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Army Corps of Engineers: Water Resource Authorization and Project Delivery Processes

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At the direction of Congress, the U.S. Army Corps of Engineers (USACE) in the Department of Defense (DOD) undertakes water resource development activities. USACE develops civil works projects principally to improve navigable channels, reduce flood and storm damage, and restore aquatic ecosystems. Congress directs USACE through authorizations and appropriations legislation. Congress often considers USACE authorization legislation biennially and appropriations annually. USACE attracts congressional attention because its projects can have significant local and regional economic benefits and environmental effects. This report summarizes authorization legislation, project delivery, authorities for alternative project delivery, and other USACE authorities.

SUMMARY

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Authorization Legislation. For USACE studies and projects, congressional study and project authorization generally is required prior to being eligible for federal appropriations. Congress generally considers an omnibus USACE authorization bill biennially. The bill is typically titled a Water Resources Development Act (WRDA). Agency action on an authorization typically requires funding; that is, both an authorization and an appropriation would be needed to proceed. Most water resource project authorizations in WRDAs fall into three general categories: project studies, construction projects, and modifications to existing projects. A few provisions in WRDA bills have time-limited authorizations; therefore, some WRDA provisions may reauthorize expired or expiring authorities. Recent authorization bills include:

- America's Water Infrastructure Act of 2018 (AWIA 2018; P.L. 115-270), which included Title I, Water Resources Development Act of 2018 (WRDA 2018) which focused on USACE civil works;
- Water Infrastructure Improvements for the Nation Act (WIIN; P.L. 114-322), which included Title I ,Water Resources Development Act of 2016 (WRDA 2016) which focused on USACE civil works; and
- Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121), which was largely, but not wholly, focused on USACE civil works.

In WRRDA 2014, Congress developed processes for identifying site-specific studies and projects for authorization to overcome concerns related to congressionally directed spending (known as *earmarks*). Congress also used these processes for WRDA 2016 and WRDA 2018.

Standard and Alternative Project Delivery. The standard process for a USACE project requires two separate congressional authorizations—one for studying feasibility, and a subsequent one for construction—as well as appropriations for both. In recent years, congressional authorization for project construction has been based on a favorable report by the Chief of Engineers (a *Chief's report*) and an accompanying feasibility report. For most activities, Congress requires a nonfederal sponsor to share some portion of study and construction costs. For some project types (e.g., local flood control), nonfederal sponsors are responsible for operation and maintenance.

WRRDA 2014, WRDA 2016, and WRDA 2018 expanded the opportunities for interested nonfederal entities, including private entities, to have greater roles in project development, construction, and financing. WRRDA 2014 also authorized, through the Water Infrastructure Finance and Innovation Act (WIFIA), a program to provide direct loans and loan guarantees for water projects. Although the WIFIA program administered by the U.S. Environmental Protection Agency is operational, the USACE WIFIA program for navigation, flood risk reduction, and ecosystem restoration projects has not been implemented.

Other USACE Activities and Authorities. Congress has granted USACE general authorities to undertake some activities without requiring additional congressional authorization, including emergency actions related to flooding and limited actions in response to drought. Additionally, under the National Response Framework, USACE may be tasked with performing activities in response to an emergency or disaster, principally associated with public works and engineering such as providing temporary roofing and emergency power restoration. In addition to its work for the Department of the Army under USACE's military program, USACE under various authorities also may perform work on a reimbursable basis for other DOD entities, federal agencies, state and local governments, and foreign governments (e.g., USACE manages the construction of multiple border barrier projects on a reimbursable basis for Customs and Border Protection).

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Introduction

The U.S. Army Corps of Engineers (USACE) is an agency within the Department of Defense with both military and civil works responsibilities. The agency's civil works mission has evolved with the changing needs of the nation. It began with improving and regulating navigation channels thereby facilitating the movement of goods between states and for import and export. Congress then charged the agency to help in reducing the damages from floods. More recently, Congress has authorized the agency to restore aquatic ecosystems. USACE operates more than 700 dams; has built 14,500 miles of levees; and improves and maintains more than 900 coastal, Great Lakes, and inland harbors, as well as 12,000 miles of inland waterways.[1]

Congress directs and oversees the specific navigation, flood control, and ecosystem restoration projects that USACE plans and constructs through authorization legislation, annual and supplemental appropriations legislation, and oversight efforts. The agency typically is working with nonfederal project sponsors in the development of these water resource projects. The demand for USACE projects typically exceeds the federal appropriations for these projects.

Broadly, Congress is faced with considering how well the nation is addressing its water resource needs and what is the current and future role of USACE in addressing those needs. Part of the issue is how effective, efficient, and equitable is the USACE project delivery process in meeting the nation's needs. Unlike with federal funding for highways and municipal water infrastructure, the majority of federal funds provided to USACE for water resource projects are not distributed by formula to states or through competitive grant programs. Instead, USACE is directly engaged in the planning and construction of projects; the majority of its appropriations are used performing work on specific studies and contracting for construction of projects authorized by Congress.

Scope and Structure of Report

This report examines the standard development and delivery of a USACE water resource project (e.g., steps in the process, role of Congress, nonfederal project sponsor role). It also presents the evolving alternative project delivery and innovative finance options. This report provides an overview of USACE water resource authorization and project delivery processes and selected related issues. The report discusses the following topics:

- primer on the agency and its authorization legislation, typically titled as a Water Resources Development Act (WRDA);
- standard process for planning and construction of USACE water resource projects;
- interest in and authorities for alternative project delivery and innovative finance for water resource projects; and
- other USACE authorities, including its authorities for Continuing Authorities Programs (CAPs) and technical assistance, emergency response, and reimbursable work.

Appendix A describes the evolution of USACE water resource missions and authorities. **Appendix B** provides an overview of Water Resources Development Acts and other USACE civil

[1] U.S. Army Corps of Engineers (USACE), *Information Paper: Civil Works Statistics*, March 20, 2013.

works omnibus authorization bills enacted from 1986 through 2018, which are collectively referred to herein as WRDAs.

Primer on the Agency and Its Authorization

The civil works program is led by a civilian Assistant Secretary of the Army for Civil Works, who reports to the Secretary of the Army.[2] A military Chief of Engineers oversees the agency's civil and military operations and reports on civil works matters to the Assistant Secretary for Civil Works. A civilian Director of Civil Works reports to the Chief of Engineers. The agency's civil works responsibilities are organized under eight divisions, which are further divided into 38 districts.[3] The districts and divisions perform both military and civil works activities and are led by Army officers.[4] An officer typically is in a specific district or division leadership position for two to three years; a Chief of Engineers often serves for roughly four years. In 2018, the Trump Administration has expressed interest in the possibility of removing USACE from the Department of Defense;[5] for more information on the status of this proposal, see "Proposals on Reorganizing USACE Functions" later in this report.

Local interests and Members of Congress often are particularly interested in USACE pursuing a project because these projects can have significant local and regional economic benefits and environmental effects. In recent decades, Congress has legislated on most USACE authorizations through WRDAs.[6] Congress uses WRDA legislation to authorize USACE water resource studies, projects, and programs and to establish policies (e.g., nonfederal cost-share requirements). WRDAs generally authorize new activities that are added to the pool of existing authorized activities.[7] The authorization can be project-specific, programmatic, or general. Most project-specific authorizations in WRDAs fall into three general categories: project studies, construction

[2] The agency's central civil works responsibilities are to support navigation, reduce riverine flood and coastal storm damage, and protect and restore aquatic ecosystems. The civil works mission also includes the agency's regulatory activities pursuant to the Clean Water Act and the Rivers and Harbors Act of 1899 and the agency's administration of the Formerly Utilized Sites Remedial Action Program (FUSRAP). Through FUSRAP, USACE remediates radiological contamination at nonfederal sites that were used during the early years of the U.S. nuclear weapons program. Neither the FUSRAP program nor the USACE regulatory activities are addressed in detail in this report.

[3] A division map and district links are available at http://www.usace.army.mil/Locations.aspx.

[4] Across both its military and civil works programs, USACE consists of around 35,000 civilian employees (roughly 11,000 employees supporting the military program and the remainder in the civil works program) and almost 800 uniformed military personnel (roughly 300 related to civil works).

[5] U.S. Executive Office of the President, Office of Management and Budget (OMB), *Delivering Government Solutions in the 21st Century: Reform Plan and Reorganization Recommendations*, June 21, 2018, at https://www.whitehouse.gov/omb/management/government-reform/.

[6] Authorization provisions at times have appeared in appropriations legislation or supplemental appropriations legislation. If authorization provisions are included in an appropriations bill, they may be subject to a point of order on the floor for being nongermane. For more information on congressional process, see CRS Report 97-865, *Points of Order in the Congressional Budget Process*, by James V. Saturno. WRDAs are distinguished from each other by referencing the year of enactment; that is, WRDA 1986 refers to the act passed in 1986. The House Transportation and Infrastructure Committee and the Senate Environment and Public Works Committee are the congressional committees of jurisdiction for USACE civil works activities. The authorizing committee generally develops a bill for introduction by the chairperson; alternatively, the Administration can propose a bill for congressional consideration. If the Administration proposes a WRDA, Congress generally receives the proposal at the same time as the President's budget.

[7] There is no current, definitive, comprehensive, publicly available list of all authorized USACE water resources projects and studies. The authorization status of a project can be determined by reviewing the suite of enacted legislation (e.g., various WRDA bills, appropriations legislation, and earlier legislation often referred to as Flood Control Acts and River and Harbor Acts), deauthorization actions (e.g., construction project deauthorization lists published in the Federal Register), and other relevant documents.

projects, and modifications to existing projects. WRDAs also have deauthorized projects and established deauthorization processes. A limited set of USACE authorizations expire unless a subsequent WRDA extends the authorizations.

Generally, a study or construction authorization by itself is insufficient for USACE to proceed. For the most part, the agency can only pursue what it is both authorized and funded to perform. Federal funding for USACE civil works activities generally is provided in annual Energy and Water Development appropriations acts and at times through supplemental appropriations acts. Over the last decade, annual USACE appropriations have ranged from $4.7 billion in FY2013 to $7.0 billion in FY2019. An increasing share of the appropriations has been used for operation and maintenance (O&M) of USACE owned and operated projects. In recent years, Congress has directed more than 50% of the enacted annual appropriations to O&M and limited the number of new studies and construction projects initiated with annual appropriations. For more on USACE appropriations, see the following:

- CRS Report R45326, *Army Corps of Engineers Annual and Supplemental Appropriations: Issues for Congress*, by Nicole T. Carter;
- CRS In Focus IF10864, *Army Corps of Engineers: FY2019 Appropriations*, by Nicole T. Carter; and
- CRS In Focus IF11137, *Army Corps of Engineers: FY2020 Appropriations*, by Nicole T. Carter and Anna E. Normand.

The agency identified a $98 billion backlog of projects that have construction authorization that are under construction or are awaiting construction funding.[8] That is, the rate at which Congress authorizes USACE to perform work has exceeded the work that can be accomplished with the agency's appropriations. For context, annual appropriations for construction funding in FY2018 and FY2019 were $2.1 billion and $2.2 billion, respectively. Given that USACE starts only a few construction projects using discretionary appropriations in a fiscal year (e.g., five using annual appropriations provided in FY2019), numerous projects authorized for construction in previous WRDAs remain unfunded. USACE may have hundreds of authorized studies that are not currently funded, and few new studies are funded annually. Congress allowed USACE to initiate six new studies using FY2019 appropriations.[9]

[8] Written Testimony by Lieutenant General Todd T. Semonite at U.S. Congress, House Committee on Appropriations, Subcommittee on Energy and Water Development, and Related Agencies, *House Appropriations Subcommittee on Energy and Water Development Holds Hearing on Army Corps of Engineers and Bureau of Reclamation Fiscal 2020 Budget Request*, 116th Cong., 1st sess., March 27, 2019. Similar previous estimates included new construction projects and dam safety work but did not include authorized construction projects which are part of the Mississippi River & Tributaries project. It is unknown if the backlog estimate reflects enactment of AWIA 2018 in October 2018 or the Bipartisan Budget Act of 2018 (P.L. 115-123), which provided USACE with $15 billion in emergency supplemental construction funding for qualifying USACE flood control projects. Also, comprehensive cost estimates are not available for reinvestment and major rehabilitation for maintaining performance and safety for the full portfolio of USACE-owned and USACE-constructed water resource infrastructure. In March 2018, USACE released *A Summary of Risk and Benefits Associated with the USACE Levee Portfolio (*https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/6922.The report states "The cost to address risk in the USACE levee portfolio ranges from $6.5 billion to $38 billion, with an expected cost of about $21 billion. The expected cost of $21 billion is broken down into approximately $13 billion for levee infrastructure improvements to mitigate risk drivers in levee performance before the levee overtops, approximately $8 billion in armoring of levees to mitigate risk drivers in levee performance when the levee overtops, and about $300 million to improve evacuation effectiveness within the leveed area." For information on levee safety, see CRS In Focus IF10788, *Levee Safety and Risk: Status and Considerations*, by Nicole T. Carter.

[9] USACE reports that 17 studies were completed during FY2018 (USACE, *Water Resources Reform and Development Act (WRRDA) of 2014 Section 1002: Consolidation of Studies, Annual Report to Congress for FY 2018*, 2019,

USACE Authorization Legislation: 1986 to Present Process

1986 to 2014

Beginning with WRDA 1986 (P.L. 99-662), Congress loosely followed a biennial WRDA cycle for a number of years. WRDAs were enacted in 1988 (P.L. 100-676), 1990 (P.L. 101-640), 1992 (P.L. 102-580), 1996 (P.L. 104-303), 1999 (P.L. 106-53), and 2000 (P.L. 106-541). Deliberations on authorization of particular USACE projects and interest in altering how the agency developed, economically justified, and mitigated for its projects resulted extended beyond the biennial cycle, Congress enacting the next WRDA in 2007 (P.L. 110-114). Congress did not enact a WRDA for a number of years following WRDA 2007. An issue that complicated enactment was devising a way to develop an omnibus water authorization bill that identified specific studies and projects to authorize and modify, as congressionally directed spending (known as *earmarks*) received increasing scrutiny.

2014

The Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121) was enacted in June 2014.[10] It authorized 34 construction projects that had received agency review, had Chief of Engineers reports (also known as *Chief's reports*), and had been the subject of a congressional hearing, thereby overcoming most concerns related to earmarks in the legislation. WRRDA 2014 also created a new process for identifying nonfederal interest in and support for USACE studies and projects. For more on WRRDA 2014, see CRS Report R43298, *Water Resources Reform and Development Act of 2014: Comparison of Select Provisions*, by Nicole T. Carter et al.

2016, 2018, and the Section 7001 Annual Report Process

In Section 7001 of WRRDA 2014, Congress called for the Secretary of the Army to submit an annual report to the congressional authorizing committees—the House Transportation and Infrastructure Committee and the Senate Environment and Public Works Committee—of potential and publicly submitted study and project authorization proposals for Congress to consider for authorization.[11] The process to develop and transmit this report, referred to as the Section 7001 process, provides Congress a means by which to identify new studies and other activities for potential inclusion in an omnibus authorization bill. The Assistant Secretary of the Army delivered to Congress a Section 7001 annual report in February 2015, February 2016, March 2017, and February 2018.[12] A notice requesting public submissions for consideration for

https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/35382.) Hereinafter referred to as Section 1002 FY2018 report.

[10] USACE has developed implementation guidance for most provisions in the Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121). The implementation guidelines are published at USACE, "WRRDA 2014 Implementation Guidance," at http://www.usace.army.mil/Missions/CivilWorks/ProjectPlanning/LegislativeLinks/wrrda2014/wrrda2014_impguide.aspx.

[11] Although Congress may use the Section 7001 annual reports in the development of USACE authorization legislation, WRRDA 2014 did not change Congress's underlying responsibilities in authorizing USACE studies and construction projects. The Section 7001 report instead is a mechanism that assists in the identification of activities that meet the Section 7001 criteria and for which there exists nonfederal or Administration interest in congressional authorization.

[12] The Section 7001 annual reports are available at USACE, "Report to Congress on Future Water Resources Development," at http://www.usace.army.mil/Missions/CivilWorks/ProjectPlanning/LegislativeLinks/wrrda2014/wrrda2014_proposals.aspx. The Administration has indicated in the Section 7001 annual reports that inclusion in the

the fifth Section 7001 annual report was published on April 20, 2018.[13] USACE accepted submissions through August 20, 2018. These submissions are to be considered for inclusion in the annual report expected to be delivered to the authorizing committees in mid-2019. USACE has indicated that the next call for submissions is expected to open in May 2019.

With WRDA 2016, which was Title I of the Water Infrastructure Improvements for the Nation Act (WIIN; P.L. 114-322, enacted in December 2016), Congress returned enactment of USACE authorization legislation to a biennial timeframe. WRDA 2016 authorized new studies based on proposals in the Section 7001 reports and construction projects based on Chief's reports.

The 115th Congress enacted America's Water Infrastructure Act of 2018 (AWIA 2018, P.L. 115-270) in October 2018. AWIA 2018 includes the Water Resources Development Act of 2018 (WRDA 2018) as Title I of the bill.[14] Like WRDA 2016, Congress used the Section 7001 reports to identify new studies, and Chief's reports to identify the construction projects that Congress authorized in WRDA 2018.

Future Authorization Legislation

Like previous Congresses, the 116th Congress may consider WRDA legislation. These deliberations are likely to be shaped by many factors, such as policy proposals by the President, congressional policies on earmarks, and development of an infrastructure initiative or other actions or developments that may alter the framework and context for federal and nonfederal investments. Congress also may have available various reports to inform its WRDA development and deliberations. In addition to the Section 7001 reports and Chief's reports, the authorizing committees receive annually a report required by Section 1002 of WRRDA 2014. The Section 1002 report identifies when USACE feasibility studies—the detailed studies of the water resource problem that are developed to inform the Chief's report and congressional authorization—are anticipated to reach various milestones.[15] At the start of FY2019, USACE currently had roughly 100 active feasibility studies.[16] In addition to feasibility studies, Congress may be presented with other types of studies recommending actions that require congressional authorization. These studies include postauthorization change reports for modifying an authorized project prior to or

body of the report does not represent Administration support for the proposals; inclusion represents that the proposal met the congressionally established criteria. According to Section 7001 of WRRDA 2014, the criteria for inclusion in the annual report are as follows:

> The Secretary shall include in the annual report only those feasibility reports, proposed feasibility studies, and proposed modifications to authorized water resources development projects and feasibility studies that—(i) are related to the missions and authorities of the Corps of Engineers; (ii) require specific congressional authorization, including by an Act of Congress; (iii) have not been congressionally authorized; (iv) have not been included in any previous annual report; and (v) if authorized, could be carried out by the Corps of Engineers.

[13] The April 20, 2018 notice in the *Federal Register* is available at https://www.federalregister.gov/documents/2018/04/20/2018-08292/proposals-by-non-federal-interests-for-feasibility-studies-and-for-modifications-to-an-authorized; more information on the Section 7001 submission process is available at http://www.usace.army.mil/Missions/Civil-Works/Project-Planning/WRRDA-7001-Proposals/.

[14] For information on the drinking water provisions of AWIA 2018 that are primarily administered by the U.S. Environmental Protection Agency, see CRS Report R45656, *America's Water Infrastructure Act of 2018 (P.L. 115-270): Drinking Water Provisions*, by Elena H. Humphreys.

[15] These reports are titled Report to Congress on Feasibility Study Milestones or may be referred to as Section 1002 reports; they are published at USACE, "Report to Congress on Feasibility Study Milestones (WRRDA 2014, Sec 1002," at http://www.usace.army.mil/Missions/Civil-Works/Project-Planning/WRRDA2014_Section1002/.

[16] Section 1002 FY2018 report.

during construction, reevaluation reports for a modification to a constructed project, and reports recommending deauthorization of constructed projects that no longer serve their authorized purposes. Reports and analyses by Government Accountability Office (GAO), Inspector Generals, Congressional Budget Office, National Academy of Sciences (NAS), National Academy of Public Administration,[17] Inland Waterway Users Board,[18] Environmental Advisory Board to the Chief of Engineers, [19] advocacy and industry groups, and others also may influence congressional deliberations.

Efforts to Shape the Future of USACE

Proposals on Reorganizing USACE Functions

In June 2018, the Trump Administration proposed to move the civil works activities from the Department of Defense to the Department of Transportation and the Department of the Interior to consolidate and align the USACE civil works missions with these agencies.[20] Although some Members of Congress have indicated support for looking at which USACE functions may not need to be in the Department of Defense,[21] the conference report that accompanied the USACE appropriations for FY2019 (P.L. 115-244), H.Rept. 115-929, stated the following:

> The conferees are opposed to the proposed reorganization as it could ultimately have detrimental impacts for implementation of the Civil Works program and for numerous non-federal entities that rely on the Corps' technical expertise, including in response to natural disasters.… Further, this type of proposal, as the Department of Defense and the Corps are well aware, will require enactment of legislation, which has neither been proposed nor requested to date. Therefore, no funds provided in the Act or any previous Act to any agency shall be used to implement this proposal.[22]

As previously noted, USACE's central civil works responsibilities are to support coastal and inland commercial navigation, reduce riverine flood and coastal storm damage, and protect and restore aquatic ecosystems in U.S. states and territories. Additional project benefits also may be developed, including water supply, hydropower, recreation, fish and wildlife enhancement, and so on. In addition, USACE has certain regulatory responsibilities that Congress has assigned to the Secretary of the Army; these responsibilities include issuing permits for private actions that may affect navigation, wetlands, and other waters of the United States. As part of its military and civil responsibilities and under the National Response Framework, USACE participates in emergency

[17] Panel of the National Academy of Public Administration, *The U.S. Army Corps of Engineers: An Evaluation of the Project Partnership Agreement Process*, A Report to the Secretary of the Army, November 2018, https://www.napawash.org/uploads/Academy_Studies/NAPA_USACE_Final_Doc2_Clean_11_29_2018.pdf.

[18] For more on the Inland Waterways Users Board and its annual report to the Secretary of the Army and Conges, see https://www.iwr.usace.army.mil/missions/navigation/inland-waterways-users-board/

[19] For more on the Environmental Advisory Board, see https://www.usace.army.mil/Missions/Environmental/Environmental-Advisory-Board/.

[20] U.S. Executive Office of the President, OMB, *Delivering Government Solutions in the 21st Century: Reform Plan and Reorganization Recommendations*, June 21, 2018, at https://www.whitehouse.gov/omb/management/government-reform/. For information on past efforts to reorganize USACE, including transferring USACE civil works responsibilities, see U.S. Government Accountability Office, *Army Corps of Engineers: Organizational Realignment Could Enhance Effectiveness, but Several Challenges Would Have to Be Overcome*, GAO-10-819, September 2010, at https://www.gao.gov/products/GAO-10-819.

[21] U.S. Congress, House Committee on Transportation and Infrastructure, *Examining the Administration's Infrastructure Proposal*, 115th Cong., 2nd sess., March 6, 2018.

[22] H.Rept. 115-929, p. 89.

response activities (see "Natural Disaster and Emergency Response Activities" section of this report). For more information on USACE civil works responsibilities, see **Appendix A**.

The Trump Administration has not provided additional details on its June 2018 reorganization proposal for USACE in subsequent public documents. More recently, USACE and the Assistant Secretary of the Army have focused their attention on efforts to "revolutionize USACE civil works" as part of the Trump Administration's reform of how infrastructure projects are regulated, funded, delivered, and maintained.[23] The three objectives of the effort are: (1) accelerate USACE project delivery, (2) transform project financing and budgeting, and (3) regulatory reform (e.g., improve the permitting process). For more on how USACE projects are delivered and how options for project delivery and financing have changed, see "Standard Project Delivery Process" and "Alternative Project Delivery and Innovative Finance," respectively.

WRDA 2018 Studies on Future of USACE and Economic Evaluation of Projects

The 115th Congress enacted provisions that support receiving information to inform discussions about improving the project delivery and budgeting for projects. In WRDA 2018, Congress included the following provisions: Section 1102, Study of the Future of the United States Army Corps of Engineers; and Section 1103, Study on Economic and Budgetary Analyses.

In Section 1102 of WRDA 2018, Congress required that the Secretary of the Army to contract with the National Academy of Sciences to evaluate the following:

- USACE's ability of carry out its mission and responsibilities and the potential effects of transferring functions and resources from the Department of Defense to a new or existing federal agency; and
- how to improve USACE's project delivery, taking into account the annual appropriations process, the leadership and geographic structure at the divisions and districts, and the rotation of senior USACE leaders.

The legislation requires that the study be completed within two years of enactment (which would be October 2020).

In Section 1103 of WRDA 2018, Congress required that the Secretary of the Army contract with the NAS to do the following:

- review the economic principles and methods used by the USACE to formulate, evaluate, and budget for water resources development projects, and
- recommend changes to improve transparency, return on federal investment, cost savings, and prioritization in USACE budgeting of these projects.

Standard Project Delivery Process

Standard USACE project delivery consists of the agency leading the study, design, and construction of authorized water resource projects. Nonfederal project sponsors typically share in study and construction costs, providing the land and other real estate interests, and identifying locally preferred alternatives. Since the 1950s, questions related to how project beneficiaries and sponsors should share in the cost and delivery of USACE projects have been the subject of debate and negotiation. Much of the basic arrangement for how costs and responsibilities are currently

[23] For more on the effort to "revolutionize" the agency, see USACE, *Revolutionize USACE Civil Works*, PowerPoint presentation, November 2018, http://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll11/id/3126.

shared was established by Congress in the 1980s, with adjustments in subsequent legislation, including in recent statutes.

Congressional authorization and appropriations processes are critical actions in a multistep process to deliver a USACE project. This section describes the standard delivery process for most USACE projects, which consists of the following basic steps:

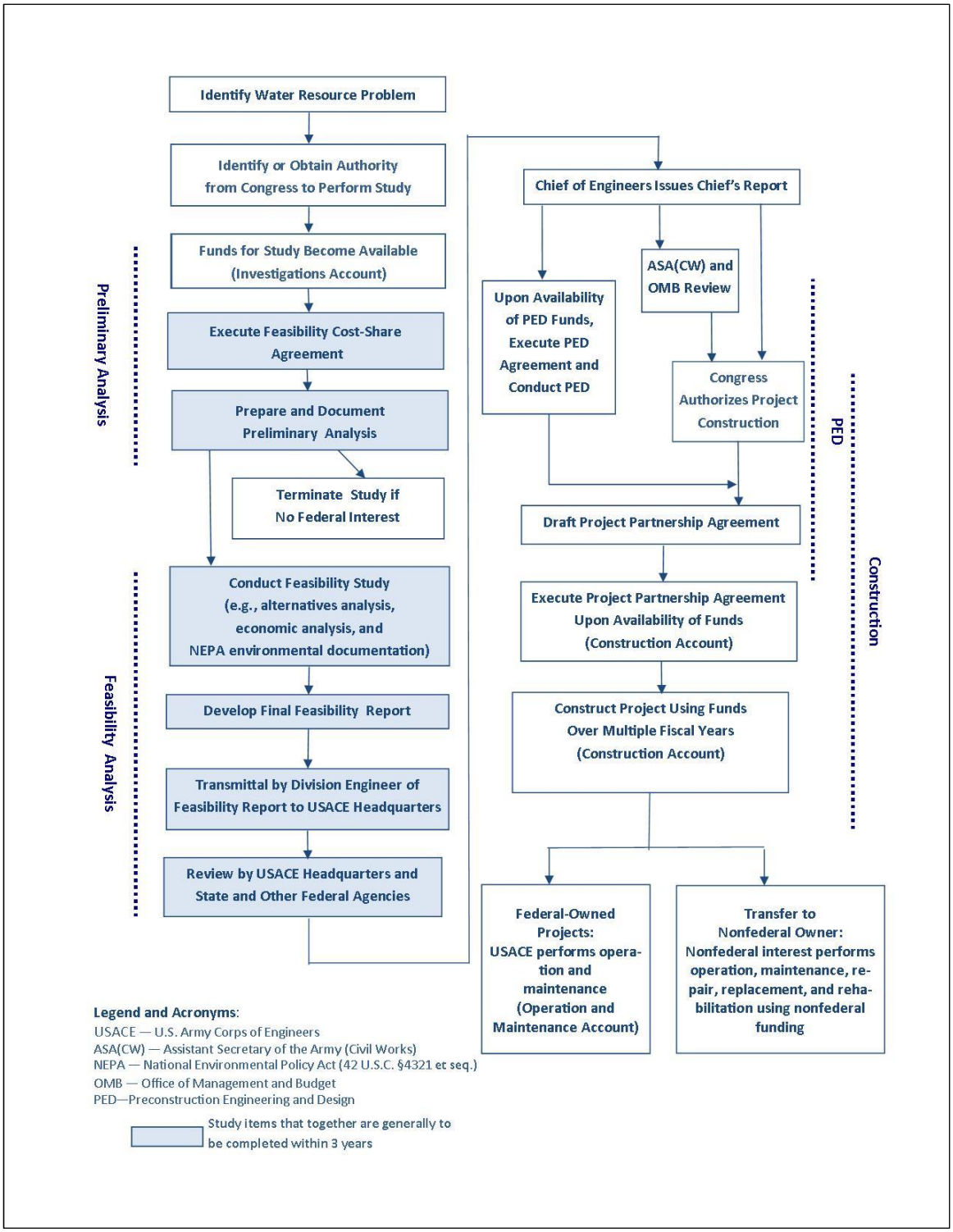
- Congressional study authorization is obtained in a WRDA or similar authorization legislation.[24]
- USACE performs a feasibility study, if funds are appropriated.
- Congressional construction authorization is pursued. USACE can perform preconstruction engineering and design while awaiting construction authorization, if funds are appropriated.
- Congress authorizes construction in a WRDA or similar authorization legislation, and USACE constructs the project, if funds are appropriated.[25]

The process is not automatic. Appropriations are required to perform studies and construction; that is, congressional study and construction authorizations are necessary but insufficient for USACE to proceed. Major steps in the process are shown in **Figure 1**.

[24] Authorizing committees also may use a committee resolution to reexamine (sometimes referred to as a *restudy*) a geographic area previously studied by USACE for a similar purpose; this authority derives from Section 4 of the Rivers and Harbors Act of 1913 (37 Stat. 801, 33 U.S.C. §542). From 2010 to early 2016, neither authorizing committee acted on resolutions for USACE studies. On April 28, 2016, the Senate Environment and Public Works Committee approved six committee resolutions related to USACE studies. A resolution by one of the two authorizing committees is sufficient authorization for a study to reexamine a previous study if funded.

[25] USACE contracts with private sector firms for almost all of the physical construction work.

Figure 1. Major Steps in USACE Project Development and Delivery Process



Source: Congressional Research Service (CRS).

For most water resource activities, USACE needs a nonfederal sponsor to share the study and construction costs. Since WRDA 1986, nonfederal sponsors have been responsible for funding a portion of studies and construction, and they may be 100% responsible for O&M and repair of

certain types of projects (e.g., flood risk reduction and aquatic ecosystem restoration). Most flood risk reduction and ecosystem restoration projects are transferred to nonfederal owners after construction; many navigation and multipurpose dams are federally owned and operated.

Nonfederal sponsors generally are state, tribal, territory, county, or local agencies or governments. Although sponsors typically need to have some taxing authority, Congress has authorized that some USACE activities can have nonprofit and other entities as the nonfederal project sponsor; a few authorities allow for private entities as partners.

Table 1 provides general information on the duration and federal share of costs for various phases in USACE project delivery. Project delivery often takes longer than the combined duration of each phase shown in **Table 1** because some phases require congressional authorization before they can begin and action on each step is subject to the availability of appropriations.

Table 1. USACE Project Phases, Average Phase Duration If Fully Funded, and Federal Cost Share

	Feasibility Study	Preconstruction Engineering and Design (PED)	Construction	Operation & Maintenance
Avg. Duration, Once Congressionally Authorized and Funded[a]	3 years[b]	Approx. 2 years	Varies	Authorized project duration
Federal Share of Costs	50%[c] (except 100% for inland waterways)	Varies by project purpose[d]	Varies, see **Table 2**	Varies, see **Table 2**

Source: CRS.

a. Generally, projects take longer than the duration of the individual steps. Some steps require congressional authorization before they can begin, and action on each step is subject to availability of appropriations.

b. The Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121) requires most feasibility studies to be completed within three years of initiation and to have a maximum federal cost of $3 million. It also deauthorizes any feasibility study not completed seven years after initiation (see "Deauthorization of Studies".

c. Prior to WRRDA 2014, the preliminary analysis was included within a reconnaissance study that was produced at 100% federal expense.

d. Generally, PED cost shares are the same as construction cost shares shown in **Table 2**.

Feasibility Study and Chief's Report

A USACE water resource project starts with a feasibility study (sometimes referred to as an investigation) of the water resource issue and an evaluation of the alternatives to address the issue. The purpose of the USACE study process is to inform federal decisions on whether there is a federal interest in authorizing a USACE construction project. USACE generally requires two types of congressional action to initiate a study—study authorization and then appropriations. Congress generally authorizes USACE studies in WRDA legislation.[26]

Once a study is authorized, appropriations are sought from monies generally provided in the annual Energy and Water Development appropriations acts. Within USACE, projects are largely

[26] In addition to some restudies being approved through committee resolution (see footnote 24), some studies that review the operations of completed projects may proceed under general study authorizations without new project-specific congressional action, pursuant to Section 216 of the Flood Control Act of 1970 (P.L. 91-611, 33 U.S.C. §549a).

planned at the district level and approved at the division level and USACE headquarters. Early in the study process, USACE assesses the level of interest and support of nonfederal entities that may be potential sponsors that share project costs and other responsibilities. USACE also investigates the nature of the water resource problem and assesses the federal government's interest.

If USACE recommends proceeding and a nonfederal sponsor is willing to contribute to the study, a feasibility study begins. The cost of the feasibility study (including related environmental studies) is split equally between USACE and the nonfederal project sponsor, as shown in **Table 1**. The objective of the feasibility study is to formulate and recommend solutions to the identified water resource problem. During the first few months of a feasibility study, the local USACE district formulates alternative plans, investigates engineering feasibility, conducts benefit-cost analyses, and assesses environmental impacts under the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §4321). (For more information on NEPA compliance and cost-benefit analyses, see the box "USACE Feasibility Studies: National Environmental Policy Act Compliance and Economic Analyses.") The evaluation of USACE water resource projects is governed by the 1983 *Principles and Guidelines for Water and Related Resources Implementation Studies* (often referred to as the P&G) and by policy direction provided in WRDA bills and other enacted legislation.[27] An important outcome of the feasibility analysis is determination of whether the project warrants further federal investment.[28] Under the P&G, the federal objective in planning generally is to contribute to national economic development (NED) consistent with protecting the nation's environment.[29] A feasibility study generally identifies a tentatively preferred plan, which typically is the plan that maximizes the NED consistent with protecting the environment (referred to as the NED plan). The Assistant Secretary of the Army has the authority to grant an exception and recommend a plan other than the NED plan. In some circumstances, the nonfederal sponsor may support an alternative other than the NED plan, which is known as the locally preferred plan (LPP). If the LPP is recommended and authorized, the nonfederal entity is typically responsible for 100% of the difference in project costs (construction and operation and maintenance costs) between the LPP and the NED plan.

Once the final feasibility study is available, the Chief of Engineers signs a recommendation on the project, known as the Chief's report. USACE submits the completed Chief's reports to the congressional authorizing committees (33 U.S.C. §2282a) and transmits the reports to the Assistant Secretary of the Army for Civil Works and the Office of Management and Budget (OMB) for Administration review. Since the mid-1990s, Congress has authorized many projects based on Chief's reports prior to completion of the project review by the Assistant Secretary and OMB.

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[27] During FY2017, USACE planning activities remained under the 1983 *Principles and Guidelines*, pursuant to language in the explanatory statement accompanying the Energy and Water Development Appropriations title of the Consolidated Appropriations Act, 2016 (P.L. 114-113). As of June 2015, most other federal water resource investments are being developed and evaluated under a set of Administration documents known as the Principles, Requirements, and Guidelines; for more on these documents, see CRS In Focus IF10221, *Principles, Requirements, and Guidelines (PR&G) for Federal Investments in Water Resources*, by Nicole T. Carter and Charles V. Stern.

[28] For a discussion of the economic evaluations of USACE projects (including the discount rate used and the development of benefit-cost ratios) and the evolution of guidance for USACE project planning, see CRS Report R44594, *Discount Rates in the Economic Evaluation of U.S. Army Corps of Engineers Projects*, by Nicole T. Carter and Adam C. Nesbitt.

[29] Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED include net value of goods and services that are marketed and also those that are not marketed. Environmental, regional, and social effects that may inform trade-offs and alternative plans are documented in accounts other than the NED account.

USACE Feasibility Studies: National Environmental Policy Act Compliance and Economic Analyses

NEPA Compliance. The National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §4321) requires federal agencies to fully consider a federal action's significant impacts on the quality of the human environment, and to inform the public of those impacts, before making a final decision. The U.S. Army Corps of Engineers (USACE) integrates its NEPA compliance process with the development of a feasibility study. That is, during the study process, USACE identifies impacts of potential project alternatives and any environmental requirements that may apply as a result of those impacts, and it takes action necessary to demonstrate compliance with those requirements. In Section 1005 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121), titled Project Acceleration, Congress directed USACE to expedite NEPA environmental documentation compliance for USACE studies. In March 2018, USACE issued implementation guidance for this provision. USACE published implementation guidance for the categorical exclusion portion of Section 1005 in August 2016; the provision called for the agency to survey its use of categorical exclusions and to identify and publish new categorical exclusion categories that merit establishment. USACE has not established new categorical exclusion categories pursuant to Section 1005 of WRRDA 2014.

For more information how USACE's study process is combined with its NEPA documentation compliance, see CRS Report R43209, *Environmental Requirements Addressed During Corps Civil Works Project Planning: Background and Issues for Congress*, by Linda Luther.

Economic Analyses. Congress established federal policy for evaluating USACE projects in the Flood Control Act of 1936 (49 Stat. 1570) by stating that a project should be undertaken "if the benefits to whomsoever they may accrue are in excess of the estimated costs" and if a project is needed to improve the lives and security of the people. For flood risk reduction projects and navigation projects, USACE performs a benefit-cost analysis (BCA) to compare the economic benefits of project alternatives to the investment costs of those alternatives. For ecosystem restoration projects, USACE performs a cost-effectiveness analysis to evaluate for each project alternative its associated costs and its anticipated environmental benefits. Disagreement persists about various aspects of these analyses, including the use of BCAs in decision-making, how (and which) benefits and costs are captured and monetized, and how to value future benefits and costs (which relates to the use of a *discount rate* to evaluate how future costs and benefits are valued in the present). The quality and reliability of BCAs shape federal decision-making and the efficacy of federal and nonfederal spending on federal water resource projects. Executive branch budget-development guidance for USACE over the last decade has used a benefit-cost ratio (BCR) threshold as one of the primary performance metrics for selecting which construction projects to propose for funding. Recent requests have included ongoing projects that have benefits that are at least 2.5 times the project costs (i.e., BCR>2.5) or address a significant risk to human safety. In contrast, the threshold for an Administration recommendation for construction authorization is typically that the benefits exceed the costs (i.e., BCR>1). An issue for Congress and nonfederal project sponsors is the uncertain prospects for construction for the suite of congressionally authorized projects that do not meet the budget-development BCR threshold.

Sources: USACE, Implementation Guidance for Section 1005(b) of the Water Resources Development Act (WRRDA) of 2014, Categorical Exclusions in Emergencies, memorandum, August 5, 2016, at https://planning.erdc.dren.mil/toolbox/library/WRDA/WRRDA2014IGSection1005b.pdf; see CRS Report R44594, *Discount Rates in the Economic Evaluation of U.S. Army Corps of Engineers Projects*, by Nicole T. Carter and Adam C. Nesbitt.

Preconstruction Engineering and Design

USACE preconstruction engineering and design (PED) of a project may begin after the Chief's report subject to the availability of appropriations (33 U.S.C. §2287).[30] PED consists of finalizing the project's design, preparing construction plans and specifications, and drafting construction contracts for advertisement. USACE work on PED is subject to the availability of USACE appropriations. Once funded, the average duration of PED is two years, but the duration varies widely depending on the size and complexity of a project. PED costs are distributed between the

[30] PED may begin on a project before it has obtained congressional authorization for construction. In general, PED begins after the Chief's report, some USACE guidance indicates PED may be initiated after the Division Engineer's transmittal of the feasibility report to USACE headquarters.

federal and nonfederal sponsor in the same proportion as the cost-share arrangement for the construction phase; see **Table 2** for information on the cost-share requirements for construction.

Table 2. Cost Shares for USACE Construction and Operation and Maintenance (O&M)

Project Purpose	Maximum Federal Share of Construction	Maximum Federal Share of O&M
Navigation		
Harbors and Coastal Channels		
improvements less than 20 ft. deep	80%[a]	100%[b]
improvements between 20 ft. and 50 ft. deep	65%[a]	100%[b]
improvements greater than 50 ft. deep	40%[a]	50%[b]
Inland Waterways	100%[c]	100%
Flood and Storm Damage Reduction		
Inland Flood Control	65%	0%
Coastal Hurricane and Storm Damage Reduction (except Periodic Beach Renourishment)[d]	65% (50%)	0% (0%)
Aquatic Ecosystem Restoration	65%	0%
Multipurpose Project Components		
Hydroelectric Power	0%[e]	0%
Municipal and Industrial Water Supply Storage	0%	0%
Agricultural Water Supply Storage (typically irrigation water storage)	65%[f]	0%
Recreation at USACE Facilities	50%	0%
Aquatic Plant Control	Not Applicable	50%

Source: CRS, using 33 U.S.C. §§2211-2215, unless otherwise specified below.

a. Percentages reflect that nonfederal sponsors pay the following: 10%, 25%, or 50% during construction, and an additional 10% over a period not to exceed 30 years.

b. For maintaining improvements up to 50 feet in depth, the maximum federal share is 100%; for maintaining the improvements that are at a depth over 50 feet, the costs are split 50% federal and 50% nonfederal. The majority of federal support for harbor maintenance is derived from the Harbor Maintenance Trust Fund, which receives the collections from a harbor maintenance tax principally applied to commercial cargo imports at federally maintained ports.

c. Appropriations from the Inland Waterway Trust Fund, which is funded by a fuel tax on vessels engaged in commercial transport on designated waterways, are used for 50% of these costs. For more on this trust fund, see CRS In Focus IF10020, *Inland Waterways Trust Fund*, by Charles V. Stern and Nicole T. Carter.

d. Congressionally authorized beach nourishment components of coastal storm damage reduction projects consist of periodic placement of sand on beaches and dunes; most nourishment activities remain in the construction phase for 50 years.

e. Capital costs initially are federally funded and are to be 100% repaid by fees collected from power customers.

f. Unlike most other USACE project components, nonfederal agricultural water supply construction costs are initially federally funded if the USACE project is in the 17 western states where reclamation law applies. Repayment by nonfederal water users for agricultural water supply storage costs is subject to various conditions under the federal reclamation laws.

Construction and Operation and Maintenance

Once the project receives congressional construction authorization, federal funds for construction are sought in the annual appropriations process. Once construction funds are available, USACE typically functions as the project manager; that is, USACE staff, rather than the nonfederal project sponsor, usually are responsible for implementing construction. Although project management may be performed by USACE personnel, physical construction is contracted out to private engineering and construction contractors. When USACE manages construction, the agency typically pursues reimbursement of the nonfederal cost share during project construction.[31] Post-construction ownership and operations responsibilities depend on the type of project. When construction is complete, USACE may own and operate the constructed project (e.g., navigation projects) or ownership and maintenance responsibilities may transfer to the nonfederal sponsor (e.g., most flood damage reduction projects).

The cost-share responsibilities for construction and O&M vary by project purpose, as shown in **Table 2**. **Table 2** first provides the cost share for the primary project purposes of navigation, flood and storm damage reduction, and aquatic ecosystem restoration. Next, it provides the cost shares for additional project purposes, which can be added to a project that has at least one of the three primary purposes at its core. WRDA 1986 increased local cost-share requirements; some subsequent WRDAs further adjusted cost sharing. Deviation from the standard cost-sharing arrangements for individual projects is infrequent and typically requires specific authorization by Congress.[32]

Changes After Construction Authorization

A project may undergo some changes after authorization. If project features or estimated costs change significantly, additional congressional authorization may be necessary. Congressional authorization for a significant modification typically is sought in a WRDA. Requests for such modifications or for the study of such modifications also are solicited through the Section 7001 annual report process. For less significant modifications, additional authorization often is not necessary. Section 902 of WRDA 1986, as amended (33 U.S.C. §2280), generally allows for increases in total project costs of up to 20% (after accounting for inflation of construction costs) without additional congressional authorization.

[31] For many types of USACE projects, nonfederal payment during construction is established in statute (33 U.S.C. §2213). Congress also has provided the agency with the authority to allow nonfederal sponsors to repay construction costs over a term of up to 30 years with interest (33 U.S.C. §2213(k)). The interest rate is determined by the Secretary of the Treasury pursuant to statutory direction (33 U.S.C. §2216). Although this option has not been exercised often, it has been exercised for some projects performed following disasters and using supplemental appropriations (e.g., P.L. 113-2, P.L. 115-123). For example, it was used for some nonfederal costs related to USACE projects in Louisiana after Hurricane Katrina.

[32] Congress has established that cost shares shall be subject to a nonfederal sponsor's ability to pay (33 U.S.C. §2213(m)(2)); however, this authority is rarely employed. The most recent publicly available guidance on how USACE implements the ability-to-pay provision is from 1989; it does not reflect enacted changes in USACE authority, including those in Section 2019 of WRDA 2007 (USACE, *Flood Control Cost-Sharing Requirements Under the Ability-to-Pay Provision of Section 103(m) of* P.L. 99-662, ER 1165-2-121, at http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1165-2-121.pdf?ver=2013-09-08-233444-150).

Changes After Construction: Section 408 Permissions to Alter a USACE Project

If nonfederal entities are interested in altering USACE civil works projects after construction, the entity generally must obtain permission from USACE. The agency's authority to allow alterations to its projects derives from Section 14 of the Rivers and Harbors Act of 1899, also known as Section 408 based on its codification at 33 U.S.C. §408. This provision states that the Secretary of the Army may "grant permission for the alteration or permanent occupation or use of any of the aforementioned public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work."[33] Pursuant to the regulations, USACE conducts a technical review of the proposed alteration's effects on the USACE project. Section 408 permissions may be required not only for projects operated and maintained by USACE, but also federally authorized civil works projects operated and maintained by nonfederal project sponsors (e.g., many USACE-constructed, locally maintained levees).[34] At the end of the Section 408 process, USACE chooses to approve or deny permission for the alteration. USACE may attach conditions to its Section 408 permission.

Deauthorization Processes and Divestiture

Deauthorization of Projects

Most authorizations of USACE construction projects are not time limited. To manage the backlog of authorized projects that are not constructed, Congress has enacted various deauthorization processes.

- **General Deauthorization Authority.** Of the current deauthorization authorities for unconstructed projects, the oldest directs the Secretary of the Army to transmit to Congress annually a list of authorized projects and project elements that did not receive obligations of funding during the last five full fiscal years (33 U.S.C. §579a(b)(2)).[35] If funds are not obligated for the planning, design, or construction of the project or project element during the following fiscal year, the project or project element is deauthorized.[36] The final project deauthorization list

[33] On September 30, 2018. Engineer Circular (EC) 1165-2-220, *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*, replaced a 2015 Engineer Circular (EC) 1165-2-216. EC 1165-2-220 is available at https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC_1165-2-220.pdf?ver=2018-09-07-115729-890. In 2015, USACE released agency-wide regulations for how the agency would process requests for Section 408 permissions—EC 1165-2-216, *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*. Subsequent to the 2015 regulation the various implementation guidance documents were developed to clarify and facilitate the Section 408 permission process. The EC published in September 2018 attempted to consolidate the guidance and alter the Section 408 permission process to address lessons from implementing the 2015 EC.

[34] EC 1165-2-220 provides that the regulation applies principally to alternations proposed within the real property identified and acquired for the USACE project, with potential exceptions.

[35] 33 U.S.C. §579a(b)(2). Section 1175 of WRDA 2016 exempted from this deauthorization process certain projects that are authorized to receive funds from the Inland Waterways Trust Fund.

[36] A deauthorization list was delivered to Congress on December 15, 2016 pursuant to this authority. According to the statute, the projects on that list were to be deauthorized on October 1, 2018. Section 1332 of WRDA 2018 directed that projects on that list "shall not be deauthorized unless" the projects meet the requirements of Section 1301(b)(1)(A) of WRDA 2016. There were a number of projects on the December 15, 2016 list that did not meet the criteria of Section

is published in the *Federal Register*. The process is initiated when the Secretary of the Army transmits the list.

- **WRDA 2018 One-Time Process.** Section 1301 of WRDA 2018 created a one-time process to deauthorize at least $4 billion of authorized projects that are unconstructed and are "no longer viable for construction."[37] This process can deauthorize unconstructed projects or project elements authorized prior to WRDA 2007, projects on the list produced pursuant to the general deauthorization authority (33 U.S.C. §579a(b)(2)), and unconstructed projects requested to be deauthorized by the nonfederal sponsor.
- **WRDA 2016 One-Time Process.** Section 1301 of WRDA 2016 created a one-time process to deauthorize projects with federal costs to complete of at least $10 billion that are "no longer viable for construction." This process can only deauthorize projects authorized prior to WRDA 2007.
- **Projects Authorized in WRDA 2018, WRDA 2016, and WRRDA 2014.** Section 1302 of WRDA 2018 requires that a project authorized in WRDA 2018 be automatically deauthorized if no funding had been obligated for its construction after 10 years of enactment (i.e., 10 years after October 2018), unless certain conditions apply). Section 1302 of WRDA 2016 requires that any project authorized in WRDA 2016 be automatically deauthorized if after 10 years of enactment (December 2026) no funding had been obligated for its construction, unless certain conditions apply. Section 6003 of WRRDA 2014, as amended by Sec. 1330 of WRDA 2018, requires that any project authorized in WRRDA 2014 be automatically deauthorized if after 10 years of enactment (June 2024) no funding had been obligated for its construction.[38]

USACE has not addressed uncertainties regarding how implementation of these authorities is to be coordinated.[39]

A separate divestiture process is used to dispose of constructed projects or project elements and other real property interests associated with civil works projects. Some divestitures also may require explicit congressional deauthorization. USACE divestitures historically either have been limited to projects or real property interests that no longer serve their authorized purposes (e.g., navigation channels that no longer have commercial navigation) or have been conducted pursuant to specific congressional direction. While Section 1301 of WRDA 2018 appears to provide a one-time opportunity for unconstructed projects to be deauthorized, there currently is no formal process similar to the Section 7001 annual report process for a nonfederal entity to propose that a

1301(b)(1)(A) of WRDA 2016. Forthcoming implementation guidance for Section 1332 of WRDA 2018 or a publication of a notice of deauthorization in the *Federal Register* may provide clarity on which projects on the December 15, 2016 list remain authorized.

[37] This deauthorization process is restricted to projects authorized prior to WRDA 2007.

[38] 33 U.S.C. §579c(a).

[39] USACE indicated in its implementation guidance for Section 6003 that "Additional guidance will be provided" (USACE, Implementation Guidance for Sections 6001 and 6003 of the Water Resources Reform and Development Act of 2014—Deauthorization of Inactive Projects and Backlog Prevention, Memorandum for Distribution, February 23, 2015, p. 6, at http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/350). At a USACE website dedicated to WRDA 2016 implementation guidance (http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/738), USACE indicated that implementation guidance was not necessary for Section 1302 of WRDA 2016.

constructed project be deauthorized.[40] Congress has deauthorized unconstructed and constructed projects and project elements in WRDA legislation.

Deauthorization of Studies

There are two authorities for deauthorizing studies:

- The Secretary of the Army is directed to transmit to Congress annually a list of incomplete authorized studies that have not received appropriations for five full fiscal years (33 U.S.C. §2264). The study list is not required to be published in the *Federal Register*. Congress has 90 days after submission of the study list to appropriate funds for a study; otherwise, the study is deauthorized.
- WRRDA 2014, as amended by WRDA 2018, requires that a feasibility study that remains incomplete 10 years after initiation is automatically deauthorized.[41]

CRS has no data indicating that studies have been deauthorized through these processes in recent years. USACE has indicated that the agency is reviewing its 5,600 study authorities to identify studies for deauthorization.[42]

Alternative Project Delivery and Innovative Finance

Interest in Alternative Delivery

As nonfederal entities have become more involved in USACE projects and their funding, they have expressed frustration with the time it takes USACE to complete studies and construction. Delayed completion of water resource projects can postpone some or all of a project's anticipated benefits. The impact of these delays varies by the type of project. Delayed completion of flood risk reduction projects may prolong a community's vulnerability to certain coastal and riverine floods, thereby contributing to the potential cost of disaster response and recovery. Delayed investment in navigation projects may result in postponed transportation cost savings from improved efficiency and in greater reliance on road and rail transport. Delayed aquatic ecosystem restoration projects may result in missed opportunities to attenuate wetlands loss and realize related ecosystem benefits, such as those for water quality and fisheries.

Another concern with long project delivery is the potential for an increase in project costs. The Government Accountability Office in a 2013 report summarized its findings regarding cost growth at USACE flood control projects.[43] GAO's detailed review of eight projects found that a factor contributing to cost increases at these USACE-led flood risk reduction projects was funding below the capability level. Other factors included design changes, initial USACE cost

[40] Some nonfederal project sponsors have proposed deauthorizations through the annual report process established by Section 7001 of WRRDA 2014. The Administration has stated in its Section 7001 annual reports to Congress that the submitted deauthorization proposals do not qualify pursuant to the congressional direction in Section 7001(c)(1)(A) of WRRDA 2014 (33 U.S.C. §2282d(c)(1)(A)).

[41] 33 U.S.C. §2282c(d)(4). Unlike the other deauthorization authorities, the timing of this deauthorization process is based on when the study was initiated, not the date of the study authorization.

[42] Personal communication from USACE staff to Nicole T. Carter, March 2, 2018.

[43] U.S. Government Accountability Office (GAO), *Cost Increases in Flood Control Projects and Improving Communication with Nonfederal Sponsors*, GAO 14-35, December 20, 2013, at https://www.gao.gov/products/GAO-14-35.

estimates being lower than later cost estimates, and differences in contract estimates and actual contract costs. When testifying in 2013, USACE Deputy Commanding General for Civil and Emergency Operations Major General Michael J. Walsh noted that how much funding is put toward a project significantly impacts the duration of project delivery.[44]

Although President Trump (as well as previous Presidents) and many Members of Congress have expressed interest in improving the nation's infrastructure, including its water resource infrastructure, balancing the potential benefits of such improvements and concerns about increased federal expenditures poses an ongoing challenge. While a subset of authorized USACE construction activities is included in the President's budget request and funded annually by congressional appropriations, numerous authorized USACE projects or project elements have not received federal construction funding.

Competition for USACE discretionary appropriations has increased interest in alternative project delivery and *innovative financing*, including private financing and public-private partnerships (P3s). In a June 21, 2017, memorandum, the agency's Director of Civil Works announced the initiation of a comprehensive review to identify opportunities to enhance project delivery, organizational efficiency, and effectiveness.[45] Congress, particularly in WRRDA 2014, WRDA 2016, and WRDA 2018, has authorized and extended alternative ways to advance and deliver USACE studies and projects. To expand delivery options, Congress has increased the flexibility in the nonfederal funding of USACE-led activities, nonfederal leadership of USACE studies and projects, and P3s. It also has authorized new financing mechanisms for water resource projects. Some of these expanded delivery and financed options are discussed below.

Expansion of Delivery Options

WRRDA 2014 and WRDA 2016 expanded the authorities for nonfederal entities to perform studies and construct projects (or elements of projects) that typically would have been undertaken by USACE. These statutes also provided that the costs of these nonfederal-led activities are shared by the federal government largely as if USACE had performed them. That is, nonfederal entities advancing water resource projects may be eligible to receive credit or reimbursement (without interest) subject to the availability of federal appropriations for their investments that exceed the required nonfederal share of project costs.[46] These authorities typically require that the nonfederal entity leading the project comply with the same laws and regulations that would apply if the work were being performed by USACE.

Private sector access to financing and expertise and experience with complex project management are all seen as potential advantages for the delivery of some types of public infrastructure. Interest has expanded in recent years in allowing private engagement in U.S. water resource projects,

[44] U.S. Congress, House Committee on Transportation and Infrastructure, *A Review of the United States Army Corps of Engineers Chief's Reports*, 113th Cong., 1st sess., June 5, 2013, at https://transportation.house.gov/calendar/eventsingle.aspx?EventID=351412.

[45] Director of Civil Works, USACE, *Further Advancing Project Delivery Efficiency and Effectiveness of USACE Civil Works*, Memorandum for Major Subordinate Commands, and Districts, June 21, 2017, at https://planning.erdc.dren.mil/toolbox/library/MemosandLetters/17Jun21-AdvancingCWProjectDelivery.pdf.

[46] GAO found that the number of federal water resource studies and projects that nonfederal sponsors have undertaken, and the amounts they have been reimbursed, could not be reliably determined (GAO, *Better Guidance Could Improve Corps' Information on Water Resources Projects Undertaken by Nonfederal Sponsors*, December 2016, p. 26, at https://www.gao.gov/assets/690/681415.pdf). In addition to the existing authorities, the FY2020 President's budget request proposes to accelerate project construction by applying $150 million in federal funds in conjunction with excess or advanced funding by nonfederal entities.

which would follow the models used in other U.S. infrastructure sectors, such as transportation, and in international examples of private provision of public infrastructure and related services. WRRDA 2014 directed USACE to establish pilot programs to evaluate the effectiveness and efficiency of allowing nonfederal applicants to carry out certain authorized projects. For example, WRRDA 2014 included the following:

- Section 5014 authorized a P3 pilot program,[47] and
- Section 1043 authorized the transfer of federal funds to nonfederal entities to use for the construction of authorized USACE projects.[48]

The 116th Congress may consider water resource project financing and delivery during deliberations on USACE appropriations and authorization legislation, as well as during discussions of broader infrastructure initiatives. In H.Rept. 115-929, which accompanied USACE FY2019 appropriations, congressional appropriators directed USACE to continue to develop its policy approach for public-private partnerships. For a discussion of some of the issues that have impeded greater private-sector participation and P3 efforts for USACE and water resource projects (e.g., limitations on USACE entering into long-term contracts and challenges to assessing project-specific user fees) see CRS Testimony TE10023, *America's Water Resources Infrastructure: Approaches to Enhanced Project Delivery*, by Nicole T. Carter.

Under these authorities, additional nonfederal investments may, in the near term, achieve progress on some water resource projects, thereby potentially making federal funding available for other authorized USACE projects. However, additional nonfederal investment may have potential trade-offs for the federal government, including reduced federal influence over the set of studies and construction projects receiving, expecting, and eligible for federal support. Others raise concerns that these provisions alter how USACE funds are used by directing federal dollars toward projects with nonfederal sponsors that can provide more nonfederal funding upfront.[49] A concern from the nonfederal perspective is the challenge of obtaining federal reimbursement.[50]

Water Infrastructure Finance and Innovation Act

WRRDA 2014 in Sections 5021 through 5035 authorized the Water Infrastructure Finance and Innovation Act (WIFIA), a program to provide direct loans and loan guarantees for identified

[47] USACE has published implementation guidance for this provision in 2015. Various impediments to its implementation have been identified (e.g., see M.G. M.W.B. Temple (Ret.), *Alternative Financing and Delivery of Waterways Infrastructure*, American Society of Civil Engineers and Coasts, Oceans, Ports & Rivers Institute, undated, https://www.asce.org/uploadedFiles/News_Articles/alt_finance_report_final.pdf.).

[48] Section 1043 of WRRDA 2014 (33 U.S.C. §2201 note) authorized a study pilot program and a construction pilot program that can be used to transfer federal funds to nonfederal interests for them to perform studies and construct projects. Unlike with other authorities that allow nonfederal interests to lead USACE studies and projects and then be reimbursed for what would have been the federal costs, the Section 1043 authority allows the pilot studies and construction projects to obtain the federal funds up front. WRDA 2018 extended the authorization of the construction pilot program through 2023; it did not alter the authorization for the study pilot program, which is set to expire in FY2019. The FY2020 President's budget request proposes to transfer $150 million to projects pursued using the Section 1043 authority. As of early April 2019, USACE had not published implementation guidance for Section 1043 of WRRDA 2014.

[49] In a March 2019 hearing, this concern was referenced as creating a "pay to play" system (U.S. Congress, House Committee on Appropriations, Subcommittee on Energy and Water Development, and Related Agencies, *House Appropriations Subcommittee on Energy and Water Development Holds Hearing on Army Corps of Engineers and Bureau of Reclamation Fiscal 2020 Budget Request*, 116th Cong., 1st sess., March 27, 2019).

[50] For information on a related GAO report, see footnote 46.

categories of water projects. The WIFIA concept is modeled after a similar program that assists transportation projects: the Transportation Infrastructure Finance and Innovation Act, or TIFIA, program. Congress established WIFIA with roles for both USACE and the Environmental Protection Agency (EPA).[51] EPA's WIFIA program is funded and operational; [52] USACE's WIFIA program remains in the development phase.

WIFIA authorized both agencies to provide assistance in the form of loans and loan guarantees, and it identified each agency to provide that assistance for certain types of water projects. Under the WIFIA program, USACE is authorized to provide WIFIA support for a number of different project types, such as flood damage reduction projects, hurricane and storm damage reduction projects, environmental restoration projects, coastal or inland harbor navigation improvement projects, inland and intracoastal waterways navigation projects, or a combination of these projects. WRRDA 2014 included a number of project selection criteria that would affect whether individual projects are eligible to receive USACE WIFIA funding.

WRDA 2018 amended the WIFIA authorization of appropriations provided by WRRDA 2014. WRRDA 2014 authorized WIFIA appropriations for each of FY2015 through FY2019 for $50 million for each of the EPA Administrator and the Secretary of the Army. WRDA 2018 added an authorization of appropriations for the EPA Administration for $50 million for each of FY2020 and FY2021.

Implementation of WIFIA requires congressional appropriations to cover administrative expenses (i.e., "start-up" costs) and subsidy costs (i.e., the presumed default rate on guaranteed loans). Each agency also must promulgate regulations for the implementation of its WIFIA program. EPA has developed its regulations; USACE has not. The Administration has requested and Congress has provided funds for EPA's WIFIA. EPA is implementing its WIFIA authority. In contrast, the Administration had not requested funding for USACE's WIFIA start-up costs. Congress has directed USACE to develop the structure for its WIFIA program; however, the USACE WIFIA program has not advanced sufficiently to be operational. In H.Rept. 115-929 for FY2019, congressional appropriators directed USACE to continue to develop its WIFIA proposals for future budget submissions and to allow for WIFIA development expenses to be funded through the USACE Expenses account. Similar to recent years, the President's FY2020 request did not request funding for USACE's WIFIA. For a discussion of issues related to USACE implementation of WIFIA, see CRS Testimony TE10023, *America's Water Resources Infrastructure: Approaches to Enhanced Project Delivery*, by Nicole T. Carter.

Other USACE Authorities and Activities

There are exceptions to the standard project delivery process described above. USACE has some general authorities to undertake small projects, technical assistance, and emergency actions. Congress also has specifically authorized USACE to undertake numerous municipal water and wastewater projects. USACE also performs work on a reimbursable basis for other agencies and entities. These additional authorities are described below.

[51] P.L. 113-121, Title V, Subtitle C, §§5021-5035.

[52] For more information, see CRS Report R43315, *Water Infrastructure Financing: The Water Infrastructure Finance and Innovation Act (WIFIA) Program*, by Jonathan L. Ramseur and Mary Tiemann.

Small Projects Under Continuing Authorities Programs

The agency's authorities to undertake small projects are called Continuing Authorities Programs (CAPs). Projects under these authorities can be conducted without project-specific congressional study or construction authorization and without project-specific appropriations; these activities are performed at USACE's discretion without the need for inclusion in the Section 7001 reports. According to USACE, once funded, CAP projects generally take three years from feasibility phase initiation to construction completion. For most CAP authorities, Congress has limited the project size and scope as shown in **Table 3**.[53] The CAPs typically are referred to by the section number in the bill in which the CAP was first authorized. WRRDA 2014 requires the Assistant Secretary of the Army to publish prioritization criteria for the CAPs and an annual CAP report.[54] For more information, see CRS In Focus IF11106, *Army Corps of Engineers: Continuing Authorities Programs*, by Anna E. Normand.

Table 3. Selected USACE Continuing Authorities Programs (CAPs) for Small Projects and Recent Enacted and Requested Appropriations

(in millions of dollars)

Common Name of CAP Authority	Eligible Activities and U.S. Code Citation	Max. Federal Cost Share	Per-Project Federal Limit	Annual Federal Program Limit	FY2019, FY2018, and FY2017	FY2020 Request
§14	Streambank and shoreline erosion of public works and nonprofit services; 33 U.S.C. §701r	65%	$5.0	$25.00	$8.0 $8.0 $5.0	$0.0
§103	Beach erosion/hurricane storm damage reduction; 33 U.S.C. §426g	65%	$10.0	$37.50	$4.0 $3.0 $0.5	$0.0
§107	Navigation improvements; 33 U.S.C. §577	Varies (see **Table 2**); 50% for recreational	$10.0	$62.50	$8.0 $7.5 $8.5	$0.0
§111	Prevention/mitigation of shore damage by federal navigation projects; 33 U.S.C. §426i	Same as the project causing the damage	$12.5	Not Applicable	$8.0 $0.5 $0.5	$0.0
§204	Regional sediment management/beneficial use of dredged material; 33 U.S.C. §2326	65%	$10.0	$62.50	$10.0 $1.5 $1.0	$1.0
§205	Flood control (including ice jam prevention); 33 U.S.C. §701s	65%	$10.0	$68.75	$8.0 $8.0 $8.0	$1.0
§206	Aquatic ecosystem restoration; 33 U.S.C. §2330	65%	$10.0	$62.50	$12.0 $8.0 $8.0	$1.0

[53] There also is an authority under 33 U.S.C. §610 for USACE to control noxious aquatic plant growth at a 70% federal and 30% nonfederal cost share; the authority is capped at $15 million annually. This authority has not been operated as a Continuing Authorities Program. Most, but not all, of the work under this authority has been for research.

[54] No *Federal Register* publication or annual report was available as of early April 2019.

Common Name of CAP Authority	Eligible Activities and U.S. Code Citation	Max. Federal Cost Share	Per-Project Federal Limit	Annual Federal Program Limit	FY2019, FY2018, and FY2017	FY2020 Request
§1135	Project modifications for improvement of the environment; 33 U.S.C. §2309a	75%	$10.0	$50.00	$8.0 $4.0 $3.0	$1.0

Source: CRS, using statutes and USACE Engineer Regulation 1105-2-100.

Notes: CAPs that have not been funded in the most recent five fiscal years (e.g., §208 CAP [33 U.S.C. §701g] for the removal of obstructions and clearing channels for flood control) are not shown.

Planning and Technical Assistance and Tribal Programs

Congress has granted USACE some general authorities to provide technical assistance related to water resources planning and for floodplain management. Congress also has authorized USACE to provide technical and construction assistance to tribes. Except where noted in **Table 4**, USACE does not need project-specific authority to undertake activities under the authorities listed in **Table 4**.

Table 4. USACE Planning and Technical Assistance Authorities

(in millions of dollars)

Program	Activities Authorized	Max. Federal Cost Share	Per-Project Federal Limit	Annual Federal Program Limit	FY2019, FY2018, and FY2017	FY2020 Request
Planning Assistance to States	Technical assistance to states, communities, and other eligible entities for comprehensive water resources planning, and eligible levee system evaluations of federally authorized levees; 42 U.S.C. §1962d-16	Varies	$5.0 annually per state for comprehensive plans	$30.0 for comprehensive plans $15.0 for technical assistance	$9.0 $8.0 $6.75	$5.0
Flood Plain Management Service	Technical assistance on flood and floodplain issues; 33 U.S.C. §709a	100% for eligible activities	Not Applicable	$50.0	$17.0 $15.0 $15.3	$15.0

Program	Activities Authorized	Max. Federal Cost Share	Per-Project Federal Limit	Annual Federal Program Limit	FY2019, FY2018, and FY2017	FY2020 Request
Tribal Partnership Program	Studies and construction of water resource development projects that benefit Indian tribes; 33 U.S.C. §2269	50% for construction; 50% for water-related planning, except 75% for watershed and river basin assessments	$12.5; for projects above $12.5 project-specific congressional authorization is required	Not Applicable	$2.5 $1.5 $1.75	$0.5

Source: CRS.

Natural Disaster and Emergency Response Activities

National Response Framework

For assistance for presidentially declared disasters pursuant to the Stafford Act (P.L. 93-288), USACE may be tasked with performing various response and recovery activities. These activities are funded through the Disaster Relief Fund and performed at the direction of the Federal Emergency Management Agency (FEMA) and the President and at the request of the governor of a state or territory with an affected area. Under the National Response Framework, USACE coordinates emergency support for *public works and engineering*. This support includes technical assistance, engineering, and construction management as well as emergency contracting, power, and repair of public water and wastewater and solid waste facilities.[55] USACE also assists in monitoring and stabilizing damaged structures and in demolishing structures designated as immediate hazards to public health and safety. In addition, the agency provides technical assistance in clearing, removing, and disposing of contaminated and uncontaminated debris from public property and in establishing ground and water routes into affected areas. USACE coordinates contaminated debris management with EPA.[56]

Flood Fighting and Emergency Response

In addition to work performed as part of the National Response Framework, Congress has given USACE its own emergency response authority. This is commonly referred to as the agency's P.L. 84-99 authority, based on the act in which it was originally authorized, the Flood Control and Coastal Emergency Act (P.L. 84-99, 33 U.S.C. §701n). The act authorizes USACE to perform emergency response and disaster assistance.[57] It also authorizes disaster preparedness, advance

[55] In Puerto Rico after the 2017 hurricane season, USACE not only restored emergency power but also led initial grid repair. USACE leadership in grid repair as part of domestic disaster recovery was a novel development. For more on this work, see CRS Report R45023, *Repair or Rebuild: Options for Electric Power in Puerto Rico*, by Richard J. Campbell, Corrie E. Clark, and D. Andrew Austin.

[56] For more on USACE's deployable emergency resources and expertise, see CRS Report R43560, *Deployable Federal Assets Supporting Domestic Disaster Response Operations: Summary and Considerations for Congress*, coordinated by Jared T. Brown.

[57] USACE also has other limited authorities related to emergency response (e.g., an Emergency Streambank and Shoreline Erosion Protection program) and recovery (e.g., a Snagging and Clearing for Flood Control program), as part of its Continuing Authorities Programs. For more information, see CRS In Focus IF11106, *Army Corps of Engineers:*

measures, emergency operations (disaster response and post-flood response), rehabilitation of certain damaged flood control works, protection or repair of certain federally authorized shore protection works threatened by coastal storms, emergency dredging, and flood-related rescue operations. These activities are limited to actions to save lives and protect improved property (public facilities/services and residential or commercial developments). USACE also has some authorities to assist with selected activities during drought.[58]

Most of the agency's emergency response work (including the repair program described below) generally is funded through supplemental appropriations provided directly to USACE. Until supplemental appropriations are provided, Congress has provided USACE with authority to transfer money from ongoing USACE projects to emergency operations (33 U.S.C. §701n).

Repair of Damaged Levees and Other Flood and Storm Projects

In P.L. 84-99, Congress authorized USACE to rehabilitate damaged flood control works (e.g., levees) and federally constructed hurricane or shore protection projects (e.g., federal beach nourishment projects) and to conduct related inspections. This authority is referred to as the Rehabilitation and Inspection Program (RIP). To be eligible for rehabilitation assistance, the project must be in active status at the time of damage by wind, wave, or water action other than ordinary nature.[59] Active RIP status is maintained by proper project maintenance as determined during an annual or semiannual inspection and by the correction of deficiencies identified during

Continuing Authorities Programs, by Anna E. Normand.

[58] USACE has authority to assist in the provision and transport of emergency water supplies when state resources have been exceeded and an imminent public health threat exists. Although USACE is authorized to assist political subdivisions, farmers, and ranchers with nonirrigation water, this authority largely has been used for assisting tribes with drinking water supplies. The agency can construct wells and transport water to provide emergency drinking water during drought conditions in the U.S. states and territories. USACE assistance is provided only to meet minimum public health and welfare requirements that cannot be met in the immediate future by state or local actions or through reasonable conservation measures. Transport expenses are nonreimbursable expenses (i.e., 100% federal); the purchase or acquisition of the water and the storage facility at the terminal point and permanent water facilities are reimbursable expenses. This authority cannot be used for the provision of water for livestock, irrigation, recreation, or commercial/industrial use. Eligible entities are limited to drought-distressed political subdivisions, farmers, and ranchers. A governor, a representative of the governor, or the governing body of a tribe must make a written request for USACE assistance. USACE makes the determination that an area has an inadequate water supply causing, or likely to cause, a substantial threat to the health and welfare of the inhabitants of the area. Funding is provided through the agency's Flood Control and Coastal Emergencies account. USACE has authority to reprogram its civil works funds to accomplish work under this authority. The agency also has authority to participate in temporary contracts to provide limited quantities of water (if available) for municipal and industrial purposes (33 U.S.C. §708).

[59] 33 U.S.C. §701n. For more on the Rehabilitation and Inspection Program (RIP), see USACE, Engineer Regulation 500-1-1, *Emergency Employment of Army and Other Resources Civil Emergency Management Program*.

periodic inspections.[60] As of early 2017, RIP included around 1,100 projects consisting of 14,000 miles of levees and 33 dams.[61]

For locally constructed projects, 80% of the cost to repair the damage is paid using federal funds and 20% is paid by the levee or dam owner. For federally constructed projects, the entire repair cost is a federal responsibility (except the nonfederal sponsor is responsible for the cost of obtaining the sand or other material used in the repair). For damage to be repaired, USACE must determine that repair has a favorable benefit-cost ratio.[62] Local sponsors assume any rehabilitation cost for damage to an active project attributable to deficient maintenance. WRDA 2016 allows that in conducting repair or restoration work under RIP, an increase in the level of protection can be made if the nonfederal sponsor pays for the additional protection.

Assistance for Environmental Infrastructure/Municipal Water and Wastewater

Since 1992, Congress has authorized and provided for USACE assistance with design and construction of municipal drinking water and wastewater infrastructure projects. This assistance has included treatment facilities, such as recycling and desalination plants; distribution and collection works, such as stormwater collection and recycled water distribution; and surface water protection and development projects. This assistance is broadly labeled *environmental infrastructure* at USACE.

Most USACE environmental infrastructure assistance is authorized for a specific geographic location (e.g., city, county, multiple counties) under Section 219 of WRDA 1992 (P.L. 102-580), as amended; however, other similar authorities, sometimes covering regions or states, exist in multiple sections of WRDAs and in selected Energy and Water Development Appropriations acts. The nature of USACE's involvement (e.g., a grant from USACE to the project owner or USACE acting as the construction project manager) and nonfederal cost share vary according to the specifics of the authorization. Most USACE environmental infrastructure assistance requires cost sharing, typically designated at 75% federal and 25% nonfederal; however, some of the assistance authorities are for 65% federal and 35% nonfederal cost sharing. Under Section 219, USACE performs the authorized work; for environmental infrastructure projects authorized in other provisions, USACE often can use appropriated funds to reimburse nonfederal sponsors for work they perform.

Since 1992, Congress has authorized USACE to contribute assistance to more than 300 of these projects and to state and regional programs, with authorizations of appropriations totaling more

[60] The USACE-maintained National Levee Database has information on the RIP status of levees; the database is available at http://nld.usace.army.mil/egis/f?p=471:1. An aspect of RIP implementation receiving attention is the agency's guidance on vegetation on levees. Nonfederal levee operators in some locations (e.g., northern California) have experienced difficulty performing regular maintenance and emergency repairs while complying with environmental laws, such as the Endangered Species Act (16 U.S.C. §1531). In some areas, the vegetation on and near levees provides species habitat and other environmental benefits. In Section 3013, WRRDA 2014 provided congressional direction regarding updating and content of guidance associated with vegetation on levees; the implementation guidance for this provision is available at http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/1213. This and other environmental issues associated with levee maintenance are beyond the scope of this report.

[61] Email from USACE staff to CRS, March 1, 2017.

[62] Section 3029(a)(1) of WRRDA 2014 authorized USACE to include among eligible repair activities modifications to address major deficiencies or to implement nonstructural alternatives to repair. Implementing guidance for Section 3029(a)(1) is available at http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/265.

than $5 billion. WRRDA 2014 expanded authorizations and authorization of appropriations for specific multi-state environmental infrastructure activities. In WRDA 2016 and WRDA 2018, Congress expanded the Section 7001 process, allowing nonfederal entities to propose modifications to existing authorities for environmental infrastructure assistance. (For more on Section 7001 process, see "2016, 2018, and the Section 7001 Annual Report Process.")

Although no Administration has included environmental infrastructure in a USACE budget request since the first congressional authorization in 1992,[63] Congress regularly includes USACE environmental infrastructure funds in appropriations bills. Congress provided $50 million in FY2015, $55 million in each of FY2016 and FY2017, $70 million in FY2018, and $77 million in FY2019. These funds are part of the "additional funding" provided by Congress in enacted appropriations bills. After enactment of an appropriations bill, the Administration follows guidance provided in the bill and accompanying reports to direct its use of these funds on authorized environmental infrastructure assistance activities. The selected environmental infrastructure assistance activities are identified in the agency's work plan for the fiscal year, which is typically available within two months after enactment of appropriations.[64] Recently, funds have been used to continue ongoing environmental infrastructure assistance.

Because environmental infrastructure activities are not traditional USACE water resource projects, they are not subject to USACE planning process (e.g., a benefit-cost analysis and feasibility study are not performed). USACE environmental infrastructure assistance activities, however, are subject to federal laws, such as NEPA.

Reimbursable Work

In addition to its work for the Department of the Army under USACE's military program, USACE under various authorities also may perform work on a reimbursable basis for other DOD entities, federal agencies, states, tribes, local governments, and foreign governments. Other departments and agencies often call upon USACE's engineering and contracting expertise, as well as experience with land and water restoration and research and development.[65] USACE contracts with private firms to perform most of the work.[66] According to the Chief of Engineers in March 2019 testimony, USACE only accepts requests for reimbursable work that are deemed consistent with USACE's core technical expertise, are in the national interest, and that can be executed without impacting USACE's primary military and civil works missions.[67]

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[63] Environmental infrastructure assistance at times has been called out by various Administrations and others as a low priority for USACE, in part because other federal and state agencies have programs for which these projects may be eligible (e.g., U.S. Environmental Protection Agency's state revolving funds); for example, see National Commission on Fiscal Responsibility, *CoChairs' Proposal: $200 Billion in Illustrative Savings, Draft Document*, November 12, 2010, at http://www.fiscalcommission.gov/news/cochairs-proposal.

[64] Environmental infrastructure assistance is funded through the agency's Construction account. The USACE work plans for recent fiscal years are published at http://www.usace.army.mil/Missions/Civil-Works/Budget/.

[65] USACE has provided reimbursable support to roughly 70 federal agencies not in the Department of Defense (U.S. Army War College, *2017-2018 How the Army Runs: A Senior Leader Reference Handbook*, Carlisle, PA, January 2018, pp. p. 18-11).

[66] Written Testimony by Lieutenant General Todd T. Semonite at U.S. Congress, House Committee on Appropriations, Subcommittee on Energy and Water Development, and Related Agencies, *House Appropriations Subcommittee on Energy and Water Development Holds Hearing on Army Corps of Engineers and Bureau of Reclamation Fiscal 2020 Budget Request*, 116th Cong., 1st sess., March 27, 2019. Hereinafter March 27, 2019 Semonite written testimony. USACE is experienced with real estate actions (e.g., acquiring land or rights-of-way), design and preconstruction engineering of projects, advertisement and award of construction contracts, financial administration of contracts, and supervision and quality assurance inspections of construction and other work.

[67] March 27, 2019 Semonite written testimony.

An example of reimbursable work include USACE's execution of contracts for EPA's efforts to remediate contaminated sites. Another example is USACE's contract management for border barrier and road construction at the U.S.-Mexico border for the Department of Homeland Security's Customs and Border Protection. USACE may perform this reimbursable work pursuant to broad authorities (e.g., Economy in Government Act, 31 U.S.C. §1535; Intergovernmental Cooperation Act, 31 U.S.C. §6505) or agency-specific authorities (e.g., 10 U.S.C §3036(e) known as the Chief's Economy Act).

Appendix A. Evolution of USACE Civil Works Responsibilities

The civil responsibilities of the U.S. Army Corps of Engineers (USACE) began with creating and regulating navigable channels and later flood control projects. Navigation projects include river deepening, channel widening, lock expansion, dam operations, and disposal of dredged material. Flood control projects are intended to reduce riverine and coastal storm damage; these projects range from levees and floodwalls to dams and river channelization. Many USACE projects are multipurpose—that is, they provide water supply, recreation, and hydropower in addition to navigation or flood control. USACE environmental activities involve wetlands and aquatic ecosystem restoration and environmental mitigation activities for USACE facilities. The agency's regulatory responsibility for navigable waters extends to issuing permits for private actions that might affect navigation, wetlands, and other waters of the United States.

Navigation and Flood Control (1802-1950s)

The agency's civil works mission developed in the 19th century. In 1824, Congress passed legislation charging military engineers with planning roads and canals to move goods and people. In 1850, Congress directed USACE to engage in its first planning exercise—flood control for the lower Mississippi River. In 1899, Congress directed the agency to regulate obstructions of navigable waters (see box titled "USACE Regulatory Activities: Permits and Their Authorities). During the 1920s, Congress expanded USACE's ability to incorporate hydropower into multipurpose projects and authorized the agency to undertake comprehensive surveys to establish river-basin development plans. The Flood Control Act of 1928 (70 Stat. 391) authorized USACE to construct flood control projects on the Mississippi and Tributaries (known as the MR&T project), and modified a 1917 authority for flood control project on the Sacramento River in California. The modern era of federal flood control emerged with the Flood Control Act of 1936 (49 Stat. 1570), which declared flood control a "proper" federal activity in the national interest. The 1944 Flood Control Act (33 U.S.C. §708) significantly augmented the agency's involvement in large multipurpose projects and authorized agreements for the temporary use of surplus water. The Flood Control Act of 1950 (33 U.S.C. §701n) began the agency's emergency operations through authorization for flood preparedness and emergency operations.[68] The Water Supply Act of 1958 (43 U.S.C. §390b) gave USACE authority to include some reservoir storage for municipal and industrial water supply in reservoir projects at 100% nonfederal cost.

USACE Regulatory Activities: Permits and Their Authorities

The U.S. Army Corps of Engineers (USACE) has several regulatory responsibilities and issues several different types of permits. Sections 10 and 13 of the Rivers and Harbors Act of 1899 (22 U.S.C. §407) require that a permit be obtained from USACE for alteration or obstruction of navigation and refuse discharge in U.S. navigable waters. USACE also has regulatory responsibilities under other laws, notably Section 404 of the Clean Water Act (33 U.S.C. §1344), which requires a permit for dredging or filling activities into waters of the United States. Since the mid-1960s, court decisions and administrative actions have altered the jurisdictional reach of the agency's regulatory program. USACE also regulates and authorizes disposal of materials into the ocean under the Marine Protection Research and Sanctuaries Act (33 U.S.C. §§1401-1455).

For more information, see CRS In Focus IF10125, *Overview of the Army Corps and EPA Rule to Define "Waters of the United States" (WOTUS) and Recent Developments*, by Laura Gatz; CRS Report 97-223, *The Army Corps of Engineers'*

[68] Emergency response activities also are conducted under the Disaster Relief Act of 1974 (42 U.S.C. §5121), also known as the Stafford Disaster and Emergency Assistance Act.

Nationwide Permits Program: Issues and Regulatory Developments, by Nicole T. Carter; and CRS Report RS20028, *Ocean Dumping Act: A Summary of the Law*, by Claudia Copeland.

Changing Priorities (1960-1985)

From 1970 to 1985, Congress authorized no major water projects, scaled back several authorized projects, and passed laws that altered project operations and water delivery programs to protect the environment. The 1970s marked a transformation in USACE project planning. The 1969 National Environmental Policy Act (42 U.S.C. §4321) and the Endangered Species Act of 1973 (16 U.S.C. §1531) required federal agencies to consider environmental impacts, increase public participation in planning, and consult with other federal agencies. Enactment in 1972 of what became the Clean Water Act also expanded the USACE's regulatory responsibilities; for more on the USACE role in implementing Section 404 of the Clean Water Act (33 U.S.C. §1344), see the text box "USACE Regulatory Activities: Permits and Their Authorities."

Executive orders (E.O. 11988 and E.O. 11990) united the goals of reducing flood losses and decreasing environmental damage by recognizing the value of wetlands and by requiring federal agencies to evaluate potential effects of actions on floodplains and to minimize wetlands impacts. Various dam failures and safety concerns in the United States—Buffalo Creek Dam (private), West Virginia in 1972; Reclamation's Teton Dam (Bureau of Reclamation), Idaho in 1976; and Kelly Barnes Dam (private), Georgia in 1977; among others—drew public and elected officials' attention. Much of the current federal dam safety framework developed out of executive orders and policies in the late 1970s and legislation in the 1980s. These include the USACE's lead role in the National Inventory of Dams; for more information, see the text box "National Inventory of Dams."

National Inventory of Dams

The U.S. Army Corps of Engineers (USACE) maintains a database of over 90,000 dams. The information in the database is self-reported by states and federal agencies. After several dam failures in the early 1970s, Congress authorized the USACE to inventory dams, along with other dam safety responsibilities, with the National Dam Inspection Act of 1972 (P.L. 92-367). The National Inventory of Dams (NID) was first published in 1975. The Water Resources Development Act of 1996 (P.L. 104-303) tasked the Federal Emergency Management Agency (FEMA) with various dam safety responsibilities including maintaining a National Dam Safety Program that among other things assists development of state dam safety programs which have responsibility for overseeing nonfederal dam safety, The legislation retained the NID as a USACE responsibility. Multiple bills have reauthorized the NID, most recently the Water Resources Development Act of 2018 (Title I of P.L. 115-270) extended the NID's annual authorization of appropriations of $500,000 through FY2023. USACE collaborates closely with FEMA and state regulatory programs to improve the accuracy and completeness of information with more recent emphasis on Emergency Action Plans and dam condition. Similar to other federal agencies, USACE is responsible for the dams the agency owns and operates. The NID can be accessed at https://nid-test.sec.usace.army.mil/.

Environmental Mission and Nonfederal Responsibility (1986-2000)

Congress changed the rules for USACE water projects and their funding through the 1986 Water Resources Development Act (WRDA 1986; 33 U.S.C. §2211). WRDA 1986 established new cost-share formulas, resulting in greater financial and decision-making roles for nonfederal stakeholders. It also reestablished the tradition of biennial consideration of an omnibus USACE water resource authorization bill.

WRDA 1990 (33 U.S.C. §§1252, 2316) explicitly expanded the agency's mission to include environmental protection and increased its responsibility for contamination cleanup, dredged material disposal, and hazardous waste management. WRDA 1992 (33 U.S.C. §2326) authorized

USACE to use the "spoils" from dredging in implementing projects for protecting, restoring, and creating aquatic and ecologically related habitats, including wetlands. WRDA 1996 (33 U.S.C. §2330) gave USACE limited programmatic authority to undertake aquatic ecosystem restoration projects. Although USACE has been involved with numerous environmental restoration projects in recent years, WRDA 2000 approved a restoration program for the Florida Everglades that represented the agency's first multiyear, multibillion-dollar effort of this type.

Evolving Demands and Processes (2001-present)

The agency's aging infrastructure and efforts to enhance the security of its infrastructure from terrorism and natural threats have expanded USACE activities in infrastructure rehabilitation, maintenance, and protection. USACE has been involved in significant flood-related disaster response and recovery activities, including following Hurricane Katrina in 2005, Hurricane Sandy in 2012, and the 2017 hurricane season. WRDA 2007 included provision to expand levee safety efforts. USACE also has redirected its flood control activities to incorporate concepts of flood risk management and, more recently, flood resilience. The regularity with which USACE has received congressional appropriations for natural disaster response has increased attention to its role in emergency response, infrastructure repair, and post-disaster recovery and to the potential for nature-based flood risk reduction measures.[69]

WRDA 2007 continued the expansion of the agency's ecosystem restoration activities by authorizing billions of dollars for these activities, including large-scale restoration efforts in coastal Louisiana and the Upper Mississippi River. WRRDA 2014, WRDA 2016, and WRDA 2018 have expanded opportunities for nonfederal public and private participation in project delivery and financing and aimed to improve the efficiency of USACE planning activities.

[69] For more information see, CRS Report R45326, *Army Corps of Engineers Annual and Supplemental Appropriations: Issues for Congress*, by Nicole T. Carter.

Appendix B. Water Resources Development Acts from 1986 through 2018

This appendix provides an overview of omnibus U.S. Army Corps of Engineers (USACE) authorization legislation from 1986 to 2016. It first presents a table with the various pieces of legislation that functioned as USACE omnibus authorization bills and identifies the titles relevant to USACE. The appendix next provides supplementary information to what was provided in "USACE Authorization Legislation: 1986 to Present Process" regarding the evolution of the bills and the contents of specific bills.

Overview Table

Table B-1 provides additional information on each of the bills that functioned as an omnibus USACE authorization bill often titled as a Water Resource Development Act (WRDA) since 1986. The table includes the following bills.

- WRDA 1986 (P.L. 99-662)
- WRDA 1988 (P.L. 100-676)
- WRDA 1990 (P.L. 101-640)
- WRDA 1992 (P.L. 102-580)
- WRDA 1996 (P.L. 104-303)
- WRDA 1999 (P.L. 106-53)
- WRDA 2000 (P.L. 106-541)
- WRDA 2007 (P.L. 110-114)
- Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121)
- Water Infrastructure Improvements for the Nation Act (WIIN; P.L. 114-322)
- America's Water Infrastructure Act of 2018 (AWIA 2018, P.L. 115-270)

The table lists the titles used in the bills and the agency or department related to the majority of the provisions in each of those titles. The titles are shown in the table as being primarily associated with either USACE civil works or primarily associated with programs and activities of agencies or departments other than USACE (with the relevant agency or department shown in parentheses). The placement in one of the two columns of the table is a broad sorting and does not reflect the details of each provision within a title. For titles listed as primarily USACE, a few provisions in a title may relate principally to other agencies or departments while the bulk of the title is USACE related, and vice versa for titles listed as not primarily associated with USACE. Titles related to revenue and trust funds that are closely associated with USACE projects and USACE appropriations are shown in the table as USACE titles. As appropriate, clarifying notes are provided in the final column.

As shown in **Table B-1**, USACE was the focus of the majority of titles for all of the bills except WIIN and AWIA 2018. For two of the bills—WRDA 1992 and WRRDA 2014—there were titles for which the majority of the provisions were related to the U.S. Environmental Protection Agency (EPA) while also being related to USACE activities. For example, Title V of WRRDA 2014 included authorizations that included both EPA and USACE, authorities only related to EPA, and an authority only related to USACE. WRDA 1992 had a title with provisions that

related most closely to EPA's role in sediment management; USACE, however, has a role in sediment management more broadly as well as being mentioned in a few of the provisions of Title V of WRDA 1992. In contrast, WIIN included titles on water-related programs and projects spanning various agencies and departments other than USACE. Title I of the bill—which had a short title designated as WRDA 2016—focused specifically on USACE water resource authorizations, while Titles II, III, and IV focused primarily on other agencies; many of the specific provisions in these titles had no or little relationship to USACE.

Table B-1. Titles in USACE-Related Enacted Omnibus Water Authorization Legislation, 1986-2018

Titles with Provisions Primarily Related to USACE	Titles with Provisions Primarily Related to Agencies and Departments Other than USACE (related agency or department)	Notes
America's Water Infrastructure Act of 2018		
Title I. Water Resources Development	Title II. Drinking Water System Improvements (EPA) Title III. Energy (Federal Energy Regulatory Commission) Title IV. Other Matters (various)	
Water Infrastructure Improvements for the Nation Act (2016)		
Title I. Water Resources Development	Title II. Water and Waste Act of 2016 (EPA) Title III. Natural Resources (DOI) Title IV. Other Matters (various)	
Water Resources Reform and Development Act of 2014		
Title I. Program Reforms and Streamlining Title II. Navigation Title III. Safety Improvements and Addressing Extreme Weather Events Title IV. River Basins and Coastal Areas Title VI. Deauthorization and Backlog Prevention Title VII. Water Resources Infrastructure	Title V. Water Infrastructure Financing (EPA)	Subtitle C of Title V established authorities for both USACE and EPA; most other Title V provisions were principally associated with EPA; one provision (Section 5014) was USACE specific.

Titles with Provisions Primarily Related to USACE	Titles with Provisions Primarily Related to Agencies and Departments Other than USACE (related agency or department)	Notes
Water Resources Development Act of 2007		
Title I. Water Resources Projects		
Title II. General Provisions		
Title III. Project-Related Provisions		
Title IV. Studies		
Title V. Miscellaneous		
Title VI. Florida Everglades		
Title VII. Louisiana Coastal Area		
Title VIII. Upper Mississippi River and Illinois Water-Way System		
Title IX. National Levee Safety Program		
Water Resources Development Act of 2000		
Title I. Water Resources Projects		Title VIII relates to conveyances of cabin sites associated with USACE's Fort Peck Lake, and the use of proceeds from the conveyances by DOI for acquisition of lands within or adjacent to a specific wildlife refuge.
Title II. General Provisions		
Title III. Project-Related Provisions		
Title IV. Studies		
Title V. Miscellaneous Provisions		
Title VI. Comprehensive Everglades Restoration		
Title VII. Missouri River Restoration, North Dakota		
Title VIII. Wildlife Refuge Enhancement		
Title IX. Missouri River Restoration, South Dakota		
Water Resources Development Act of 1999		
Title I. Water Resources Projects		Title VI related to aquatic restoration activities and lands associated with various USACE dams.
Title II. General Provisions		
Title III. Project-Related Provisions		
Title IV. Studies		
Title V. Miscellaneous Provisions		
Title VI. Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe, and State of South Dakota Terrestrial Wildlife Habitat Restoration		

Titles with Provisions Primarily Related to USACE	Titles with Provisions Primarily Related to Agencies and Departments Other than USACE (related agency or department)	Notes
Water Resources Development Act of 1996		
Title I. Water Resources Projects		
Title II. General Provisions		
Title III. Project-Related Provisions		
Title IV. Studies		
Title V. Miscellaneous Provisions		
Title VI. Extension of Expenditure Authority Under Harbor Maintenance Trust Fund		
Water Resources Development Act of 1992		
Title I. Water Resources Projects Title II. Generally Applicable Provisions Title III. Miscellaneous Provisions Title IV. Infrastructure Technology, Research and Development	Title V. Contaminated Sediment and Ocean Dumping (EPA)	USACE not only produces dredge material in association with its projects, but also has regulatory responsibilities associated with disposal of dredged material. EPA has authority for regulating ocean disposal (except for dredged materials) and other authorities related to contaminated sediments. The specific provisions in Title V relate primarily to EPA's roles and related activities (e.g., site designation, EPA Administrator's concurrence).
Water Resources Development Act of 1990		
Title I. Water Resources Projects		
Title II. Land Transfers		
Title III. Generally Applicable Provisions		
Title IV. Miscellaneous Provisions		
Water Resources Development Act of 1988		
Titles not used in the Act		WRDA 1988 contained 54 provisions primarily focused on USACE civil works.
Water Resources Development Act of 1986		
Title I. Cost Sharing		
Title II. Harbor Development		
Title III. Inland Waterway Transportation System		
Title IV. Flood Control		

Titles with Provisions Primarily Related to USACE	Titles with Provisions Primarily Related to Agencies and Departments Other than USACE (related agency or department)	Notes
Title V. Shoreline Protection		
Title VI. Water Resources Conservation and Development		
Title VII. Water Resources Studies		
Title VIII. Project Modifications		
Title IX. General Provisions		
Title X. Project Deauthorizations		
Title XI. Miscellaneous Programs and Projects		
Title XII. Dam Safety		
Title XIII. Namings		
Title XIV. Revenue Provisions		

Source: CRS, based on enacted water resources development legislation from 1986-2018.

Notes: Titles are shown as they appear in the bill and its table of contents; the titles in the table do not reflect short titles designated by the bills. USACE = U.S. Army Corps of Engineers; EPA = U.S. Environmental Protection Agency; DOI = Department of the Interior; various = multiple agencies and departments.

1986 Through WRDA 2007

WRDA 1986 marked the end of a stalemate between Congress and the executive branch regarding USACE authorizations. It resolved long-standing disputes related to cost sharing, user fees, and environmental requirements. Prior to 1986, disputes over these and other matters had largely prevented enactment of major USACE civil works legislation since 1970.[70] Biennial consideration of USACE authorization legislation resumed after WRDA 1986 in part to avoid long delays between the planning and execution of projects. Interest in authorizing new projects, increasing authorized funding levels, and modifying existing projects is often intense, thus prompting regular WRDA consideration.

WRDA enactment was less consistent for a period. Controversial project authorizations and disagreements over the need for and direction of change in how USACE plans, constructs, and operates projects contributed to WRDA bills not being enacted in the 107th, 108th, and 109th Congresses. The 110th Congress enacted WRDA 2007 in November 2007, overriding a presidential veto.[71]

[70] USACE Institute for Water Resources, *Reshaping National Water Politics: The Emergency of the Water Resources Development Act of 1986*, IWR Policy Study 91-PS-1, October 1991, at http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/91-PS-1.pdf.

[71] A central issue in the debate over WRDA 2007 was how the bill was estimated to affect federal discretionary spending and add to the set of USACE authorized construction projects. For more information, see the President's veto message in the *Congressional Record* for November 5, 2007, at https://www.congress.gov/crec/2007/11/05/CREC-2007-11-05-pt1-PgH12458-10.pdf; the House floor debate on overriding the veto in the *Congressional Record* for November 6, 2007, at http://www.lis.gov/cgi-lis/query/R?r110:FLD001:H12789,H12797; and the Senate floor discussion in the *Congressional Record* for November 8, 2007, at http://www.lis.gov/cgi-lis/query/R?r110:FLD001:S14114,S14117. For more on WRDA 2007, see CRS Report RL33504, *Water Resources Development Act (WRDA) of 2007: Corps of Engineers Project Authorization Issues*, coordinated by Nicole T. Carter.

2007 Through 2018

No WRDA bill was enacted between WRDA 2007 and WRRDA 2014. With WRDA 2016, Congress returned enactment of USACE authorization legislation to a biennial time frame. WRRDA 2014 and WRDA 2016 attempted to address frustrations among some stakeholders with the pace of study and construction of USACE projects by allowing interested nonfederal entities, including private entities, to have greater roles in project development, construction, and financing.

WRRDA 2014, which was enacted on June 10, 2014, authorized 34 construction projects that had received agency review, had Chief of Engineers reports (also known as *Chief's reports*),[72] and had been the subject of a congressional hearing, thereby overcoming concerns related to congressionally directed spending (known as *earmarks*). These 34 construction projects represented $15.6 billion in federal authorization of appropriations. WRRDA 2014 also altered processes and authorizations for project delivery options, including expanded opportunities for nonfederal entities to lead projects and for innovative financing, such as public-private partnerships.[73]

WRDA 2016 authorized new USACE water resource studies (which were among those studies identified in the Section 7001 annual reports submitted in February 2015 and February 2016) and projects, as well as modifications to ongoing construction projects. Each of the construction authorizations for new projects had a Chief's report. WRDA 2016 authorized 30 new construction projects at a federal cost of more than $10 billion. Various USACE provisions in WRDA 2016 related to how nonfederal sponsors may participate in the financing of water infrastructure activities.[74] For more on WRDA 2016 and the other titles of WIIN, see CRS In Focus IF10536, *Water Infrastructure Improvements for the Nation Act (WIIN)*, by Nicole T. Carter et al.

The 115th Congress enacted America's Water Infrastructure Act of 2018 (AWIA 2018, P.L. 115-270) in October 2018.[75] AWIA 2018 included the Water Resources Development Act of 2018 (WRDA 2018) as Title I of the bill. WRDA 2018 focused on USACE activities and dam and levee safety programs (that also relate to authorities of the Federal Emergency Management Agency). Other titles of AWIA 2018 addressed EPA water programs,[76] Department of the Interior water

[72] USACE maintains a website that provides access to many of the Chief's reports signed in recent decades; it is available at https://planning.erdc.dren.mil/toolbox/library.cfm?Option=Direct&Group=Main&Item=Chief%20Report&Sub=None&Sort=Default.

[73] For more on WRRDA 2014 and how it evolved during congressional deliberations, see CRS Report R43298, *Water Resources Reform and Development Act of 2014: Comparison of Select Provisions*, by Nicole T. Carter et al.

[74] For example, Section 1111 in WRDA 2016 increased the federal construction cost share for harbor deepening that occurs between 45 feet and 50 feet. Other sections, such as Sections 1127, 1166, and 1171, changed authorities for crediting and reimbursing nonfederal entities for project-related expenditures.

[75] P.L. 115-270 combined elements of two omnibus water authorization bills considered by the 115th Congress: H.R. 8, Water Resources Development Act of 2018 (WRDA 2018) and S. 2800, America's Water Infrastructure Act of 2018. The House's WRDA 2018 focused on authorizing USACE water resource projects and activities. The Senate Environment and Public Works Committee's AWIA 2018 included not only USACE-related provisions but also provisions related to water-related programs of the U.S. Environmental Protection Agency (EPA) and a few provisions on water-related activities and authorities of the Department of the Interior. An overview of the House's Water Resources Development Act of 2018 (H.R. 8; WRDA 2018) and the Senate Environment and Public Works Committee's America's Water Infrastructure Act of 2018 (S. 2800; AWIA 2018) drafted as an amendment in the nature of a substitute to H.R. 8 (as it was posted on July 9, 2018, on the committee's website and subsequently removed) is available in CRS Report R45212, *Water Resources Development Act of 2018 (H.R. 8) and America's Water Infrastructure Act of 2018 (Amendment to H.R. 8): An Overview*, by Nicole T. Carter and Mary Tiemann.

[76] For information on the EPA-related drinking water provisions of AWIA 2018, see CRS Report R45656, *America's Water Infrastructure Act of 2018 (P.L. 115-270): Drinking Water Provisions*, by Elena H. Humphreys.

authorities, water and related infrastructure authorities related to tribes, and hydropower (including authorities of the Federal Energy Regulatory Commission).

Regarding USACE project authorizations, WRDA 2018 authorized 12 new construction projects at a total cost of $5.6 billion ($3.7 billion federal and $1.9 billion nonfederal); modified 4 projects, increasing the projects' authorization of appropriations by approximately $1.3 billion ($1.1 billion federal and $0.2 billion nonfederal); and authorized project studies. WRDA 2018 expanded most of the agency's programmatic authorization of appropriations levels by 25%.[77] WRDA 2018 also amended existing deauthorization efforts and authorities and established a process to deauthorize $4 billion in construction projects previously authorized by Congress that have not been constructed. In addition, WRDA 2018 included provisions requiring various reports from USACE and reports by the National Academy of Sciences.

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[77] For more information, see CRS In Focus IF11106, *Army Corps of Engineers: Continuing Authorities Programs*, by Anna E. Normand.