



USACE
Southwestern
Division

Working with
our partners to
deliver value
to the nation

The Texas Coast is protected, resilient, and positioned for sustainable economic growth with strategic partnerships that support federal and non-federal investment.



Photo courtesy Port of Houston Authority

What is our role with the Texas Coast?

The U.S. Army Corps of Engineers role is to:

- Improve Navigation
- Support Non-Federal Investment
- Sustain Federal Projects
- Maintain a Robust Regulatory Program and
- Protect the Coastal Zone, and to achieve...

Shared Objectives

The U.S. Army Corps of Engineers has strong strategic partnerships within the Texas Coastal Stakeholder community that support Federal and non-Federal investment in the system's infrastructure.

The navigation system (Deep Draft Ports/Shallow Draft Ports and Gulf Intracoastal Waterway) is positioned for sustainable economic growth and Texas ports continue to drive the regional and national economic engine.

The Texas Coast environment is protected from coastal erosion and storm surge which allows for improved ecologic health and community resiliency.



Laquinta Channel

What do our partners say?



George P. Bush
Commissioner
Texas General Land Office

“Our valuable partnership with the Army Corps of Engineers is one of the major underpinnings of our efforts to better protect the Texas coast. More than 7.1 million Texans live along the coast, and the unreimbursed damages from the 2008 hurricane season are estimated to be more than \$29 billion. Our coast is an economic, environmental, and cultural powerhouse for Texas and for the nation, and we are pleased to have the Army Corps of Engineers as part of our team.”



Barbours Cut, Houston Ship Channel
(Photo by Chris Kuhlman, Port of Houston Authority)

How do we work with our Texas Coast partners?

Texas is the only state along the Gulf Coast that does not have a comprehensive plan for addressing the long term viability and protection of its coast. The Texas Coast is a treasured national resource that remains at risk to hurricanes. Approximately three million people live within a storm-surge inundation zone. This coast is home to 40 percent of the Nation's petrochem-

ical industry and 25 percent of the Nation's oil refining capacity. In the Fiscal Year 16 President's Budget, the Coastal Texas Study was approved to proceed with a \$20 million, 5.5 year study. The study was initiated on Nov. 16, 2016, with execution of the Feasibility Cost Sharing Agreement between the Corps and the Texas General Land Office. This study will investigate storm damage

reduction and ecosystem restoration opportunities to include the entire Texas Coast. Currently the Sabine Pass to Galveston Bay Project is studying storm damage reduction and ecosystem restoration measures along the upper Texas Coast to study ways to mitigate risk to storm surge.

What do our partners say?



Roger Guenther
Executive Director
Port of Houston

What does the Texas Coast provide?

Texas is the number two state in the Nation for maritime commerce and accounts for more than \$300 billion in economic value. Texas has three of the top 10 ports in the nation (Houston #2, Beaumont #6, and Corpus Christi #7). The Texas Coast is a complex and vulnerable system that provides substantial value to the Nation and is currently experiencing an historic economic transformation associated with shale oil and gas exploration and the expansion of the Panama Canal. Benefits include:

- Texas ports account for more than one million direct jobs every year and another 2.1 million indirect jobs nationally.
- 10 of the 28 Texas ports are in the Top 75 ports in the Nation.
- Texas ports help generate more than \$10 billion in local and state tax revenue each year.
- The Gulf Intracoastal Waterway (GIWW) provides an intermodal linkage through domestic and international markets and facilities. If measured against all the Nation's ports, the Texas portion of the GIWW would rank 6th in the Nation with respect to total tonnage.
- More than \$25 billion worth of goods are transported annually on the Texas portion of the GIWW.
- Currently there is more than \$150 billion in private investments along the Texas Coast in the petrochemical, Liquefied Natural Gas, and manufacturing sectors.

"The U.S. Army Corps of Engineers is an integral partner of the Port of Houston Authority. The port is a longtime economic engine for the Houston region and the state of Texas, as well as for the nation. The port supports the creation of 1.175 million jobs statewide and more than 2.1 million nationwide jobs. It generates economic activity totaling more than \$265 billion in Texas and \$499 billion across the nation. The success of the Port Authority is a success for all of our stakeholders, including the Corps of Engineers. We value our partnership with the Corps."

Multipurpose Reservoirs Aid in the development and implementation of state water planning and effectively sustain multipurpose reservoirs to maximize benefits in times of flood or drought.



- Flood Control**
- Water Supply**
- Recreation**
- Hydropower**
- Navigation**
- Environmental Stewardship**

Eufaula Dam, Oklahoma



Mike Rickman
Deputy Director
North Texas Municipal
Water District

What do our partners say?

“From the very beginning of our 60-year history, the North Texas Municipal Water District has had a strong partnership with USACE. This relationship is strengthened through regular collaboration between Corps and NTMWD professionals on operations and recreation projects at Lavon, Texoma and Chapman lakes, which supply water to more than 1.6 million people in the region. For North Texans, 2015 marked the wettest year on record and NTMWD truly values the diligence of the Corps to balance flood control and water supply needs while managing critical facilities. As the wholesale water provider for one of the fastest growing regions in the nation, we look forward to building on past successes with the Corps to manage and secure water resources that are vital for the future of North Texas.”



What do our partners say?



J. Kevin Ward
General Manager
Trinity River Authority of Texas

“The partnership between the Trinity River Authority of Texas and the U.S. Army Corps of Engineers continues to grow stronger each occasion we have to work together to plan, protect and restore the many water resource and environmental assets in the basin. This past few years have shown that by working together in close real-time communications, we can quickly stop environmental damage by coordinating dam operations with emergency repairs during flood events, we can work our way through permitting issues to maintain public health and safety through replacement of aging infrastructure, and we can jointly manage assets in navigable waterways through effective delegation of authority and execution of operating procedures. Looking forward, we see even more opportunity to leverage the federal resources managed by the USACE with our local sponsorship of projects that still have great potential to exceed the original expectations of Congress.”



Proctor Lake, Texas

The Region’s 74 multipurpose reservoirs provide:

- 33.2 million acre-feet of flood storage which equates to 13,900 Dallas Cowboy stadiums or 16,069 Houston Texan stadiums.
- 8.4 million acre-feet of water supply storage, or, 3.1 trillion gallons per annum for Municipal and Industrial water supply.
- Quality recreational opportunities, with over 74 million visitors each year to Corps lakes and parks.

What do Multipurpose Reservoirs provide to our communities?

Flood Damage Reduction:

- Prevented more than \$112 billion of damages over the life of projects.
- More than \$27 billion in damages prevented in 2015

Recreation & Local Economy:

- \$793 million in visitor spending (not including durable goods) within 30 miles of the Corps lakes annually.
- With multiplier effects, visitor spending resulted in \$1.894 billion in total sales; \$637.7 million in value added (wages and salaries, payroll benefits, profits and rents and indirect business taxes); supported 25,427 jobs in communities near Corps Lakes. (Source: “Value To The Nation: Fast Facts,” Institute for Water Resources, 2013).

Water Supply:

- Water supply storage provided by the Corps for each state in the tri-state region: Kansas – 20 percent; Oklahoma – 35 percent; and Texas – 36 percent.
- Water Supply satisfies annual demand for approximately 1.8 million households and 4.5 million citizens.

Hydropower:

- SWD is the second largest operator of hydroelectric power plants in the Corps, with 18 Corps-owned hydroelectric power plants located in six states which generate 3 billion kilowatt-hours annually of clean energy.
- SWD provides 87 percent of the energy delivered to the Southwestern Power Administration.

Our Azimuth and Priorities guide us

The history of the Army Corps of Engineers Southwestern Division is intricately tied to the migration of the American people to the south central and southwestern region of the United States. The Southwestern Division was created in 1937 to meet the needs of an expanding economy through the development of water resources projects to enhance the efficient transportation of goods along the region's ports and waterways, and to reduce the risk of flooding to communities. Our Districts are even older, reflecting our nation's growth along lakes, wetlands, rivers, and the coast. The Galveston District was created in 1881, and the Little Rock District was officially opened in 1882. Throughout our history, our commitment has been to deliver value to the communities we serve, working closely with government officials, sponsors, and stakeholders.

The Civil Works mission that the early Army Engineers performed is very much alive today, providing a key fundamental component of the Nation's public infrastructure that facilitates economic growth, quality of life, environmental health, and national security.

That mission touches the lives of Americans every day, whether through a lake or a levee, a coastal port or a park.

To help us ensure that we continue to deliver value to the Nation—in a time of aging infrastructure and intense competition for scarce resources—the Southwestern Division operates from the perspective of an **Azimuth**

and **Regional Priorities**, developed by our leadership and vetted through our partnerships. Our Regional Priorities are an expression of where we have and will continue to deliver unique value to the Nation. They directly enable us to accomplish our mission.

We are focused on four Civil Works priorities that relate to infrastructure systems or portfolios. These are the **Texas Coast; Multipurpose Reservoirs; the McClellan-Kerr Arkansas River Navigation System (MKARNS); and Hydropower**. Examples of the significance of these priorities abound. Last year, our multipurpose reservoirs were put to the test, as our region was impacted by record-setting rains and flooding. These reservoirs, along with other flood risk reduction systems, prevented more than \$27 billion in damages in our region in calendar year 2015. The Department of Transportation upgraded the MKARNS from a connector to a corridor in 2015. And the Texas Coast continued to grow, as did the strength of our partnerships with state and federal agencies and the Texas ports.

Our Civil Works infrastructure is aging, which can lower productive efficiency and affect our ability to provide important benefits to the Nation. Making this aging infrastructure more resilient requires a collaborative effort between government agencies, industry and public/private partnerships. Our Regional Priorities enable us to remain focused delivering solutions to the Nation's most pressing water resource challenges.

We have worked intensely with our partners to develop system- and portfolio-wide investment strategies that include requirements for both new infrastructure and sustainment of existing infrastructure. This collaboration has resulted in improved reliability of the MKARNS through establishment of a five year maintenance plan; the Southwestern Power Administration and its customers developing a 20-year investment strategy to fund the rehabilitation of all existing powerhouses within SWPA's footprint; the Texas Department of Transportation moving forward on the feasibility study to identify a feasible alternative for rehabilitating or replacing the GIWW – Brazos River Floodgates; and Port-led improvements to a number of navigation channels on the Texas Coast to prepare for the larger vessels expected from the expansion of the Panama Canal.

We are also working with our partners to develop innovative approaches to resource and accelerate the delivery of critical infrastructure investments through alternative financing that includes contributed funds and work-in-kind by our sponsors, public-private partnerships (P3), and public, public-private partnerships (P4). We will look at all avenues to ensure that we deliver on our commitment to our partners and to the American people.

Our Regional Priorities will help us continue to strengthen national security, energize the economy and reduce risk from disaster.



A Respected Organization

- Embraces Public Service
- Delivers on Commitments
- Communicates Transparently
- Enhances the Reputation of the Profession

That Develops and Cares for our People

- Commits to Training and Leader Development
- Assesses Performance Honestly
- Communicates Candidly, Respectfully, Regularly
- Listens and Adapts



The Texas Coast



Multipurpose Reservoirs



MKARNS



Hydropower

The McClellan-Kerr Arkansas River Navigation System (MKARNS) is reliable, resilient, relevant, and promotes growth for future generations.



Photo courtesy Tim Zimmerman

Why is the MKARNS important to the region?

The MKARNS is 445-miles long and includes the Verdigris, Arkansas & White Rivers. The System has an elevation differential of 420 feet from its beginning at mile 600 on the Mississippi River to the head of navigation near Tulsa. It is a multi-beneficiary system: water supply, navigation, fish and wildlife, recreation, hydropower generation, and flood risk management (when considered as part of the Arkansas River Basin Project and its upstream reservoirs that control water flows). We maintain a 9 ft. channel depth on the MKARNS. There are 18 locks and dams – 3 in Arkansas and 5 in Oklahoma; each lock chamber is 110' wide x 600' long and can handle an 8-barge tow.

Shared objectives with our partners

- Maintain and repair system to increase reliability and reduce risk of failure.
- Make the smartest investment decisions using available federal funds.
- Maximize investment value by synchronizing Federal Plans with other stakeholders.
- Ensure a managed acquisition and distribution of knowledge across the workforce.

What are the benefits of the MKARNS?

Benefits from the McClellan-Kerr Arkansas River Navigation System, our nation's most inland navigable waterway, include:

- About 12 million tons of (industrial, chemical, agricultural and construction) cargo are shipped annually generating \$4 billion in economic benefit to the region.
- Savings are realized for other commodities including project cargo that typically saves our shippers an impressive \$100,000 per barge load.
- Since the advent of waterway transportation into the midwest, transportation costs are some 15 percent lower than areas lacking all the surface modes.
- 8,000 direct Maritime jobs have been created along the MKARNS between Muskogee and Tulsa, Oklahoma as a result of some \$5 billion of industrial investments.
- More than 20 million bushels of winter wheat are shipped on the MKARNS by barge from Kansas and Oklahoma to the Gulf at a cost per bushel that approximates the price of a first class postage stamp.
- Typical 8-barge tow carries the equivalent of 115 combined rail cars or 560 semi-trailer trucks and generates fewer emissions than the other modes of transportation and relieves congested roadways. One gallon of diesel fuel will move one ton of freight 59 miles by truck, 202 miles by rail, or 514 miles by barge. The tremendous amount of commodities that weren't transported on our nation's already congested roadways has also helped in reducing greenhouse gas emissions.

What do our partners say?



Deirdre Smith
Waterways Manager, State of Oklahoma

"The partnership that has developed between the Corps of Engineers, federal and state agencies, industries and stakeholders along the MKARNS is unique and benefits us all in working together to find solutions to the challenges we face on the inland river system. Whether it is regarding high water, dredging, critical maintenance, feasibility studies, or emergency preparedness, there is always an open dialogue. We're grateful to have partners with the experience, expertise and leadership the Corps provides as we move forward in keeping the MKARNS viable for future generations to come."



What do our partners say?



Gene Higginbotham
Director, Arkansas Waterways Commission

"We really appreciate the open and transparent communication on issues of concern such as the Arkansas White River Cut-off area and operations and maintenance backlog on the MKARNS. The Arkansas Waterways Commission is dedicated to working with the Corps in bringing value to the system for all the industries that benefit from it - navigation, energy, recreation and environmental. I'm especially appreciative of the Corps' moving forward with funding for the Three Rivers Study—in my estimation, the number one issue of the system."



Dardanelles Lock on the Arkansas River

Hydropower

Provide reliable, efficient and effective hydropower

What is the role of hydropower in the region?

The Southwestern Division has 18 Hydropower Projects: three in the Fort Worth District, seven in the Little Rock District, and eight in the Tulsa District. This includes four on the McClellan-Kerr Arkansas River Navigation System. The remaining 14 are on flood control reservoirs.

Hydroelectric power utilizes water from the navigation and reservoir flows to provide power to South-

western Power Administration for marketing, and to reimburse the Nation for the cost of operation, maintenance and capitalization of the power plants, dams and associated project costs.

Altogether, we have 55 generating units with an installed capacity of 1,742,000 kilowatts, and typically generate more than five billion kilowatt-hours of electricity annually.



Webbers Falls Powerhouse, Oklahoma



Bull Shoals Powerhouse, Arkansas

Hydropower

What are the benefits of hydropower?

There are 18 Hydropower Projects within the Southwestern Division, some benefits include:

- Hydropower uses a clean fuel source...Water!
- Hydropower is a domestic source of energy.
- Energy generated through hydropower is renewable.
- Hydropower plants can generate power to the grid immediately, they provide essential back-up power during major electricity outages or disruptions.
- Hydropower is part of a multipurpose reservoir, producing a number of benefits, such as flood control, recreation, and water supply.

How do USACE and SWPA work together?

Our Strategic Partner is Southwestern Power Administration. Through this Department of Energy Power Marketing Agency, we provide power to rural electric cooperatives and municipalities in a 7-state region surrounding our civil works projects.

SWPA provides approximately \$190 million of receipts that are for our operation, maintenance, and recapitalization costs annually.

In cooperation with SWPA and its customers, we have embarked on funding non-routine repairs and reinvestments of our power plants in the region. SWPA and its customers have committed to the Corps that they plan to recapitalize our projects in the next 30 years, an investment of \$1.3 billion.

Hydropower

What do our partners say?



Scott Carpenter
Administrator

Southwestern Power Administration

“Southwestern highly values its long-standing partnership with the Corps and its Federal hydropower customers, who ultimately serve the energy needs of more than eight million end-use electric utility customers throughout Southwestern’s marketing area. This partnership has provided more than \$350 million in customer-approved funding to repair and replace aging infrastructure at Corps-owned multipurpose hydropower projects, with a commitment to fund \$1.4 billion over a 30-year period. Southwestern works closely with its partners to keep annual operating and capital costs low so we can market the power at the lowest possible cost, consistent with sound business principles. A key part of achieving this goal is working together to balance long-term resource management and developing solutions between diverse interest groups while protecting the Federal hydropower interest.”



Keystone Powerhouse, Oklahoma



Cover Photo: A dredge works as part of the operation to deepen and widen Barbour's Cut Channel to increase the space for ships at berth in the Houston Ship Channel. (Photo by Chris Kuhlman, Port of Houston Authority). This brochure was prepared by the Public Affairs Office, Southwestern Division, U.S. Army Corps of Engineers, 1100 Commerce Street, Dallas, Texas 75242. For additional information, contact ceswd-pa@usace.army.mil. All photos are U.S. Army photos unless otherwise noted.