



**US Army Corps
of Engineers**



The Sponsor's Guide

TO THE USACE LEVEL
SAFETY PROGRAM



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(Top) National Mall, Washington, D.C.

(Bottom) New Orleans East Bank Levee, New Orleans, Louisiana



THE USACE LEVEE SAFETY PROGRAM

The United States Army Corps of Engineers (USACE) and local sponsors have a long history of working together to build and maintain levees. In 2006, USACE formally established its Levee Safety Program to work with levee sponsors — who are responsible for the operation and maintenance of levees — to better understand, prioritize and manage the flood risks associated with USACE levees. This guide provides an overview of the USACE Levee Safety Program.

The responsibility for successful management of benefits, costs, impacts, and flood risks associated with levees must be shared at all levels of government and with those living and working behind levees. This shared responsibility is especially important because flood risk associated with levees is a result of how the levee is expected to perform and by the consequences of not performing as intended.

LEVEE SAFETY PROGRAM: KEY ACTIVITIES AND GUIDING PRINCIPLES

The USACE Levee Safety Program works with sponsors on a variety of key activities:

- Conduct inspections and risk assessments that identify and describe levee-related flood risk associated with a levee system.
- Increase flood risk awareness among elected officials and risk managers so they may most effectively reduce and manage risk.
- Build understanding among residents, businesses, and stakeholders that levees do not eliminate flood risk, and that levee-related flood risk can change over time.

The key guiding principles that inform the USACE Levee Safety Program are:

- **HOLD LIFE SAFETY PARAMOUNT** — Life safety is the highest priority to USACE while managing levee-related flood risk to property and the environment.
- **CORPORATELY MANAGE RISK** — USACE helps inform the management of levee-related flood risk using consistent and credible risk-informed processes. Decisions and recommendations for risk management actions will be commensurate with the level of flood risk and ensure wise investments.

WHAT IS LEVEE A SYSTEM?

A levee system is a manmade barrier along a waterway or canal (that does not cross it) with the principle function to exclude flood waters from a limited range of flood events from a portion of the flood plain — the leveed area. A levee system comprises one or more levee segments (which are discrete portions that are maintained and operated by a single levee sponsor) and other features. These levee features may consist of embankment sections, floodwall sections, closure structures, pumping stations and interior drainage works. Highway and railroad embankments or other features that are integral to the performance are considered as part of a levee system. Within this guide, “levee” and “levee system” are used interchangeably.

WHY ARE LEVEES IMPORTANT?

Levees are critical flood risk management infrastructure that help reduce the frequency of flooding for people and property. More than a trillion dollars of public and private property, including homes and businesses, are behind USACE levees. These leveed areas also contain critical infrastructure, such as highways, hospitals, schools and utilities, and significant environmental and cultural resources.



USACE LEVEE SAFETY PROGRAM MISSION

The Levee Safety Program mission is to ensure levee systems provide benefits to the nation by working with sponsors and stakeholders to assess, manage, and communicate the risks to people, property, and the environment.

- **ENSURE OPEN AND TRANSPARENT ENGAGEMENT** — USACE engages levee sponsors in all Levee Safety Program activities. USACE will work with levee sponsors and, through them, with other stakeholders to provide opportunities for exchange of information, feedback, and discussion.
- **LEARN AND ADAPT** — Policies and procedures are updated based on best practices and science. Levee-related flood risk is dynamic and must be managed on a continuous basis.

THE LEVEES AND SPONSORS IN THE USACE PORTFOLIO

The USACE levee portfolio includes approximately 2,200 levee systems - roughly 14,000 miles, as illustrated

in Figure A. More than half of the levee miles in the USACE portfolio were constructed by USACE and are operated and maintained by levee sponsors. The remaining levees are either constructed, operated and maintained by USACE or were constructed and are operated and maintained by others, but now participate in the Rehabilitation Program. The Rehabilitation Program provides federal assistance for eligible flood risk management structures if they are damaged in a storm or flood event.

There are more than 2,000 sponsors who operate and maintain these levees, as illustrated in Figure B. More than half of the sponsors are levee or drainage districts or other types of water resource authorities. Typically, these sponsors are authorized to build and maintain

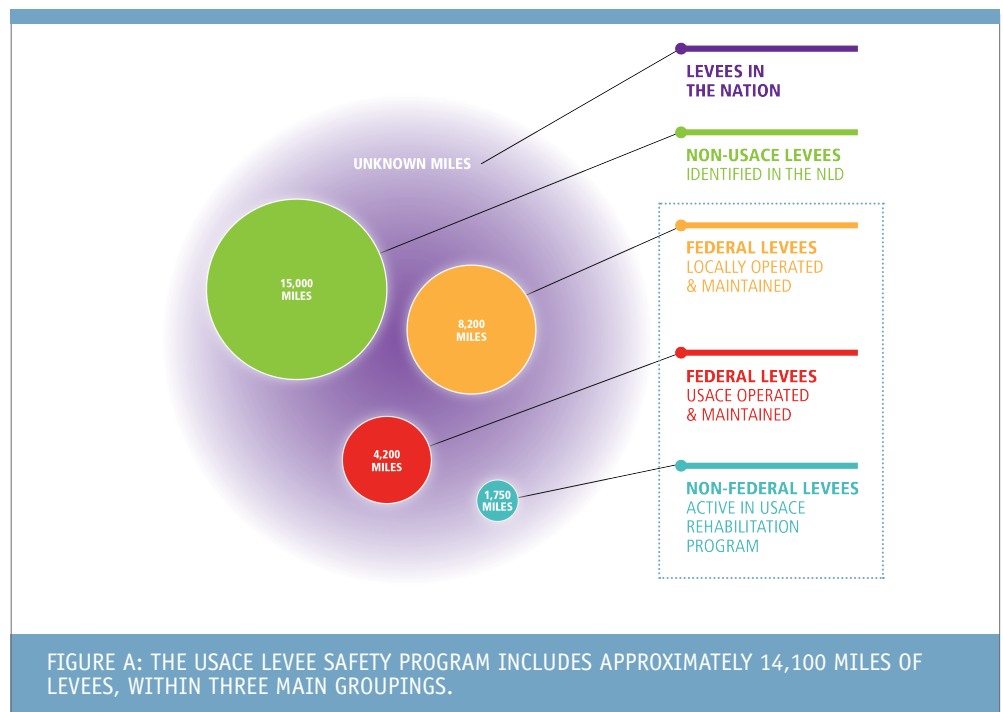


FIGURE A: THE USACE LEVEE SAFETY PROGRAM INCLUDES APPROXIMATELY 14,100 MILES OF LEVEES, WITHIN THREE MAIN GROUPINGS.

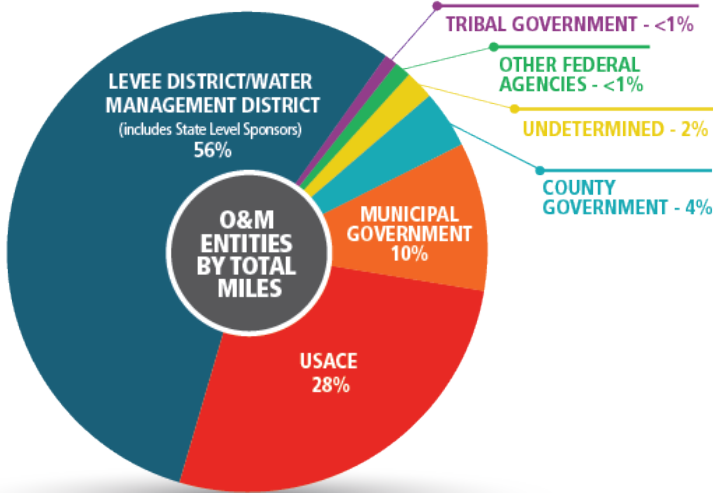


FIGURE B: USACE PORTFOLIO LEVEES ARE OPERATED AND MAINTAINED BY VARIETY OF LEVEE SPONSORS WITH DIFFERING RESPONSIBILITIES AND OPPORTUNITIES FOR RISK MANAGEMENT.

levees, to use necessary private land, and sometimes have taxing authority. About 15 percent are municipal or county governments with a broader set of responsibilities for public works,

land management, and emergency management.

Whether their authorities are narrow or broad, sponsors have critical information about their

levee condition and what is at risk in leveed areas. They can take the lead in discussions by facilitating conversations with local leaders to develop a community approach to flood risk management (e.g., improved flood warning and evacuation effectiveness, flood proofing critical facilities).

Some levee systems contain several segments that have different sponsors. USACE, however evaluates risk by levee system regardless of operational or maintenance boundaries or who is responsible for operation and maintenance. A systems approach works best to comprehensively determine the levee-related flood risk and to ensure consistency of risk management efforts across the entire system.



EMBANKMENT ARMORED WITH RIPRAP, STAMFORD HURRICANE/SHORELINE PROTECTION PROJECT, STAMFORD, CONNECTICUT.

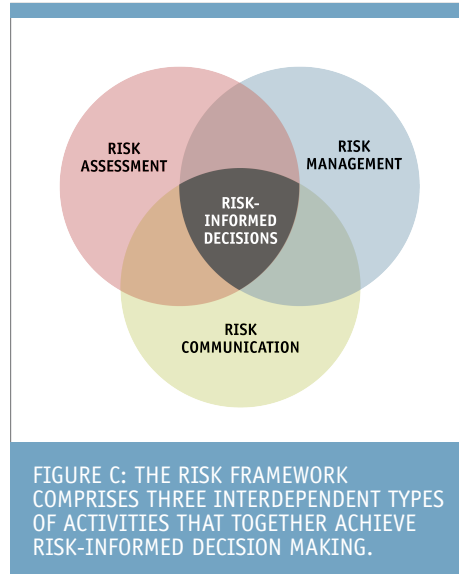


EARTHEN EMBANKMENT, SACRAMENTO RIVER LEVEE, SACRAMENTO, CALIFORNIA



THE RISK-INFORMED APPROACH TO DECISION MAKING ABOUT LEVEES

The Levee Safety Program uses a risk framework, as shown in Figure C, that captures all levee safety activities and efforts within three overarching categories: risk assessment, risk management and risk communication. It is important that levee risk management decisions are well-informed by a complete picture of levee-related flood risk, because the nation faces challenges with constrained resources, aging infrastructure, rapid population growth in certain high-risk areas, and an increasingly dynamic physical environment. Sponsors, communities, and federal, state



and tribal partners must work together to assess, manage and communicate risk across levee systems.

The analytical approach of the risk framework assists USACE and sponsors in the following ways:

- Carefully assesses risk to people as well as the economy and environment in the areas behind levees.
- Prioritizes fixing highest-risk deficiencies first, which maximizes flood risk reduction benefits.
- Makes an articulate case with elected officials and other risk managers regarding the priority of investments and solutions, and educates people living and working behind levees to help inform their decisions regarding personal risk management activities such as flood insurance, evacuation measures, flood proofing, and/or relocation.



GATE CLOSURE DURING HIGH WATER, PRAIRIE DUPONT LEVEE SYSTEM PROJECT, DUPO, ILLINOIS.



CONCRETE FLOODWALL, CAPE GIRARDEAU FLOOD PROTECTION PROJECT, CAPE GIRARDEAU, MISSOURI.

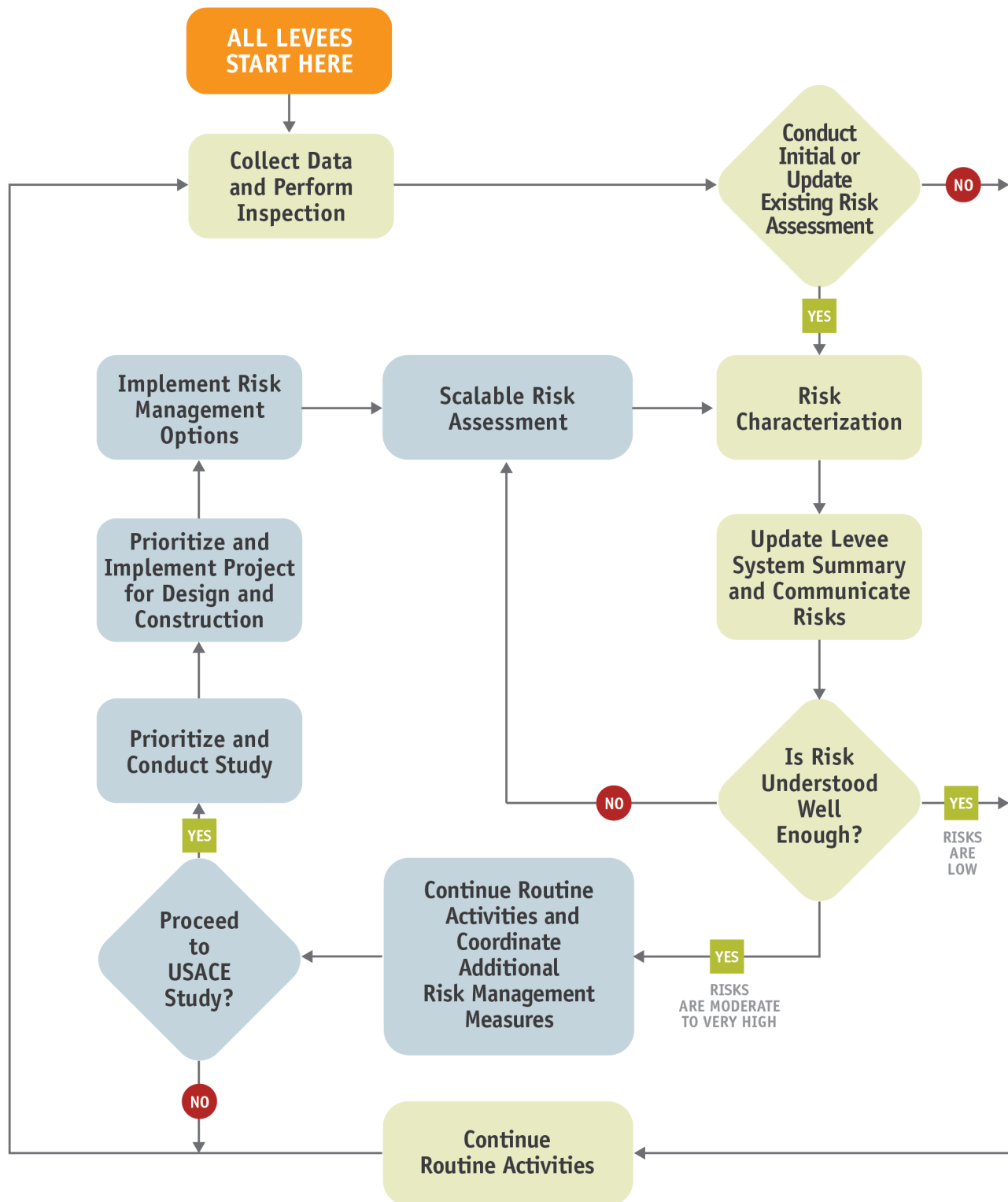


FIGURE D: THE RISK-INFORMED PROCESS THAT USACE USES FOR ALL LEVELS IN ITS PORTFOLIO IS INTENDED TO BE REPEATED AT REGULAR INTERVALS OR IF A CHANGE IN CONDITION OCCURS. IT ENSURES THAT: 1) MEANINGFUL, CURRENT RISK INFORMATION IS AVAILABLE TO SPONSORS, COMMUNITIES AND USACE; AND 2) USACE RISK ASSESSMENT IS RESOURCE-EFFECTIVE.



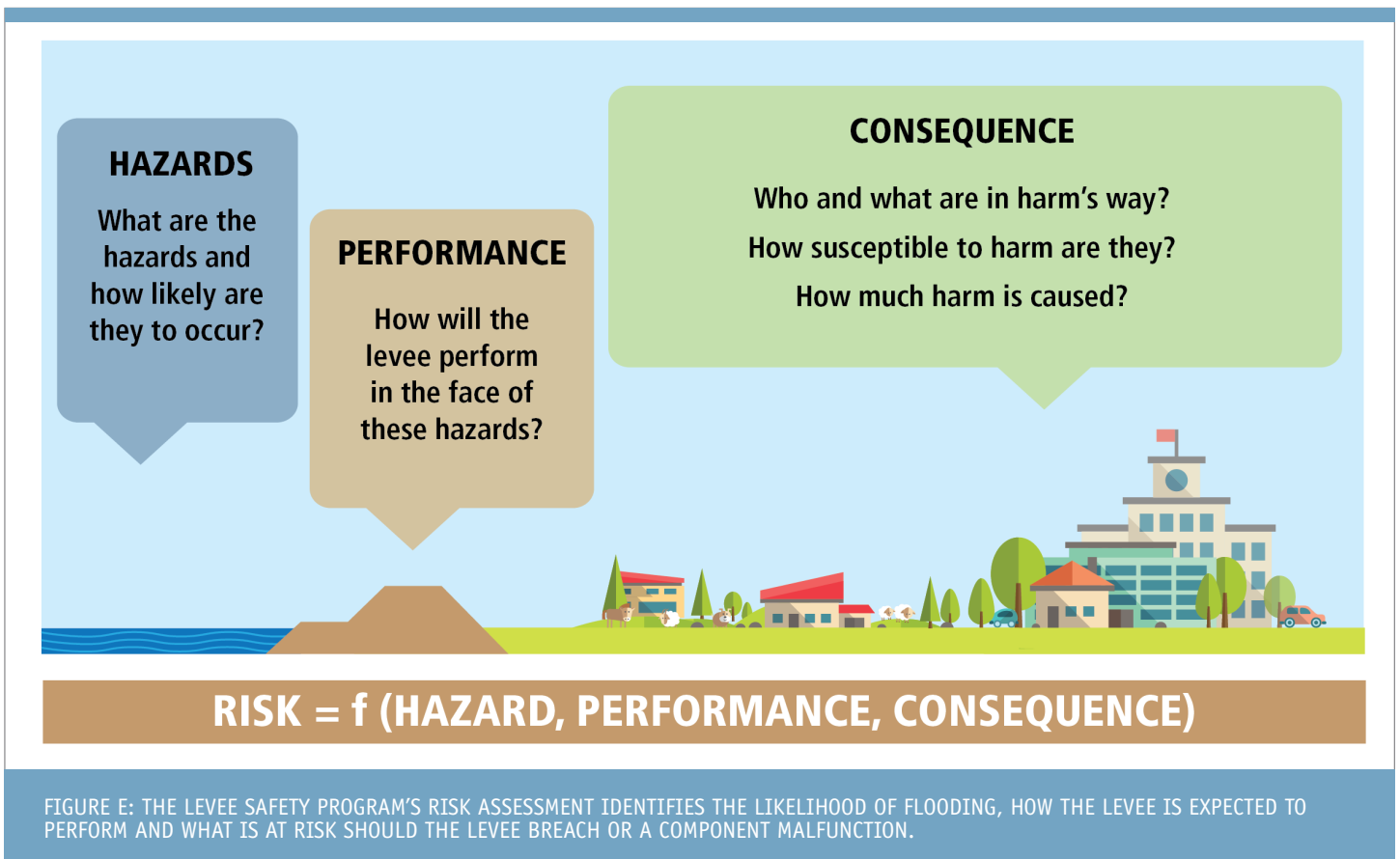
RISK ASSESSMENT

A USACE levee risk assessment is a systematic, evidence-based approach that estimates the likelihood of breach or a component malfunction (e.g., gates, culverts, closure structures) and the consequences. It evaluates the three distinct factors of levee-related flood risk, which are shown in Figure E:

- **HAZARD** — includes identifying factors such as discharge, stage, duration, velocity, coincident earthquake, and magnitude and duration of water on the levee.
- **PERFORMANCE** — includes identifying and prioritizing the most likely scenarios that could lead to levee breach, such as seepage, erosion, slope failure, pump failure, or undersized/ blocked culverts.
- **CONSEQUENCES** — includes estimating the magnitude (e.g., depth, velocity) and timing (e.g., day v. night, rate of rise), distribution of people and property, environmental impacts and expected effectiveness of evacuation plans.

By looking at all three major factors that drive risk, this analysis better informs risk management actions. Risk assessments also seek to describe uncertainty related to the risk estimate. Risk assessments are scalable based on the information at hand, funding available and intended uses of the information.

Sponsors are vital participants in USACE-led inspections and risk assessments. Sponsors have first-hand knowledge of the structure, its history and its maintenance





history; prior performance data; and a detailed understanding of cultural and historic sites, vulnerable populations, and evacuation effectiveness. Additionally, sponsors can take information from a risk assessment (or inspection) and prioritize actions to implement risk management activities.

TYPES OF INSPECTIONS AND RISK ASSESSMENTS

Risk is dynamic and must always be monitored. Levee conditions change over time: banks erode; closures rust; animals burrow and pumps wear out. It is important to regularly conduct visual inspections of levees to monitor their overall physical condition and ensure proper operation and maintenance is taking place. Levee inspections provide the foundation upon which risk assessment, risk management and risk communication activities are based. USACE uses a standard inspection checklist and a tablet-based collection system (Levee Inspection Tool) to assist inspectors/sponsors in maintaining consistency with inspections.

- **A routine inspection** is a visual inspection of the physical features of a levee system to verify the operational adequacy and maintenance of components and identify any immediate repairs. This type of inspection is typically conducted on an annual to biennial basis.
 - **A periodic inspection** is more comprehensive than a routine inspection. It includes a visual inspection and an evaluation of operational adequacy, as well as a comparison of current design and construction criteria. Periodic inspections are typically conducted every five to ten years and are accompanied by a risk assessment.
 - **Special inspections** are conducted when conditions may have changed or after a flood event, levee alterations or earthquakes.
- The USACE Levee Safety Program has various types of risk assessments that support sponsor decision making.
- **A screening level risk assessment**, or levee screening, is a basic risk assessment that relies on existing data, historical performance, engineering judgment, and consequence estimation to quickly characterize the relative risks posed by levees in terms of a relative probability of breach and potential risk to life and property.
 - **A semi-quantitative risk assessment**, or SQRA, is a more detailed risk assessment that incrementally increases the assessment detail such as analyzing potential failure modes, reduces uncertainty and improves the level of confidence that the risk assessment results are

SPONSOR ROLE: Levee Safety Inspections and Risk Assessments

- *Provide pre-inspection documents including pictures, maps and performance information.*
- *Walk the levee with USACE inspectors.*
- *Review post-inspection findings.*
- *Participate on the risk assessment team.*
- *Review final risk characterization findings.*
- *Use information for risk communication planning.*



A TALE OF TWO LEVEES

Consider two levees. One has a farmer's field behind it, the other a small city. Both levees have the same probability of water on the levee at a certain frequency (hazard). Both levees are equally well-maintained and structurally sound (performance). They would, however, likely have different risks because one leveed area includes an uninhabited field and limited structures, while the other includes thousands of people, homes and businesses, and public infrastructure. Because the consequences are different, the levee adjacent to the city would have a higher risk. It is important to note that the likelihood of an individual behind either levee experiencing flooding is the same.

reasonable. The assessment uses a combination of limited numerical estimates with qualitative descriptions that result in risk estimates based on orders of magnitude.

- **A quantitative risk assessment, or QRA,** is a risk assessment that results in more precision on potential failure modes, the resulting inundation and associated consequences. The resulting numerical calculations for probability of breach and consequences are combined to quantify a numeric risk estimate.

These three types of risk assessments provide increasing levels of detail, improving the ability of risk managers to develop the most effective suite of risk management actions for a particular system. In addition, uncertainty may be reduced through the increased level of detail provided. A more detailed risk assessment should be considered where significant potential consequences exist in the leveed area, uncertainty can be reduced and risk management decision making can be improved. Each additional risk assessment provides a new baseline for USACE and the levee sponsor to conduct follow-on levee inspections.

RISK ASSESSMENT OUTCOMES: RISK CHARACTERIZATION AND RECOMMENDATIONS

A risk assessment results in a risk characterization, which includes a Levee Safety Action Classification (LSAC), and recommendations to manage the levee-related flood risk. The risk characterization and recommendations help inform sponsor and community decision making. It is a detailed narrative of the risk drivers identified in the risk assessment as well as a prioritization of which risk drivers are of the most concern.

The risk characterization highlights the factors that drive the risk of levee breach or malfunction and impacts to people who live and work in the leveed area, industry, public infrastructure and the environment, should flooding occur. It is the primary focus of the conversation because it helps inform the specific actions that would be the most effective use of resources to manage risk.

The LSAC is assigned as part of the risk characterization process. The LSAC is assigned based on the magnitude of risk relative to the USACE portfolio, thereby helping USACE to prioritize resources and activities by organizing widespread levee-related risk information into reasonably commensurate groupings for action. The LSAC uses five

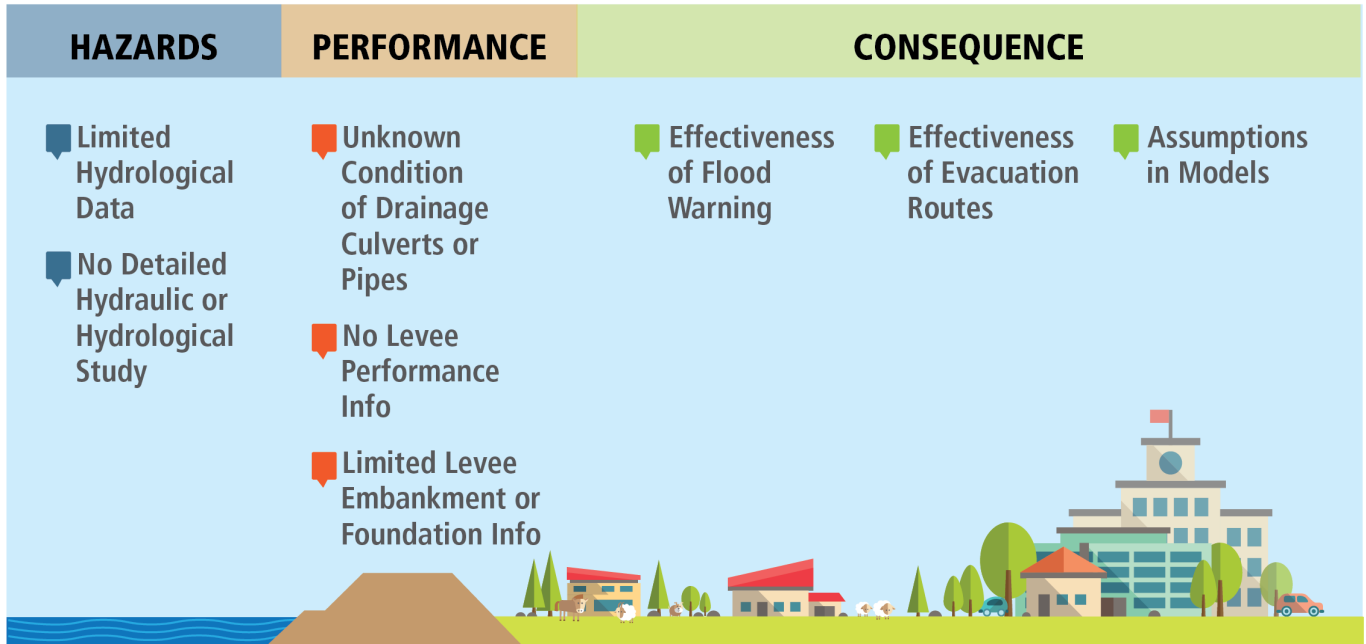


FIGURE F: UNDERSTANDING AND COMMUNICATING THE UNCERTAINTY ASSOCIATED WITH LEVEE SYSTEMS IS A CRITICAL COMPONENT IN MAKING RISK MANAGEMENT DECISIONS.

classifications (1-5, with 1 being highest risk and 5 being very low risk) and an additional category entitled “no verdict” which means there was not enough information to make a classification.

The risk assessment considers three possible breach scenarios (breach prior to overtopping, breach after overtopping and a component malfunction). Information about the likelihood of overtopping that is not expected to result in a breach is also calculated and shared with the sponsor. This information can help risk managers select the activities to reduce damages, such as raising or floodproofing structures or promoting the purchase of flood insurance.

CAPTURING UNCERTAINTY IN RISK ASSESSMENT

Assessing levee risk includes some amount of uncertainty. Figure F shows there is often uncertainty related to the risk drivers within all three risk factors. For example, certain information may not have been available, such as up-to-date information about the expected frequency and height of the water against the levee, history of levee performance, or materials and engineering techniques used during construction. In other systems, information regarding effectiveness of community warning and evacuation activities or changes in development

patterns and demographics make human behavior difficult to predict.

A levee risk assessment identifies and discusses uncertainty so that information may be used to target follow-on data collection and more detailed risk assessments, especially when risk is high and more information might better inform risk management activities. Acknowledging and communicating uncertainties in the risk assessment, while difficult, is critical for sponsors, other risk managers and the community to make better risk management decisions taking the unknowns into account.



CEREDO AND KENOVA, WEST VIRGINIA

USING RISK ASSESSMENT INFORMATION

Risk assessments can help with sponsor, community and individual preparedness. Sponsors, USACE, and other state and local officials can use information from risk assessments to inform various risk management decisions.

- Is investment in a more detailed risk assessment needed to better understand the risk drivers and related uncertainty, especially where risks to people are the highest?
- How should limited community resources be invested? For example, is investing in floodproofing efforts and

improved evacuation planning more effective in managing risk than raising a levee?

- How does life safety information affect prioritization of cost-shared feasibility studies?
- How can post-flood repairs under the Rehabilitation Program be best prioritized and sequenced?

An important use of risk assessment information is to build awareness with residents and businesses to promote individual risk management actions (e.g., flood insurance, flood proofing, evacuation planning). In a growing number of levee systems, one of the primary risk factors is

increased residential and economic development behind levees. With added development, there is more at risk should a levee perform poorly or be overtopped. There is also potentially a lack of awareness regarding levee-related flood risk among newer communities/community members, as it is likely they were neither part of the original decision to construct the levee, nor witnessed prior flooding.

In making decisions in the community, the risk assessment is a key consideration, but not the only one. Other considerations include resources, environmental and political factors, and the willingness and ability of the sponsor to participate.

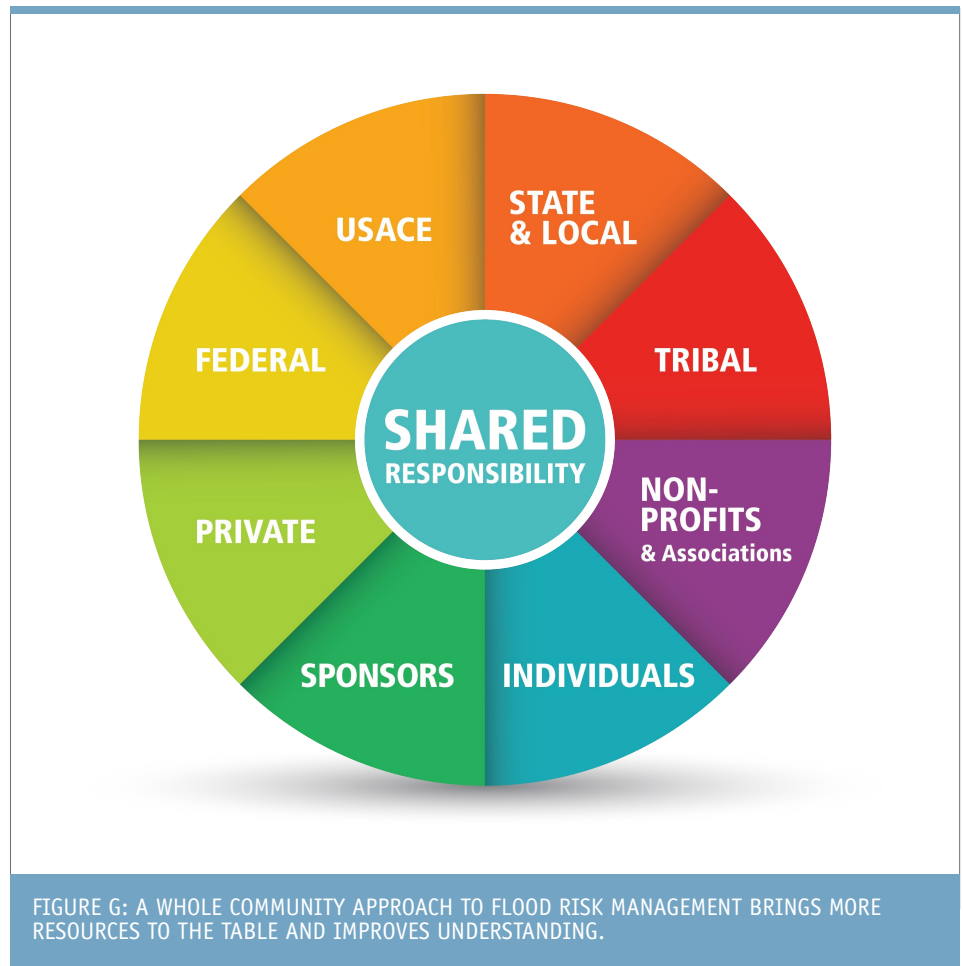


RISK MANAGEMENT

Managing risk related to levees takes place within the larger context of managing flood risk. As illustrated in Figure G, this broader flood risk management responsibility is shared among multiple federal, state, tribal, and local government agencies with a complex set of programs and authorities, as well as private enterprise and individuals.

Risk management is an ongoing and iterative process that includes the identification, evaluation, selection, implementation and monitoring of actions that are taken to effectively and efficiently reduce risk. Possible risk management options should be based on risk drivers identified by any part of the risk formula as illustrated by Figure H (shown on page 12).

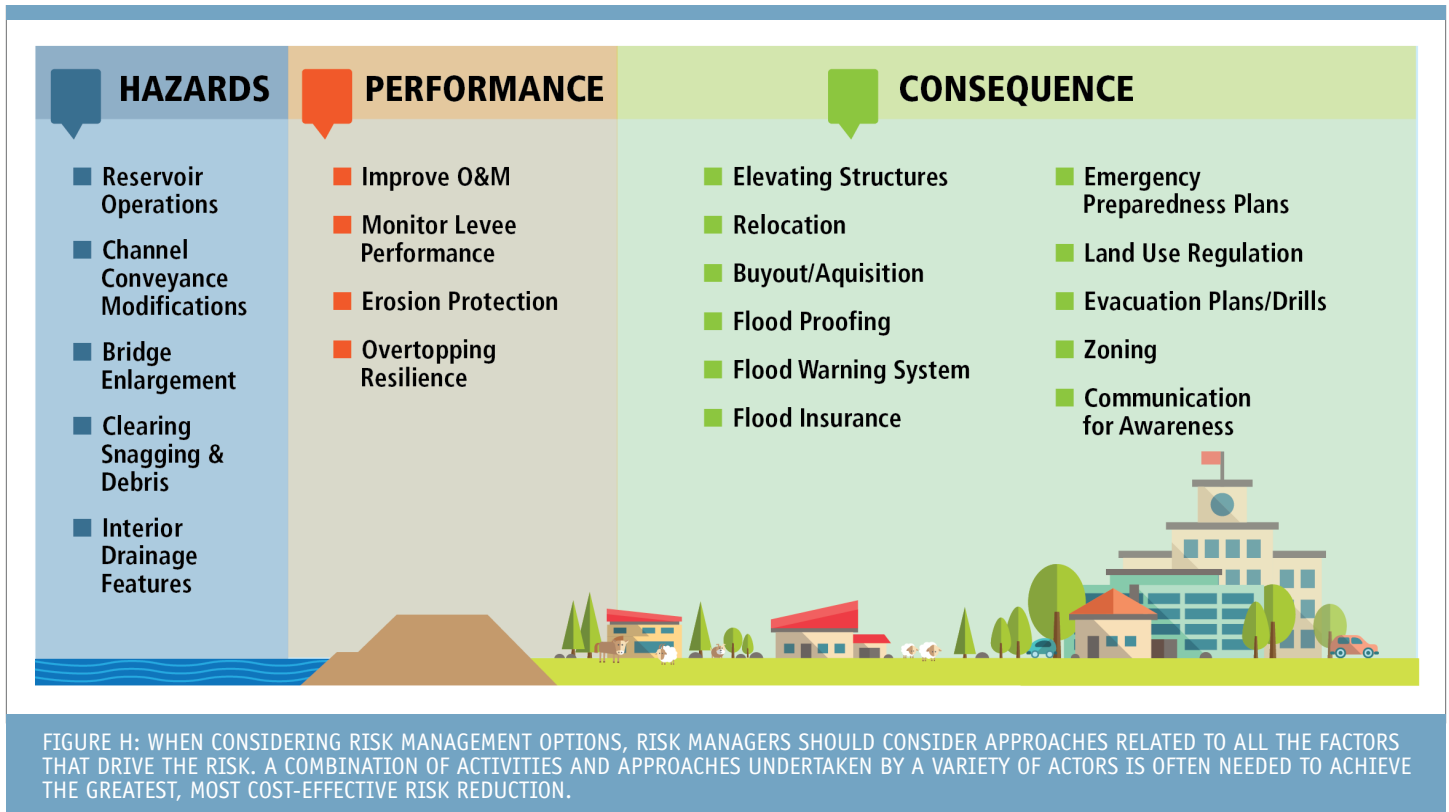
Flood risk management activities can and should be undertaken at many levels (e.g., governmental, business, community association, individuals/families). Responsibility, authority and ability to implement risk management activities often vary across sponsors, communities and individuals. The best risk management approaches are usually a combination of activities



and actions shared across a variety of roles and entities.

USACE has authority and/or funding to implement and monitor risk management options on levees that it operates and maintains. For other levees, however, USACE may provide direct assistance only through existing programs and tools. For example, studies that look at the feasibility of improving the levee structure may be

leveraged to better manage risk. In addition, USACE can help sponsors compile the information that comes out of the risk assessment process about risk drivers and potential consequences of levee failure to assist the sponsors in making risk-management decisions that focus resources to most effectively manage the risk associated with a levee system.



USACE is available to support the sponsor as they work together with the community and other partners to focus resources on most effectively managing the levee-related flood risk. High overtopping risk could be addressed by armoring a levee on the crown and land side, so that if the levee overtops, it will not erode and breach. Consequences for people and property could potentially be reduced by having a well-conceived and practiced evacuation plan that accounts for vulnerable populations and/or floodproofing or elevating structures or purchasing flood

insurance. Although these actions are not designed to stop an area from being inundated, they may reduce the threat to people and the financial impacts.

An effective risk management approach, Figure H, uses a combination of activities and approaches aimed at different risk drivers to maximize risk reduction opportunities. Some measures are short-term, while others need to last for the life of the levee system. These measures reduce levee-related flood risk, but do not “eliminate” that risk. Effective risk management also

requires continuous attention to any changes in on-the-ground conditions and monitoring of risk.

USACE works with levee sponsors and, as requested, communities to evaluate levee-related flood risk and make recommendations regarding the scope and development of risk management options. USACE is available to support meetings with elected officials, emergency managers, land use and transportation planners, stormwater and floodplain managers, public works directors and others who have public responsibilities to ensure



that levee-related flood risk is understood.

RESOURCES TO DEVELOP FLOOD RISK MANAGEMENT OPTIONS

Levees exist in the broader context of community flood risk. USACE has programs beyond the Levee Safety Program that provide assistance to sponsors, states and other flood risk managers in developing and implementing risk management efforts in communities with and without levees.

First, there are USACE resources that sponsors and/or states may wish to engage to aid in coordination of levee-related flood risk management activities. Coordinating with the following programs can maximize the use of existing USACE relationships and coordination efforts and may provide opportunities to further build those relationships:

- **SILVER JACKETS TEAMS —** State-based teams collaboratively address flood risk management priorities at the state level, including enhancing mitigation, preparedness and recovery efforts. Common participants include state and federal agencies with mission areas of floodplain, emergency and/or natural resources management, as well as hazard mitigation.

- **USACE FLOOD RISK MANAGEMENT PROGRAM —** USACE Flood Risk Managers focus the policies, programs and expertise of USACE toward reducing overall flood risk.

Table 1 (page 15) provides a variety of USACE programs that provide technical assistance, share expertise and support coordination work across all components of risk (e.g., hazard, performance and consequences.) USACE has programs to assist states and communities in reducing flood damages and promoting sound flood risk management. Table 1 summarizes key programs that sponsors may want to consider for support and advice on managing levee-related flood risk. These resources (along with other activities) should be considered within the context of the risk assessment information to determine what will have the biggest risk reduction impacts with the least amount of cost.

There are additional federal agencies that have a flood risk management mission. The nation benefits from various federal initiatives to support communities in broader floodplain management activities. Many of these federal programs are applicable/available to communities both with and without levees. Some programs are available to governmental entities and targeted toward investments in risk reduction

SPONSOR ROLE: Levee-Related Risk Management

- *Review final risk characterization findings, including recommendations.*
- *If desired, discuss potential options for risk management with USACE staff.*
- *Engage potential partners at the local level who also have levee-related flood risk management responsibilities, such as: flood control districts, emergency managers, zoning boards and local governments.*
- *Identify and seek additional resources through state and federal entities.*
- *Continue to properly operate and maintain the levee structure.*
- *Raise community awareness through risk communication.*



A FLOODED ROADWAY (SOURCE: ISTOCK).

for public infrastructure. Others are targeted to businesses or individuals, focusing on floodproofing, elevating and otherwise reducing risk to structures from flooding.

While there are many programs that can assist communities and their residents and businesses to make themselves more resilient from flooding, there is no comprehensive set of federal programs that help communities fully manage risks or recover from flooding. For communities and their residents to effectively

manage risk, they must cooperate with elected officials, all levels of government and individuals to develop activities that work in their context and community.

The USACE Levee Safety Program website includes resource documents that provide more information on USACE and other federal agency programs that might assist sponsors to move through all activities in the risk framework. The website URL is <http://www.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/>.

In addition, sponsors and communities should speak directly with representatives from the USACE Levee Safety Program and other federal agencies for additional information about focus, funding, timing and eligibility for any programs that seem applicable to their situation.



OVERVIEW OF USACE PROGRAMS AND AUTHORITIES WITH POTENTIAL TO CONTRIBUTE TO THE DEVELOPMENT AND/OR IMPLEMENTATION OF RISK MANAGEMENT OPTIONS

Technical Services and Assistance: programs and authorities potentially available to provide information, conduct limited studies, support risk communication and perform coordination

PROGRAM/AUTHORITY	GOAL	POTENTIAL ACTIVITIES/ PRODUCTS SUPPORTED
Planning Assistance to States Program (42 USC 1962d-16)	Technical expertise to help states and tribes in management of water and related land resources to solve water resource problems	Technical support, including data, analysis, and assistance to develop state water resources management plans
Floodplain Management Services Program (33 USC 709a)	Technical/planning assistance for non-federal public agencies to help with floodplain management planning and studies	Flood hazard evaluation, flood warning/preparedness, floodproofing, structure inventory, and flood risk management plans
Emergency Preparedness, Response, and Recovery (33 USC 701n)	USACE technical assistance for sponsors and other public agencies based on particular program criteria	Flood disaster preparedness, advance measures before a flood, emergency operations, rehab of flood control works threatened/destroyed by flood
Interagency and International Services (10 USC 3036e/31 USC 6505)	USACE reimbursable technical assistance to non-Department of Defense federal agencies, tribes, and state/local governments	Engineering/construction services, environmental restoration and management, management of water and land-related natural resources

Cost-Share: potential opportunities for USACE to cost-share studies/flood risk management projects

PROGRAM/AUTHORITY	POTENTIAL STUDIES/PROJECTS
Continuing Authorities Program (CAP) — assistance to plan, design, and implement water resources projects of limited size, cost and scope, without specific legislative authorization	<ul style="list-style-type: none"> a. Cost-share on Flood Damage Reduction design/implementation with the federal share capped at \$10 million b. Product Modifications for Improvement of the Environment structural or operational changes to projects for restoration/enhancement of environment c. Channel Clearing for Flood Control clearing of stream channels to increase channel flow capacity, decrease flooding and reduce damage from the debris carried by flood flows d. Hurricane and Storm Damage Reduction allows for study, design and construction of small coastal storm damage reduction projects e. Emergency Streambank and Shoreline Protection to prevent damage from erosion to non-profit facilities
WRDA 1999, Sec. 212 Projects	Nonstructural measures to significantly reduce flood hazards/restore the natural function and values of rivers
River and Harbor/Flood Control Act, Sec. 216 Studies	Modification of completed projects due to significantly changed physical/ economic conditions and for improving the quality of the environment

TABLE 1: RISK MANAGERS MAY WANT TO CONSIDER HOW USACE'S EXISTING AUTHORITIES MAY PROVIDE OPPORTUNITIES TO SUPPORT RISK MANAGEMENT ACTIVITIES. THIS TABLE IS MEANT TO PROVIDE AN OVERVIEW AND DOES NOT INCLUDE ALL PROGRAM ELIGIBILITY REQUIREMENTS, LIMITATIONS AND/OR APPLICATIONS.



RISK COMMUNICATION — COMMUNITY AWARENESS

WHAT IS RISK COMMUNICATION?

Risk communication is the open, two-way exchange of information and opinion about hazards and risks leading to a better understanding of the risks and better risk management decisions. Risk communication is integrated into the assessment and management processes. It is not a task that occurs only after decisions have been made. Risk communication ensures that the decision makers, other stakeholders and affected parties understand and appreciate the process of risk assessment and in so doing can be fully engaged in and responsible for risk management.

SPONSOR ROLE: Levee-Related Risk Communication

- *Develop the strategy for communicating with the broader community, including other governmental bodies, risk managers and key stakeholders.*
- *Ensure that those who live and work behind the levee system have access to levee risk information through various channels including town halls, media roundtable, public meetings, press releases, social media, etc.*
- *Participate in the development of a Levee System Summary with USACE.*

USACE also supports sponsors as they communicate levee-related flood risk to local officials, communities and individuals behind the levee to achieve increased awareness and develop broader community-based risk management options.

USACE views its relationship with the sponsor as essential because the sponsor is responsible for levee risk management, are embedded in the community and provide risk information about levees to the public. USACE is available to support the sponsor in communicating risk to raise awareness and involve other community and public entities and partners. Sponsors do, however, determine the best approach for engaging the broader community and implementing the communication activities with their intimate understanding of the areas, communities and key stakeholders affected by risk and the complex social, economic and environmental factors at play.

USACE may support sponsors in sharing risk information about levee systems with community risk managers to improve overall

awareness of residents and businesses. USACE may:

- Provide fact sheets and other information on key topics related to flood risks associated with levees, USACE policies and engineering practices related to levees.
- Support sponsors and communities in public meetings to explain risk information and to raise awareness of levee-related flood risk and discuss pros and cons of risk management options. For particularly sensitive or conflict-ridden situations, USACE may be able to provide professional facilitators and public involvement specialists to assist in planning and facilitation of public meetings.
- Serve as a conduit/connection with other federal and state agencies to bring the right expertise, talent and credibility to bear to discuss risk in each community.
- Assist with media outreach on levee-related flood risk.



THE LEVEE SYSTEM SUMMARY

For every levee system in the USACE portfolio, the Levee Safety Program works with the sponsor to develop a Levee System Summary. The purpose of the summary is to provide understandable information about the levee. The Levee System Summary provides information about the age, benefits and history of a given levee system, describes the magnitude of the risks and risk drivers, and may describe pertinent demographics and economic features in the leveed area. The Levee System Summary also discusses key activities that the sponsor, the community or USACE is taking to manage these risks. Points of contact

for the local sponsor and the USACE district are provided, along with important information about the status of the levee within the FEMA National Flood Insurance Program.

The Levee System Summary is a resource to plan for and manage levee-related flood risk by providing information to risk managers as well as people living and working behind levees. Sponsors may use these summaries to assist in raising awareness in communities during meetings, briefings and presentations. USACE uploads the Levee System Summary to the National Levee Database where it is available to the public. The National Levee Database can be accessed at: <https://levees.sec.usace.army.mil/>.

NATIONAL LEVEE DATABASE

The National Levee Database is a common access point for USACE, sponsors and the public to review information about levee systems. Sponsors have access to detailed information regarding risk assessments, levee condition and inspection results, while individual and community users are provided summary information to increase their awareness of the nature of risks and support risk management activities without disclosing sensitive security information.

Features and benefits of the National Levee Database:

- *Sponsors can easily access and use information related to their levees;*
- *Residents and businesses can see where they are located in relation to local levees and get information regarding the severity and type of risks posed; and*
- *Federal agencies will have and can provide to Congress a better understanding of the scope and risks posed by the nation's levees, allowing improved use of limited resources.*



HAIKEY CREEK LEVEE. TULSA, OKLAHOMA



COORDINATION BETWEEN THE USACE LEVEE SAFETY PROGRAM AND FEMA'S NATIONAL FLOOD INSURANCE PROGRAM

LEVEE ACCREDITATION

An accredited levee system is a system that FEMA has determined meets the design, data and documentation requirements of 44 Code of Federal Regulations 65.10. This determination is based on a submission, by or on behalf of a community, of data and documentation, certified by a registered professional engineer. The area behind an accredited levee system is shown on the Flood Insurance Rate Map as a moderate-hazard area, except for areas of interior drainage flooding such as ponding areas. Flood insurance is not mandatory in moderate-hazard areas, but mandatory in areas of interior drainage. FEMA strongly encourages flood insurance for all structures in floodplains and also in areas landward of levees.

The USACE Levee Safety Program and the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) have different roles and responsibilities related to levees and leveed areas, but have complementary goals. Both agencies are concerned with life safety, reduction of property damage due to flood and communicating flood risks. To this end, USACE and FEMA have committed to sharing information, coordinating messages and ensuring tools are compatible.

- Both USACE and FEMA perform activities using best available information that includes mapping and modeling. Both agencies work closely together to find opportunities to share and leverage information that will benefit both programs.
- USACE and FEMA are both committed to using the National Levee Database to manage information related to the Levee Safety Program and the NFIP. This facilitates sharing and coordination of information

between the agencies and with stakeholders.

- USACE will directly engage FEMA and provide information from Levee Safety Program activities such as inspections and risk assessments. This coordination helps identify opportunities related to NFIP mapping, risk management and risk communication.
- USACE and FEMA have identified how specific information from Levee Safety Program activities can be used to fulfill all or some of the requirements for levee accreditation for the NFIP. For example, USACE levee inspections and screening level risk assessments provide information as to whether or not the levee system meets a subset of the criteria for 44 CFR 65.10. If the subset of criteria are met, levee sponsors or communities would then be responsible to provide information for the remaining criteria. This helps reduce duplicative effort.



ADDISON FLOOD DAMAGE REDUCTION PROJCT, ADDISON, NEW YORK

- Each time USACE performs a semi-quantitative or quantitative risk assessment on a levee system, USACE will also analyze the levee system for the purposes of levee accreditation. Most likely a semi-quantitative risk assessment will result in an inconclusive conclusion due to the level of detail of analysis. However, a quantitative risk assessment will provide enough information for a levee accreditation recommendation.
- USACE has an ability to cost-share a quantitative risk assessment for federal levee systems for levee accreditation purposes if requested by the levee sponsor or community.



CONCLUSION

People living and working behind levees rely on the cooperation of all levels of government to ensure that levee-related flood risk is well understood and managed as collaboratively and cost-effectively as possible. To this end, the USACE approach to levee-related flood risk is holistic and proactive. This handbook is just one part of a broad effort to work with sponsors and others on risk-informed

decision making related to all phases of the risk framework.

More in-depth guidance and information is available on the USACE Levee Safety Program's webpage <http://www.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/>

The Levee Safety Program is receptive to questions about this process or feedback. Please

reach out to program staff with questions by e-mail at HQ-LeveeSafety@usace.army.mil

To speak to a Levee Safety representative from your local district visit: <http://www.usace.army.mil/Locations.aspx>

DISCLAIMER

*The Sponsor's Guide to the USACE
Levee Safety Program does not
supersede or replace the Levee
Owner's Manual for Non-Federal Flood
Control Works or any current or future
USACE policy guidance.*



**US Army Corps
of Engineers**

The Sponsor's Guide

TO THE USACE LEVEE
SAFETY PROGRAM

*For more information, go to:
[http://www.usace.army.mil/Missions/
Civil-Works/Levee-Safety-Program/](http://www.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/)*

