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Levee Setbacks: A Legal, Regulatory, and Policy Primer

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Yee Huang, Legal and Policy Analyst, UGA Carl Vinson Institute for Government
Matthew Shudtz, Law and Policy Fellow, UGA Institute for Resilient Infrastructure Systems

Introduction

Across the United States, the U.S. Army Corps of Engineers (USACE) has a portfolio of nearly 25,000 miles of levees under its jurisdiction, with an additional estimated 10,000 miles of levees under local or other ownership.[1] These levees have dramatically altered the landscape of river basins and the communities within them. A levee provides critical flood protection for economic development, agricultural lands, and municipalities. But it can also eliminate important aquatic habitat and the myriad of ecosystem services that nourish and protect these same interests. A levee may also redistribute the flood risk along a river corridor with implications for equity and environmental justice. Evolving public values, repeated levee failures, and increasing extreme weather events have driven the search for better ways to manage flood risk, to repair flood-damaged levees, and to meet environmental and ecosystem needs.

By realigning an existing levee or constructing a new levee located away from the active river channel, a levee setback addresses these goals. Increasing the distance between a levee and the river channel allows the river to reconnect to the historical floodplain, which provides valuable ecosystem services: flood mitigation and flood hazard reduction benefits as well as intrinsic ecosystem services, such as water filtration, groundwater recharge, habitat, and recreation. The floodplain adds a dynamic, green component of flood management to the static, gray infrastructure

[1] U.S. Army Corps of Engineers, "National Levee Database" (last visited Aug. 7, 2023), and American Society of Civil Engineers, *2017 Infrastructure Report Card: Levees*. The exact number and total mileage of levees ranges considerably. One recent study used algorithms to estimate that USACE's National Levee Database captures less than 21 percent of total levee length; that model detected potentially more than 110,000 miles of levees across the United States. R.L. Knox, R.R. Morrison, and E.E. Wohl, *Identification of Artificial Levees in the Contiguous United States*, 58 Water Resources Research e2021WR031308 (Apr. 2022).

that is the levee, and together they reduce flood risk and preserve environmental benefits and values.

Implementing hybrid gray-green infrastructure such as levee setbacks is one goal of "Engineering With Nature" (EWN), a vision with a growing community of practice within USACE. EWN is the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental, and social benefits to meet the water resources development needs of communities across the United States. This alignment is achieved by seeking solutions that are holistic, sustainable, science-based, cost-effective, socially responsive, and innovative. The Institute for Resilient Infrastructure Systems (IRIS) at the University of Georgia seeks to integrate natural and conventional infrastructure systems to strengthen long-term resilience to flooding, sea level rise, drought, and other natural weather and climate-change driven disruptions. Together with USACE, IRIS is a founding partner of the Network for Engineering with Nature (N-EWN), a collaborative group of interdisciplinary researchers, educators, and practitioners that work together to implement the principles of EWN.

Implementing a levee setback is one example of EWN that encompasses a broad range of disciplines: engineering, environmental science, social science, economics, and law and policy. Many hydrological and ecosystem benefits of intact rivers and floodplains are documented; less attention has been devoted to the legal and regulatory considerations for planning, funding, and implementing a levee setback. Because a levee setback is a major project with many components, preparing and planning in advance is critical. The goal of this paper is to help planning branches in federal agencies and local levee districts and others understand the authorities, funding programs, permitting and legal requirements, and incentives and obstacles to implementing a levee setback.

This primer first introduces the concept of a levee setback, in contrast with a standard levee. It then presents the foundation of regulatory and policy support for nature-based solutions, EWN principles, and levee setbacks. These policies include floodplain management guidelines established in various Executive Orders, as well as high-level USACE guidance and regulations. Next, the paper identifies the multiple federal agencies and their authorities, programs, and potential funding lines that apply to levee setbacks. These agencies include the USACE, the Federal Emergency Management Agency, USDA Natural Resources Conservation Service, the U.S. Department of Transportation (USDOT), and the U.S. Department of Housing and Urban Development (HUD). Finally, the paper discusses how the major federal legal and regulatory considerations – the Clean Water Act, National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act – apply to a levee setback.

What is a Levee Setback?

Managing inland flood risk from river systems has historically relied on levees, human-made earthen embankments that closely border the river channel. Levees are designed to control, contain, or divert floodwater downstream to protect adjacent farmland or urbanized areas from high water levels and velocities. Across the country, USACE has constructed most major, large-scale levee systems. While some systems are still owned and operated by the agency, USACE typically transfers ownership, maintenance, and operation responsibilities to a local levee district or municipality after construction is complete. Many privately-constructed levees also exist, although they tend to be smaller in size and scale.

Traditional levee design and siting were efficient and effective for the intended purpose: to maximize national economic development. The authority and mission of USACE to construct them was clear. Locating them close to the active river channel protected the area immediately behind the levee and minimized real estate and construction costs for acquiring the land beneath the levee footprint. This location also maximized the land area behind the levee that would be available for agriculture or other commercial land uses. Materials for the levee could often be sourced from nearby borrow pits.

On average, levees in the United States are more than fifty-years-old, past their design life and were designed in a time with less rigorous standards and fewer extreme weather events.[2] Over time, materials used in construction and the ground beneath the levee erode and weaken, contributing to levee failures. Levees also shift the flood risk by creating backwater at the levee and accelerating flows within the levee system, and historical levee design did not consider the destructive impact on floodplain ecosystems. In the past few decades, the repeated and costly failure of existing levees has motivated local communities, levee operators, and the USACE to consider alternatives, including levee setbacks.

A levee setback is the realignment of an existing levee or the construction of a new levee that is located away from the active river channel. A levee setback combines the structural element of flood protection (the levee) with a nonstructural element (floodwater storage on the floodplain).

[2] USACE, *Levee Owner's Manual for non-Federal Flood Control Works* (Mar. 2006). *See* Tony Krause, Kelly Baxter, David Crane, and Randall Behm, *Evaluation of Levee Setbacks as a Sustainable Solution Along the Mississippi River* (n.d.).

A levee setback reduces flood risk in a dynamic, adaptive, and long-term way *and* restores floodplain habitat, ecosystem services, and recreational opportunities. The ecosystem service benefits of an intact floodplain accrue dynamically. The historical floodplain absorbs and redirects floodwater, providing greater surface area over which the water can flow without becoming channelized or increasing in velocity. The floodplain also simply holds space for natural riverine processes to occur, such as seasonal flooding, habitat establishment, and groundwater replenishment. In the Pacific Northwest, for example, levee setbacks have helped reestablish spawning grounds for salmon and other species of migrating fish that have significant cultural value to Tribes.[3]

Despite these benefits, implementing a levee setback has specific challenges. The process of planning, acquiring funding and support, applying for permits, conducting reviews, and constructing the actual project is time-consuming and may leave a community vulnerable in the interim. There must be suitable land away from the active river channel for a levee setback. Transportation and energy infrastructure and existing structures in the floodplain area may have to be moved for the area to revert to floodplain. Depending on the size of the setback, cultivating community support takes time, and acquiring the land or easements for the levee setback may be costly. However, thoughtful and intentional planning in advance – namely identifying available federal authorities, funding lines, and permitting requirements – can help communities address these challenges.[4]

Levees & the National Wildlife Refuge System

The habitat restoration component of a levee setback would greatly benefit refuge sites within the National Wildlife Refuge (NWR) System because many are bordered in part by levees. The Steigerwald Lake NWR, located in Washington state, is the western gateway to the Columbia River Gorge National Scenic Area. In 1966, the USACE constructed a five-and-a-half mile levee along the southern border of the refuge. This levee separated Gibbons Creek, a small tributary, from the Columbia River. The creek historically fed Steigerwald Lake and its wetlands, which were habitat for salmon, lamprey, waterfowl, and other species. The levee divided the refuge wetlands from their source of water, significantly degrading the habitat quality and eliminating hundreds of acres of wetlands.

In 2022, the Steigerwald Reconnection Project was completed. A group of federal, state, and local agencies and non-profit organizations worked together to reestablish the stream channel for Gibbons Creek, to reduce flood risk and abatement

[3] *See* King County, Washington State, Riverbend Levee Setback and Floodplain Restoration; Puyallup and Chambers Watersheds Salmon Recovery Lead Entity, *Salmon Habitat Protection and Restoration Strategy for Puyallup and Chambers Watersheds* (June 2018).
[4] One example of a Congressional nudge toward planning and preparation is Section 8121 of the 2022 Water Resources Development Act, which calls for assessing levees for the potential to set them back. As of September 2023, it is unclear whether USACE has sought the funding for this program.

costs for local governments, and to restore 965 acres of fish and wildlife habitat. The $25 million project elevated a state highway and created two new setback levees to contain annual floodwaters from the Columbia River and to protect commercial and residential properties outside the project area.[5]

Regulatory and Policy Support for Nature-Based Solutions, EWN Principles, and Levee Setbacks

Historically, flood risk management projects have been designed to reduce the risk from floodwaters and facilitate national economic development, with little concern for the impact of gray infrastructure on the environment or adjacent ecosystems. Over time, public and institutional values have come to recognize the myriad benefits of a natural floodplain. This shift toward embracing environmental values is supported by Executive Branch policy and high level USACE policy, emphasizing the importance of nature-based solutions and embracing EWN principles. This section will provide an overview of the policies providing the most significant support for nature-based solutions in general and levee setbacks specifically.

Executive Orders

As head of the Executive Branch, the President issues Executive Orders that direct federal departments and agencies to follow certain policies, procedures, and directives. Since the 1970s, several Executive Orders have addressed the need for floodplain risk management, and in more they have embraced a nature-based solutions approach to risk management.

Executive Order 11988 (May 1977) is the cornerstone of Executive Branch flood risk management and is an example of modern recognition of the value of floodplains. The Order requires federal agencies to "restore and preserve the natural and beneficial values served by floodplains."[6] It also requires federal agencies to consider flood hazards and floodplain management when they are developing or planning programs, when making budget requests, and when developing any water or land-use plans.

[5] U.S. Fish & Wildlife Service, "Steigerwald Reconnection Project" (last visited September 14, 2023); Dana Bivens, *When the Levee Falls: Wetlands Restoration at Steigerwald Lake National Wildlife Refuge* (Sept. 10, 2021); Lower Columbia Estuary Partnership, *Steigerwald Reconnection Project* (n.d.).
[6] 42 Fed. Reg. 26951 (May 24, 1977).

Executive Order 13690 (January 2015) reinforces and amends EO 11988.[7] It established the Federal Flood Risk Management Standard (FFRMS), a flexible framework to increase resilience against flooding and to help preserve the natural values of floodplains. To prepare for and protect federal buildings and projects from flood hazards, the FFRMS requires agencies to choose from three approaches to determine the flood elevation and flood hazard area for project siting, design, and construction:

- Climate Informed Science Approach, using the best available and actionable data on current and future changes in flooding;
- Freeboard Value Approach, by adding two-feet to the base flood elevation for non-critical actions and three-feet for critical actions; or
- The area inundated in a 0.2-percent-annual-chance flood.

EO 13690 also amends EO 11988 by requiring federal agencies, when possible, to use "natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration." The specific use of terminology "nature-based approaches" demonstrates the flow of EWN principles into the regulatory stream.

Similarly, the section titled "Deploying Nature-based Solutions to Tackle Climate Change and Enhance Resilience" in **Executive Order 14072** (April 2022) specifically directs federal agencies to identify key opportunities to deploy nature-based solutions across the federal government.[8] To help in this effort, EO 14072 also directs the Office of Management and Budget to issue guidance on how to value ecosystem and environmental services and natural assets in federal regulatory decision-making.[9]

[7] 80 Fed. Reg. 6425 (Feb. 4, 2015). Executive Order 13690 has had a tumultuous existence: Signed by President Obama, President Trump later issued a subsequent Executive Order that nullified this and other Executive Orders issued by President Obama. At the start of his administration, President Biden reversed his predecessor's Executive Orders and thus reinstated many of the Executive Orders related to climate change that were issued by President Obama. Executive Order 14030 on Climate-Related Financial Risk, 86 Fed. Reg. 27967 (May 20, 2021).
[8] Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies, 87 Fed. Reg. 24851 (Apr. 22, 2022).
[9] In August 2023, the Office of Management and Budget released *Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis*, which is intended to clarify how federal agencies account for ecosystem services when preparing analyses of proposed rules.

USACE Policy, Guidance, and Engineering Regulations

One of the foundational USACE policy documents is the **Principles and Guidelines for Water and Land-Related Resources Implementation Studies** (P&G), which was issued in 1983.[10] The P&G govern how federal agencies evaluate and select major water projects, including projects related to storm resilience, wetland restoration, and flood prevention.[11] Congress directed the Secretary of the Army to update the guidance in 2007, and that update was finalized in December 2014 as the "**Principles, Requirements, and Guidelines for Water and Land-Related Resources Implementation Studies**" (PR&G).[12]

The update includes several changes that reflect EWN principles, such as:

- Maximizing economic, social, and environmental (ESE) public benefits, without hierarchy among them when evaluating alternatives for investment;
- Elevating the nonstructural plan when one exists and including the plan as an option regardless of whether the federal agency can implement it;
- Elevating ecosystem, sustainable economic development, floodplain, environmental justice, public safety, and watershed considerations in the alternatives; and
- Elevating the locally preferred plan when one exists.

As of Fall 2023, USACE is updating its procedures to apply the new PR&G to its work.

The USACE **Engineering Regulations** (ER) also provide support for both EWN principles and levee setbacks. These regulations establish policies and guidance for USACE projects and missions, provide definitions, and lay out requirements for various USACE programs. The ERs most directly related to levee setbacks and EWN principles include:

ER 1165-2-26 (March 1984), which describes how the USACE would implement Executive Order 11988 on floodplain management. This regulation directs USACE to restore and preserve the natural and beneficial values of the base floodplain and also to avoid development in the base floodplain unless it is the only practicable alternative.[13]

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[10] USACE, *Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies* (March 10, 1983).
[11] The federal agencies subject to the PR&G are: USACE, Tennessee Valley Authority, U.S. Department of the Interior, USDA, U.S. Department of Commerce, the Environmental Protection Agency, and FEMA.
[12] USACE, Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies, Final Interagency Guidelines (Dec. 2014).
[13] USACE, Water Resources Policies and Authorities, *Implementation of Executive Order 11988 on Flood Plain Management* (Mar. 30, 1984). *See generally* David L. Smith, Scott P. Miner, Charles H. Theiling, Randall Behm, and John M. Nestler, *Levee Setbacks: An Innovative, Cost-Effective, and Sustainable Solution for Improved Flood Risk Management*, USACE ERDC/EL SR-17-13 (June 2017).

ER 1100-2-8154 (May 2018), which applies to USACE management of water resources and operation of Civil Works projects to ensure environmental compliance and protection of air, water, and land resources. The regulation supports EWN principles by stating, "It is the policy of the Corps that the environment be given equal weight, not simply consideration, in all aspects of project management and the operational decision-making process." Going back decades, the environmental consequences of a project were a "consideration" to be taken into account after analyzing project alternatives for their National Economic Development (NED) benefits.[14] This regulation expands the focus – in policy, if not yet in practice – from NED to how the USACE can lead nationwide efforts to protect and enhance the quality of air, water, and land resources across the country.

Another important duo of Engineering Regulations are the **Environmental Operating Principles** (EOP), consisting of **ER 200-1-5** (October 2003) and the subsequent update in August 2012.[15] These regulations provide strong policy support and guidance for adopting nature-based solutions. The EOP recognizes that the USACE can "choose to design and act either in conflict with nature or in ways that take inspiration from nature and are modeled after it." The EOP describe seven environmental operating principles:

(1) Strive to achieve environmental sustainability;
(2) Recognize the interdependence of life and the physical environment;
(3) Seek balance and synergy among human development activities and natural systems;
(4) Continue to accept corporate responsibility and accountability under the law;
(5) Seek ways and means to access and mitigate cumulative impacts to the environment;
(6) Build and share an integrated scientific, economic, and social knowledge base; and
(7) Respect the views of those interested in USACE activities.

Collectively these Executive Orders and USACE Policy Directives demonstrate growing interest and commitment to focusing on how to manage flood risk with nature-based solutions and at the same time how to maintain and restore the environment.

[14] USACE, Engineering and Design, *Water Quality Management* (May 31, 2018).
[15] USACE, Environmental Quality, *Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers (USACE) Environmental Operating Principles (EOP) and Doctrine* (Oct. 30, 2003); USACE, Memorandum, *Reissuance of the U.S. Army Corps of Engineers (Corps) Environmental Operating Principles* (Aug. 2012).

Legal Authorities to Implement a Levee Setback

A levee setback project involves multiple federal agencies, as well as state, local, Tribal, and non-governmental entities. This section will discuss the various federal agencies and their authority, programs, and potential funding lines that relate to levee setbacks.

U.S. Army Corps of Engineers

As the primary federal action agency responsible for water resources development projects, the **U.S. Army Corps of Engineers** has the authority, funding, and expertise to plan and construct a levee setback.[16] As part of the agency's Civil Works program, USACE's role in a levee setback is three-fold: First, the Corps is involved in planning, design, and construction of levee systems; second, it oversees operations, maintenance, and inspection, either internally or through a local partner; and third, the Corps modifies, rehabilitates, or makes emergency repairs of failed or failing levees.

A setback project could originate in a handful of ways: Congress can authorize a feasibility study that results in a levee setback, either through a specific General Investigations Program study or through a Continuing Authority Program study; a local sponsor or other entity could propose a levee setback through Section 408 of the Rivers and Harbors Act of 1899; and a levee setback could be implemented as part of USACE's emergency response authority.

Water Resources Development Acts

The **Water Resources Development Act** (WRDA) is a direct way to authorize the USACE to initiate a study or other effort to consider a levee setback. Every two years, Congress passes a WRDA to authorize USACE water resources studies, projects, and programs and to establish policies such as cost-share requirements for these activities. To initiate a project, a local sponsor first requests help from the USACE district office and congressional representative to include the project study in an upcoming WRDA. Congress must authorize *and* appropriate funding to study the water resources problem, after which two project phases occur before construction: a feasibility study and preconstruction engineering and design.

The feasibility phase identifies the water resources problem and opportunities, develops alternative plans, includes various environmental reviews, and ultimately presents a recommended project. After USACE Headquarters reviews the final report, the Assistant Secretary of the Army for Civil Works will transmit the report to

[16] *See* Nicole T. Carter & Eva Lipiec, *Flood Risk Reduction from Natural and Nature-Based Features: Army Corps of Engineers Authorities*, CRS R46328 (April 27, 2020).

Congress to consider authorizing the construction of the recommended project in the next WRDA.

During the preconstruction engineering and design (PED) phase, the parties finish any additional planning studies, as well as the detailed technical studies and design required to begin constructing the project. The sponsor and USACE develop a Project Partnership Agreement (PPA), which outlines each entity's responsibilities for construction, operation and maintenance requirements after construction is finished. The PPA is executed after Congress authorizes construction of the project.

Importantly, WRDAs only *authorize* projects and programs; Congress passes separate legislation to *appropriate funds* for them. Funding for WRDA activities typically occurs through the annual Energy and Water Development Appropriations Act but also may occur in supplemental appropriations acts. The timeline for a water resources development project typically lasts for more than a few years for authorization and funding. As of March 2023, there is a $100 billion backlog of construction projects, as well as many studies and operations and maintenance activities, that have been authorized but not funded.[17]

Continuing Authorities Program

Congress has also granted USACE nine standing authorities for smaller water resources projects that can be studied, designed, and constructed *without* individual congressional authorization and funding. The **Continuing Authorities Program** (CAP) limits the amount of federal spending on a project but allows for expedited project development and approval. As a result, CAP projects tend to be smaller scale and timely projects that address simpler water resources development problems.[18]

A CAP project also consists of two phases: a feasibility phase and a design and implementation (D&I) phase. To begin a CAP study, a local sponsor contacts the USACE District to request an investigation of a water resource problem and to assess the problem and whether it meets a CAP authority. If so, USACE and the local sponsor will develop a Project Management Plan (PMP) for a detailed feasibility study, after which the feasibility study may begin. After the feasibility study, the D&I phase begins, where the parties negotiate a Project Partnership Agreement, detailed plans and specifications are finalized, and the project is constructed. The sponsor is required to provide any necessary real estate for the project.

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[17] Nicole T. Carter and Anna E. Normand, *Army Corps of Engineers: Water Resource Authorization and Project Delivery Processes*, CRS R45185 (April 19, 2019); *Water Resources Development Acts: Primer*, CRS IFI 1322 (Mar. 14, 2023).

[18] 33 U.S.C.A. § 400; USACE, "Continuing Authorities Program" (last updated May 23, 2023) (last visited Aug. 8, 2023); USACE, *Planning Guidance Notebook*, "Continuing Authorities Program," Appendix F, ER 1105-2-100 (Apr. 22, 2000).

The table below lists the CAPs most relevant to a levee setback.

CAP Authority	Project Purpose	Cost-share Provision (Federal/ Non-federal)	Federal Cap for Individual Projects	Total Funding Available
Section 204 Beneficial Use of Dredged Material[19]	To restore, protect, or create aquatic and wetland habitats related to dredging for construction maintenance dredging of a federal navigation project	100/0 for base disposal plan (BDP) 65/35 for costs in excess of BDP	$10 million	$62.5 million
Section 205 Flood Risk Management[20]	To implement structural or non-structural measures that reduce flood damages	65/35	$10 million	$68.5 million
Section 206 Aquatic Ecosystem Restoration[21]	To develop aquatic ecosystem restoration and protection projects that improve the environmental quality, are in the public interest, and are cost effective	65/35	$10 million	$62.5 million
Section 1135 Project Modifications for Environmental Improvement[22]	To improve the quality of the environment by modifying USACE-constructed structures or to restore the environment where a USACE water resources project has contributed to degrading the environment; projects under this CAP must be consistent with the authorized project purpose	75/25	$10 million	$50 million

A CAP Setback: Jones Levee, Washington

One example of a CAP-funded study of levee setbacks is the Jones Levee Feasibility Study for the city of Orting, outside the Seattle-Tacoma metropolitan area in Washington.[23] In this case, the Jones Levee is the connection between the Ford and Wolfe (Calistoga) setback levees, and this project aims to setback the Jones Levee so that together the three levees reduce the flood risk to Orting. Between 1990 and 2020, the basin for the Puyallup and Carbon Rivers has had ten major flood events, and flood risk is high due to development in the floodplain, sediment deposition, and significant potential for channel migration. Setting back the Jones Levee will benefit salmon habitat and offset the effects of sediment deposition.

Modifications to the Jones Levee were originally part of the Pullayup River General Investigation Study, conducted from 2009 to 2018, as a partnership between USACE's Seattle District and Pierce County. The initial recommendation was to raise Jones Levee, which was met with "significant public comments and concerns" about the

[19] 33 USCA § 2326; WRDA 1992, Section 204.
[20] 33 U.S.C.A. § 701s.
[21] 33 U.S.C.A. § 2330; 33 U.S.C.A. § 2330c; WRDA 1996, Section 206.
[22] 33 U.S.C.A. § 2309a; WRDA 1986, Section 1135.
[23] USACE, Seattle District, "Jones Levee Feasibilty Study" (last visited Aug. 8, 2023); Pierce County, Washington State, "Jones Levee Feasibility Study" (last visited August 8, 2023).

environmental impact of modifying the levee. Other comments supported a setback levee option. Ultimately, the Study was canceled due to economic infeasibility, at which point a CAP Section 205 study was initiated to further investigate smaller-scale flood risk management projects for Jones Levee. In the draft Integrated Feasibility Report/Environmental Assessment, the Levee Setback with Partial Removal of Existing Levee is both the Locally Preferred Plan (LPP) and the Tentatively Selected Plan (TSP). The estimated total project cost is approximately $21.2 million, of which the federal share would be $10 million. If selected, construction of the levee setback would start in either 2024 or 2025.

Section 408 Alterations to USACE Civil Works Projects

Section 408 of the Rivers and Harbors Act of 1899 is another tool for a private or public entity to propose and implement a levee setback, independent of a post-natural disaster emergency or specific congressional authorization.[24] Under section 408, it is illegal to alter, move, or otherwise impair the usefulness of any federal flood control project. However, the Secretary of the Army or local USACE district may grant permission to alter or permanently occupy a public work when the occupation or use "will not be injurious to the public interest and will not impair the usefulness of such work."[25] A local sponsor could submit a Section 408 request to replace a USACE-constructed levee and implement a levee setback to provide equivalent or improved flood risk management along with the other benefits of reconnecting a river and its floodplain.

Engineering Circular 1165-2-220 establishes the agency's policies and procedures for reviewing Section 408 applications.[26] An applicant must submit a formal request for approval and perform the work independently and without cost-share from USACE.[27] Emergency alterations or emergency activities for federal public works, performed by USACE under PL 84-99 (discussed below), do not require Section 408 approval.[28] Other emergency alterations that are not implemented under PL 84-99 and that are undertaken by others may still require Section 408 approval.

For example, in 2021 Clallam County, California, requested Section 408 approval for a levee setback along the Lower Dungeness River. The project would remove 4,718-linear-feet of a levee that USACE constructed in 1963. The setback levee would

[24] 33 U.S.C. § 408. A Section 408 request to alter a USACE Civil Works project could come from a private, public, tribal, or other federal entity. USACE EC 1165-2-220 (Sept. 10, 2018).
[25] 33 U.S.C. § 408(a).
[26] USACE, Water Resource Policies and Authorities, *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408* (Sept. 10, 2018).
[27] Nicole T. Carter & Eva Lipiec, *Flood Risk Reduction from Natural and Nature-Based Features: Army Corps of Engineers Authorities*, CRS R46328 (April 27, 2020).
[28] USACE EC 1165-2-220 (Sept. 10, 2018).

be 5,190-feet-long and reconnect 60 acres of historical floodplains for fish habitat and river floodplain functions.[29]

Public Law 84-99

Public Law 84-99 (PL 84-99) allows USACE, at the request of a non-federal sponsor, to undertake a levee setback as a non-structural alternative.[30] Passed in 1941, the law established an emergency fund to respond to any natural disaster, to conduct flood fighting and rescue operations, and to repair or restore any flood control work threatened or destroyed by flood. It has been amended several, and today the emergency fund may be used for responses including "strengthening, raising, extending, realigning, or other modifications." Alternatively, a non-federal sponsor may request that USACE implement a nonstructural alternative, defined as "efforts to restore or protect natural resources, [including] streams, rivers, floodplains, wetlands, or coasts, if those efforts will reduce flood risk."[31] The law is implemented through the Corps' Rehabilitation and Inspection Program (RIP) and governed by the policies established in **ER 500-1-1**.[32]

To be eligible for PL 84-99 funds, a non-federal levee owner or operator must comply with maintenance and upkeep responsibilities for the levee and must identify all items of deferred or inadequate maintenance and upkeep and pay for the costs of these items and repairs related to these costs.[33] The Corps' RIP provides ongoing oversight and support to levee owners and operators to ensure that they establish and maintain eligibility so that they can tap into PL 84-99 emergency funds after a disaster.[34]

A levee setback is typically considered a nonstructural alternative project (NSAP) in the PL 84-99 framework.[35] The USACE will pay for NSAP costs up to the lowest cost of either the federal share of rehabilitation construction costs or the federal share of benefits from a structural rehabilitation; however this limit may be waived when "compelling reasons exist."[36] The regulations also specify allowable federal spending for NSAPs, including reimbursement for acquiring land or interests in land,

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[29] USACE, Seattle District, Public Notice, *Request for Permission to Alter a U.S. Army Corps of Engineers Project Under 33 USC 408 (Section 408) & Notice of Intent to Prepare an Environmental Assessment*, Reference No. 408-NWS-2021-0001 (Feb. 12, 2021).
[30] 33 U.S.C. 701n. How a setback levee is classified – as a non-structural alternative or a structural measure – is the subject of much discussion because different requirements, funding, and laws apply to each type.
[31] 33 C.F.R. § 203.50(c).
[32] USACE, Emergency Employment of Army and Other Resources, *Civil Emergency Management Program*, ER 500-1-1 (Sept. 30, 2001).
[33] 33 U.S.C. § 701n(C)(2)(a).
[34] Engineering Regulation 500-1-1 establishes the USACE's policies for the Civil Emergency Management Program under PL 84-99 and other disaster response authorities. USACE, Emergency Employment of Army and Other Resources, *Civil Emergency Management Program*, ER 500-1-1 (Sept. 30, 2001).
[35] 33 C.F.R. § 203.
[36] 33 C.F.R. § 203.50(c).

demolishing and removing structures and debris, directing water flows affecting the nonstructural project area, habitat restoration, removing or razing the existing levee, and administrative costs related to the above activities.[37]

One potential challenge in using PL 84-99 to implement a levee setback is the additional analysis and approval required to *increase* the level of protection. As written, PL 84-99 authorizes repairs and rehabilitation to the originally designed level of protection or to meet the authorized purpose of the structure or project. This constraint essentially fixes the level of protection to the moment of design, which likely occurred decades ago or without accounting for climate-driven changes to extreme weather events.[38] However, if the non-federal sponsor requests, USACE may increase the level of protection if the improvements are "in the public interest" and the non-federal sponsor pays the difference between the cost of achieving the original design level and the cost of achieving the higher level of protection.[39]

Missouri River Levee Setbacks under PL 84-99

Along the Lower Missouri River, the USACE Omaha District has worked with local communities to implement three large-scale levee setbacks under PL 84-99 authority. These setback levees were implemented as structural repairs – levee realignments – that were the "least cost, most technically feasible" alternative with incidental hydraulic and environmental benefits; they were not implemented as NSAPs.[40]

In 2019, catastrophic flooding caused more than 50 levee breaches along the Missouri River, damaging more than 350 miles of levees. Around L-536 in Atchison County, Missouri, the floodwaters submerged 56,000 acres of land and a large number of homes, agricultural buildings, and commercial businesses and destroyed or seriously damaged transportation infrastructure. A delay in conducting the damage assessment to L-536 gave the local levee district time to consult with USACE-Omaha District and impacted owners, and ultimately the most cost effective and technically viable alternative was a levee realignment – functionally and in practice, a levee setback.

[37] 33 C.F.R. § 203.50(g).
[38] In practice, USACE incorporates modern design and safety standards into repairs. *See* USACE, "Chapter 5 Rehabilitation and Inspection Program," ER 500-1-1 (Sept. 30, 2001) (Betterments do not include improvements that are a result of state-of-the-art technology and in accordance with sound engineering principles).
[39] Factors to determine whether an increased level of protection is in the public interest include whether emergency funds have been used previously for the same structure, whether there is an opportunity to significantly decrease the risk of loss of life and property damage, or whether there is an opportunity to decrease the total life cycle rehabilitation costs for the structure. 33 U.S.C. § 701(n)(a). Project alternatives that are "least cost, most technically feasible" that provide increased protection may be selected. 33 CFR § 203.46(d) ("No flood control work will be rehabilitated unless the work required satisfies Corps criteria for a favorable benefit-to-cost ratio…").
[40] Alternative plans must be "developed and compared on a technical and economic basis." USACE, "Chapter 5 Rehabilitation and Inspection Program," ER 500-1-1 (Sept. 30, 2001). The Nature Conservancy, *Large-Scale Levee Setback Playbook* (August 2021).

As a setback levee, L-536 protects critical transportation infrastructure and buildings and farmland in the region and has the potential to reduce the costs of operation and maintenance activities and future flood response actions. For example, the setback levee was built on higher ground and on more suitable foundation soils, and the reconnected land between the river and the levee allows increased conveyance and reduced velocities. Moreover, the setback levee provides myriad secondary environmental benefits: more than 400 acres of new wetlands and more than 1,000 acres of reconnected floodplain; expanded and new habitat for native fish and aquatic wildlife; and water quality and groundwater recharge benefits.[41]

Federal Funding and Incentives for Voluntary Floodplain Property Acquisition

One key component of implementing a levee setback is to ensure the historical floodplain no longer contains homes or other structures that have been built landward of the original levee. The non-federal, local sponsor is largely responsible for acquiring the land, easements, rights-of-way, relocation, and disposal areas (LERRDs), which is a particularly challenging aspect of implementing a levee setback. Funding may come from federal, state, local, and private grants. The buyout approach tends to be voluntary, for reasons of political and public acceptance, as well as the potential for lengthy and costly lawsuits that come with non-voluntary buyouts.

As a voluntary buyout, a homeowner agrees to sell flood-prone property to the state, local government, or sometimes nonprofit organization and to relocate to an area with lower flood risk. As a concept, the benefits are clear: People, homes, and other structures are permanently removed from areas with high flood risk, potentially saving billions of dollars in disaster response and recovery and saving individuals from catastrophic losses.

However, voluntary buyouts in practice are often politically fraught and publicly unpopular. Local officials may resist buyouts because fewer properties means a smaller tax base and because buyouts may disrupt the sense of community. Homeowners themselves may be unwilling to move for the offered price, and buyout funding may expire before an agreement is reached. Holdouts may also decrease the effectiveness – and even the viability – of a project. Buyouts can also generate or perpetuate inequities: Programs may not reach the most at-risk, marginalized communities or, conversely, target those communities.[42]

[41] The Nature Conservancy, *Large-Scale Levee Setback Playbook* (August 2021).
[42] Jake Bittle, "Chapter 2: After the Flood – Managed Retreat and its Victims," in *The Great Displacement* (Simon & Schuster, 2023). In a floodplain management context, USACE clearly understands the benefits of buyouts and their importance: In 2015, the agency issued a Planning Bulletin that requires non-federal

Below, this primer identifies federal entities that incentivize or can contribute funding to levee setback buyouts or activities, including the Federal Emergency Management Agency (FEMA), the USDA Natural Resources Conservation Service (NRCS), the U.S. Department of Transportation (USDOT), and the U.S. Department of Housing and Urban Development (HUD).

Federal Emergency Management Agency

The **Federal Emergency Management Agency** (**FEMA**), housed within the U.S. Department of Homeland Security, oversees recovery from flooding-related disasters. Although FEMA is known as a disaster-response coordinator, the agency spends and distributes substantial amounts of money on pre-disaster risk-mitigation activities that could be used for levee setbacks. Two FEMA programs in particular are worth describing in more detail – the **Community Rating System (CRS)** of the National Flood Insurance Program (NFIP), through which FEMA provides both an incentive and funding for flood-prone communities; and the Hazard Mitigation Assistance grant programs, through which FEMA may also provide funding for voluntary relocation of structures in the historical floodplain, as well as planning.

With FEMA grants, state and local governments undertake a range of activities, from analyzing hazards and risk to planning, designing, and constructing risk-reducing infrastructure, including levees. FEMA itself does not design, build, certify, or maintain levees.[43]

project sponsors to include the ability to use eminent domain as a condition of an implementable, nonstructural flood risk management project. USACE, Planning Bulletin, *Clarification of Existing Policy for USACE Participation in Nonstructural Flood Risk Management and Coastal Storm Damage Reduction Measures*, PB 2016-01 (Dec. 22, 2015). Using eminent domain is politically unpopular and time-consuming; many communities are loath to exercise this power. This bulletin recognizes this dilemma and the potential need for mandatory buyouts as climate-driven weather events increase. *See Christopher Flavelle, Trump Administration Presses Cities to Evict Homeowners from Flood Zones, N.Y. Times (March 11, 2020).*

[43] Levee certification and levee accreditation are two different processes via USACE and FEMA, respectively. A levee owner or operator must obtain levee certification from USACE, after which the levee becomes eligible for accreditation by FEMA. To obtain certification, a registered Professional Engineer must sign and seal documentation that the levee meets regulatory requirements in 44 C.F.R. § 65.10, the data are accurate to the best of the certifier's knowledge, and the analyses are performed correctly and in accordance with sound engineering practices. The requirements for accreditation are detailed in 44 C.F.R 65.10; an accredited levee system is marked on FEMA's Flood Risk Insurance Map (FIRM) as reducing the base flood hazard. In general, FEMA considers areas landward of an accredited levee as moderate-hazard areas where flood insurance is not required. FEMA, *Levee Certification vs. Accreditation* (Oct. 2012); FEMA, *Meeting the Criteria for Accrediting Levee Systems on Flood Insurance Rate Maps: How-to Guide for Floodplain Managers and Engineers* (n.d.).

The National Flood Insurance Program & the Community Rating System

The National Flood Insurance Program (NFIP) ensures that federal flood insurance is available to homeowners, renters, and business owners in communities prone to flooding. The National Flood Insurance Act of 1968 established NFIP to fill the gap in insurance availability after years of frequent and widespread flooding along the Mississippi River led private insurers to withdraw from the market in the 1960s. To participate in NFIP, communities with high flood risk must pass and enforce floodplain management ordinances. The program requires all new or substantially improved residential and commercial structures to be constructed at or above the elevation of the one-percent-annual-chance flood, including in areas landward of a levee. Although participating in NFIP is voluntary, Congress requires all federally-backed mortgages located in a Special Flood Hazard Area (SFHA)[44] to have flood insurance.[45]

NFIP premiums are based, in part, on the **Community Rating System** (CRS). The CRS is a voluntary incentive program that encourages communities to take measures that exceed minimum NFIP requirements. By implementing certain activities, a community receives points that translate into a discount on flood insurance rates from 5 percent for 500 points to 45 percent for 4,500 points or more. Federal cost-sharing – generally 75 percent federal and 25 percent nonfederal – may also be available for implementing certain activities.[46] The goals of CRS activities are:

(1) To reduce flood damage to insurable property by reducing exposure to flood hazards;
(2) To strengthen and support the insurance aspects of NFIP by collecting data to ensure sound actuarial ratings and increase community outreach; and
(3) To encourage a comprehensive approach to floodplain management by preserving and restoring "the natural functions and resources of floodplains and coastal areas."[47]

For a levee setback, the most relevant activities are Activity 422.c Natural Functions Open Space (NFOS), detailed in the table below, and Activity 520 Acquisition and

[44] The Special Flood Hazard Area is defined as the area inundated in a one-percent-annual-chance flood, known colloquially as the "100-year floodplain."
[45] 42 U.S.C. § 4012a.
[46] The cost-share provisions are different for certain areas: For economically disadvantaged communities, the cost-share shifts to 90 percent federal and 10 percent non-federal; for insular areas such as American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands, the cost-share is waived if the entire award is less than $200,000.
[47] FEMA, Fact Sheet, NFIP and Levees: An Overview (May 2021).

Relocation.[48] FEMA recognizes that open space can be "more effective at controlling or attenuating flooding and is less expensive over the long run than traditional manmade flood control structures." FEMA also notes that local governments are interested in open spaces because of the additional benefits – recreational opportunities and support for local economies – that floodplains provide, especially between infrequent floods.

Activity	Goals or Actions	Points
NFOS1	Credit given for open space in undeveloped, natural state or that have been restored to a natural state, such as • Areas that have been restored to a state "approximating their natural, predevelopment conditions" • Areas that have been developed but otherwise restored to their natural, predevelopment conditions by restoration work including *"moving levees back to allow channel meandering"* • Areas designated as worth of preservation by a federal, state, or nationally recognized private program Pre-requisite for receiving other NFOS points	190
NFOS2	NFOS1, and Designate parcels in a plan to protect the natural functions of that parcel; plan must meet the criteria for a natural floodplains function plan (NFP)	+ 50
NFOS3	NFOS1, and Designate parcels as critical habitat for threatened or endangered species, or if the specie is present, or listed on a state "species of concern" list	+ 50
NFOS4	NFOS1, and Designated open space corridor or connected network of wetlands, woodlands, wildlife habitat, wilderness, or other areas that support native species, maintain natural ecological processes, and sustain air and water resources	+ 60

Activity 520 Relocation and Acquisition encourages communities to acquire, relocate, or otherwise clear out existing buildings from the flood hazard area. The maximum credit for this activity is 2,250 points; different building types receive different points. The relocated buildings must meet all of several criteria, including among others that the building must have been insurable and acquired or relocated, out of the regulatory

[48] FEMA, National Flood Insurance Program Community Rating System, *Coordinator's Manual*, FIA-15/2017, OMB No. 1660-0022. Activity 620 (Levees) relates more to the planning, communication, and public-safety aspects of levees. The goal of this activity is to reduce the chance of levee failure and to be prepared for an event that could lead to levee failure. Actions under Activity 620 include maintaining the levee, having a levee failure threat recognition system and levee failure warning, developing levee failure responses, and planning for critical facilities that would be affected by a levee failure.

floodplain or repetitive loss area, after the date of the community's initial FIRM; and the building site must be maintained as open space.[49]

For example, King County and Pierce County in the state of Washington have received CRS credits for levee setback projects that removed repetitively flooded buildings from the floodplain and reconnected floodplain as part of different levee setback projects. Both counties receive a 40 percent discount on NFIP premiums as a result of their collective CRS activities.[50]

Hazard Mitigation Assistance Grants

Through its Hazard Mitigation Assistance Grant programs, FEMA supports and encourages communities to plan for and implement risk-reducing activities, including nature-based solutions.[51] Mitigation with nature-based solutions offers multiple benefits, frequently at a lower cost than more traditional infrastructure FEMA operates three grants that relate to implementing levee setbacks.[52] One clear, and important, potential use of these funding programs for implementing levee setbacks is acquiring the LERRDs that are in the historical floodplain.

The **Building Resilient Infrastructure and Communities** (BRIC) program funds "effective and innovative activities" that reduce risk, increase resilience, and inspire communities to adopt mitigation policies. Established in 2020, BRIC is a pre-disaster, competitive funding program. The budget is determined based on congressional funding for disaster response under the Stafford Act. Under that law, Congress appropriates money into the Disaster Relief Fund, and the President may set aside six percent of that fund for BRIC grants. In federal fiscal year 2022, FEMA made nearly $2.3 billion in grant funding available through BRIC.[53] The FY2022 Notice of Funding Opportunities prioritized projects incorporating nature-based solutions, enhancing climate resilience and adaptation, and encouraging hazard mitigation projects that meet multiple program objectives.[54]

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[49] FEMA, National Flood Insurance Program Community Rating System, *Coordinator's Manual*, FIA-15/2017, OMB No. 1660-0022.
[50] FEMA, NFIP CRS, *CRS Credit for Habitat Protection* (2023). FEMA, *CRS Eligible Communities* (April 2023).
[51] FEMA, *Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities* (June 2021).
[52] A fourth funding program is the Post-Fire Assistance grant, which is not relevant to a levee setback and will not be discussed here.
[53] In FY 2020 and 2021, allocations for the BRIC program was based largely on disaster relief following California wildfires and other natural disasters and totaled $500 million and $1 billion, respectively. During the COVID-19 pandemic, Congress appropriated tens of billions of dollars in relief through the Stafford Act, and the funds available for BRIC grants grew to $2.295 billion in FY 2022. Diane P. Horn, *FEMA Pre-Disaster Mitigation: The Building Resilient Infrastructure and Communities (BRIC) Program*, Cong. Research Service IN11515 (Jan. 19, 2023).
[54] U.S. Dep't of Homeland Security, *Notice of Funding Opportunity Fiscal Year 2022, Building Resilient Infrastructure and Communities*.

The **Hazard Mitigation Grant Program** funds activities that help communities rebuild in a way that reduces or mitigates future disaster losses. In the context of a levee setback, eligible activities could include planning for a levee setback, acquiring hazard-prone businesses and homes, and building permanent barriers to prevent floodwater from entering buildings. Funds are available after a presidentially declared major disaster. The amount of funding varies, with additional funding available for Tribal governments with enhanced mitigation plans. An applicant (typically a state or local emergency management agency) is required to have a hazard mitigation plan and to participate in NFIP, and the proposed project must be located in a SFHA.

The **Flood Mitigation Assistance** program makes federal funds available to states, U.S. territories, federally-recognized Tribal governments, and local governments to reduce or eliminate the risk of *repetitive* flood damage to buildings and structures insured by NFIP. The program is a pre-disaster, competitive funding program from annual appropriations. It requires applicants to have a hazard mitigation plan and participate in NFIP. In the FY 2022 Notice of Funding Opportunities, the program prioritized funds for planning, localized flood risk reduction projects, and individual flood mitigation projects that would reduce NFIP flood claim payments.

Buyout Programs: Charlotte-Mecklenburg Flood Mitigation and the Foster Floodplain

In the Charlotte-Mecklenburg Flood Mitigation Buyout Program in North Carolina, Charlotte-Mecklenburg Storm Water Services (CMSS) has used local funding and $29 million pre-disaster mitigation funds (now BRIC) and Hazard Mitigation Grant Program funds to purchase and remove buildings and structures in the floodplain. Since 1999, CMSS has invested more than $67 million to acquire properties in the floodplain, avoiding an estimated $25 million in property damages and losses and preventing an estimated $300 million in future losses.[55] These buyouts have resulted in a restored floodplain, recreational opportunities, and open space assets for the community.

Similarly, the Foster Floodplain Natural Area project along Johnson Creek in Portland, Oregon, has transformed a flood-prone neighborhood into a 63-acre natural area.[56] Using $2.7 million in pre-disaster mitigation funds (now BRIC) and non-federal funds, the project moved 60 families out of the 100-year floodplain and removed 100 of the most vulnerable structures. The restored natural area now provides flood water storage, restored habitat for three ESA-listed salmon and steelhead populations, and a park for a historically underserved community.

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[55] Katie Spidalieri, Isabelle Smith, and Jessica Grannis, Managing Retreat from Rising Seas, "Charlotte-Mecklenburg County, North Carolina: Floodplain Buyout Program," Georgetown Climate Center (2020).
[56] FEMA, Hazard Mitigation Assistance, *Mitigation Action Portfolio* (Aug. 2020).

Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) Act

Another potential source of funding for voluntary property buyouts is the Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) Act, passed by Congress in 2021.[57] The Act establishes a revolving loan fund for states and approved tribes to make loans to local governments for projects in their communities that decrease the risk of loss of life and property, the cost of insurance, and federal disaster payments.[58]

In the context of a levee setback, funds may be used for projects or activities that mitigate the impacts of flooding, "including the construction, repair, or replacement of a non-Federal levee or other flood control structure"; for zoning and land use planning changes that include reconnecting floodplains; and for studying and creating agricultural risk compensation districts "where there is a desire to remove or set-back levees protecting highly developed agricultural land to mitigate for flooding."[59]

One logistical challenge of voluntary property buyouts is aligning funding with property owners' interest in selling within a set time frame: A specific grant may end before a local sponsor and a property owner agree to a buyout. A RLF is a pot of money that is available without deadlines, eliminating that pressure from the buyout process.

Presidential Disaster Declaration

For many types of federal disaster assistance, the President of the United States must first officially declare that a major disaster exists. The governor of an affected state, which includes the District of Columbia, U.S. territories, and federally recognized tribes, requests such a declaration after conducting a Preliminary Damage Assessment (PDA), in conjunction with the FEMA regional office. The PDA considers the extent of the disaster, the impact on individuals and public facilities, and the types of federal assistance that may be needed; the requesting entity must determine that the damage exceeds their resources. A major disaster declaration unlocks individual assistance, public assistance, and Hazard Mitigation Assistance from FEMA.[60]

[57] Diane P. Horn, *Flood Buyouts: Federal Funding for Property Acquisition*, CRS IN11911 (Aug. 23, 2023).
[58] Pub. L. 116-284, 134 Stat. 4869, 116th Congress (Jan. 1, 2021).
[59] 42 U.S.C. § 5135(f)(3)(D).
[60] 42 U.S.C. § 5191; *see also* FEMA, "How a Disaster Gets Declared"(Apr. 25, 2023) (last visited Aug. 9, 2023).

USDA Natural Resources Conservation Service: Conservation Easements

The USDA Natural Resources Conservation Service (NRCS) also operates a number of funding programs that could support levee setbacks, especially with voluntary property buyouts and conservation easements. The primary purpose of the NRCS programs is to protect and conserve working lands such as farms and ranches, which aligns with a levee setback project in rural areas. The NRCS programs help restore ecosystem functions by implementing conservation practices, temporarily retiring lands, or acquiring easements to land. NRCS also operates emergency assistance programs that could help with implementing levee setbacks.

The **Emergency Watershed Protection Program** (EWP) helps landowners protect lives and property from flooding and other natural disasters that impair a watershed. EWP is designed for emergency recovery work but does not require an official disaster declaration. Importantly for levee setbacks, funds can be used for repairing levees and structures, repairing certain conservation practices, and voluntary EWP buyouts.[61] The last option is useful when structural projects to reduce flood exposure are not effective or beneficial and returning the land to its natural state would be a sustainable choice for the community.

Program	Eligible Lands	Costs & Payments	Retained Rights
Floodplain Easements[62]	Privately owned or owned by the state or local government, and Lands damaged by flooding during a specific natural disaster for which Congress allocates funding; Damaged twice in the past ten years or once in the past 12 months; Other floodplain lands that would contribute to floodplain restoration; or Lands adversely impacted as a result of a dam breach	NCRS may provide up to 100 percent of cost of purchase for easement and restoration of the floodplain Landowner receives the lowest of three values: (1) The fair market value based on an individual appraisal or an areawide market analysis for agricultural land (2) A geographic rate established by NCRS state conservationist (3) An offer made by the landowner	Quiet enjoyment Control public access Undeveloped recreational use

[61] The terminology is confusing: In practice, NCRS contributes to a perpetual conservation easement that covers the majority of the cost of the land. A conservation agency or other entity can purchase the residual fee title. For example, EWP "buyouts" were leveraged as part of real estate acquisition strategies to compensate landowners whose land has been converted to the riverward floodplain following a levee setback for L-536. The Nature Conservancy and the State of Missouri then partnered to purchase the residual title in-fee. The Nature Conservancy, *Large-Scale Levee Setback Playbook* (August 2021).
[62] USDA, *Emergency Watershed Protection Program – Floodplain Easement Option (EWPP – FPE)* (Feb. 2022).

EWP "Buyout"	Agricultural lands, lands with or without structures, and residential properties, if the buyout (1) Provides protection from additional flooding or soil erosion; (2) Reduces threats to life or property; (3) Restores the hydraulic capacity of the natural environment to the maximum extent practical; and (4) Is economically and environmentally defensible and technically sound	NRCS may provide up to 75 percent of the costs of - Fair market value based on appraisal of property - Relocation costs - Site restoration costs	

Wetland Reserve Easements, part of NRCS's Agricultural Conservation Easement Program, seeks to provide habitat for migratory waterfowl and other wildlife that depends on wetlands, to restore the ecosystem services of wetlands, and to facilitate education, scientific, and limited recreational activities. To be eligible, an individual must have privately held land and meet certain income limitations or must be compliant with certain provisions of the Food Security Act of 1985. The lands must be farmed or converted wetlands that were previously degraded because of agricultural uses and that can be cost-effectively restored to wetlands. NCRS prioritizes land based on its potential for protecting and enhancing habitat for migratory birds and wildlife.

With a WRE, an eligible landowner and the NRCS make a purchase agreement that includes the right for the NCRS to develop and implement a Wetland Reserve Plan of Operations. The purchase agreement can range from a permanent easement to term easements, as well as 30-year contracts for certain lands owned by Tribal communities. The NCRS pays up to 100 percent of the easement value and 100 percent of the restoration costs, depending on the type and length of the easement. Through the Wetland Reserve Enhancement Partnership, a local group may partner with NCRS to purchase a WRE and to restore the wetland.

Another potential source of funding is the **Watershed and Flood Prevention Operations (WFPO) Program**, where the NRCS provides technical and financial assistance to states, local governments, and Tribes to help plan and implement authorized watershed projects that prevent flooding and protect the watershed. The projects must have public sponsorship and be less than 250,000 acres, and the agricultural benefits must be more than 20 percent of the total benefits.

USDOT Federal Highway Administration and Transportation Corridors

The U.S. Department of Transportation (USDOT) is exploring ways to improve transportation resilience and to reduce risk to climate change-driven hazards. Damage to transportation infrastructure amounts to millions of dollars every year: For example, in August 2022 the U.S. Department of Transportation announced $512 million in its Emergency Relief Program for repairs to roads and bridges damaged by natural disasters including storms and floods in recent years.[63]

Setting back levees could reduce the flood hazard risk to transportation infrastructure on the landward side of the levee. However, a levee setback may also require the complicated task of moving roadways and highways or elevating bridges. Congress has recently authorized and funded the USDOT to examine ways to improve climate resiliency and, although not directly supporting levee setbacks, to use nature-based solutions to achieve this goal.

In the Bipartisan Infrastructure Law, also known as Infrastructure Investment and Jobs Act of 2021 (IIJA), Congress directed USDOT to examine transportation resiliency in programs such as the National Highway Performance Program, the Surface Transportation Reauthorization Act, the Surface Transportation Block Grant Program, and in Emergency Relief Projects.

The **National Highway Performance Program** (NHPP) is focused on the condition, performance, and resilience of the National Highway System. One of the four purposes of the NHPP is to "provide support for activities to increase the resiliency of the National Highway System to mitigate the cost of damages from sea level rise, extreme weather events, flooding, wildfires, or other natural disasters."[64] Funding from the NHPP may be used for "resiliency improvements," which includes relocating roadways in a base floodplain to higher ground and "the use of natural infrastructure to mitigate the risk of recurring damage or the cost of future repair from extreme weather events, flooding, or other natural disasters."[65] The IIJA also expanded the use of federal NHPP funds for protective features on a Federal-aid highway or bridge not in the National Highway system.[66] In general, the federal cost-share for NHPP funds is 80 percent.[67]

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[63] USDOT, Federal Highway Administration, "U.S. Department of Transportation Announces $513.2 Million in Emergency Relief for Roads and Bridges Damaged by Natural Disaster and Catastrophic Events" (Aug, 31, 2022).
[64] USDOT, Federal Highway Administration, National Highway Performance Program (NHPP) Implementation Guidance (June 1, 2022).
[65] 23 U.S.C. § 119(k)(2).
[66] 23 U.S.C. § 119(k)(1).
[67] 23 U.S.C. § 120.

The IIJA also established the **"Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Discretionary Grant Program."**[68] This new, $8.7 billion dollar program provides funding in three areas:

(1) Planning Grants, to better understand resilience and technical capacity needs and transportation vulnerabilities in current and future conditions;
(2) Resilience Improvement Grants, to physically improve the ability of surface transportation infrastructure to withstand natural disasters; and
(3) Community Resilience and Evacuation Route Grants, to improve routes that are essential during emergency events.

In any of these areas, projects may include using natural infrastructure or restoring aquatic ecosystems, in conjunction with hard infrastructure, that are functionally connected to improving transportation. The federal cost-share for planning is 100 percent; for the resilience and evacuation grants, the federal cost-share is 80 percent with some adjustments for meeting certain criteria. The federal cost-share for Tribal governments may be up to 100 percent.[69]

The IIJA also expanded the **Surface Transportation Block Grant Program** to include, as eligible activities, "protective features, including natural infrastructure, to enhance resilience of an eligible transportation facility." This program allows wide discretion for recipients to use funds to meet state and local transportation priorities. The funds are provided annually as a lump sum to states, with some federal requirements for how to apportion the funds.

The **Emergency Relief** program provides funds to repair or reconstruct federal-aid highways and roads on Federal lands that are damaged as a result of a natural disaster or catastrophic failure from an external cause. Funding from this program can be used to repair or reconstruct in a way that mitigates damage from future extreme weather events, if it is consistent with current standards and saves the ER program money over time.[70]

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) operates the **Community Development Block Grant-Disaster Recovery Buyout** program (CDBG-DRB) to help reconceive areas impacted by natural disasters and extreme weather events. These funds are available in presidentially-declared disaster areas, appropriated by Congress, and allocated by HUD. Grantees, including states and Tribes, can use these funds to buy out commercial and residential property that they intend to demolish and create open space or flood storage or overflow areas. These

[68] 23 U.S.C. § 176.
[69] 23 U.S.C. § 176(d)(5)(E).
[70] USDOT, Federal Highway Administration, *FAQ: Emergency Relief Program and Resilience* (n.d.).

funds are useful in communities with multiple disasters or that have sustained severe damage and are at high-risk of repeated disasters.

HUD also administers the **CDBG-Mitigation Funds** for qualifying disasters. The purpose of these funds is to "carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses." In 2019, Congress appropriated $12 billion in CDBG-MIT funds for disasters around the country that occurred in 2015, 2016, and 2017. Eligible mitigation activities include: increasing resilience to disasters and reducing or eliminating the long-term risk of loss of life, damage to and loss of property, and suffering and hardship. Importantly, these funds may be used for flood control structures. The funds may be used for constructing, demolishing, or rehabilitating a levee. The levee must be registered in the National Levee Database, be maintained property, eligible for PL 84-99 funds, and accredited by FEMA.[71] These funds may not be used to enlarge the levee beyond the original footprint, potentially curtailing their use for a levee setback.

Federal Legal and Regulatory Considerations

Implementing a levee setback triggers the standard suite of federal environmental assessments and reviews, as well as specific discharge permit requirements under the Clean Water Act. Each state also has its own programs for implementing federal laws and for environmental planning and review. This section will discuss federal legal and regulatory considerations for implementing a levee setback.

Clean Water Act Section 404 Permits

The Clean Water Act is the landmark water quality law that regulates discharges of pollutants into the waters of the United States. Section 404 of the Clean Water Act regulates and requires a permit for the discharge of dredged or fill material into waters of the United States.[72] Large-scale development projects – commercial, residential, water resources including dams and levees, and transportation infrastructure – are required to have a permit. USACE is the lead agency for the Section 404 permit program, and itself is subject to permit reviews for its projects. Setting back a levee would likely trigger the requirement to apply for a 404 permit, but the U.S. Supreme Court's 2023 *Sackett vs. U.S. EPA* decision raises some questions about that assumption.[73]

[71] *See supra* note 45.
[72] 33 U.S.C. § 1344; 40 C.F.R. § 230.1 et. seq.
[73] Sackett v. Env't Prot. Agency, 589 U.S. ----, 143 S. Ct. 1322 (2023).

Section 404 prohibits discharge of dredged or fill material into waters of the United States if (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the waters of the US would be significantly degraded.[74] To comply with these prohibitions, a permit applicant must show that steps have been taken to avoid impacts to wetlands, streams, and other aquatic resources; that potential impacts have been minimized; and that compensatory mitigation will be provided for all remaining and unavoidable impacts. In practice, most permit applications are granted, and many are conditioned on implementing mitigation activities.

Options for compensatory mitigation include restoring (including reestablishing or rehabilitating), establishing or creating new, enhancing, or under some circumstances preserving wetlands, streams, and other aquatic resources. A permit applicant can use one of three mechanisms for compensatory mitigation:

(1) Mitigation banks, the preferred option;
(2) In-lieu fee programs; or
(3) Permittee-responsible mitigation, the least preferred option.[75]

A levee setback may generate sufficient or surplus compensatory mitigation for the project itself: The restored floodplain and wetlands mitigate construction-related discharges, and surplus mitigation could be sold to other developers in the same watershed that are required to offset their impacts. For example, the Feather River Setback Mitigation Bank Project is a project of the Three Rivers Levee Improvement Authority in California. As part of the setback, the agency is proposing to establish a few hundred acres of mixed habitat – elderberry shrubland, mixed riparian forest, riparian scrubland, valley oak woodland, and perennial grassland habitats – as a mitigation bank for future Central Valley Flood Protection Plan levee and floodway projects, as well as other operations and maintenance activities that will impact riparian and oak woodland communities and ESA-listed species.[76]

A looming question for all Section 404 permits is the impact of the US Supreme Court's 2023 decision in *Sackett vs. U.S. EPA*. The decision in *Sackett* established a new standard for whether a wetland is a jurisdictional wetland under the CWA and thus whether discharges into that wetland require a 404 permit. Under the new test, a wetland falls under CWA jurisdiction if it has a continuous, uninterrupted surface connection to other jurisdictional navigable waters. A wetland that is next to but separated by a barrier (natural or artificial) from navigable waters is *not* a jurisdictional wetland.[77] This decision eliminates many wetlands from CWA

[74] 33 U.S.C. § 1344; 40 C.F.R. § 230.1 et. seq.
[75] 33 C.F.R. § 332.3.
[76] Three Rivers Levee Improvement Authority, Feather River Setback Conservation Bank Project (July 2016).
[77] Sackett v. Env't Prot. Agency, 589 U.S. ----, 143 S. Ct. 1322 (2023). Kate R. Bowers, *Supreme Court Narrows Federal Jurisdiction under Clean Water Act*, CRS LSB 10981 (June 21, 2023). In his concurring opinion, Justice Kavanaugh noted that the new test "may leave long-regulated and

protection. In August 2023, EPA and USACE issued guidance conforming to the *Sackett* decision.[78]

The impact of *Sackett* on levee setback projects is unclear. A levee setback may involve dredging or filling wetlands, and discharges into those wetlands that meet the new standard still require a 404 permit. What those wetlands *are*, however, is unclear, and many may no longer be protected by the CWA. Even if some wetlands affected by a setback project fall outside the scope of CWA jurisdiction, a number of states have laws that mandate a similar policy of avoiding, minimizing, and mitigating harm to wetlands.[79]

National Environmental Policy Act

The National Environmental Policy Act (NEPA) applies to any major federal action. It requires a federal agency to consider the environmental impact of a proposed action, such as a levee setback. The goal of NEPA is to ensure that agency decisions and actions are informed and consider ecological, historical, cultural, economic, social, and public health impacts.

In brief, the federal action may fall into one of three NEPA bins: Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement. If the action is one that falls on a list of actions that do not individually or cumulatively create significant effects on the environment, then that action receives a Categorical Exclusion and no additional analysis is needed.[80] When it is unclear that a proposed federal action will "significantly affect" the environment, or is not covered by a Categorical Exclusion, the proposing agency must conduct an Environmental Assessment (EA). The EA is a preliminary consideration of the environmental impacts and helps determine whether a full Environmental Impact Statement (EIS) is required. If not, the agency prepares a Finding of No Significant Impact (FONSI) that explains the agency's reasoning.

The most detailed review occurs in the EIS, which assesses the anticipated direct and indirect impact of an agency's proposed action and identifies alternatives that might lessen adverse environmental impacts. The EIS includes all reasonable alternatives, as well as a no-action alternative that serves as a baseline for comparison. The decision-maker identifies the preferred alternative in the EIS.

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long-accepted-to-be-regulable wetlands suddenly beyond the scope of the agencies' regulatory authority, with negative consequences for waters of the United States." He pointed to the "extensive levee system" along the Mississippi River, where the presence of levees would preclude CWA coverage of the wetlands on the landward side of the levee, even though they "are often an important part of the flood-control project." *Sackett v. EPA* (Kavanaugh, concurring in judgment).

[78] 86 Fed. Reg. 61964 (Sept. 8, 2023).

[79] *See* Environmental Law Institute, *State Wetland Protection: Status, Trends and Model Approaches* (2008).

[80] USACE, Research and Development, *Procedures for Implementing NEPA*, Engineering Regulation 200-2-2 (Mar. 4, 1988).

ER 200-2-2 guides NEPA implementation for USACE.[81] Categorical Exclusions include activities at completed USACE projects that continue the authorized project purpose, such as repairs, rehabilitation, or replacement of existing structures like levees. The guidance notes that "extraordinary circumstances" may nevertheless dictate the need to prepare further documentation. Actions that normally require an EA but not necessarily an EIS include projects under the Continuing Authorities Program. Actions that normally require an EIS include proposed *major* changes in operating or maintaining a completed project.

For emergency actions, including those taken under PL 84-99, ER 200-2-2 provides guidance that a USACE District may act without the specific documentation and procedural requirements if the time constraints make compliance impracticable. However, actions must still be taken with compliance in mind. Depending on the size and scale of a setback and the potential impacts on habitat, water quality, land use, and various other natural or cultural resources, an EA or an EIS is likely needed for a levee setback project.

Endangered Species Act

The Endangered Species Act provides both a check on levee setbacks and support for the habitat restoration goals of levee setbacks. Levees, and water resources development projects generally, tend to raise ESA concerns because they significantly alter river ecosystems and riparian habitats to the detriment of protected aquatic species. For a setback levee, an ESA analysis is still required even if the ultimate outcome is improved habitat and resources for protected species. At the same time, restoring the historical floodplain and riparian habitat aligns with the statute's broad mandate for federal agencies to protect listed species.

Section 9 of the ESA prohibits actions by any individual or entity that harms, captures, or kills listed wildlife. The law defines "harm" to include significant habitat modification or degradation that kills or injures fish or wildlife by significantly impairing essential behavioral patterns. A traditional levee blocks the natural flooding processes along river banks, which many species need for spawning grounds, migratory stops, and habitat. A setback levee allows these natural processes to occur but could nevertheless run afoul of the ESA during construction and in its new location.

To determine if a federal agency's proposed action will violate Section 9, the agency must undergo a Section 7(a)(2) consultation with the U.S. Fish and Wildlife Service (USFW) or the National Marine Fisheries Service (NMFS). This consultation is required for all *discretionary* federal actions.[82] In an emergency situation, expedited and

[81] USACE, Research and Development, *Procedures for Implementing NEPA*, Engineering Regulation 200-2-2 (Mar. 4, 1988).
[82] 50 C.F.R. § 402.03.

informal consultation is permitted in order to allow response efforts to proceed and to develop conservation measures that can be taken during construction to minimize harm to endangered species.[83] FWS and NMFS recommendations to minimize harm to endangered species are advisory and should be followed without interfering with the response effort.[84] After the emergency ends, the action agency is required to initiate a formal consultation if listed species or critical habitat have been adversely affected.

A setback undertaken through the typical USACE Civil Works process will likely trigger a 7(a)(2) consultation, since it would be classified as a discretionary federal action. A setback undertaken through the PL 84-99 Emergency Repair and Rehabilitation program is also likely to require consultation. The emergency consultation could be initiated for construction necessary during or immediately after flooding, whereas the more long-term steps of planning, design, and constructing a setback levee (many of which can occur concurrently) would be expected to extend over enough time to undergo more typical informal or formal consultation.

For example, the Lower Elkhorn Basin Levee Setback is a project to increase the capacity and thus increase flood protection and system resilience on the Upper Yolo Bypass and Sacramento River in California.[85] It will protect an estimated $53 billion in assets at risk of flooding and expand floodplain, riparian, and native grassland upland habitat. Nevertheless, the project will temporarily affect 306 acres of habitat for the giant garter snake (GGS) and may cause a Swainson's hawk to abandon her nest, both of which are threatened species on the state list. To offset these impacts, mitigation measures will include animal surveys prior to starting construction, wildlife exclusion fencing, and prescribed periods of work that do not interfere with breeding or other critical life cycle stages.[86] Construction began in 2020.

Support for a levee setback is found in Section 7(a)(1) of the ESA, which requires all federal agencies to carry out their programs in ways that *promote* the conservation of at-risk species. By law, "conservation" is defined in a way that means agencies' programs should help threatened and endangered species populations recover to a point where federally mandated protections are no longer necessary. In theory, if the Corps were to undertake 7(a)(1) consultation and planning for flood risk management along a river corridor with many levees, that planning might encourage future setback projects to support endangered or threatened species conservation. Section 7(a)(1) is

[83] An emergency situation includes natural disasters that require response activities to prevent imminent loss of human life or property. U.S. Fish and Wildlife Service and National Marine Fisheries Service, *Consultation Handbook*, "Chapter 8, Emergency Consultation" (March 1988).
[84] USFW and NMFS, *Consultation Handbook*, "Chapter 8, Emergency Consultation" (March 1988).
[85] CA Dep't of Water Resources, "Lower Elkhorn Basin Levee Setback Project" (n.d.) (last visited Aug. 10, 2023).
[86] USACE Sacramento District, *West Sacramento Project-Yolo Bypass East Levee Environmental Assessment/Initial Study*, ESA/201901163 (Nov. 2021).

an oft-overlooked feature of the monumental statute, for legal and practical reasons discussed in a different *IRIS in Focus* report.[87]

National Historic Preservation Act

The National Historic Preservation Act (NHPA) protects places, structures, and other artifacts that are important to or significant markers of development in the United States. Similar to the NEPA process, a federal agency must assess whether its actions will affect any listed places or places that meet the listing criteria, in consultation with the state or tribal historic preservation officer (SHPO or THPO).[88] If the assessment finds no adverse effects or *de minimis* effects, the action may proceed. If the action alters "any characteristic of a historic property" that would diminish the integrity of its significant historic features, the agency must then enter a Memorandum of Agreement for measures to avoid, minimize, or mitigate adverse effects on the property.

In the context of a setback levee, USACE must consult with the SHPO or THPO. The NHPA may be triggered when registered places are in the historical floodplain or when the levee itself is registered. Across the United States, levees have been historically significant because they allowed economic development in otherwise inhospitable locations. A registered levee might possess integrity of location and design and be "associated with events that have made a significant contribution to the broad patterns" of history or "embody distinctive characteristics of a type, period, or method of construction."[89] The levee material may also be culturally significant for Tribes: Material used to build the original levee or to build the setback levee may have come from cultural sites and may contain artifacts that should be monitored.

For example, the Lower Puyallup River Levee system is significant because it is the only river in Washington where early flood protection measures included a concrete channel. This system contributed to the flood control actions in the Puyallup Basin that facilitated economic and population growth from 1850-1950. The levee system also "embodies the distinctive characteristic of an engineering concrete revetment structure constructed between 1916 and 1924."[90] Here, the state highway department found *de minimis* impact and proposed to remove the levee's original concrete panels during construction, installing temporary sheet wall, and restoring the original slope of the levee with the original concrete panels once construction is finished.[91]

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[87] Matthew Shudtz and J. Scott Pippin, *Supporting Recovery of Threatened and Endangered Species with Nature-Based Solutions*, IRIS in Focus No. 22-01 (Sept. 2022).
[88] 33 C.F.R. § 325.
[89] The complete list of criteria for the National Register of Historic Places is available in 36 C.F.R. § 60.4.
[90] Pierce County, Washington State, Section 4(f) Summary Memorandum (Feb. 2022).
[91] Pierce County, Washington State, Section 4(f) Summary Memorandum, Appendix B (Feb. 2022).

State Environmental Laws, Regulations, and Resources

Although this primer focuses on the federal aspects of a levee setback, it is important to remember that individual states, Tribes, and local governments have their own environmental and flood risk management laws, regulations, and resources. Much of the planning and tasks such as property acquisition occur at the local level and may include local non-profits or land trusts. Pooling all available resources – federal, state, Tribal, and local – will ultimately produce the best results for a levee setback project.

Conclusion

The repeated and costly failure of levees, situated directly along river channels, and the resulting catastrophic flooding has led to solutions that provide dynamic, adaptive flood-hazard protection. A levee setback combines traditional, gray infrastructure with the ecosystem services of the historical floodplain, including flood hazard mitigation and environmental benefits. Communities around the United States have implemented levee setbacks of varying scales and seen the benefits: greater flood hazard protection, restored habitat for aquatic species, and new recreational opportunities.

This primer lays the foundation for interested communities to strategize how to implement a levee setback. Advanced planning is critical, particularly because the timing of a setback can be crucial to its success. Using PL 84-99, a community should be prepared to move relatively quickly on addressing properties in the historical floodplain, which can happen if the community already understands and supports a levee setback. Under the non-disaster dependent authorities to implement a setback, being able to move quickly might shorten an already lengthy process of getting a setback authorized and funded for study, and then again for construction.

A levee setback is one of many nature-based solutions that will help communities meet their dual goals of managing risk from extreme weather events and protecting the environment.