

**US Army Corps  
of Engineers**  
Louisville District



**BUILDING STRONG®**

*Civil Works Water Project Guide*

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## Contact Information

Louisville District Outreach

(502) 315-6883

[ky.outreach@usace.army.mil](mailto:ky.outreach@usace.army.mil)



# Introduction

From our hundreds of rivers, lakes and wetlands to our thousands of miles of coastal shoreline, we are fortunate in America to enjoy an abundance of water resources. As a nation, we value these resources for their natural beauty; for the many ways they help meet human needs; and for the fact that they provide habitat for thousands of species of plants, fish and wildlife.

Water is so common here that it's easy to forget just how important our nation's water resources—our rivers, lakes, wetlands and coasts—are to our daily lives. Where would we be, for instance, without our many rivers and coastal ports, which allow petroleum, grain and other products to be moved into, out of, and across the country less expensively, reducing the prices of food, fuel and other goods? Or our reservoirs, which provide recreation, electrical power, protection against floods and, in many cases, the water for our daily needs? Or our wetlands, nature's nurseries, which offer shelter and food to a wide variety of plants, fish and wildlife?

Employees of the U.S. Army Corps of Engineers Civil Works Directorate have the challenging and rewarding job of managing our nation's water resources to ensure that they continue to provide these, and many other, benefits and to protect and restore these resources for future generations. Through its Civil Works program the US Army Corps of Engineers carries out a wide array of projects that provide:

- Navigable waters
- Management of risk associated with flooding
- Aquatic ecosystem restoration
- Watershed planning
- Emergency preparedness and response
- Hydropower
- Regulatory oversight
- Recreational opportunities
- Water supply

One of our most important jobs, though, is finding the right balance between society's needs for economic growth, managing flood risk, and affordable power, with environmental concerns such as water quality, preservation of wetlands and protection of threatened or endangered species. In recent years, the Corps also has begun to implement a more holistic approach to managing our nation's aquatic resources by focusing on watersheds. This approach acknowledges that our rivers, lakes, wetlands and coasts are complex systems that interact with one another in numerous ways. Through the watershed approach the Corps is working to better understand these interactions and take actions that benefit the whole system rather than just one part of it. In carrying out its responsibilities, the Corps works in close partnership with a broad array of other federal, state and local agencies, environmental groups, businesses, and nonprofit organizations.

If your community, local or state government, or non-governmental organization seeks to partner on a study or project with the US Army Corps of Engineers, please call us or send a letter to the address below. A sample letter is provided for your use.

## Sample Letter

(Date)

Ms. Sharon Bond  
Chief, Planning Branch  
U.S. Army Corps of Engineers, Louisville District  
P.O. Box 59  
Louisville, Kentucky 40201-0059

Dear Ms. Bond,

[The name of your agency/organization/governmental body] is interested in obtaining assistance from the U.S. Army Corps of Engineers. [Describe the problem your organization has encountered and the body of water or waterway involved, as well as the affected locale.]

We understand that requests for assistance are funded in the order in which they are received, and that they are subject to availability of funds.

If you need additional information, please contact: [designee] at [phone number].

[Signed by the Chief Executive Officer and Legal Counsel of your organization]

# Lands, Easement, Rights-of-Way, Relocations and Disposal Areas (LERRD)

For every project undertaken with the U.S. Army Corps of Engineers, the project Sponsor is required to provide all Lands, Easements, Rights-of-Way, Relocations and Disposal Areas (LERRD). Sufficient real estate interests must be acquired to accommodate construction, operation, maintenance, repair, replacement, rehabilitation and mitigation required for the project.

Interests in land owned prior to the project will be valued for credit purposes as of the date of award of the construction contract. If the Sponsor acquired the land near the time of executing the Project Partnership Agreement, credit may be based upon the value at purchase. Otherwise, the Corps will prepare an Appraisal Report to establish the value of the land being credited. Interests in land purchased previously under another Federal project do not qualify for credit. All acquisitions for the project by the Sponsor after the PPA execution shall be based on the fair market value established by an appraisal or upon a counteroffer that has been approved in writing by the Louisville District Real Estate Division. Interests in land that were acquired through condemnation shall receive credit based upon the court award. Interests in land donated to the Sponsor shall be credited according to the value established by an appraisal of its fair market value as of the date of the award of the construction contract.

Additional costs eligible for LERRDs credit are:

- Survey and engineering costs associated with right-of-way drawings and legal descriptions.
- Fees for obtaining abstracts or title search and policies
- Fees for appraisal services.
- Time spent negotiating with landowners, at public meetings, completing relocation assistance, and other project related activities.
- Legal fees for preparation of conveyance documents, closings, and condemnation proceedings.
- Recording costs, notary fees, and State taxes or stamps.
- Project related telephone expenses.

## Work-in-Kind

Some work undertaken by the Sponsor during the Feasibility and Design & Implementation can be credited toward the Sponsor's cost share in lieu of cash. Such work is commonly known as "work-in-kind".

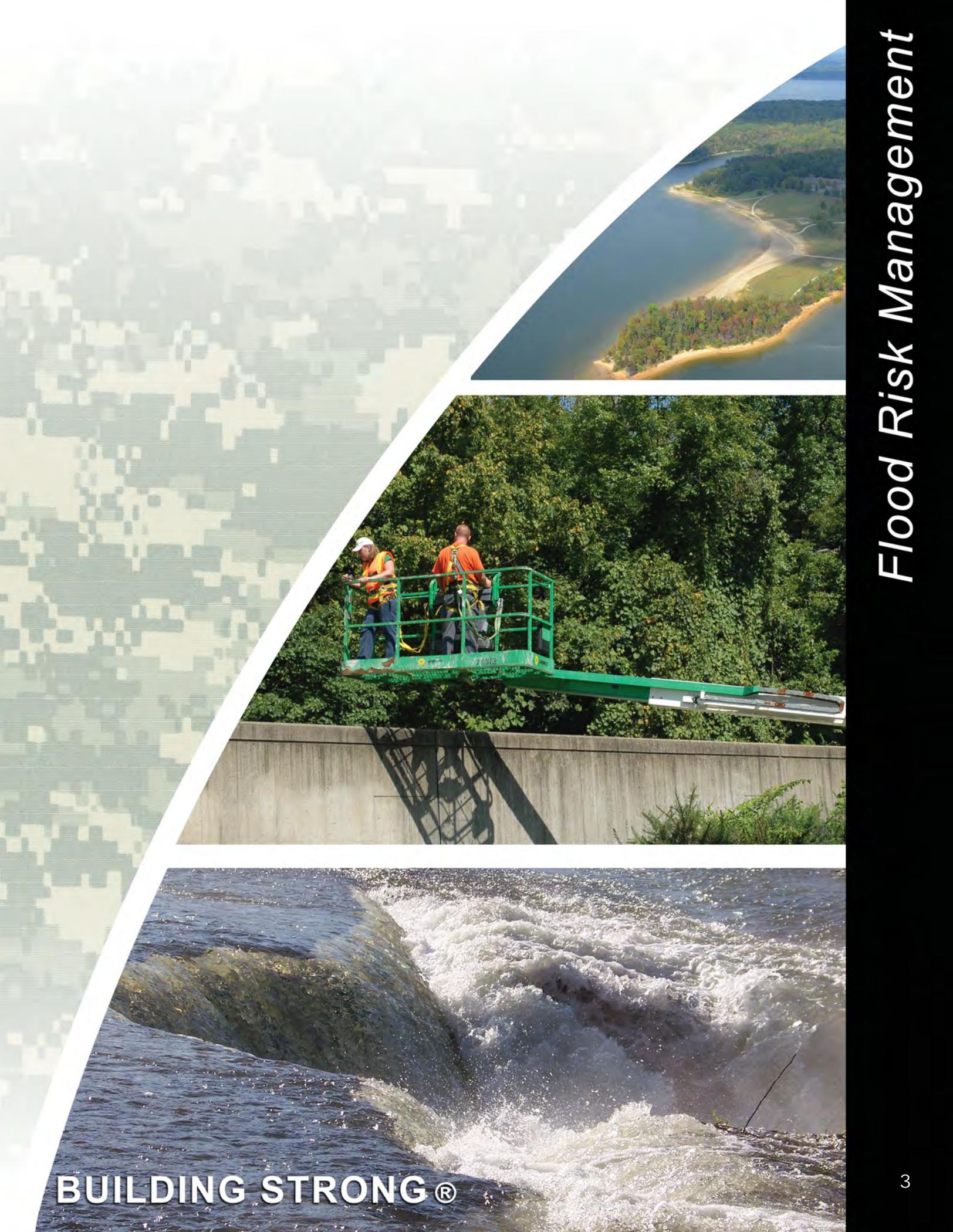
**IF** the Sponsor has a capability or wishes to secure the capability to conduct work including (but not limited to): surveys • wetland delineation • NEPA compliance • economic analysis • data gathering • architectural design • geographic information • community planning • hydraulic/hydrologic analysis

**AND** such services are deemed integral to completion of the project...

**AND** the completed work is deemed adequate by the Corps of Engineers to meet the project's needs...

**THEN** credit may be authorized in an amount commensurate to the value of the work produced.

Additionally, if the Sponsor owns or wishes to secure materials necessary to construction of the project, including (but not limited to) fill material, engineered stone, plantings, geotextile fabric, etc. The value of those materials may also be available for credit toward the Non-Federal cost share, if approval is granted by the Corps of Engineers.



*Flood Risk Management*

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# Flood Risk Management

Federal involvement in flood risk management began in the early nineteenth century in the Mississippi River Basin when interrelationships between navigation and flood risk management became apparent. As the Nation developed, disastrous floods endangered life and property, as well as transportation. In the Flood Control Act of 1936, Congress extended Federal interest in flood risk management to the entire Nation.

Although efforts of Federal, state, tribal and local interests to reduce flood risk have been substantial, flooding still accounts for 90 percent of all natural disaster damage. Flooding forces several hundred thousand people to be evacuated from homes and work places every year. The purpose of flood risk management is to help prevent or reduce flood risk by using either structural or non-structural means or a combination of the two.

**Structural Measures:** Structural measures are physical modifications designed to reduce the frequency of damaging levels of flood inundation. Structural flood risk management measures include dams and reservoirs, channel modifications, levees or floodwalls.

**Non-Structural Measures:** Non-structural measures reduce flood damages without significantly altering the nature or extent of the flooding by changing the use of floodplains or by accommodating existing uses to the flood hazard. Non-structural measures include modifying homes, businesses, and other facilities to reduce flood damages by elevating the structure or removing them from the floodplain. Remaining land can be used for ecosystem restoration, outdoor recreation, or natural open space. Flood warning systems are also considered non-structural measures.

## What the Corps of Engineers Can Do:

The Corps of Engineers has been authorized by Congress to perform flood risk management. These services can be performed under two different types of authorities: (1) specifically authorized flood risk management projects, and (2) the Continuing Authorities Program. Each of the authorities requires a study process and a cost share sponsor before implementation of a project.

**Specifically Authorized Flood Risk Management Projects:** With specific congressional authorization, the Corps of Engineers can evaluate flood problems, potential solutions, and recommend to Congress whether or not a project should be authorized. This approach is used for larger projects. Typical project features include dams, channel modifications, levees, and other flood control structures.

## Study Process, Project Implementation, and Local Partnership:

**NOTE:** This process only applies to specifically authorized Flood Risk Management Projects and Section 205 Small Flood Risk Management Projects.

Before the Federal Government can participate in implementing a flood risk management project, a planning study must be conducted to determine if the project is feasible (benefits exceed the costs), and environmentally acceptable. Planning studies are typically conducted in two phases — reconnaissance and feasibility.



## Reconnaissance Phase:

The reconnaissance phase is fully funded by the Federal Government (limited to \$100,000) and is usually completed in less than 12 months. The purposes of the reconnaissance phase are to:

- Define the problems and opportunities, and to identify potential solutions;
- Determine whether or not planning should proceed into the feasibility phase based on a preliminary assessment of the Federal interest (costs versus benefits) and environmental impacts of the identified alternatives;
- Estimate the cost of the feasibility phase;
- Assess support of the sponsor for continuing into the feasibility study, and potential implementation of a project.

The reconnaissance phase (for a project indicating Federal interest and a willing sponsor) is completed upon the signing of a Feasibility Cost Sharing Agreement (FCSA) by the Corps of Engineers and the project sponsor. The feasibility study cannot be initiated until the FCSA is signed.

## Feasibility Phase:

The feasibility phase evaluates the problem and potential solutions in detail. It typically takes 18 months to three years to complete. The feasibility phase is cost shared equally between the Corps of Engineers and the non-Federal sponsor. The non-Federal share of feasibility phase costs may be a combination of cash and in-kind products or services.

The feasibility report results in a recommendation for or against Federal participation in solutions to the water resource problems and opportunities identified in the study. A recommendation for Federal participation may be made if the feasibility phase finds that the project is economically justified (benefits exceed the costs), technically feasible, and environmentally acceptable. A project recommended for implementation can be submitted to Congress for authorization. Certain small flood risk management projects do not require a specific project authorization, and can be constructed under the Continuing Authorities Program.

## Project Implementation and Project Partnership:

Before implementation of a project, the sponsor is required to enter into a Project Partnership Agreement to define the responsibilities of each party. The sponsor must normally agree to the following:

- Provide without cost to the United States all lands, easements, rights-of-way, and disposal areas (LERRDs) necessary for the construction and subsequent operation and maintenance of the project;
- Provide without cost to the United States all necessary alterations of buildings, utilities, highways, bridges, sewers, and related and special facilities;
- Hold and save the United States free from damages due to the construction and subsequent maintenance of the project, except damages due to the fault or negligence of the United States or its contractors;
- Operate and maintain operate the project after completion without cost to the United States;
- Prevent future encroachment, which might interfere with proper functioning of the project for flood control;
- Assume responsibility for all costs in excess of applicable Federal cost limitations;
- Provide guidance and leadership in preventing unwise future development of the floodplain by use of appropriate floodplain management techniques to reduce flood losses;
- Provide a minimum cash contribution of 5% of the project cost; and
- If the value of the sponsor's contribution above does not equal or exceed 35 percent of the project cost, provide a cash or in-kind services to make the sponsor's total contribution equal to 35 percent. After meeting the minimum 5% cash contribution, sponsors can contribute in-kind services in any phase of the project.

## Charges for Assistance:

The reconnaissance phase is 100% federally funded up to \$100,000. The feasibility phase is cost shared 50/50 with the sponsor. Design and construction are cost shared at 65% Federal and 35% non-Federal.

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# Continuing Authorities Program

## Flood Risk Management

This program allows the Corps of Engineers to plan, design, and construct smaller projects without specific authorization from Congress. The potential sponsor must request the Corps of Engineers to investigate potential flood risk management issues that might fit the program. Once the Corps of Engineers determines that the project fits the program, the District will request funds to initiate a reconnaissance effort to determine potential Federal interest in proceeding to a feasibility study. There are three authorities available for this program:

- Section 14 - Emergency Streambank and Shoreline Protection.  
Authorized by Section 14 of the Flood Control Act of 1946, as amended.
- Section 205 - Small Flood Risk Management Projects.  
Authorized by Section 205 of the Flood Control Act of 1948, as amended.
- Section 208 - Clearing and Snagging of Waterways.  
Authorized by Section 208 of the Flood Control Act of 1954, as amended.

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## Section 14 Emergency Streambank and Shoreline Stabilization

Section 14 of the Flood Control Act of 1946, as amended

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### What the Corps of Engineers Can Do:

The Corps of Engineers is authorized to construct bank protection works to protect endangered highways, highway bridge approaches, and other essential, important public works, such as municipal water supply systems and sewage disposal plants, churches, hospitals, schools, and non-profit public services and known cultural sites that are endangered by flood-caused bank or shoreline erosion. Privately owned property and facilities are not eligible for protection under this authority.

### Study Process:

Before the Federal Government can participate in implementing a flood risk management project, a planning study must be conducted to determine if the project is economically justified (benefits exceed the costs), technically feasible, and environmentally acceptable.

### Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The Corps of Engineers would oversee project construction; however, once constructed, the operation and maintenance of the project would be the responsibility of the project sponsor. The sponsor must contribute 35 percent of the total project implementation cost as cash, in-kind services, Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs).

### How to Request Assistance:

An investigation of a prospective emergency streambank or shoreline protection project under Section 14 can be initiated upon receipt of a request from a sponsoring agency empowered under State law to provide local partnership.

# Section 205 - Small Flood Risk Management Projects

Section 205 of the Flood Control Act of 1948, as amended

## What the Corps of Engineers Can Do:

The Small Flood Risk Management Project program provides local flood risk management by the construction or improvement of flood control works or non-structural measures. The types of studies and/or projects are tailored to be site specific. Typical flood risk management projects may include levees, floodwalls, impoundments, pumping stations, and channel modifications as well as non-structural measures. Non-structural measures reduce flood damages by changing the use of floodplains or by accommodating existing uses to the flood hazard. Examples include flood proofing, relocation of structures, and flood warning and preparedness systems. The Corps of Engineers oversees planning, design, and construction of flood risk management projects in close coordination with the project sponsor.

## Study Process:

Before the Federal Government can participate in implementing a flood risk management project, a planning study must be conducted to determine if the project is economically justified (benefits exceed the costs), technically feasible, and environmentally acceptable.

## Charges for Assistance:

Initial study is 100% federally funded up to \$100,000. The remainder of the study phase is cost shared 50% Federal and 50% non-Federal. The sponsor must contribute 35 percent (minimum 5 percent cash) of the total project design and construction cost as cash, in-kind services or Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs).

## Responsibility of Project Sponsor:

A Feasibility Cost Sharing Agreement (FCSA) must be executed for studies in excess of \$100,000. Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The Corps of Engineers would oversee project construction; however, once constructed, the operation and maintenance of the project would be the responsibility of the project sponsor.

## How to Request Assistance:

An investigation of a prospective small project under Section 205 can be initiated upon receipt of a request from a sponsoring agency empowered under State law to provide local partnership.

## *Cost Sharing in the Implementation Phase*

- **Federal 65%**
- **Non-Federal 35%**
- **Minimum 5% cash from local sponsor**
- **Maximum Federal Cost Share Restricted to \$7 million**



# Section 208 - Clearing and Snagging of Waterways

Section 208 of the Flood Control Act of 1954, as amended

## What the Corps of Engineers Can Do:

In the interest of flood control, the Corps of Engineers can conduct clearing, snagging, or channel excavation. Limited embankment construction can be provided by utilizing the materials from the cleaning operation.

## Study Process:

Before the Federal Government can participate in implementing a flood risk management project, a planning study must be conducted to determine if the project is economically justified (benefits exceed the costs), technically feasible, and environmentally acceptable.

## Charges for Assistance:

Initial study is 100% federally funded up to \$100,000. The remainder of the study phase is cost shared 50% Federal and 50% non-Federal. The sponsor must contribute 35 percent (minimum 5 percent cash) of the total project design and construction cost as cash, in-kind services or Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs).

## Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The Corps of Engineers would oversee project construction; however, once completed, the operation and maintenance of the project would be the responsibility of the project sponsor. The sponsor must contribute 35 percent of the total project implementation cost as cash, in-kind services or Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs).

## How to Request Assistance:

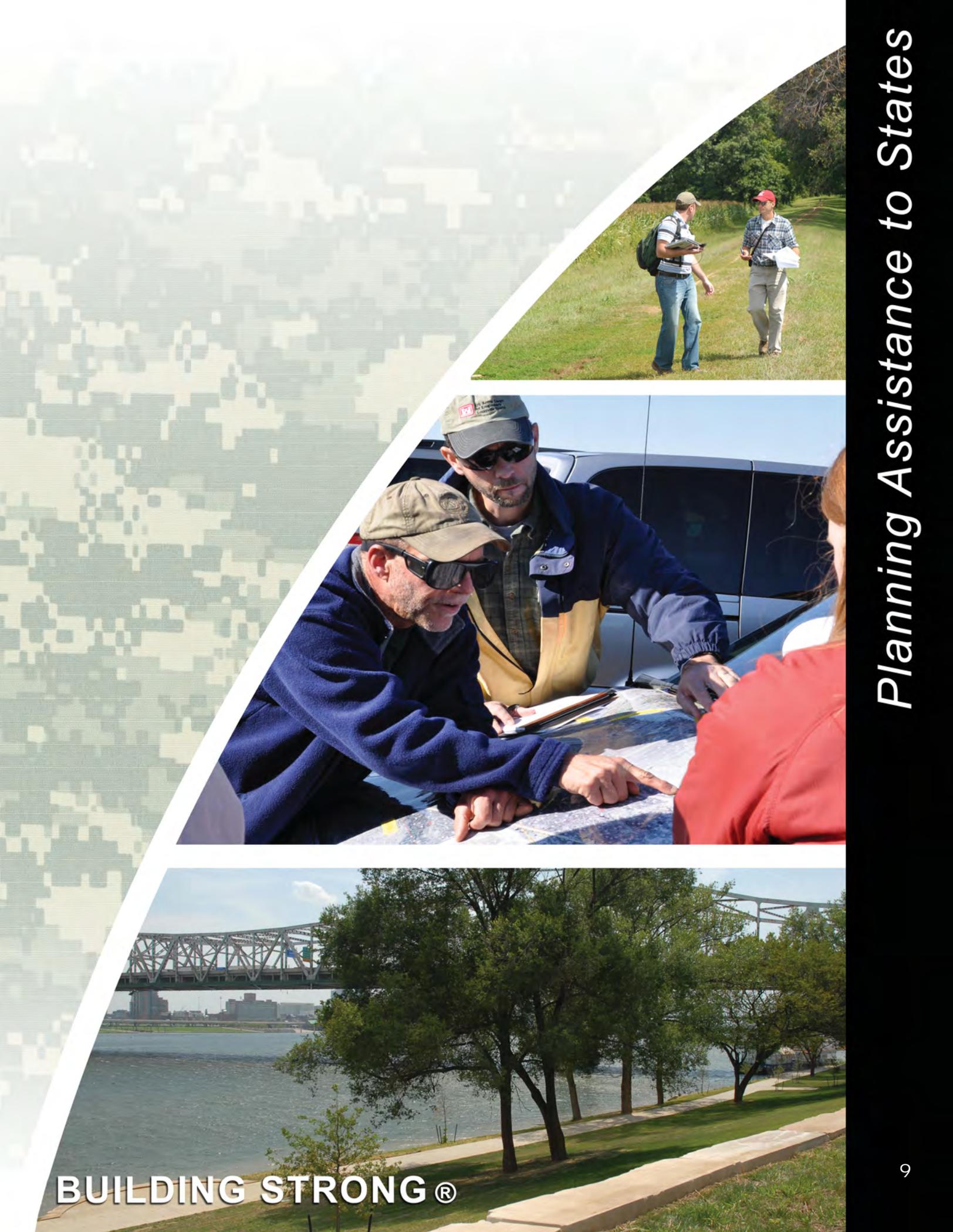
An investigation of a prospective clearing and snagging project under Section 208 can be initiated upon receipt of a request from a sponsoring agency empowered under State law to provide local partnership.



## *Cost Sharing*

- **Federal 65%**
- **Non-Federal 35%**
- **Minimum 5% cash from local sponsor**
- **Maximum Federal Cost Share Restricted to \$500k**





Planning Assistance to States

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# Planning Assistance to States

Section 22 of the Water Resources Development Act of 1974

## What the Corps of Engineers Can Do:

Every year, each State, local government, or other non-Federal entity can provide the Corps of Engineers its request for studies under the program, and the Corps of Engineers then accommodates as many studies as possible within the funding allotment. Typical studies are only planning level of detail; they do not include detailed design for project construction. The studies generally involve analysis of existing data for planning purposes, using standard engineering techniques, although some data collection is often necessary. Most studies become the basis for State, and local planning decisions.

## Funding:

Congress funds the Planning Assistance to States (PAS) Program annually. Federal allotments for each State or Tribe from the nationwide appropriation are limited to \$2 million annually, but typically are much less. Individual studies, of which there may be more than one per State per year, generally range in cost from \$25,000 to over \$100,000. These studies are cost shared on a 50 percent Federal, 50 percent non-Federal basis. Twenty-five percent of the non-Federal cost share can be provided as work-in-kind, cash or a combination of the two.

## Typical Studies:

The program can encompass many types of studies dealing with water and related land resource issues. Types of studies conducted in recent years under the program include the following:

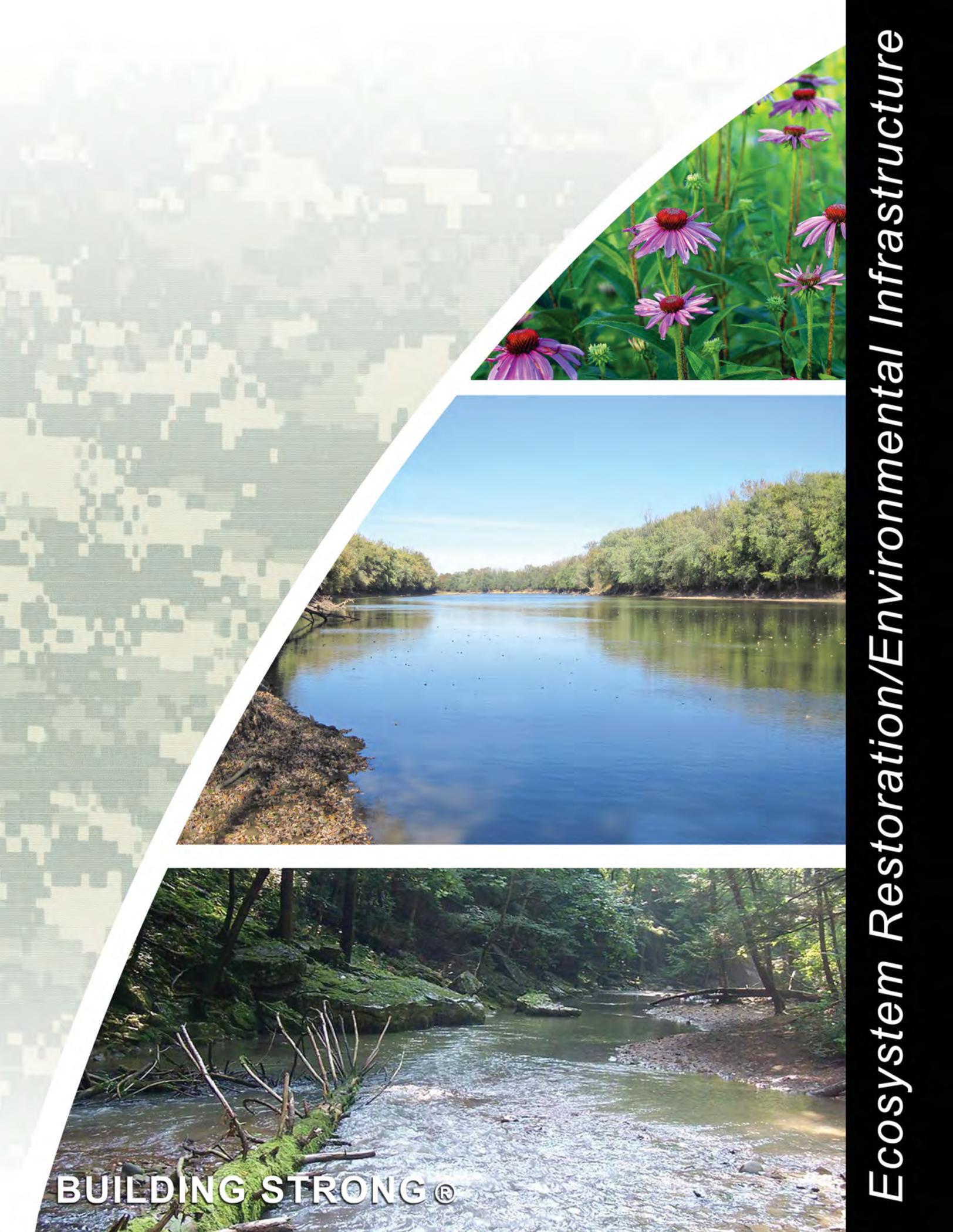
- Water Supply and Demand
- Water Quality
- Environmental Conservation
- Environmental Restoration
- Wetland Evaluation
- Dam Safety/Failure
- Flood Risk Management
- Floodplain Management
- Land Use
- Master Planning
- Brownfields Environmental Assessment
- GIS Development
- Water Conservation
- Flood Preparedness
- Navigation
- Erosion and Sedimentation



## Cost Sharing

- Federal 50%
- Non-Federal 50%
- Up to 25% of non-Federal share may be work-in-kind, cash or both





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*Ecosystem Restoration/Environmental Infrastructure*

# Ecosystem Restoration and Environmental Infrastructure

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Ecosystem restoration activities examine the condition of existing ecosystems and determine the feasibility of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded condition. The Corps of Engineers' ecosystem restoration program seeks to provide a comprehensive approach for addressing the problems associated with disturbed and degraded ecological resources.

Corps of Engineers activities in ecosystem restoration concentrate on engineering solutions to water and related land resource problems. The principal focus is on those ecological resources and processes that are directly associated with the hydrology of the ecosystem and watershed.

Environmental infrastructure is infrastructure that provides cities, towns and localities with water supply, waste disposal, and pollution control services. Environmental infrastructure projects may include potable water treatment, storage and distribution systems; wastewater treatment and collection systems; and pumping stations. These municipal works serve two important purposes: they protect human health and safeguard environmental quality.

## What the Corps of Engineers Can Do:

The Corps of Engineers is authorized by Congress to perform ecosystem restoration in conjunction with water resource and related land resource issues; and to conduct environmental infrastructure projects. These services can be performed by seeking specific project authority, previous authorities or through the Continuing Authorities Program, which is aimed at smaller projects. Each of the programs requires a study (decision) process and a cost-share sponsor prior to a study or before implementation of a project.

## Study Process (Specifically Authorized Studies and Projects):

Before the Federal Government can participate in implementing a project, planning studies must be conducted to determine if the project is feasible. Planning studies are typically conducted in two phases — reconnaissance and feasibility. A description of these phases is as follows:

### Reconnaissance Phase:

The reconnaissance phase is fully funded by the Federal Government (limited to \$100,000) and is usually completed in less than 12 months. The purposes of the reconnaissance phase are to:

1. Define the problems and opportunities, and to identify potential solutions;
2. Determine whether or not planning should proceed into the feasibility phase based on a preliminary assessment of the Federal interest, and environmental impacts of the identified alternatives;
3. Estimate the cost of the feasibility phase; and,
4. Determine if there is a sponsor that will cost-share the project and the feasibility phase.

The reconnaissance phase is completed upon the signing of a Feasibility Cost Sharing Agreement (FCSA) by the Corps of Engineers and the sponsor. The feasibility study cannot be initiated until the FCSA is signed.

### Feasibility Phase:

The feasibility phase optimizes the plan or plans to be built, and can take up to 3 years to complete if adequate funding is received in a timely manner. The feasibility phase is cost shared equally between the Corps of Engineers and the non-Federal sponsor. The non-Federal share of feasibility phase costs may be a combination of cash and in-kind products or services.

The feasibility report results in a recommendation to Congress for or against Federal participation in solutions to the water resources problems and opportunities identified in the study. There is national policy on how the Corps of Engineers determines when the Federal involvement is merited. A recommendation for Federal participation precedes a recommendation for construction authorization. The recommendation for implementation is forwarded to Congress to ultimately decide if the project will be authorized. A project must be authorized by Congress for it to be implemented.

## Project Implementation and Local Partnership:

Following authorization for construction of a project, the sponsor enters into a Project Partnership Agreement to define the responsibilities of each party. The sponsor must normally agree to the following:



1. Provide without cost to the United States all lands, easements, rights-of-way, relocations and disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project;
2. Provide without cost to the United States all necessary alterations of buildings, utilities, highways, bridges, sewers, and related and special facilities;
3. Hold and save the United States free from damages due to the construction and subsequent maintenance of the project, except damages due to the fault or negligence of the United States or its contractors;
4. Maintain and operate the project after completion without cost to the United States;
5. Prevent future encroachment, which might interfere with proper functioning of the project;
6. Assume responsibility for all costs in excess of applicable Federal cost limitations;
7. If the value of the sponsor's contribution above does not equal or exceed 35 percent of the project cost, provide a cash or in-kind services to make the sponsor's total contribution equal to 35 percent. After meeting the minimum 5% cash contribution, sponsors can contribute in-kind services in any phase of the project.

## Other Authorities for Environmental Infrastructure

### Environmental Infrastructure

- Section 219: Environmental Infrastructure Program  
(Authorized by Section 219 of the Water Resources Development Act of 1992)
- Section 531: Environmental Infrastructure In Southern and Eastern Kentucky  
(Authorized by Section 531 of the Water Resources Development Act of 1996)
- Section 594: Environmental Infrastructure in Ohio  
(Authorized by Section 594 of the Water Resources Development Act of 1999)

## Continuing Authorities Program

This program allows the Corps of Engineers to plan, design, and construct smaller projects under existing program authorities in place from Congress. The potential cost-share sponsor must request the Corps of Engineers to investigate potential water or land related resource issues that might fit the program. Once the Corps of Engineers determines that the project fits the program, the District can request funds to initiate a planning process to determine Federal interest in proceeding with the project. The planning process is done in two phases – reconnaissance and feasibility. There are three ecosystem restoration authorities within this program:

### Ecosystem Restoration

- Section 1135 - Project Modifications for Improvements to the Environment  
(Authorized by Section 1135 of the Water Resources Development Act of 1986, as amended)
- Section 204 - Beneficial Use of Dredged Materials  
(Authorized by Section 204 of the Water Resources Development Act of 1992)
- Section 206 - Aquatic Ecosystem Restoration  
(Authorized by Section 206 of the Water Resources Development Act of 1996)

# Section 219: Environmental Infrastructure Program

Section 219 of the Water Resources Development Act of 1992

## What the Corps of Engineers Can Do:

The Environmental Infrastructure Program, also known as Section 219 of the 1992 Water Resources Development Act (WRDA), as amended, authorizes the Corps to assist non-Federal interests in carrying out water-related environmental infrastructure and resource protection and development projects. Such assistance may be in the form of technical, planning, and/or design assistance for water supply and storage, treatment and distribution systems; and wastewater treatment systems including treatment plants.

## Restrictions:

Projects must be specifically named by Congress in the authorizing language for this program. Procurement of design services shall be obtained from private sources, unless - The services provided require the use of new technologies unavailable from the private sector, or Solicitation or Request for Proposal fails to attract two or more bids.

## Charges for Assistance:

The non-Federal sponsor's share is 25 percent of total design costs or total project costs. The non-Federal sponsor is responsible for providing all lands, easements, rights-of-way, and relocations (LERR) required for the project and for obtaining any necessary permits. The non-Federal sponsor will receive credit for the value of such LERRs and the cost of obtaining permits toward its share of total project costs, but not to exceed 25 percent of total project costs. In addition, the non-Federal sponsor will receive credit toward its share of total design costs or total project costs, as applicable, for the reasonable costs of design work it completes prior to entering into an agreement with the Government. The non-Federal sponsor will be responsible for 100 percent of the operation, maintenance, repair, rehabilitation, and replacement costs associated with a completed construction project.

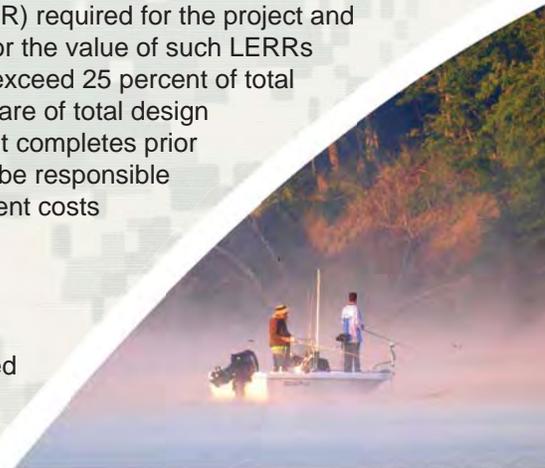
## Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The project sponsor must normally agree to the following:

- Provide without cost to the United States all Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project.
- Maintain and operate the project after completion without cost to the United States.
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000.
- If the value of the sponsor's land contribution above does not equal or exceed 35 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 35 percent.

## How to Request Assistance:

Send a letter to the Louisville District



## Cost Sharing

- **Federal 75%**
- **Non-Federal 25%**
- **Maximum Federal Cost Share Restricted to \$5 million**



# Section 531: Environmental Infrastructure In Southern and Eastern Kentucky

Section 531 of the Water Resources Development Act of 1996

## What the Corps of Engineers Can Do:

We can provide design and construction assistance for water related environmental infrastructure projects in Eastern and Southern Kentucky. The law allows the Corps to provide Federal assistance for the design and construction of water-related environmental infrastructure, water resource protection and development, and environmental restoration. These projects must address wastewater, water supply and surface water resource and related problems.

Areas eligible for assistance include Kentucky's 5th Congressional District. Local sponsors may include cities, counties, or public service districts who are able to finance the project and provide for operation and maintenance of the project upon completion. Localities not enforcing sanitary waste ordinances are unable to apply for projects.

## Charges for Assistance:

Projects are undertaken on a cost-shared basis. All projects are cost-shared 75 percent Federal and 25 percent from non-Federal funds. The application review and selection process is conducted by the Corps of Engineers, Kentucky Division of Water, and the PRIDE (Personal Responsibility in a Desired Environment) Board.

Because the Section 531 Program is intended to supplement or augment other Federal and State programs, projects that do the following receive priority: demonstrate innovative approaches to problems, address rural areas not likely to be addressed in the near future by other traditional funding sources, and are eligible for other funding programs but still need a small amount of financial assistance to be implemented.

## Responsibility of Project Sponsor:

A Project Partnership Agreement must be executed with the sponsor. The sponsor normally agrees to the following:

- Provide without cost to the United States all Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) necessary for the construction and maintenance of the project.
- Maintain and operate the project after completion without cost to the United States.
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000.
- If the value of the sponsor's land contribution above does not equal or exceed 35 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 35 percent.

## How to Request Assistance:

Send an application to the U.S. Army Corps of Engineers office in Huntington, West Virginia. The mailing address is: 502 8th Street, Huntington, WV 25701. Applications should include a completed "Fact Sheet" and documentation that addresses the evaluation criteria available at [www.kypride.org](http://www.kypride.org) or by calling the Corps office at (304) 399-5824. For more information contact the PRIDE office at 606-677-6150 or call the Louisville District Outreach Coordinator at (502) 315-6883.



## Cost Sharing

- **Federal 75%**
- **Non-Federal 25%**
- **Maximum Federal Cost Share Restricted to \$5 million**



# Section 594: Environmental Infrastructure in Ohio

Section 594 of the Water Resources Development Act of 1999

## What the Corps Can Do:

In 1999, Congress directed the Corps of Engineers to establish a pilot program to provide environmental assistance to non-Federal interests in Ohio. Section 594 of the Water Resources Development Act of 1999 authorized the Corps to provide assistance in the form of design and construction for water-related environmental infrastructure and resource protection and development projects in Ohio. The following are types of projects that fall under this program:

Waste Water Treatment Systems including Treatment Plants  
Combined Sewer Overflow  
Water Supply and Storage  
Treatment and Distribution Systems

Mine Drainage  
Environmental Restoration  
Surface water resource protection and development

## Charges for Assistance:

The project must be publicly owned. The non-Federal partner(s) must establish legal and institutional structures as are necessary to ensure the effective long-term operation of the project by the non-Federal interest. Projects are cost-shared 75 percent Federal and 25 percent non-Federal. The non-Federal cost share may be credited for reasonable design work performed prior to execution of a project partnership agreement (PPA) and for land, easements, rights-of-way, and relocations.

## Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The project sponsor must normally agree to the following:

- Provide without cost to the United States all Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project.
- Maintain and operate the project after completion without cost to the United States.
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000.
- If the value of the sponsor's land contribution above does not equal or exceed 35 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 35 percent.

## Requests for Assistance:

Section 594 projects require specific congressional appropriations and must be appropriated through a congressional add. For more information, contact the Louisville District Outreach Coordinator, at (502) 315-6883.

## Cost Sharing

- **Federal 75%**
- **Non-Federal 25%**
- **Maximum Federal Cost Share Restricted to \$5 million**

# Section 1135

## Project Modification for Improvements to the Environment

Section 1135 of the Water Resources Development Act of 1986, as amended

### What the Corps of Engineers Can Do:

This authority provides for the review and modification of structures and operations of water resources projects constructed by the Corps for the purpose of improving the quality of the environment when it is determined that such modifications are feasible, consistent with the authorized project purposes, and will improve the quality of the environment in the public interest. In addition, if it is determined that a Corps water resources project has contributed to the degradation of the quality of the environment, restoration measures may be implemented at the project site or at other locations that have been affected by the construction or operation of the project, if such measures do not conflict with the authorized project purposes.

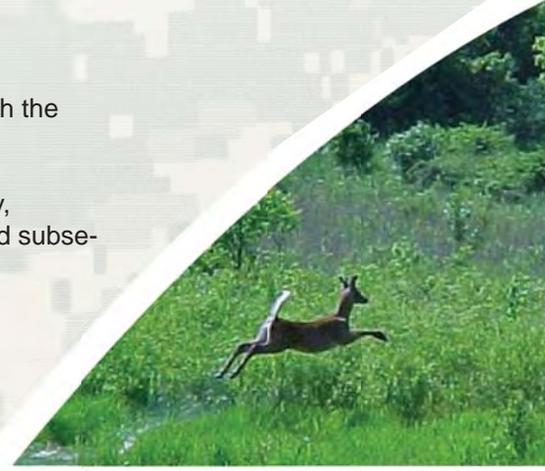
### Charges for Assistance:

The initial study is 100% federally funded up to \$100,000. All planning costs after the first \$100,000 are cost shared 50/50. All design and construction costs are cost shared 75% Federal and 25% non-Federal. The Federal cost limit is \$5,000,000. The non-Federal sponsor cost share can be a contribution of cash, Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs), or work-in-kind. Work-in-kind may be provided subsequent to the execution of a Project Partnership Agreement (PPA), and the value may not exceed 80% of the non-Federal share.

### Responsibility of Project Sponsor:

Formal assurance in the form of a Project Cooperation Agreement must be executed with the project sponsor. In addition, the project sponsor must normally agree to the following:

- Provide without cost to the United States all Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project.
- Maintain and operate the project after completion without cost to the United States.
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000.
- If the value of the sponsor's land contribution above does not equal or exceed 25 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 25 percent.



### Cost Sharing

- **Federal 75%**
- **Non-Federal 25%**
- **Maximum Federal Cost Share Restricted to \$5 million**



# Section 204 Beneficial Use of Dredged Materials

Section 204 of the Water Resources Development Act of 1992

## What the Corps of Engineers Can Do:

The Corps of Engineers can create aquatic and wetland habitats in connection with construction or maintenance dredging of an authorized Federal navigation project.

## Charges for Assistance:

All project planning costs are 100% federally funded. Design and construction costs are cost shared 65% Federal and 35% non-Federal. The Federal cost limit is \$5,000,000.

The non-Federal sponsor cost share can be a contribution of cash or Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs). No work-in-kind is allowed. Only the increased cost above the cost of the planned dredge disposal that would have been implemented without ecosystem restoration (referred to as the base plan) is cost shared. The sponsor pays 35% of the project costs above the base plan in a Section 204 project.

## Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The project sponsor must normally agree to the following:

- Provide without cost to the United States all Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project.
- Maintain and operate the project after completion without cost to the United States.
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000.
- If the value of the sponsor's land contribution above does not equal or exceed 35 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 35 percent.

## How to Request Assistance:

An ecosystem restoration project under Section 204 can be initiated upon receipt of a request from a prospective project sponsor.

## *Cost Sharing*

- **Federal 65%**
- **Non-Federal 35%**
- **Maximum Federal Cost Share Restricted to \$5 million**



# Section 206 Aquatic Ecosystem Restoration

Section 206 of the Water Resources Development Act of 1996

## What the Corps of Engineers Can Do:

The Corps of Engineers can carry out aquatic ecosystem restoration and protection projects. Such projects generally include manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. A project is adopted for construction only after a detailed investigation determines that the project will improve the quality of the environment and is in the best interest of the public.

## Charges for Assistance:

The initial study is 100% federally funded up to \$100,000. All planning costs after the first \$100,000 are cost shared 50/50. All design and construction costs are cost shared 65% Federal and 35% non-Federal. The Federal cost limit is \$5,000,000. The non-Federal sponsor cost share can be a contribution of cash, Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRDs) or work-in-kind. Work-in-kind may be provided subsequent to the execution of a Project Partnership Agreement (PPA).

## Responsibility of Project Sponsor:

Formal assurance in the form of a Project Partnership Agreement must be executed with the project sponsor. The project sponsor normally agrees to the following:

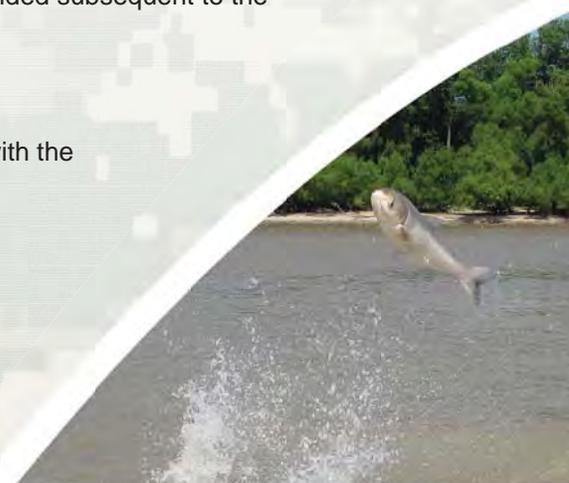
- Provide without cost to the United States all LERRDs necessary for the construction and subsequent maintenance of the project
- Maintain and operate the project after completion without cost to the United States
- Assume responsibility for all costs in excess of the Federal cost limitation of \$5,000,000
- If the value of the sponsor's land contribution above does not equal or exceed 35 percent of the project cost, provide cash or work-in-kind contributions to make the sponsor's total contribution equal to 35 percent

## How to Request Assistance:

An ecosystem restoration project under Section 206 can be initiated upon receipt of a request from a prospective project sponsor.

## Cost Sharing

- **Federal 65%**
- **Non-Federal 35%**
- **Maximum Federal Cost Share Restricted to \$5 million**



# Floodplain Management



# Floodplain Management Services

## What the Corps of Engineers Can Do:

The Floodplain Management Services (FPMS) Program provides the full range of technical services and planning guidance that is needed to support effective floodplain management.

## Types of Assistance:

### General Technical Services:

The program develops or interprets site-specific data on obstructions to flood flows; flood formation and timing; flood depths or stages; floodwater velocities; and the extent, duration, and frequency of flooding. It also provides information on natural and cultural floodplain resources before and after the use of floodplain management measures.

### General Planning Guidance:

On a larger scale, the program provides assistance and guidance in the form of "Special Studies" on all aspects of floodplain management planning, including the possible impacts of off-floodplain land use changes on the physical, socio-economic, and environmental conditions of the floodplain. Special Studies are accomplished at 100% Federal cost. However, funding for these studies is very limited and competitive. See the next page for a chart outlining the different floodplain management services we offer.

The program also provides guidance and assistance for meeting standards of the National Flood Insurance Program and for conducting workshops and seminars on nonstructural floodplain management measures, such as flood proofing and relocation of structures from the floodplain.

### Guides, Pamphlets, and Supporting Studies:

Studies are conducted under the program to improve the methods and procedures for mitigating flood damages. Guides and pamphlets also are prepared on flood proofing techniques, floodplain regulation, floodplain occupancy, natural floodplain resources, and other related aspects of floodplain management.

## Charges for Assistance:

Upon request, program services are provided to state, regional, and local governments, and other non-Federal public agencies without charge, based on available funding.

Program services also are offered to non-water resource Federal agencies and to the private sector on a 100-percent cost recovery basis. For most of these requests, payment is required before services are provided. A schedule of charges is used to recover the cost of services taking up to one day to provide. Letter requests or signed agreements are used to charge for those that take longer.

All requesters are encouraged to furnish available field survey data, maps, historical flood information, and the like to help reduce the cost of services.



**Contact the Louisville District to determine cost sharing and sponsorship limitations.**



In addition, Section 202 of the WRDA of 1999 authorized the voluntary contribution of funds by States, local governments, and Native American Tribes for the purpose of expanding the scope of services requested under Floodplain Management Services by these entities.

Floodplain Management Services (FPMS) we offer :

## Floodplain Management Services We Offer:

### **National Levee Database**

National, free web-based database of flood risk management structures, open to the public. Website: <http://nld.usace.army.mil>.

### **Flood Damage Mitigation**

Study flooding and recommend measures to lower flood water levels or reduce flood damage.

### **Flood Warning/Preparedness**

Report on and/or design a flood warning system and emergency evacuation plan based on stream stages and rates of flood water rise.

### **Special Flood Hazard Information**

Delineate 0.01 percent exceedance flood event or other frequency floodplain or floodway. Community can submit to FEMA to extend/revise Flood Insurance Study floodplains.

### **Elevation Reference Database**

Reference flood water elevations for community planning purposes.

### **Flood Zone Database**

Provide flood zone information for properties and structures located within floodplains.

### **Dam Failure Analysis**

Model and illustrate effects of dam failure using a 3-D flow model.

### **Urbanization Analysis**

Analyze effects of watershed development on flood flows and floodplain boundaries. Useful for creating development policies.

### **Stormwater Management**

Analyze flooding due to inadequate stormwater conveyance, recommend improvements.

### **Flood Stage Mapping**

Depict areas flooded at various river stages. Useful for emergency planning or setting floodplain development policies.

### **Community Rating System**

Assist communities to qualify and prepare applications for FEMA's Community Rating System. May include a combination of other services in this table.

### **Floodproofing Workshops**

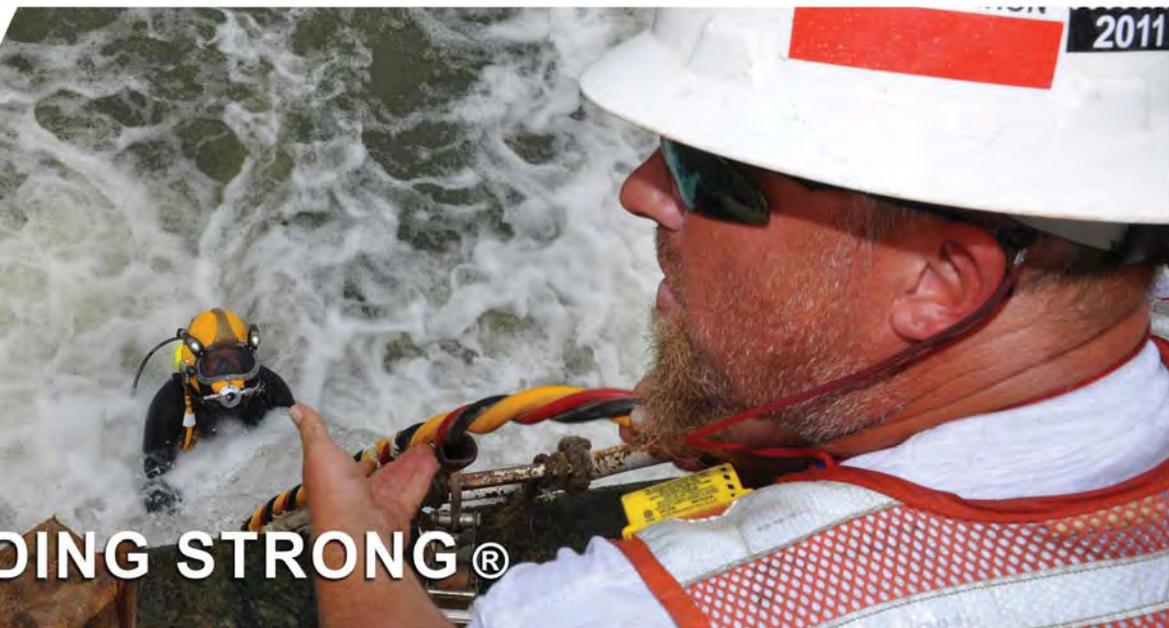
Educate community members on floodproofing methods for buildings.

### **Model Workshops**

Conduct workshops on HEC-1 (hydrologic) and HEC-2 (stream profile) software models.

### **Floodplain Maps**

Create floodplain maps using geographic information systems.



# Navigation

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We are all dependent on the products—petroleum (gasoline, crude oil, jet fuel); coal; sand and gravel used in construction; and grain—shipped on our nation’s rivers. Every day thousands of vessels move people, animals, and products across the country via the nation’s rivers and harbors. According to research conducted by the Tennessee Valley Authority, it is \$11 cheaper per ton to send goods by water compared to other forms of transportation, such as trucks or trains. That translates into nearly \$7 billion in annual transportation savings for America’s economy.

One of the Corps’ primary missions is to ensure that this traffic can move safely, reliably, and efficiently and with minimal impact on the environment. Our primary navigation responsibilities include planning and constructing modifications, repairs and rehabilitations of navigation infrastructure; and dredging to maintain channel depths at U.S. harbors and on inland waterways.

The Corps operates and maintains 12,000 miles of inland and Intracoastal Waterway navigable channels, including 192 commercial lock and dam sites, and is responsible for ports and waterways in 41 states.

In partnership with local port authorities, Corps personnel oversee dredging and construction projects at hundreds of ports and harbors at an average annual cost of over \$1.3 billion. The Corps dredges over 250 million cubic yards of material each year to keep the nation’s waterways navigable. Much of this dredged material is reused for environmental restoration projects, including wetland creation.

The nearly 12,000 miles of U.S. inland and intracoastal waterways maintained by the Corps include 191 commercially active lock sites with 237 operable lock chambers. Some locks have more than one chamber, often of different dimensions. These locks provide the essential infrastructure that allows tows to “stair-step” their way through the system and reach distant inland ports such as Minneapolis, Chicago and Pittsburgh.

The locks can generally be categorized into three sizes, based on their length:

- 15 percent of the lock chambers are 1000 to 1200 feet long
- 60 percent are 600 to 999 feet long
- 25 percent are less than 600 feet long

The 1200-foot locks can accommodate a tow of 17 barges plus the towboat, while the 600-foot locks can accommodate at most eight barges plus the towboat.

Lock size and tow size are critical factors in the amount of cargo that can pass through a lock in a given period of time. Since many of today’s tows operate with 12 or more barges, passing through a 600-foot lock requires the tow to be “cut” into two sections to pass the lock. Such multiple cuts can be time consuming and cause long queues of tows waiting for their turn to move through the lock.

Over 50 percent of the locks and dams operated by the Corps are over 50 years old. Many of the 600-foot locks on the system were built in the 1930s or earlier, including those on the heavily-used Ohio, Upper Mississippi, Illinois and Tennessee rivers. These projects are approaching the end of their design lives and are in need of modernization or major rehabilitation. The consequences of this aging infrastructure are increasing incidents of downtime and a higher risk of major component failures.

## Modernizing the Locks

In the 1960s the Corps began to modernize the locks on the Ohio River and add 1200-foot chambers that permit a typical tow to pass in a single lockage. This modernization process continues today with the construction of a new dam with twin 1200-foot locks at Olmsted located at the confluence of the Ohio and Mississippi rivers and 1200-foot chambers at the McAlpine and John T. Myers Locks and Dams also on the Ohio. In addition, modern 1200-foot chambers are being constructed at Kentucky Lock on the Tennessee River and at Inner Harbor Lock on the Gulf Intracoastal Waterway at New Orleans. Other projects are underway in Pennsylvania, West Virginia, and Arkansas. In addition, several major rehabilitations of existing locks are underway.

Altogether this ongoing work represents an investment of over \$3.5 billion in inland waterway modernization that will be completed over the next decade. Half of this investment comes from fuel taxes paid by the inland towing industry. These rehabilitation projects include not only the development of modern navigation facilities, but also important investments in environmental restoration and management.

Several key navigation improvement projects are authorized or under study throughout the inland waterway system, including on the Upper Mississippi River and Illinois Waterway, Ohio River, the Gulf Intracoastal Waterway, and the McClellan-Kerr Arkansas River Navigation System. These studies will identify the navigation and environmental actions needed to support the inland waterway system of the future.

Annual capital spending for the inland waterway system has increased from less than \$200 million in recent years to nearly \$650 million for 2009 (including funds provided by the Recovery and Reinvestment Act of 2009). This will help accelerate completion dates for ongoing lock modernization.

Domestic freight traffic is expected to increase by 67 percent in coming years. More of this freight could be moved by barge with economic and environmental benefits if our navigation system is deemed reliable. It has been estimated that postponing waterway modernization projects has already cost the Nation in excess of \$7 billion in lost economic value.

Timely completion of current inland navigation projects and justified future navigation improvements would allow America to meet the transportation challenges of the 21st Century while protecting and enhancing our Nation's treasured river heritage.

### **Partnerships**

In carrying out its inland navigation responsibilities, the Corps works closely with a variety of Federal agencies including most prominently the U.S. Department of Transportation, the U.S. Coast Guard and the National Oceanic and Atmospheric Administration.

The U.S. Coast Guard has responsibility for vessel and navigation safety and provides navigation aids and search and rescue services. The Department of Transportation's Maritime Administration supports the development of U.S. ports, intermodal systems and domestic shipping, while DOT's St. Lawrence Seaway Development Corporation supports the operation of that waterway in partnership with Canadian authorities. National Oceanic and Atmospheric Administration provides surveys, tidal information and coastal charts.

The Corps also partners with state and local governments, port authorities, and many private environmental groups and trade organizations to solve problems and take advantage of water resource development opportunities that are in the national interest.

We look forward to expanding these partnerships and building new alliances as we work to meet the challenges and opportunities facing our nation's ports and harbors in the years to come.



Emergency Readiness & Response



# Emergency Readiness and Response

Public Law 84-99

Public Law 84-99 follows the basic rule of emergency assistance, which is to provide supplemental services to the state's efforts. The State is the emergency asset manager and determines where and when the Federal government is needed to assist.

## Preparedness Assistance:

Preparedness planning activities allow the Corps of Engineers to take the necessary steps to maintain a knowledgeable and experienced work force that is available for responding to natural and man-made disasters. These planning activities include writing plans, developing and conducting training, participating in exercises, maintaining adequate response supplies, and execution of an inspection program for flood damage reduction structures in the rehabilitation program. The Corps provides preparedness assistance by:

## Response and Recovery Assistance:

The Corps of Engineers is authorized to provide emergency assistance for flood response, under Public Law 84-99. During a flood event, emergency assistance can be requested from the Corps by the State, to supplement state and local efforts. Assistance can be in the form of technical assistance or direct assistance, and will be used to project life and improved property such as critical infrastructure, residential areas, and public facilities. Advanced measures may be used prior to flooding or flood fighting activities to protect against loss of life or property.

## Technical Assistance:

- Providing technical expertise for guidance on flood fight techniques and emergency construction methods
- Providing technical expertise for inspection of existing flood protection projects or dams to identify problem areas and recommend corrective actions
- Providing hydraulic or hydrologic analysis, geotechnical evaluations, topography and stream data, maps and historic flood or storm information

## Direct Assistance:

- Issuing flood fight supplies
- Loaning equipment, such as sandbags, polyethylene sheeting and flood pumps
- Contingency contracting

All flood fight equipment and supplies are to be returned in the condition it was lent, replaced in-kind, or reimbursement made to the Corps.

Following a flood event a levee sponsor can request recovery assistance for a project that is currently eligible in the Corps' rehabilitation program. Damage must exceed items of normal project maintenance and must have a repair cost greater than \$15,000.

## How to Request Information:

Contact the Louisville District's Emergency Management Division:

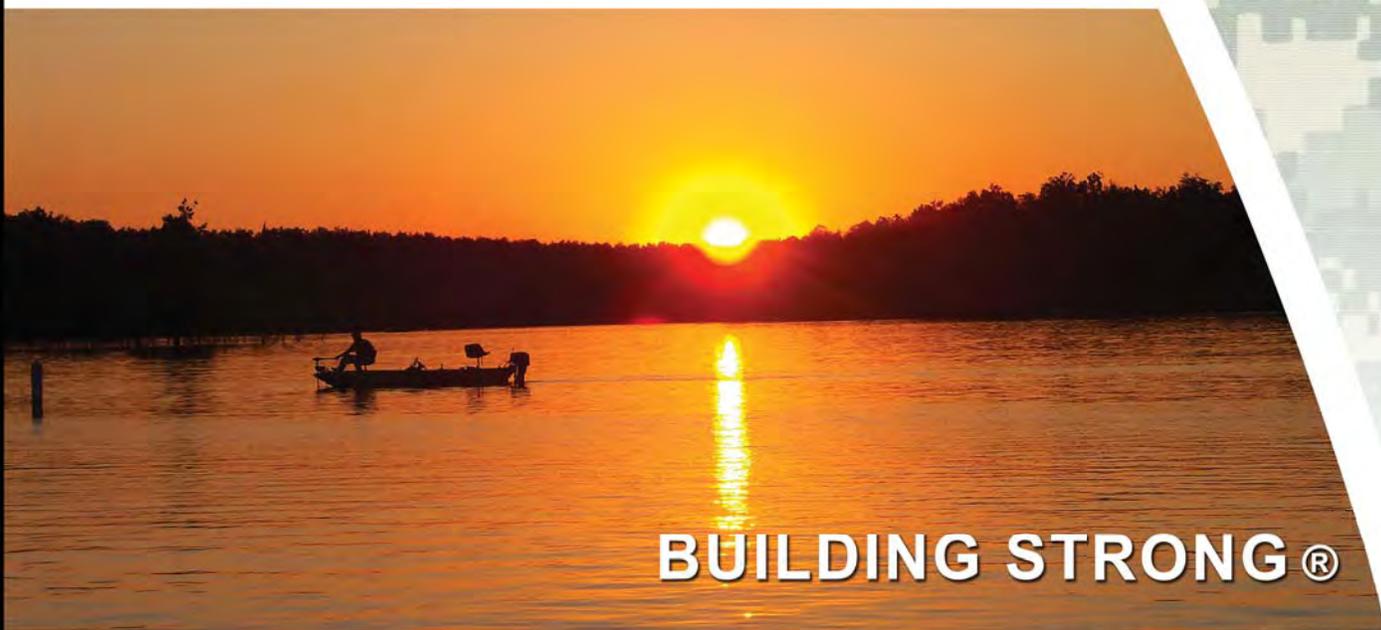
Steve Rager

Steven.W.Rager@usace.army.mil

Office: (502) 315-6921



*Additional Missions*



# Additional Areas of Work

## Regulatory

The Corps of Engineers has been involved in regulating activities in navigable waterways through granting permits since passage of the Rivers and Harbors Act of 1899. At first, this program was meant to prevent obstructions to navigation, although an early 20th century law conferred regulatory authority over the dumping of trash and sewage. Passage of the Clean Water Act in 1972 greatly broadened this role by giving the Corps of Engineers authority over filling in the “waters of the United States.”

A major aspect of the Regulatory program is determining which areas qualify for protection as wetlands. In reaching these decisions, the Corps of Engineers uses its 1987 Wetland Delineation Manual along with the appropriate regional supplement (available in PDF format). In making decisions on whether to grant, deny, or set conditions on permits, District Commanders are required to consider “all factors in the public interest,” including economic development and environmental protection.

Numerous relatively minor activities in wetlands are covered by regional or nationwide general permits, allowing the regulatory staff to concentrate on cases that are more complex. Of the approximately 1,100 people who carry out this mission, about 70 percent have academic backgrounds in biology and environmental sciences. As the lead Corps of Engineers district for regulatory matters in Kentucky and Indiana, the Louisville District reviews 1,800-2,000 permits requests a year for the construction of structures and facilities, and discharge of dredged material and fill in wetlands and navigable waterways.

## How to Request Information:

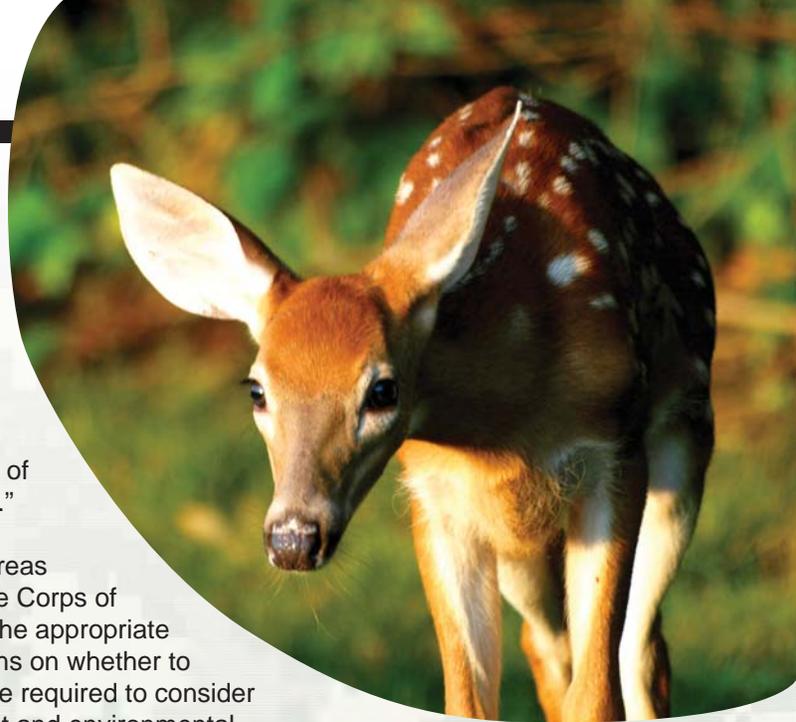
Contact the Louisville District Regulatory Branch: (502) 315-6675.

## Environmental Stewardship

The U.S. Army Corps of Engineers is the steward of approximately 12 million acres of land and water at 456 water resources projects located in 43 states. This property consists of hundreds of lakes, thousands of miles of rivers and streams, hundreds of reservoirs, 40,000 archeological sites, and 5,000 historic sites. These areas are comprised of various types of habitat that support a variety of fish and wildlife. The archeological and historic sites are significant to our cultural and historical heritage.

Benefits from the Louisville District Stewardship Program include those associated with managing natural resources in a healthy and sustainable condition, fostering healthy lands and waters by balancing public uses and needs, protecting our cultural heritage and providing public outdoor recreational opportunities. These efforts are performed in partnership with Federal, State and local government entities, quasi-public organizations, and the private sector and include state and federal fish hatcheries, state wildlife management areas, and federal wildlife refuges. As part of our ongoing effort to raise awareness about environmental issues, our staff provides hundreds of environmental education programs every year that reach thousands of people.

The United States lands and waters that we manage provide thousands of jobs and billions of dollars in revenue for local communities. More than 500 private concessionaires, with \$1 billion in assets, provide support services and facilities at our reservoirs such as: marinas, bait shops and grocery stores. Non-federal interests manage 42 percent of the recreation and natural resources areas. This includes: approximately 200 state wildlife management areas, 25 federal wildlife refuges, 50 state and federal fish hatcheries and hundreds of state and local government parks.



## Environmental Sustainability

For much of the past decade, the Louisville District has sought ways to make its missions, facilities and operations sustainable. Our initiatives range from a sustainable rivers project to ensuring our new construction is built using sustainable design principles. Driven by Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance, the district is increasing its focus on sustainability and is prepared to lead the way.

## Other Engineering Services

The Corps of Engineers provides engineering support to 60 non-Department of Defense Federal agencies, States, and local governments under the Interagency and International Support program. The types of support we provide include cleanup for the Environmental Protection Agency's "Superfund" program, Formerly Used Defense Sites (FUDS), the Installation Restoration Program (IRP) and construction support for the Nation's space program.

The Louisville District also carries out cost-reimbursable work for other Federal, State and local agencies. Projects include:

- Performing levee system evaluations for communities for the purpose of the National Flood Insurance Program.
- Hydropower review of plans for Federal Energy Regulatory Commission.
- Inspection of low-income housing for Housing and Urban Development.
- Flood damage repairs for the U.S. Fish and Wildlife Service.
- Construction, renovation and modification of VA medical facilities.
- Environmental services contract support for GAO.
- Construction of laboratory and related facilities for the U.S. Forest Service.

## Recreation

The Corps of Engineers is the Nation's largest provider of outdoor recreation, operating more than 2,500 recreation areas at 463 projects (mostly lakes) and leasing an additional 1,800 sites to State or local park and recreation authorities or private interests. The Corps of Engineers hosts about 360 million visits a year at its lakes, beaches, and other areas, and estimates that 25 million Americans (one in ten) visit a Corps of Engineers project at least once a year. Supporting visitors to these recreation areas generates 600,000 jobs. For many citizens, the rangers at the recreation sites will represent their only contact with the Department of the Army.

The Louisville District provides recreational opportunities to the public. We offer recreational facilities and services in Kentucky, Indiana and Ohio at 20 reservoirs, in addition to a multitude of facilities along our reaches of the Ohio, Green Kentucky and Wabash rivers. Louisville District lakes welcome more than 17 million visitors annually.

## Military Construction

Louisville District's award winning Military Branch and Reserve Support Team are essential to the nation's defense. The Military Branch is responsible for managing the future and ongoing projects of Army/Air Force bases and defense systems in Kentucky, Ohio, Indiana, Illinois and Michigan. The Reserve Support Team is responsible for managing design and construction of Army and Air Force Reserve Centers across the nation.





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# Green River • Green County, Kentucky

Section 1135 Project

For the first time in its history, the Army Corps of Engineers partnered with a non-governmental organization, The Nature Conservancy, to complete this ecosystem restoration project. The project is located along the right descending bank of Green River at its confluence with Russell Creek, at River Mile 276 in Green County, Kentucky.

Also, the Green River Reservoir eliminated out-of-bank flooding in the project area. Prior to impoundment, the project area experienced out-of-bank flooding with each 5-year storm event. Today, out-of-bank flooding occurs only with an approximate 100-year event. In 30+ years of existence of Green River Reservoir, there has been no flooding of the bottomlands. This has severely restricted natural recruitment and reforestation as floods are the primary method of seed dispersal for many trees.

To remedy the bank erosion, approximately 800 linear feet of riverbank was stabilized using a combination of plantings, rock protection, and two bendway weirs. First, the vertical river bank was graded to a gentler slope to prevent further sloughing and to provide a suitable slope for planting. Rock protection was installed along the lowest portion of the slope. Two bendway weirs constructed of shot-rock (very large limestone rocks) redirected Green River away from the stream bank. The weirs, located near the confluence, are placed at a 75 degree angle from the right bank and extend 50 feet outward. These weirs were specifically designed for this location to intercept flow from Russell Creek and redirect it toward the middle of Green River.

Seventy-five acres were reforested with native hardwood trees to mitigate for the lost bottomland hardwood habitat. Tree species planted are representative of those found in stands of riparian or bottomland hardwoods on the remaining 68 forested acres of the project site (which are protected by conservation easement).

Excess soils were used to create a small dike. This dike enhanced a small existing wetland through increased retention of surface runoff thereby benefiting amphibians and their predators. It is expected that enough soil moisture will be retained through the summer to allow establishment of rushes and sedges and the specialized insect fauna associated with these.

Costs and Benefits: Total cost is approximately \$1,024,000. This includes planning, design, construction, real estate, and plantings. The entire project was designed so that operation and maintenance should not be required. For example, vegetation will be allowed to grow on the bendway weirs eventually providing a more natural appearance. The weirs redirect erosive forces of high flows toward the center of the river while rock armors the toe and the vegetated 4:1 slope provides no vertical soil face for remaining stream energy to erode.

Environmental benefits to aquatic and terrestrial resources are numerous and biologically significant. The project stabilized an actively eroding stream bank. As a result, sedimentation, one of the greatest threats to endangered mussels that inhabit the Green River, is significantly reduced. An extensive gravel bar lies opposite and downstream of the project; rock and gravel substrate (river bottom) extends further. This is ideal habitat for most species of mussels. Sediment covers juvenile mussels suffocating them and preventing colonization of this otherwise suitable habitat. This project will allow the rock and gravel substrate to be flushed of accumulated sediments and then to offer suitable habitat for mussels and fishes.

Reforestation with bottomland hardwoods benefits the aquatic ecosystem through reductions in existing and potential silt loads, capture of nutrients in overland flows, long term storage of atmospheric carbon in woody material, releasing of carbon to the aquatic ecosystem through dropping of leaves and seeds, and habitat creation for species that depend on both the river and surrounding forest to complete their life cycles. Along the edge of the stream, the complex root systems of the woody vegetation will ensure long-term bank stability and furnish fish habitat. Additionally, this planted vegetation will provide shade needed to maintain appropriate water temperatures. Reforestation also provides valuable benefits to wildlife. Three areas of plantings (75 acres) connect existing wooded areas creating a rare feature in the surrounding landscape, a continuous riparian corridor and forested block of 143 acres. This provides cover and food for both resident and migratory species. This continuous forest is especially valuable as nesting habitat for neotropical migrants (song birds).



# Olmsted Locks and Dam • Olmsted, Illinois

Specifically Authorized Navigation Project

The continuing growth in demand for water-borne commerce on the Ohio River requires periodic improvements in the waterways transportation infrastructure. Locks and Dams No. 52 and 53, located on the Ohio River between Paducah, Kentucky, and Cairo, Illinois, were completed in 1929. Temporary 1200-foot long lock chambers were added later. The antiquated design and age of these structures make it impossible to meet current traffic demands without significant delays.

In 2004, 95 million tons of goods were shipped through this reach of the Ohio River. The U.S. Army Corps of Engineers and the navigation industry, in a continuing effort to provide for the nation's future navigation needs, are in the process of replacing these aged facilities with one of the largest civil works projects undertaken by the Corps.

This new locks and dam project is under construction near the community of Olmsted, Illinois at Ohio River Mile 964.4. Construction of the Olmsted Locks and Dam Project was authorized by the United States Congress on 17 November 1988, by the passage of the Water Resources Development Act of 1988 (Public Law 100-676).

The cost of this project estimated to be \$2.9B, which is equally shared by congressional appropriation and the navigation industry. Industry pays a tax on diesel fuel, which goes to the Inland Waterways Trust Fund. The trust fund then pays 50 percent of the project cost.

This strategic reach of the Ohio River provides a connection between the Ohio, Tennessee, Cumberland, and Mississippi rivers. The area has been described as the "hub" of the Ohio and Mississippi rivers waterway system. Barge traffic moving between the Mississippi River system and the Ohio, Tennessee, and Cumberland rivers must pass through this stretch of river. More tonnage passes this point than any other place in America's inland navigation system. This is a critical reach of water from a commercial navigation perspective.

The Olmsted project will consist of two 110-foot by 1200-foot lock chambers located along the Illinois shoreline. The dam will consist of five tainter gates, a 1,400-foot navigable pass, and a fixed weir with wickets. In the raised position, the wickets will maintain the required navigable depths from the Olmsted project upstream to Smithland Locks and Dam. When river flows are sufficient, the wickets can be lowered to lie flat on the river bottom and allow traffic to navigate over the dam sill without having to pass through the locks. This reduces delays experienced by locking through the system.

The capacity of this project is expected to be sufficient to meet projected demands for tow traffic through the year 2025.





**US Army Corps  
of Engineers**  
Louisville District

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