



Levees in the USACE Galveston District

What is a levee?

The U.S. Federal Emergency Management Agency (FEMA) defines a levee 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 provide protection from temporary flooding.” The terms dike and levee are sometimes used interchangeably. A few examples of levee systems in the Houston area are the USACE-constructed Texas City Hurricane Protection Structure, Freeport Hurricane Protection Structure, the Port Arthur Hurricane Protection Structure and the locally constructed levee systems in Fort Bend County.

Levees reduce the risk of flooding but no levee system can eliminate all flood risk. There is always a chance that a flood will exceed the capacity of a levee, no matter how well built. Levees can work to provide critical time for local emergency management officials to safely evacuate residents during flooding events. The possibility exists that levees can be overtopped or breached by large floods; however, levees sometimes fail even when a flood is small.



leveesafety.org

**Recommendations for a
National Levee Safety Program**

...From the National Committee on Levee Safety



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information about the
USACE Levee Safety
Program.





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Who is responsible for levee construction and maintenance?

While there are levees in all 50 states, there is no single agency responsible for levee construction and maintenance. Some estimates across the nation indicate that over 100,000 miles of levee exist. Of that number, the USACE designed and constructed over 14,000 miles of levees with another 14,000 – 16,000 miles operated by other federal agencies, such as the U.S. Bureau of Reclamation. The majority of the nation's levees were constructed by private and non-federal interests and are not federally operated or maintained.

Useful Resources

- [An Overview of NFIP and Levee Systems](#)
- [Living with Levee Systems](#)
- [The NFIP and Levee Systems: FAQs](#)
- [Acronyms and Abbreviations](#)
- [Glossary: Frequently Used Terms](#)



How can my county, city or community participate?

A public sponsor, usually a government entity with authority to levy assessments for maintenance, can participate in the RIP by requesting the Corps to conduct an initial eligibility inspection of their levee system. The Corps will conduct an initial inspection to assess the general functional and structural integrity of the levee. If the initial inspection determines the levee has been designed, constructed, operated, and maintained to acceptable standards, the levee system is placed in an "active" status in the RIP and is eligible for future "continuing eligibility inspections" and repair assistance if damaged. The public sponsor must continue to ensure the levee is operated and maintained to minimum RIP standards that were developed to reduce the risk of levee failure.

What is the Rehabilitation and Inspection Program (RIP)?

The Rehabilitation and Inspection Program (RIP) is a USACE disaster assistance program that provides for non-federal levee inspections and the repair of levees (and other flood control works) damaged in a flood or natural disaster. The Corps' RIP is accomplished under the authority of Public Law 84-99 and does not require a Federal Disaster Declaration to receive repair assistance. The RIP is a partnered solution to flood damage reduction similar to hazard insurance that owners may purchase for their homes.

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What is an accredited levee?

Levee accreditation is FEMA's recognition that a levee is reasonably certain to contain the base (one percent annual chance exceedance, sometimes referred to as the 100-year flood) regulatory flood. In order to be accredited, levee owners must certify to FEMA that the levee will provide protection from the base flood. Certification is a technical finding by a professional engineer based on data, drawings, and analyses that the levee system meets the minimum acceptable standards. FEMA's accreditation is not a guarantee of performance; it is intended to provide updated information for insurance and floodplain development.

This booklet was created to help answer your questions about levees and their associated risk. Most importantly, it is intended to help you *act now to better protect yourself against* future flood threats.

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Is the RIP the same as having a levee accredited?

No. Levee accreditation is part of the National Flood Insurance Program (NFIP) which requires FEMA and its state and local mapping partners to review levee system data and documentation.

What is the benefit of having a levee designated as accredited?

Once accredited, the levee system will be shown on NFIP rate maps as providing protection from the base flood. Since NFIP insurance rates are based on risk, a higher risk means higher flood insurance cost while a lower risk means lower flood insurance cost. Areas protected by a levee on an NFIP map are usually at a lower risk of flooding; therefore the cost for flood insurance may be lower.

Many residents misunderstand the chance and likelihood of flooding in their areas. The 100-year flood is believed by many to be a highly infrequent event but in reality it has at least a 26 percent chance of occurring over the life of a 30-year mortgage for residences living behind levees. Many Americans located behind 100-year levees do not hesitate to purchase fire insurance for their homes, but resist the purchase of flood insurance even though the chance of flooding is many times more likely than fire.

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Levees in the USACE Galveston District

Learn How Levees Work

The FloodSmart Levee [Simulator](#) shows different ways a levee can fail. It covers every type of levee failure and reminds everyone that simply living near a levee doesn't guarantee your home's protection.



What are FEMA's Flood Insurance Rate Maps?

Flooding can happen anywhere, but certain areas are especially prone to serious flooding. To help communities understand their risk, Flood Insurance Rate Maps (FIRMs) were created to show the locations of high-risk, moderate-to-low risk, and undetermined-risk areas. Conditions in, near, or under levees can change due to environmental factors. The FIRMs take these factors into consideration. If the risk level for a property changes, so may the requirement to carry flood insurance.

Residents are encouraged to look at the new preliminary flood maps to both become familiar with the flood risks in their community and to see whether their flood zone has changed. FEMA is currently updating and modernizing the nation's FIRMs. These new "digital" flood hazard maps will provide an official depiction of flood hazards for each community and show flood risk at a property-by-property level. In Texas, many of the updated FIRMs are still in draft form and there is no specified date as to when all maps will become effective. The FIRMs can be viewed at FEMA's Map Assistance Center [website](#).

How will the New Flood Maps Affect Your Flood Risk?

[Search Your Area](#)



Useful Resources

- www.floodsmart.gov
- www.fema.gov/business/nfip/
- www.fema.gov/plan/prevent/fhm/m_m_main.shtm
- www.fema.gov/library/viewRecord.do?id=3335
- [If a Levee System Construction or Restoration Project is in Progress Near You](#)
- [If You Live or Work in a Levee-Impacted Area](#)
- [Map Modernization and Levee Systems](#)
- [National Levee Database](#)
- [Understanding the Risk in Levee-Impacted Areas](#)

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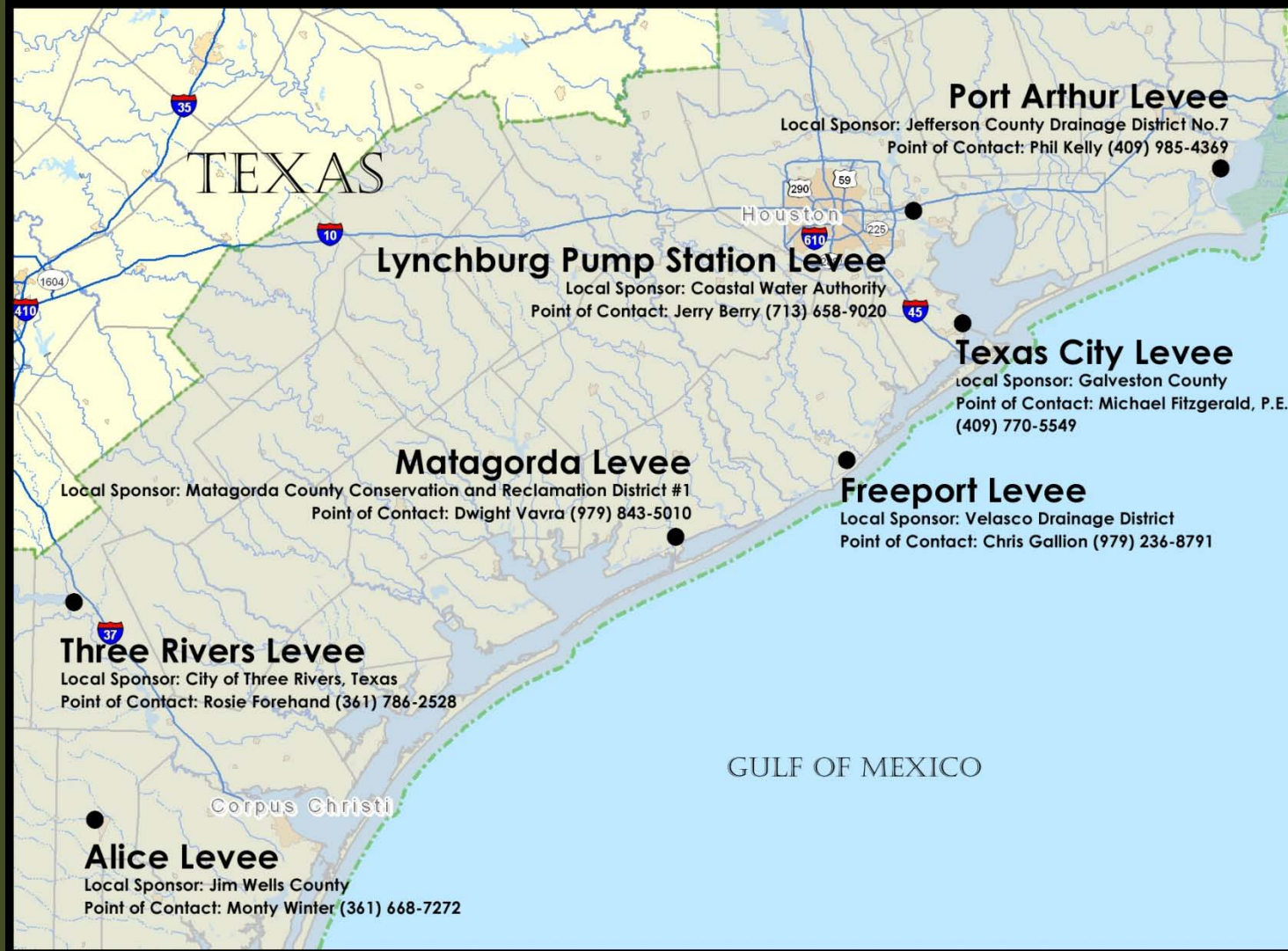




Federally Constructed Levees

*Corps
Concepts:
What is a
Levee System?*

(click logo)

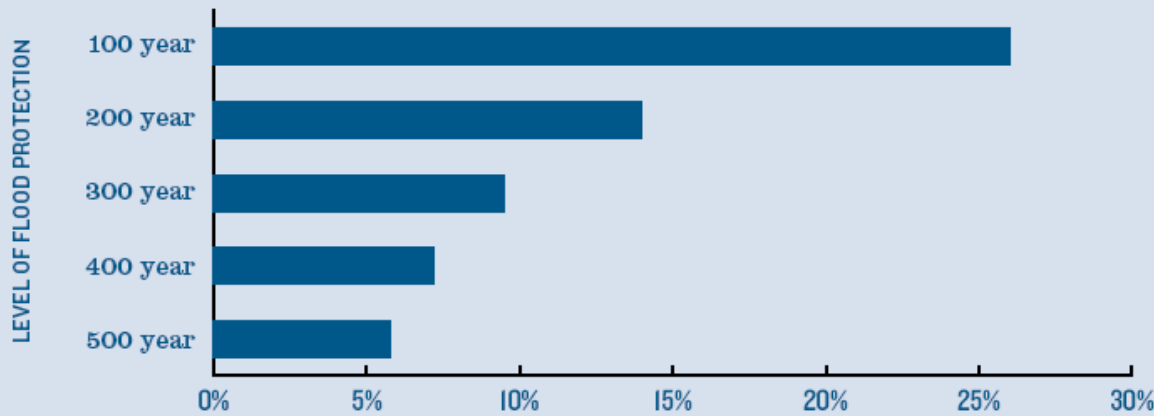




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100 Year Storm: Meteorologists, climatologists and hydrologists calculate 100-year events as a statistical tool to determine the likelihood of intense storms or floods. What this means is that every year there is a 1-in-100 chance of one of these storm happening. See the chart below:

★ Likelihood of Levee Failure/Flooding Over a 30-Year Residential Mortgage



SOURCE National Committee on Levee Safety



PORT ARTHUR, Texas (Sept. 13, 2008) – A photo of Port Arthur on the morning after Hurricane Ike made landfall.

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