USACE Planning Portfolio Profiles: New Feasibility Studies

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Meeting the Nation's Water Resources Challenges

A Civil Works feasibility study is the initial step in the U.S. Army Corps of Engineers (USACE) process for addressing many of the nation's significant water resources needs and typically focus on one or more of USACE's key mission areas: flood damage risk management (inland and coastal), navigation (inland and deep draft), or aquatic ecosystem restoration.

After Congress has both authorized and appropriated funds to begin a study, USACE planners work with a non-federal sponsor (Sponsor) and a multi-disciplinary Project Delivery Team (PDT) to conduct a feasibility study. A feasibility study establishes the Federal interest, engineering feasibility, economic justification and environmental acceptability of a water resources project recommended for Congressional authorization and construction. Specifically, USACE and the Sponsor work together to identify water resources problems, formulate and evaluate solutions, resolve conflicting interests, and prepare recommendations.

Feasibility studies are cost shared equally between the Sponsor and the federal government. Typically, the feasibility study and resulting recommendation for project authorization in the form of a Chief's Report should be completed at a total cost of $3 million and within three years of study initiation, although exemptions will be made if the study's scope and complexity justifies a higher total cost.

"New Start" Feasibility Studies Initiated in 2015

USACE has received funding to initate ten new feasibility studies in Fiscal Year (FY) 2015, the first studies launched since the Water Resources Reform and Development Act of 2014 eliminated a separate reconnaisance phase of study. These new studies join USACE's active planning portfolio of risk-informed, SMART planning studies. After a Feasibility Cost Sharing Agreement is signed, USACE and Sponsor will work together to develop the scope and schedule of the feasibility study. From West to East, the new studies are:

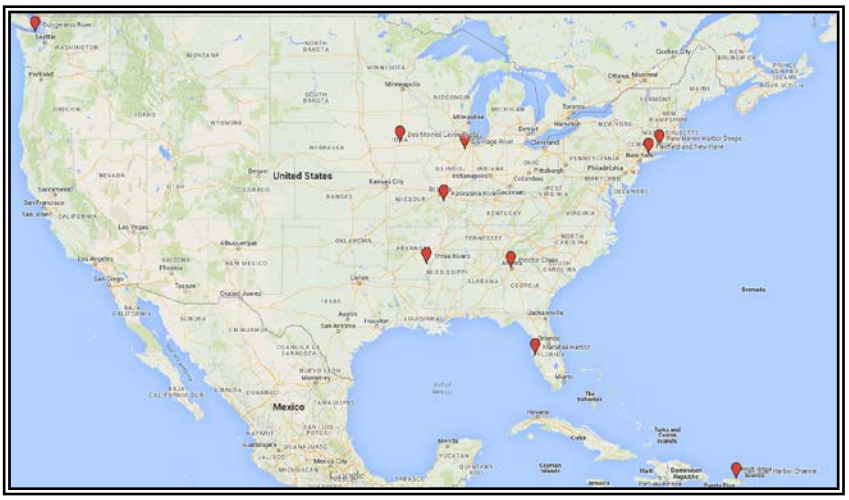


Figure 1: "New Start" Feasibility Studies in FY15

Map data © 2015 Google

1. Dungeness River, WA. The Dungeness River Levee Project was the first and longest levee constructed in the lower reach of the Dungeness River and created a barrier to approximately 410 acres of formerly linked river floodplain, including a side channel and tributaries. It was constructed in 1963 by USACE and turned over to the local Sponsor, Clallam County, in 1964. The study will focus on ecosystem restoration opportunities to address problems associated with the levee project, including degradation of riverine processes and in-channel fish habitat and the disconnected floodplain. The study will be led by the Seattle District, Northwestern Division.
2. Des Moines Levee System, Des Moines and Raccoon Rivers, IA. In 2010, the Des Moines River Regulated Flow Frequency Study identified a high risk of flooding in the Des Moines area, significantly higher than previously estimated. This study will evaluate a variety of structural and

nonstructural flood damage risk management measures to reduce flood risk in downtown Des Moines. The study will be led by the Rock Island District, Mississippi Valley Division.

3. Three Rivers, AR. Geomorphologic changes in the watershed is a serious threat to navigation for the Three Rivers (White, Mississippi and Arkansas Rivers) in Southeast Arkansas, and is also impacting vital ecosystems, recreation, and flood damage risk management. The confluence of the Three Rivers is the starting point of the McClellan-Kerr Arkansas River Navigation System (MKARNS), a system responsible for $1.5 billion to $3 billion in trade transportation in Arkansas, Oklahoma, and Kansas each year. The Three Rivers Study would investigate ongoing threats to navigation and bottomland hardwoods at the confluence of the Three Rivers. The study will be led by the Little Rock District, Southwestern Division.
4. Kaskaskia, IL. The Kaskaskia River Basin, Illinois, extends from the headwaters at Champaign, Illinois, to the confluence of the Mississippi River. This study will examine opportunities for restoring, preserving, and protecting the extensive natural resources within the Kaskaskia River Watershed. Specifically, the plan will consider ecosystem restoration activities targeted at stream restoration and sediment management; fish and wildlife habitat restoration; wetland creation; and reduction of flood damage impacts by means of ecosystem restoration. The study will be led by the St. Louis District, Mississippi Valley Division.
5. DuPage River, IL. Major storm events occurred in the DuPage River basin in 1996, 2008, 2009, and most recently in April 2013, resulting in overbank flooding along at least 20 communities and significant damage to residential and non-residential structures, critical infrastructure and the closure of two major interstate highways for several days. Average annual flood damages are currently estimated at $30 million. This study will examine opportunities for flood damage risk reduction. The study will be led by the Chicago District, Great Lakes and Ohio River Division.
6. Proctor Creek, GA. The Proctor Creek Watershed in downtown Atlanta, is 28.6 square miles with a population of over 127,000 people living in over 25 different neighborhoods. The watershed experiences overlapping environmental and public health issues. This study will consider ecosystem restoration opportunities in the watershed. The study will be led by the Mobile District, South Atlantic Division.
7. Manatee Harbor, FL. Manatee Harbor is located in Tampa Bay along the west coast of Florida. The port handles over 3.7 million short tons of cargo primarily associated with chemicals and related products, petroleum products, and crude construction materials destined for southwest Florida. The study will focus on deep draft navigation transportation cost efficiency problems and transportation cost reduction opportunities. The navigation concerns will focus on delays or other limitations to vessel traffic due to the existing channel depths and widths. The study will be led by the Jacksonville District, South Atlantic Division.
8. Fairfield and New Haven Counties, CT. Numerous areas within the two counties have been identified by state and community officials as flood prone areas. During the 18 year period from 1992-2010, prior to hurricanes Irene and Sandy, four Presidential disasters had been declared in Fairfield and New Haven counties due to major storm events. The feasibility study will evaluate potential flood damage risk management and coastal storm damage reduction measures in both counties along the coastal tributaries and shoreline. The study will be led by the New England District, North Atlantic Division.
9. New Haven Navigation Improvements, CT. New Haven Harbor is Connecticut's largest deep water commercial industrial port. Tidal delays and light loading currently restrict deep draft vessel operations. WRDA 1986 authorized the deepening of the Harbor's main ship channels and maneuvering basins from their current depth of 35 feet to a depth of 40 feet. That project was never constructed and the authorization lapsed in 2002. The feasibility study will evaluate potential navigation improvement measures in the Harbor, including reconsideration of the deepening improvements to the main channel and associated maneuvering/turning areas to 40 feet or greater,

as authorized in 1986, to enable fully loaded and larger ships to reach the terminals. The study will be led by the New England District, North Atlantic Division.

10. San Juan Harbor Channel Improvement, PR. San Juan Harbor is Puerto Rico's principal port, handling over 75 percent of the Commonwealth's non-petroleum waterborne commerce and is the only harbor on the north coast affording protection during inclement weather. The study will consider navigation improvements at San Juan Harbor to improve vessel safety and efficiency, such as deepening, widening, and/or re-alignment of existing project features of the Harbor including channels, turning basins, and anchorages. The study will be led by the Jacksonville District, South Atlantic Division.

From Reconnaissance to Feasibility in 2015

USACE began nine new reconnaissance studies in Fiscal Year (FY) 2014, the first reconnaissance studies since FY2010. In FY2015, USACE and local study Sponsors are expected to sign a Feasibility Cost Sharing Agreement to launch the feasibility phase of project development. From West to East, these studies are:

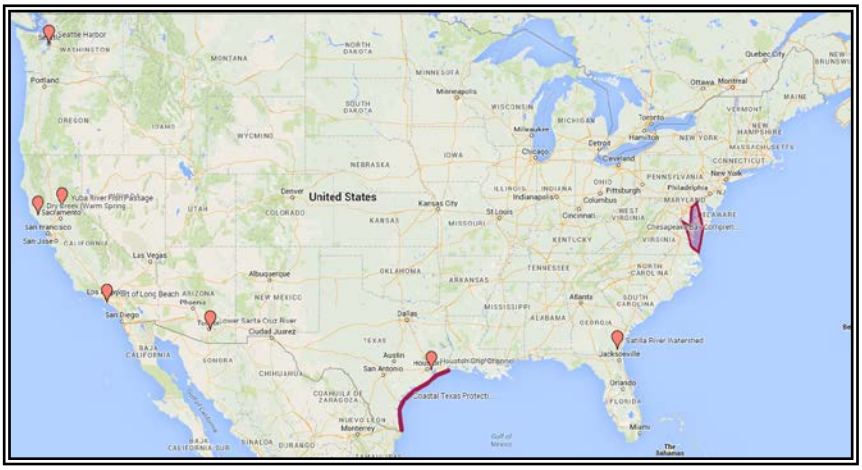


Figure 2: Reconnaissance Studies Initiated in FY14

Map data © 2015 Google

1. Seattle Harbor, WA. Seattle Harbor provides access to existing container terminals and other marine industrial users that includes nearly 11,000 annual transits; the 5-year average for tonnage is over 25 million and is valued at over $40 million annually. The Harbor is located between the East, West, and Duwamish Waterways navigation channel. This study will investigate deepening of these three waterways. The 34 foot authorized depth on the West Waterway and the 51 foot authorized depth on the East Waterway frequently result in delays of up to several days at existing container terminals while ships wait for high enough tides to load and unload cargo. The study will be led by the Seattle District, Northwestern Division.

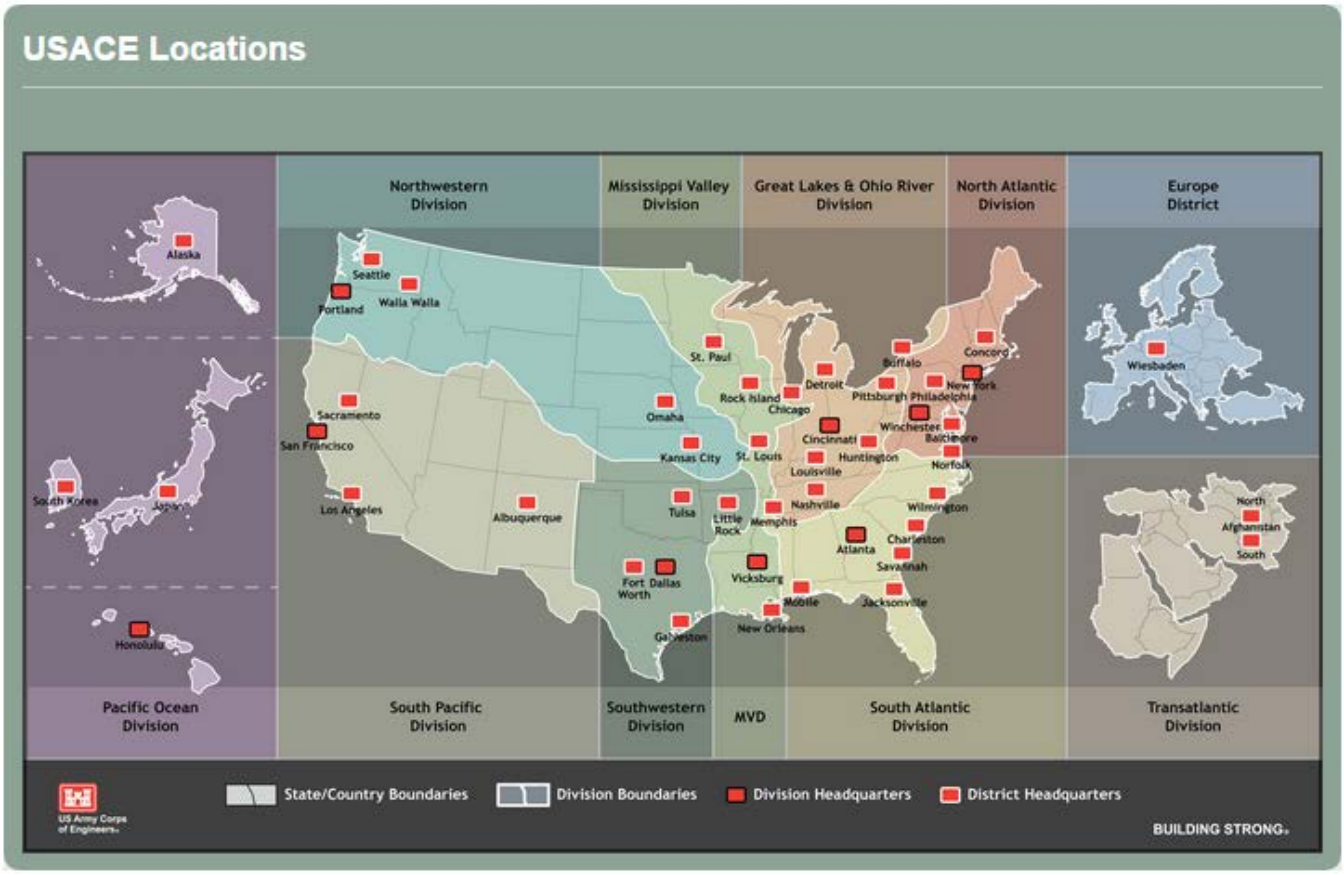
2. Yuba River Ecosystem Restoration, CA. The Yuba River Ecosystem Restoration study will consider project modifications to Englebright Dam and Daguerre Point Dam to improve fish passage for native anadromous fish species, improve conditions for listed species and critical habitat, and contribute to overall population recovery of listed species while preserving the structures' benefits to the region. The study will be led by the Sacramento District, South Pacific Division.

3. Dry Creek (Warm Springs Dam) Restoration & Coyote Valley Dam Restoration, CA. The Russian River's Warm Springs Dam, about 75 miles northeast of San Francisco, California, is a USACE-constructed earthen dam 319 feet high and 3,000 feet long, completed in 1983. The Coyote Valley Dam is a USACE project that was completed in 1957, located on the east fork of the Russian River at Coyote Valley, about 115 miles northeast of San Francisco. It consists of an earth-filled dam 160 feet high and 3,560 feet long, with a reservoir storage capacity of 122,000 acre-feet. This study will look at non-structural measures and studies to keep the dams operating and to mitigate for associated impacts to threatened salmonid species on the Russian River. The study will be led by the San Francisco District, South Pacific Division.

4. Port of Long Beach, CA. The Port of Long Beach, California is the second busiest seaport in the nation. Approximately 20 miles south of downtown Los Angeles, California, trade valued at more

than $140 billion moves through the Port each year. The study will consider a series of navigation improvements to vessel safety while maneuvering in the Port, and to better accommodate the current container vessel and liquid bulk fleets. The study will be led by the Los Angeles District, South Pacific Division.

5. Lower Santa Cruz River, AZ. Flooding along Arizona's Santa Cruz River primarily impacts Pinal County, the City of Maricopa, and two Native American Tribes; this area is now one of the fastest growing communities in Arizona. Major flood events occurred on the River in 1983 and 1993, impacting residences, businesses, schools, agriculture, and transportation infrastructure. The damage from these floods has been widespread, forcing aerial evacuations, bridge closures, serious river and stream erosion, channel migration and significant sediment deposition. The study will investigate watershed issues and opportunities to include flood damage risk management and ecosystem restoration. The study will be led by the Los Angeles District, South Pacific Division.
6. Coastal Texas Protection and Restoration, TX. The study area for this flood risk management study consists of the entire 367 miles of the Texas Gulf Coast from the mouth of the Sabine River to the mouth of the Rio Grande, including Gulf and tidal waters, barrier islands, marshes, coastal wetlands, rivers and streams and adjacent areas that make up the interrelated coastal area of Texas. Flooding from hurricanes and other rainfall events threaten 25 percent of the state population that live within the 18 coastal county area. Ten tropical storms and hurricanes that struck Texas in the last decade resulted in 176 fatalities and over $36 billion in damages. The study area's critical coastal ecosystems includes 3.9 million acres of wetlands, 235,000 acres of sea grass, 367 miles of sea turtle nesting habitat, 380,000 acres of piping plover critical habitat, and 328 square miles of whooping crane critical habitat, as well as 21 state and Federal wildlife refuges. Of the 367 miles of shoreline, more than 60 percent has been identified by the Texas General Land Office (GLO) as subject to high rates of erosion. The Coastal Texas Protection and Restoration study will develop a comprehensive coastal protection and restoration plan to reduce risk and damages to public safety, property, and environmental resources from storms and erosion. The study will be led by the Galveston District, Southwestern Division.
7. Houston Ship Channel, TX. The Houston Ship Channel (HSC) extends 52 miles from its juncture with Texas City Channel at the entrance to Galveston Bay and terminates at its turning basin in the city of Houston. Each year, more than 200 million tons of cargo move through the Port of Houston, carried by more than 8,000 vessels and 200,000 barge calls. The study will consider improvements to the Houston Ship Channel System to address a number of issues, including: the need for current vessel traffic having to "light load" to be able to transit the reach of HSC; safety concerns making the turn into the Bayport Channel from the HSC; and reducing the risk of collisions between vessels resulting from development along the channel and increased vessel traffic. The study will be led by the Galveston District, Southwestern Division.
8. Satilla River Basin Watershed, GA. The Satilla River Watershed covers about 4,000 square miles of the southeastern portion of the state of Georgia. Stakeholder watershed concerns include flood risks, flow restrictions along the creeks and rivers, and water quality and quantity ecosystem degradation. The watershed experienced significant flooding and Presidential disaster declarations in March 1998 and April 2009. Although the primary focus of this study is flood damage risk management, aquatic ecosystem restoration measures could be considered to both reduce the effects of flooding and benefit the environment. The study will be led by the Savannah District, South Atlantic Division.
9. Chesapeake Bay Comprehensive Plan, MD, VA, PA. The Chesapeake Bay watershed and tidal tributaries is the single largest estuary in the United States with a surface area of approximately 4,400 square miles. The Chesapeake Bay's ecosystem includes thousands of miles of river and stream habitat that interconnect the land, water, living resources and human communities of the Bay watershed. The Bay's vital habitats, including open water, submerged aquatic grasses, tidal and non-tidal marshes, freshwater wetlands and vernal pools, streams and forests support species

abundance and diversity. The study will evaluate potential aquatic ecosystem restoration measures and possible implementable solutions to include: wetland creation and restoration, environmental dredging, shoreline stabilization, and the beneficial use of dredged material. The analysis will include existing Federal, State and local plans and will address the most recent Chesapeake Bay Agreement commitments and Executive Order 13508 Chesapeake Bay Protection and Restoration goals, such as the integration of living resource protection and restoration; vital habitat protection and restoration; water quality restoration; sound land use stewardship and community engagement, to the extent that such goals fall within the USACE's mission. The study will be led by the Baltimore District, North Atlantic Division.

For more information on the USACE Planning Program, please visit planning.usace.army.mil or your District's webpage.