, are often constructed on a levee crown to increase the height of the levee, without increasing the base of the embankment. Figure 2 shows the components of a typical levee.



**Figure 2. Levee Components**

## Levee Ownership and Maintenance

While a small percentage of levees are built and/or maintained by the USACE, the majority of levees are **not** owned or maintained by any Federal agency. Nearly 85 percent of levees in the USACE Levee Safety Program are locally owned and maintained. The USACE or other Federal or State agencies oversee the rest.

FEMA levee responsibilities include identifying flood hazards and assessing flood risks in levee-affected areas. More specifically, FEMA determines and establishes appropriate flood risk zone designations in areas landward of levees and reflects those zones on Flood Insurance Rate Maps ([FIRMs](#)). On the FIRM, FEMA only accredits levees that have met and continue to meet the minimum regulatory standards cited in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations ([44 CFR 65.10](#)) and associated with the 1-percent-annual-chance flood.

## Flood Hazard Mapping and Levees

Conditions in a community or watershed change over time; therefore, the flood hazard information reflected on a FIRM must be updated periodically to better reflect the actual flood risk to people and property. FEMA updates FIRMs nationwide through the Risk Mapping, Assessment, and Planning ([Risk MAP](#)) program. With new or updated FIRMs, community officials will have pertinent information to help them better advise where and how to build more safely, and the public will better understand their risk so they can make more informed decisions about financially protecting their families, homes, and businesses.

As mentioned above, levees that are designed to reduce the risk of flooding posed by the 1-percent-annual-chance flood may be accredited by FEMA. An accredited levee system is a system that FEMA has determined to meet the design, data, and documentation requirements of 44 CFR 65.10 and therefore can be shown on a FIRM as providing a base chance or greater level of flood hazard reduction. This determination is based on a submittal, by or on behalf of a community, which includes 44 CFR 65.10 – compliant data and documentation, certified by a registered Professional Engineer. The area landward of an accredited levee system is shown on the FIRM as a moderate-risk area, labeled Zone X (shaded), except for areas of interior drainage flooding – such as ponding areas, which will be shown as high-risk areas, SFHAs. Flood insurance is not mandatory in Zone X (shaded) areas, but it is mandatory in SFHAs. FEMA strongly encourages flood insurance for all structures in floodplains and especially in areas landward of levees.

FEMA accreditation of a levee does not guarantee that it will always protect nearby properties from flooding; therefore, FIRMs carry a notice that overtopping or failure of levees is possible and that flood insurance protection and adherence to evacuation procedures are strongly recommended.