

# Transformative Integrated Water Resources Infrastructure Management on America's Energy Coast

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Sustainable Sediment Management and Dredging Seminar

28 NOV 2018





# USACE: STAYING WORLD CLASS NOW AND INTO THE FUTURE



US Army Corps  
of Engineers®

## ACHIEVE OUR VISION

Anticipate future conditions; take decisive actions today to always be ready, come what may.

## USACE VISION

Engineering Solution For The Nations Toughest Challenges.

## MISSION

Deliver vital engineering solutions, in collaboration with our partners, to secure our Nation, energize our economy, and reduce risk from disaster.

## DELIVER THE PROGRAM

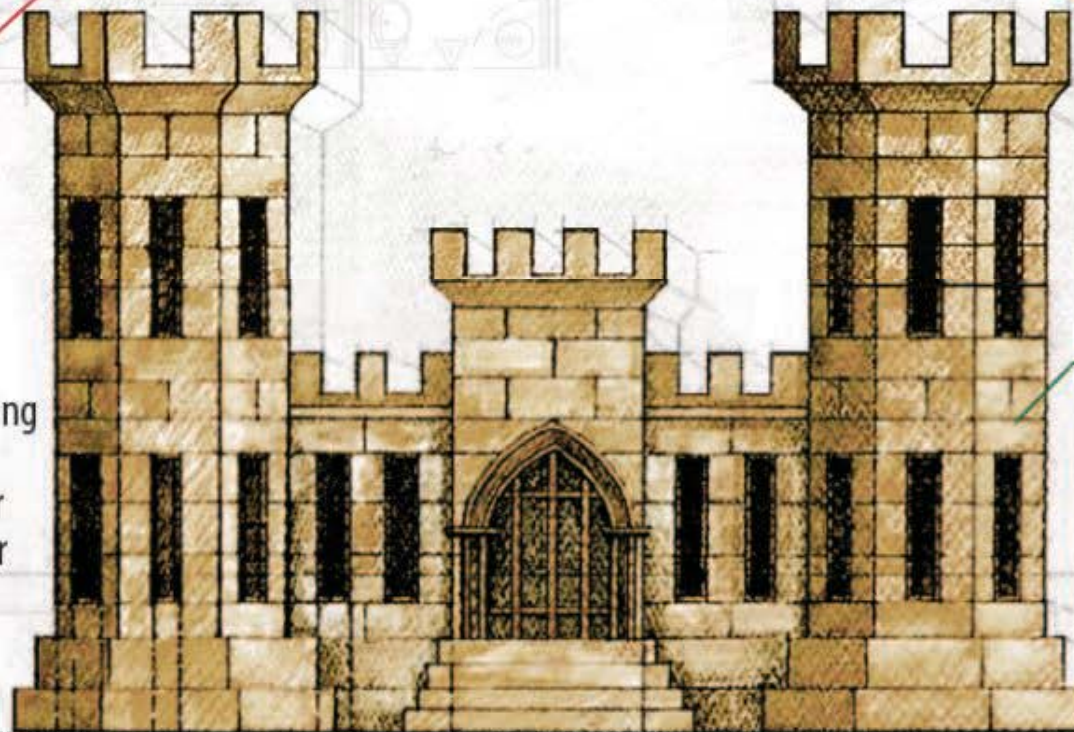
Our credibility relies on our ability to achieve desired results on time and on budget.

## MISSION AREAS

- Military Programs
- Civil Works
- Geospatial Support
- Contingency Operations
- Research and Development

## STRENGTHEN THE FOUNDATION

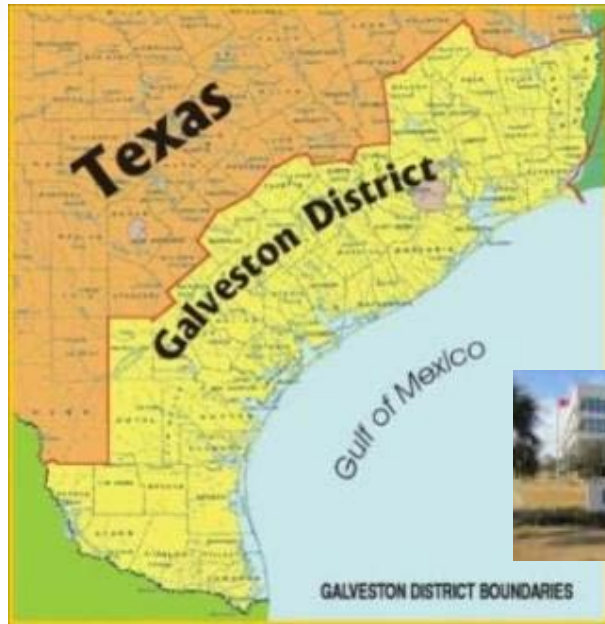
Doing routine tasks, to a high standard, routinely, enables everything else. A strong foundation empowers leaders to think strategically.





# USACE Galveston District (SWG): History and Mission

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- Navigation (NAV)
- Flood Risk Management (FRM)
- Coastal Storm Risk Management (CSRM)
- Regulatory
- Ecosystem Restoration (ER)
- Emergency Management
- Interagency & International Support

- First engineer district in Texas, established 1880
- 50,000 square mile district boundary, ~100+ miles inland
- 28 ports handling 538+ M tons of commerce annually (FY 16)
- 1,000+ miles of channels
  - 750 miles shallow draft
  - 270 miles of deep draft
- 367 miles of Gulf coastline
- 30-40 M cubic yards/yr material dredged
- 16 Congressional districts
- 48 Texas counties, 4 Louisiana parishes
- 18 Coastal counties - bays / estuaries
- 9 watersheds



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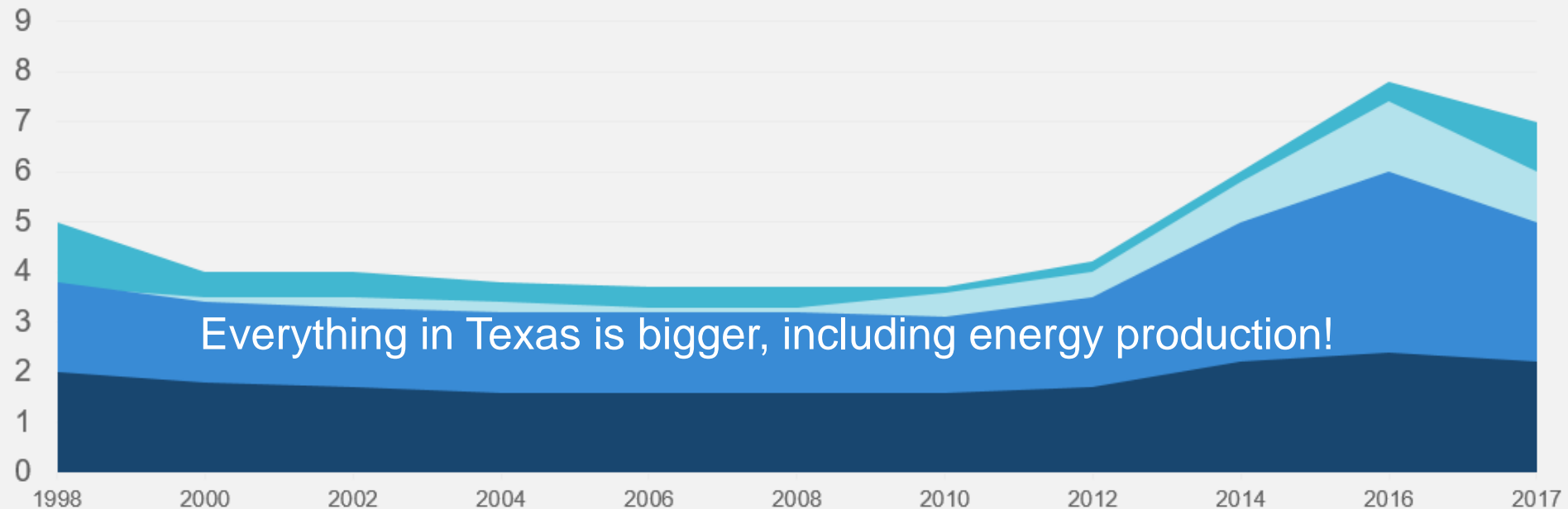
# Driver of Water Resources Projects on the Texas Coast: Energy Sector 4

DEC 2015: US Government lifts 40-year crude oil export ban

## Texas: Largest Energy Producer in U.S.

(in million barrels per day)

### U.S. Onshore Production of Crude Oil



Source:  
Energy Information Administration  
February 2018

Alaska North Dakota Texas Other States





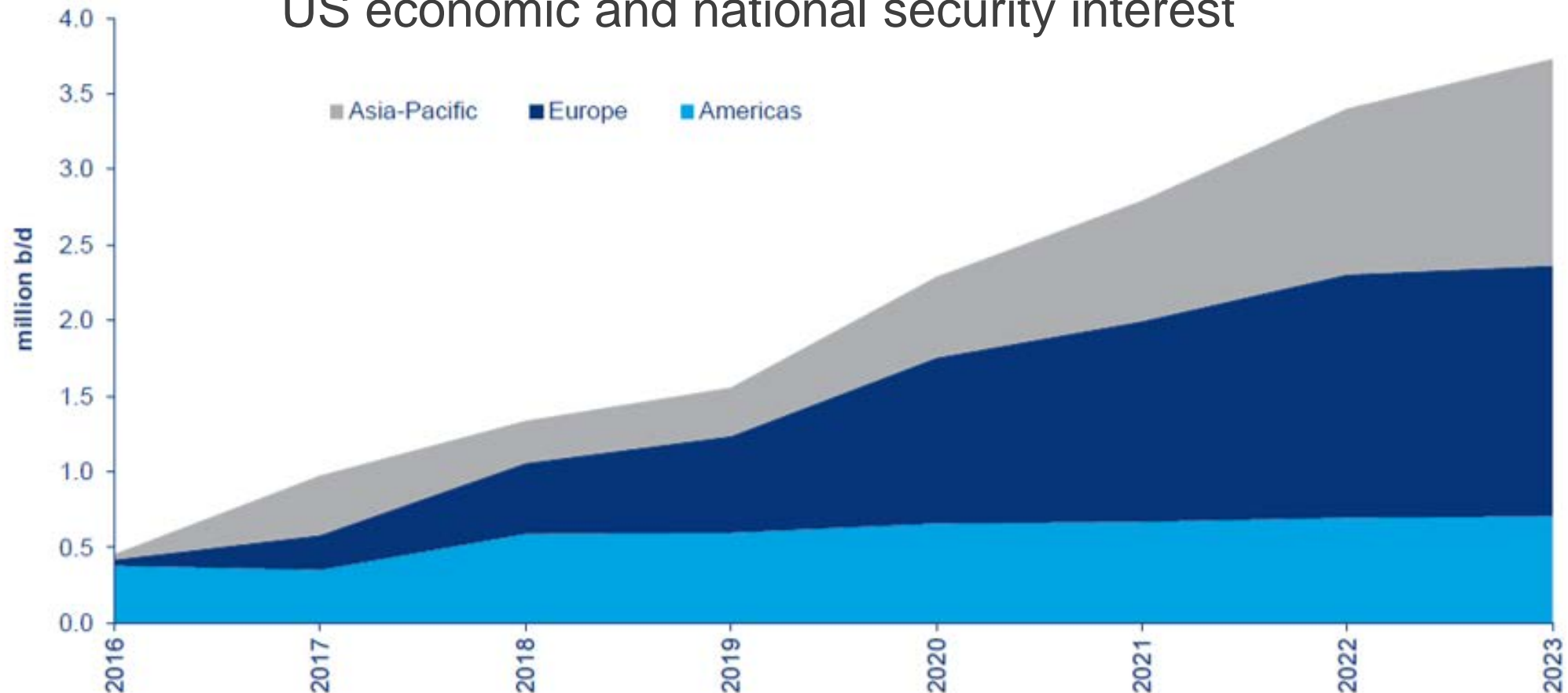
# Primary Export Market is Europe, But Asia Fastest Growth Region

5

Reduced transport costs and higher netbacks for US crude producers make Europe the optimal market for the US to fill first

Destination of US light crude and condensate exports

US economic and national security interest





# Energy Industry at Texas Coastal Ports

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~\$ 300 B being invested in coastal Texas petrochemical industry capital investments in plant expansions

***“Managing every molecule”***



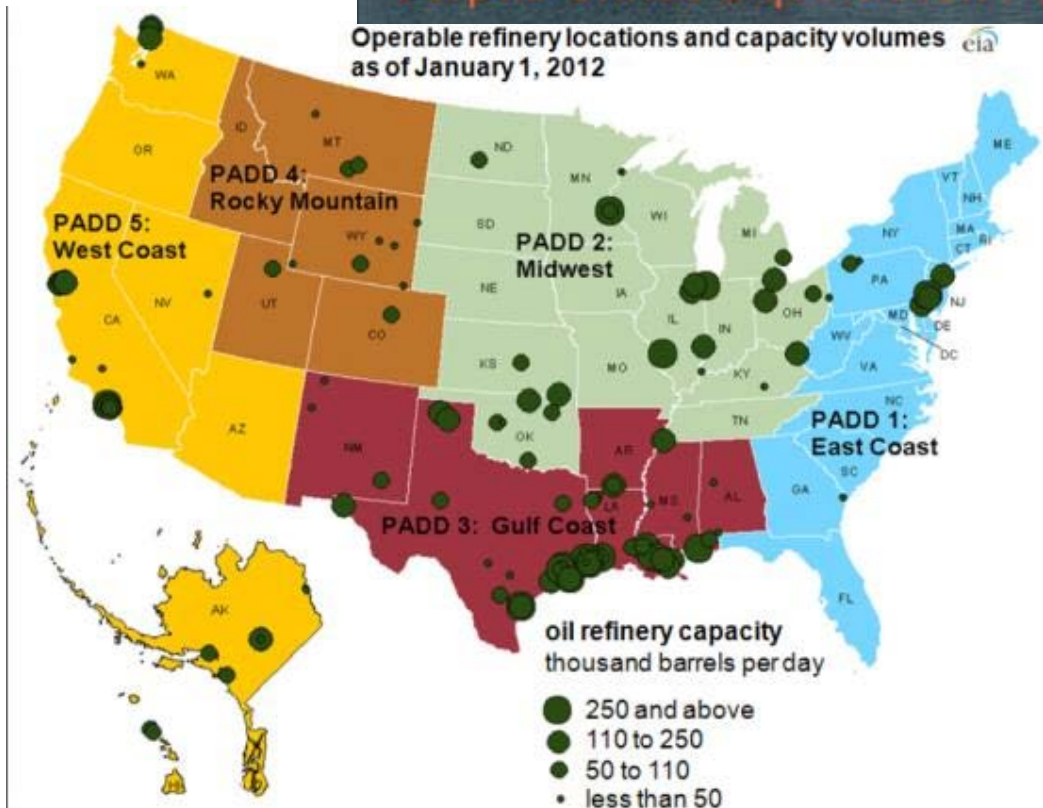
Shell Deer Park



ExxonMobil Baytown



Operable refinery locations and capacity volumes as of January 1, 2012







# Deep Draft Navigation Transportation: Driver for Coastal Development and Risks



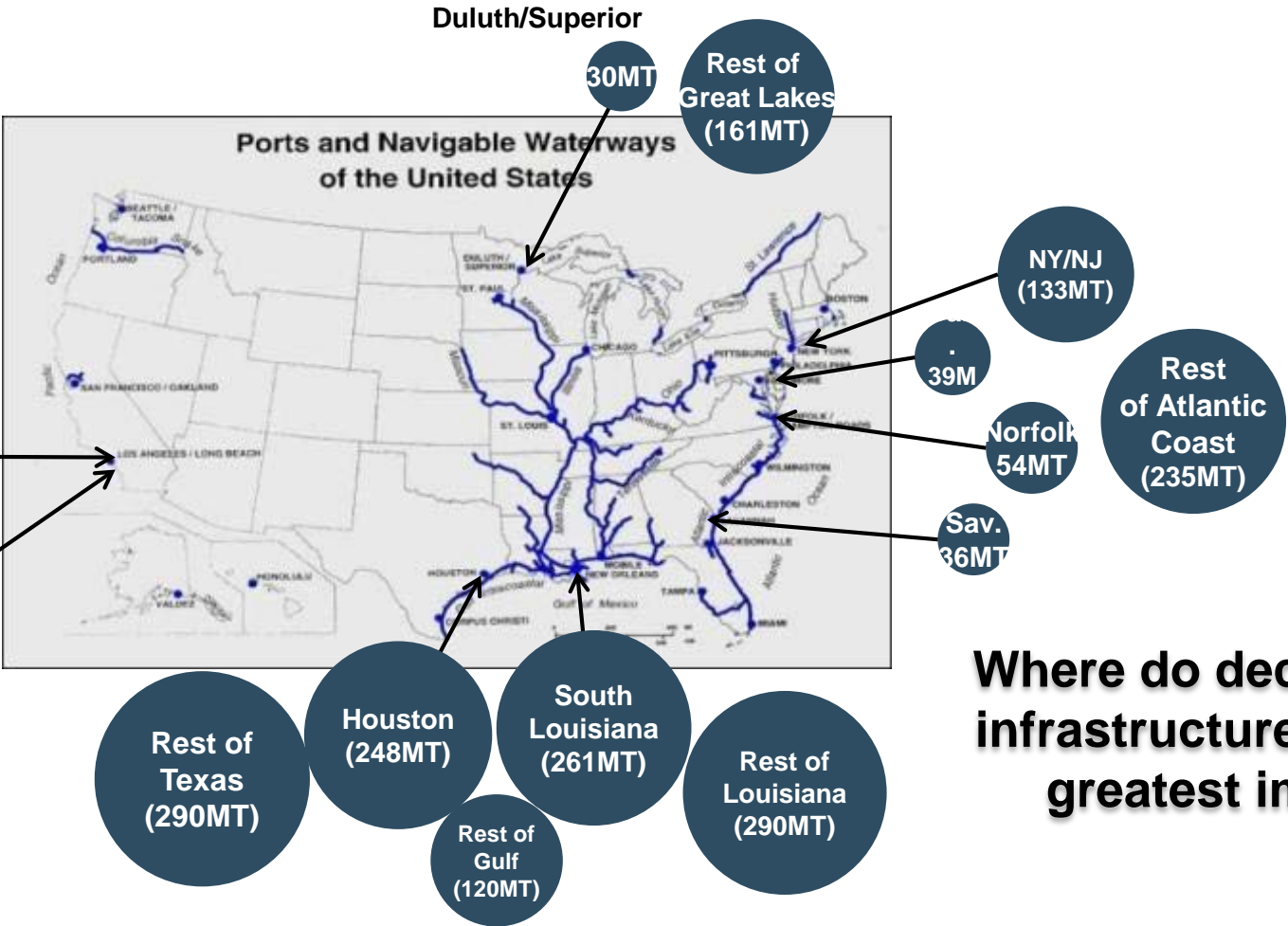
Panama Canal, new  
Agua Clara Locks –  
Container Shipping

Rest  
of Pacific  
Coast  
(256MT)

LA  
(63MT)

Long  
Beach  
(78MT)

| TOTAL Tonnage by Region |                       |                      |
|-------------------------|-----------------------|----------------------|
| Region                  | Tonnage<br>(millions) | Percent of<br>Nation |
| Nation                  | 2,523.2               | 100%                 |
| Gulf Coast              | 1,210.7               | 48.0%                |
| Texas Ports             | 537.7                 | 21.3%                |
| Galv-Houston-TX City    | 299.1                 | 11.9%                |
| SNWW                    | 119.7                 | 4.7%                 |
| Corpus Christi          | 82.0                  | 3.2%                 |



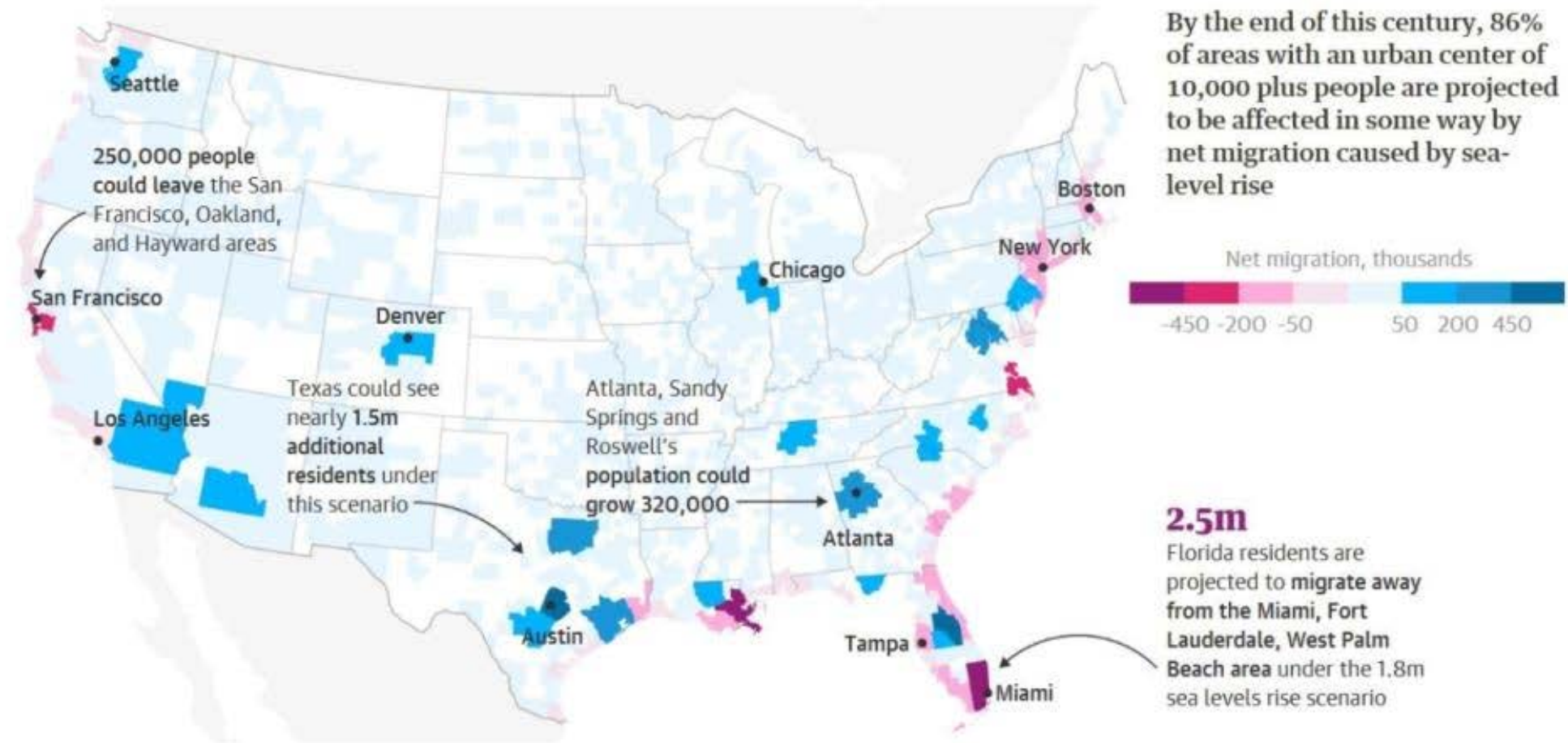
Where do decisions on  
infrastructure have the  
greatest impact?





# Inhabitation Trends and Coastal Flood Potential

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Guardian graphic. Source: Nature climate change, Mathew E. Hauer

Implication: Increased river flood and coastal storm damage risks to inhabitation and development







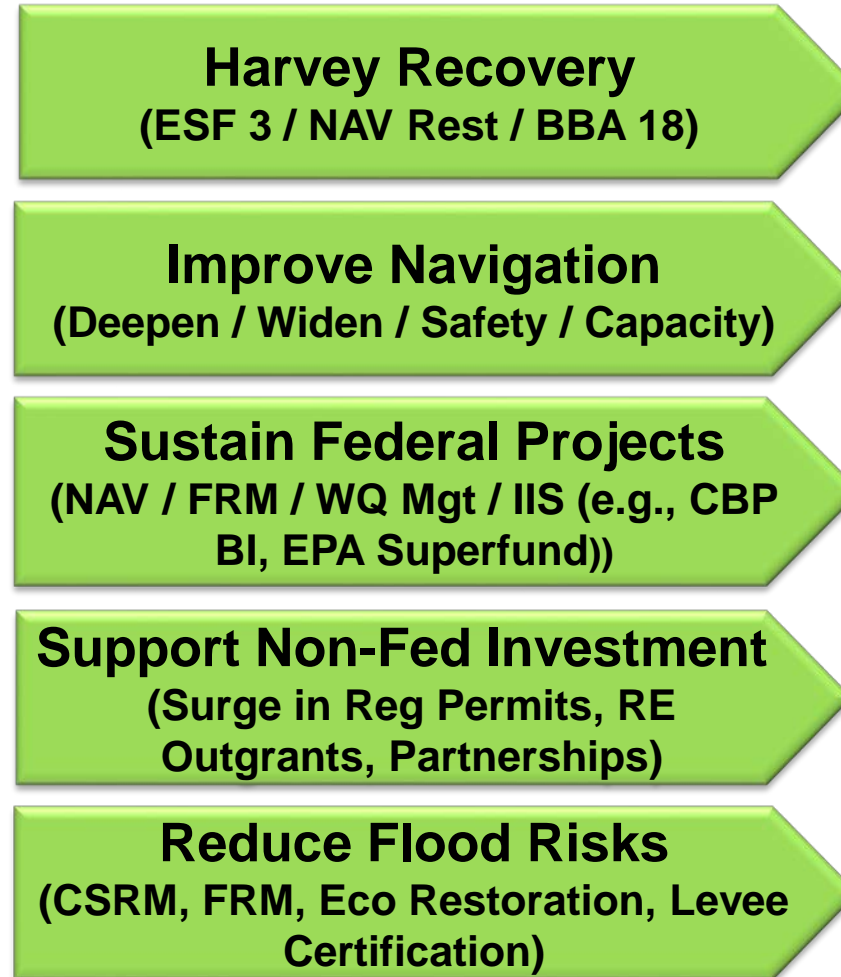
# Managing Integrated Water Resources through a USACE SWG Corporate Strategy

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## Maximizing Capital



## Lines of Effort



## Future

- Texas Coast is:**
- A resilient community with healthy ecosystem
  - Positioned for sustainable economic growth
  - Enabled by strategic partnerships that support Non-Federal investment



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# Enhancing Strategic Partnerships

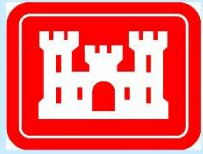
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- Texas coast shared visioning for alignment of agency values toward mutually desired outcomes
  - Vibrant regional and national economy
  - Resilient and sustainable communities
  - Healthy, diverse, and functional ecosystems
- Driving progress through regularly-engaged partnering board
  - Multi-agency participation (Local, State, Federal)
  - Shared vision steering
  - Identifying / resolving barriers to progress
- Team building, collaboration, and unified communications
  - Articulating challenges and successes
  - Building stakeholder awareness and support for action
  - Supporting elected officials with information they need



Bi-Annual Stakeholder  
Partnering Forum





# Texas Ports Coastal Navigation Value to the Nation

## LEADING U.S. PORTS (2016 Tonnage)

**Houston #2 – 248.0 million tons**  
#1 Foreign Tonnage & #2 Total Tonnage

**Beaumont #5 – 84.5 m.tons**  
#1 Military Port in World

**Gulf Intracoastal Waterway**  
(79 million tons – Texas portion)  
#3 Inland Waterway

**Corpus Christi #6 – 82.0 m.tons**  
America's Energy Gateway

**Texas City #15 – 41.3 m.tons**  
Services Largest Petrochemical Complex

**Port Arthur #20 – 35.2 m.tons**  
Vital Break-Bulk Port

**Freeport #33 – 19.6 m.tons**  
Connecting Global Services  
Via Caribbean Relay Port

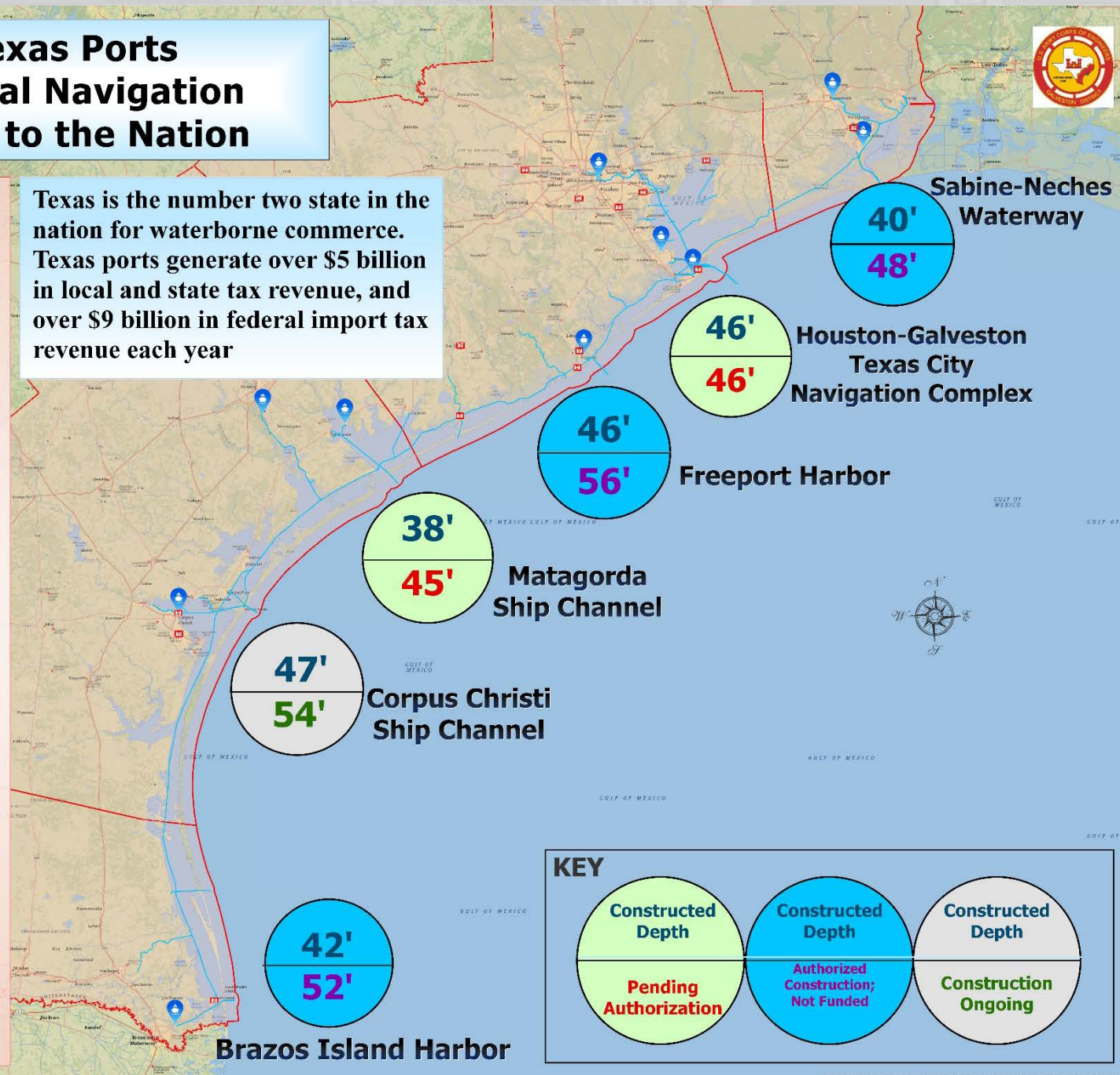
**Galveston #52 – 9.9 m.tons**  
#4 Cruise Ship Port

**Brownsville #66 – 7.3 m.tons**  
#1 Ship Recycling Port

**Victoria #74 – 5.1 m.tons**  
#2 Shallow-Draft Port for Domestic  
Crude Petroleum

**Calhoun County Port #76 - 4.9 m.tons**  
(Matagorda Ship Channel)

Texas is the number two state in the nation for waterborne commerce. Texas ports generate over \$5 billion in local and state tax revenue, and over \$9 billion in federal import tax revenue each year



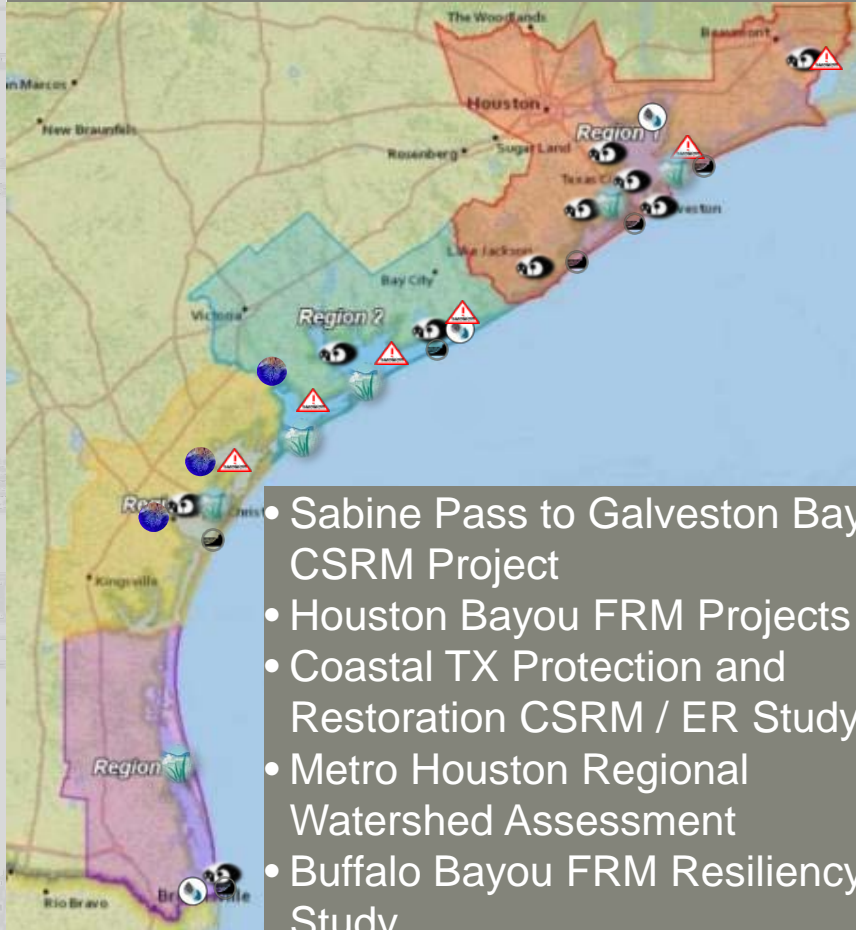
- 4 ship channels authorized for improvement
- 1 ship channel authorized for extension
- 2 ship channels under study for improvement





# Flood and Coastal Storm Risk Management and Ecosystem Restoration

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- Sabine Pass to Galveston Bay CSRM Project
- Houston Bayou FRM Projects
- Coastal TX Protection and Restoration CSRM / ER Study
- Metro Houston Regional Watershed Assessment
- Buffalo Bayou FRM Resiliency Study
- Brazos River Erosion Management Study
- Jefferson County ER Study
- Resacas ER Study & CAP Project



Economic damage from coastal storm surge



Inland shoreline erosion



Gulf shoreline erosion



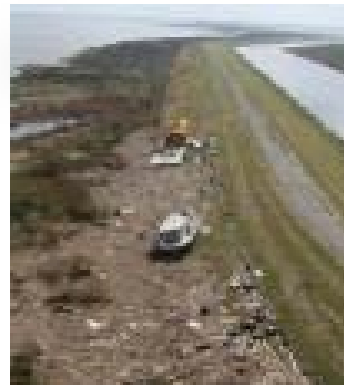
Loss of T&E Critical Habitats (migratory bird habitat, critical T&E habitat, shellfish habitat)



Loss of Natural Delta Processes



Disrupted Hydrology



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# Bipartisan Budget Act of 2018 (BBA 18)

## Legislation and Implementation Guidance

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### One Hundred Fifteenth Congress of the United States of America

#### AT THE SECOND SESSION

*Begun and held at the City of Washington on Wednesday,  
the third day of January, two thousand and eighteen*

#### An Act

To amend title 4, United States Code, to provide for the flying of the flag at halfstaff in the event of the death of a first responder in the line of duty.

*Be it enacted by the Senate and House of Representatives of  
the United States of America in Congress assembled,*

#### SECTION 1. SHORT TITLE.

This Act may be cited as the “Bipartisan Budget Act of 2018”.

#### DIVISION A—HONORING HOMETOWN HEROES ACT

#### SECTION 10101. SHORT TITLE.

This division may be cited as the “Honoring Hometown Heroes Act”.

#### SEC. 10102. PERMITTING THE FLAG TO BE FLOWN AT HALF-STAFF IN THE EVENT OF THE DEATH OF A FIRST RESPONDER SERVING IN THE LINE OF DUTY.

(a) AMENDMENT.—The sixth sentence of section 7(m) of title 4, United States Code, is amended—

(1) by striking “or” after “possession of the United States” and inserting a comma;

(2) by inserting “or the death of a first responder working in any State, territory, or possession who dies while serving in the line of duty,” after “while serving on active duty,”;

(3) by striking “and” after “former officials of the District of Columbia” and inserting a comma; and

(4) by inserting before the period the following: “, and first responders working in the District of Columbia”.

(b) FIRST RESPONDER DEFINED.—Such subsection is further amended—

(1) in paragraph (2), by striking “, United States Code; and” and inserting a semicolon;

(2) in paragraph (3), by striking the period at the end and inserting “; and”; and

(3) by adding at the end the following new paragraph:

“(4) the term ‘first responder’ means a ‘public safety officer’ as defined in section 1204 of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (34 U.S.C. 10284).”.

(c) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to deaths of first responders occurring on or after the date of the enactment of this Act.

- Legislation passed  
9 FEB 18
- Implementation  
Guidance signed  
9 AUG 18
- SWG projects funded  
at \$4.5 B
- SWG studies funded  
at \$15.8 M



DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY  
CIVIL WORKS  
108 ARMY PENTAGON  
WASHINGTON DC 20315-0188

AE - 9 2018

MEMORANDUM FOR Deputy Commanding General for Civil and Emergency  
Operations

SUBJECT: Policy Guidance on Implementation of Supplemental Appropriations in the  
Bipartisan Budget Act of 2018

#### 1. References:

a. Bipartisan Budget Act of 2018 (Public Law 115-123), Division B, Subdivision 1,  
Title IV (Enclosure 1).

b. Balanced Budget and Emergency Deficit Control Act of 1985 (Public Law  
99-177), as amended.

#### 2. General:

a. This document provides implementation guidance for supplemental  
appropriations in the Investigations, Construction, Mississippi River and Tributaries  
(MRT), Operation and Maintenance, and Expenses appropriations. Implementation  
guidance for the Flood Control and Coastal Emergencies appropriation is provided  
separately, dated 11 May 2018. It is my expressed intent that the USACE act as  
expeditiously as possible to initiate and complete the projects and studies identified in  
the Long-term Disaster Recovery Investment Plans (LDRIPs).

b. Funds appropriated in Public Law 115-123 are designated by the Congress as  
being for an emergency requirement pursuant to section 251(b)(2)(A)(i) of the Balanced  
Budget and Emergency Deficit Control Act of 1985.

c. In accordance with Public Law 115-123, my office will provide a monthly report to  
the Committees on Appropriations of the House of Representatives and the Senate  
reflecting the allocation and obligation of all funding provided by Public Law 115-123. In  
accordance with standard practice, your office will consolidate this monthly report with  
the monthly reports on other supplemental appropriations using data as of the end of  
each month, and furnish each monthly report to my office for transmittal. In addition,  
your office will provide, at least quarterly, in-person execution updates to Office of the  
Assistant Secretary of the Army (Civil Works) (ASA (CW)) and Office of Management  
and Budget (OMB) leadership and will also provide similar relevant information to the  
appropriations committees.

d. In accordance with Section 20401 of Public Law 115-123, in Fiscal Year (FY)  
2018, and each FY thereafter, the Chief of Engineers of the U.S. Army Corps of  
Engineers shall transmit to the Congress, after reasonable opportunity for comment, but



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## Title IV - Corps of Engineers

- **Investigations**
  - \$75 M (of \$135 M total) for States and areas impacted by Harvey, Irma, and Maria
  - Full Federal expense
  - Reduce flood and hurricane risk
- **Construction**
  - \$10.425 B (of \$15 B total) for States and areas impacted by Harvey, Irma, and Maria
  - NFS cash contribution financed over 30 years post construction completion
  - Construct flood and storm damage reduction projects authorized/Chief's Reports/studies under investigations
- **Implementation Guidance and Investment Program:**

<https://www.usace.army.mil/Missions/Civil-Works/Budget/>

| Project Name                                     | Funding                |
|--|------------------------|
| <b>CONSTRUCTION</b>                              |                        |
| Brays Bayou, TX                                  | \$75,000,000           |
| Buffalo Bayou and Tributaries, TX (Phase 1)      | \$1,454,000            |
| Clear Creek, TX                                  | \$295,165,000          |
| Hunting Bayou, TX                                | \$65,000,000           |
| Lower Colorado River Ph 1 (Wharton, TX)          | \$73,290,000           |
| Sabine Pass to Galveston Bay, TX                 | \$3,957,134,000        |
| White Oak Bayou, TX                              | \$45,000,000           |
| <b>TOTAL CONSTRUCTION</b>                        | <b>\$4,512,043,000</b> |
| <b>GENERAL INVESTIGATION STUDIES</b>             |                        |
| Coastal Texas Protection & Restoration Study, TX | \$3,804,000            |
| Buffalo Bayou Resiliency Study, TX               | \$6,000,000            |
| Houston Regional Watershed Assessment, TX        | \$3,000,000            |
| Brazos River Erosion Management Study, TX        | \$3,000,000            |
| <b>TOTAL STUDIES</b>                             | <b>\$15,804,000</b>    |







# SWG Program Execution Strategy

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## DIRECTOR'S POLICY MEMORANDUM CIVIL WORKS

No. DPM CW 2018-09 Issuing Office: CECW-I Issued: 16 July 2018 Expire: Indefinite

SUBJECT: Principals of Delivery for the 2018 Emergency Supplemental

CATEGORY: Directive

REFERENCES: Emergency Supplemental Funds appropriated in Public Law 115-123  
DPM CW 2018-04; Video Message from the Honorable R.D. James, Assistant Secretary of the Army (Civil Works), <https://youtu.be/HBUZloxGwIM>.

1. **Purpose.** The U.S. Army Corps of Engineers (USACE) received \$17.1B dollars in Emergency Supplemental Funding as appropriated in Public Law 115-123. The purpose of this Director's Policy Memorandum is to insure that all USACE team members clearly understand enterprise intent for the aggressive and high-quality delivery of projects and studies included in the Emergency Supplemental.

2. **Applicability.** This direction applies to all Emergency Supplemental projects and studies executed by USACE.

3. **Policy.** Emergency Supplemental Funds appropriated in Public Law 115-123 are designated by the Congress for emergency requirements. As such, the USACE will take all steps necessary to deliver the Emergency Supplemental program expeditiously while still observing all appropriate legal requirements and policy standards. USACE will immediately begin the aggressive, effective and efficient delivery of quality projects as part of the Emergency Supplemental. The list of projects and studies cleared by the Administration on 5 July 2018 is available at <http://www.usace.army.mil/Missions/Civil-Works/Budget/> under "Supplemental Appropriations for Disasters 2018."

The USACE objective is to **Drive Quality Project Delivery** to "turn dirt" and complete projects as quickly as legally and technically possible. Every day that a project is not generating project benefits is an additional day that the Nation and its citizens are exposed to the risk of additional storm damage. The Divisions and Districts have identified several potential impediments to enhanced delivery which I used to drive discussion during the 3<sup>rd</sup> Quarter Executive Governance Meeting (EGM) regarding aggressive delivery and the available opportunities to enhance delivery. This discussion, informed by extensive field input, led to EGM senior leader adoption of 23 specific opportunities to enhance project delivery as reflected in attachment (A). The following are examples of the 23 items that are directly tied to those recommendations from the field:

a. Headquarters, USACE (HQ) Contracting is considering whether there are additional opportunities for delegation of Principal Assistant Responsible for Contracting (PARC) reviews.

b. HQ Contracting is currently reviewing the contract development and award process to identify opportunities for streamlining acquisition strategy without sacrificing quality execution.

- Purpose – Execute multiple program lines of effort based on currently known facts, assumptions, and constraints
- Scope – Annual Civil Works Baseline, BBA 18, and Border Infrastructure Programs
- Goal – “Move Dirt” and Deliver the Program according to expectations of stakeholders and Higher Authority
- Objectives
  - Operate resource unconstrained via in/outsourcing
  - Optimize project lifecycle phase execution timeframes using a suite of acquisition strategies

DPM CW 2018-09, 16 Jul 18, Principals of Delivery  
for the 2018 Emergency Supplemental



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# SWG Value Proposition for Partnering and Collaboration

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- ***Shared Visioning and Partnering*** for a vibrant national/regional economy, resilient coastal communities, and healthy ecosystem that support non-Federal investment
- ***Engineering Solutions on America's Energy Coast*** for addressing infrastructure challenges across navigation, flood risk management, and ecosystem restoration business lines
- Addressing authority, policy, resourcing, and business process challenges for ***Strengthening the Foundation***
- Leveraging new authorities for studies and projects to derive Value to the Nation in ***Delivering the Program***
- Competing strong for sustainable budgets to ***Achieve the Vision*** of Integrated Water Resources Management







# Intent for Sustainable Sediment Management and Dredging Training Seminar

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- Identify current and potential future challenges with SWG sediment management sustainability
- Discuss as a group innovations that could evolve how we manage sediments locally and regionally, especially for uses across a wider spectrum of benefits
- Collectively assess and manage the risks of pilot demonstration and mainstreaming sediment management innovations
- Determine the requisite science, engineering, technology, policies, and authorities required now and into the future for realizing pilot demonstration and mainstreaming sediment management innovations
- Shape/advance actions for making advancements on SWG sustainable sediment management







ON FACEBOOK

[www.facebook.com/GalvestonDistrict](http://www.facebook.com/GalvestonDistrict)



ON TWITTER

[www.twitter.com/USACEgalveston](http://www.twitter.com/USACEgalveston)



ON YOUTUBE

[www.YouTube.com/Galveston District](http://www.YouTube.com/GalvestonDistrict)



ON DVIDS

[www.dvidshub.net/units/USACE-GD](http://www.dvidshub.net/units/USACE-GD)



ONLINE

[www.swg.usace.army.mil](http://www.swg.usace.army.mil)



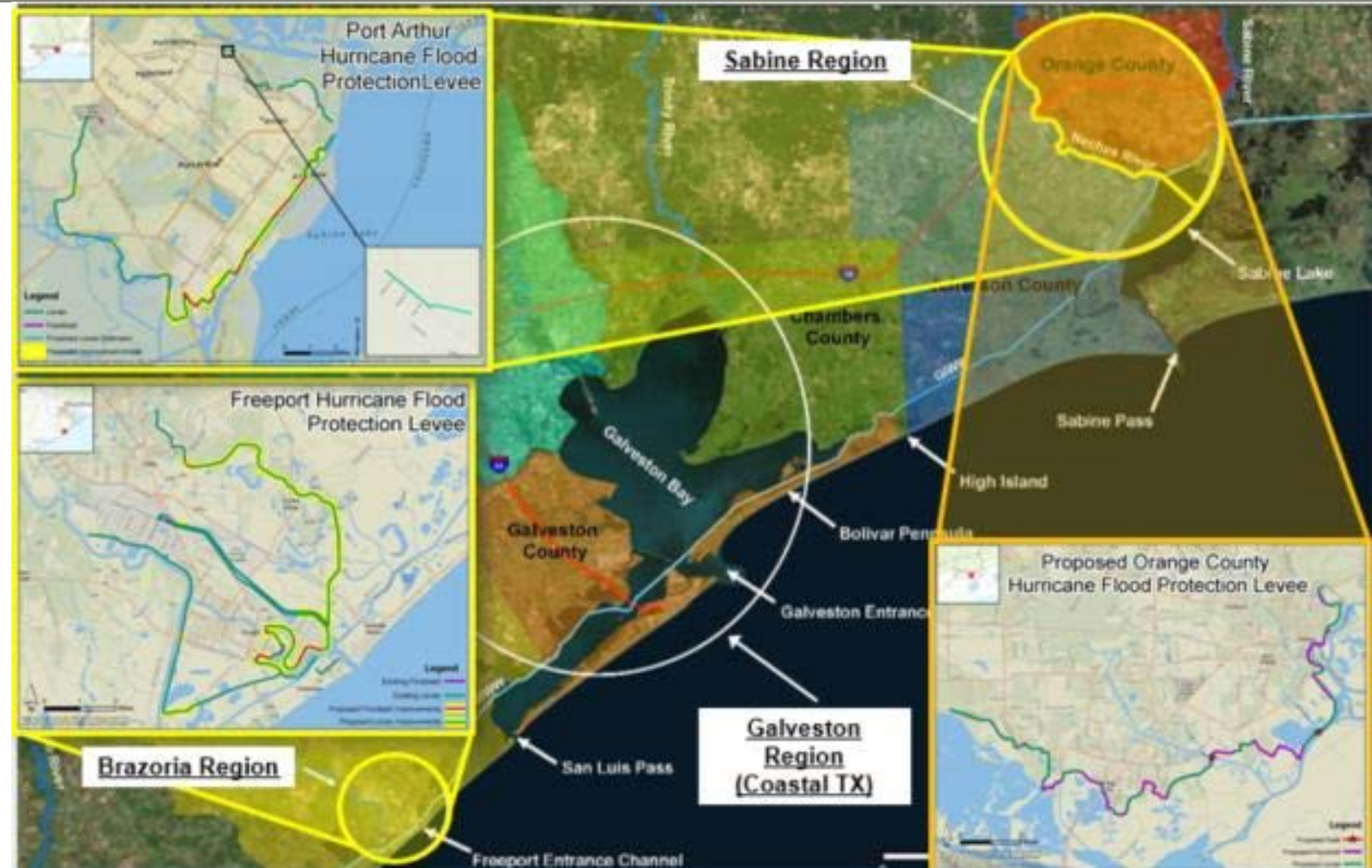


# Funded BBA 18 Projects

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## Sabine Pass to Galveston Bay CSRM Project, Port Arthur- Freeport-Orange, TX:

Chief's Report completed DEC 17. \$3.9 B for improvements and additions to existing CSRM systems in Freeport and Port Arthur, TX, to include levee raises and extensions, and replacement of I-walls with T-walls; also includes construction of 27 miles of new levees and flood walls, along with 7 new pump stations, 56 drainage structures, and 32 closure gates, in Orange County, TX.



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## Lower Colorado River (Wharton), TX:

**Project Features:** \$73.3 M in funds to construct Wharton project, a separable element of overall Lower Colorado River Phase I Project, consists of approximately 35,600 feet of levees, 2,300 feet of floodwalls, 7,000 feet of channel modifications, and interior drainage features.



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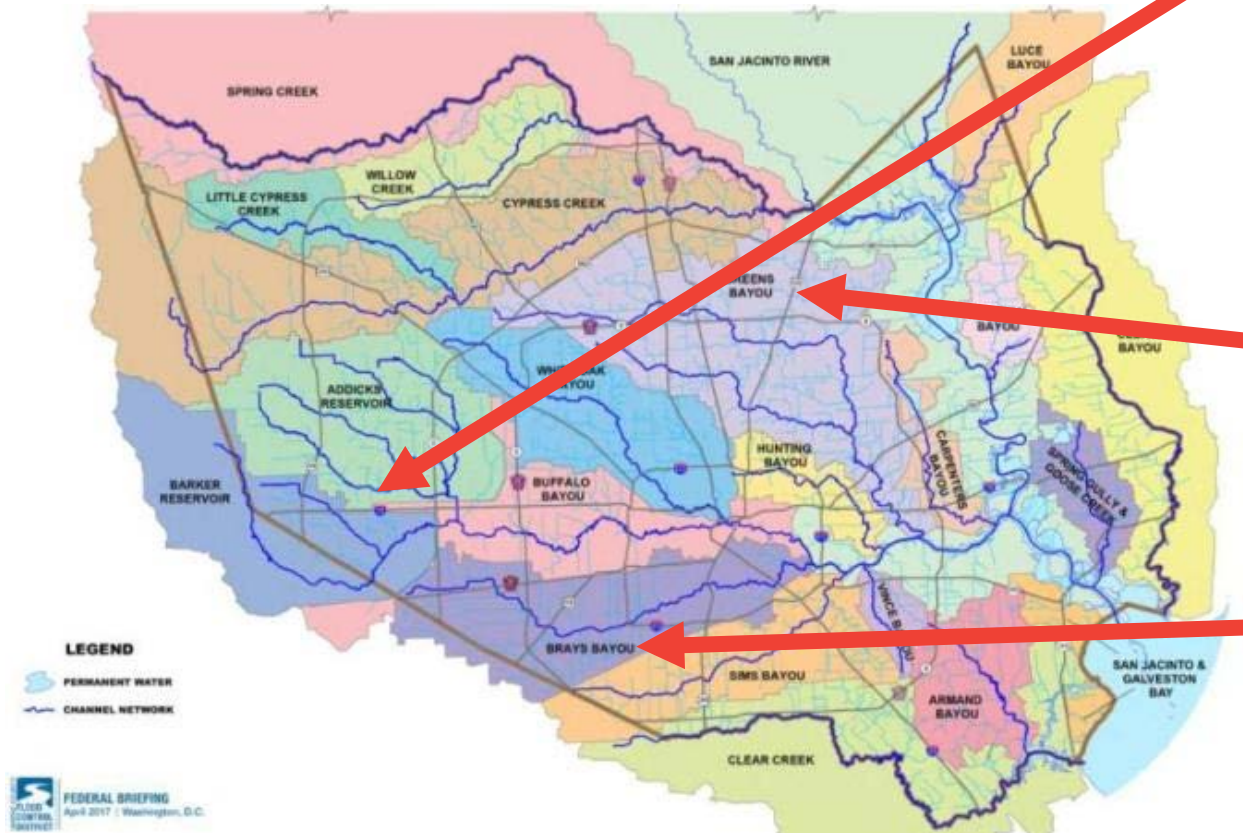






# Ongoing Authorized and Funded Houston Bayou FRM Construction Projects

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- **Addicks and Barker Reservoir Dam Safety Modification Project, Phase 1:** (\$74 M, 4 yrs, complete Fiscal Year (FY) 21; 100%Fed)
- **Greens Bayou FRM Project:** (\$26 M, 3 yrs, complete FY 19; cost share 75% Fed/25% non-Fed)
- **Brays Bayou FRM Project:** (\$506 M, balance to complete \$74M; cost share 75% Fed/25% non-Fed)\*

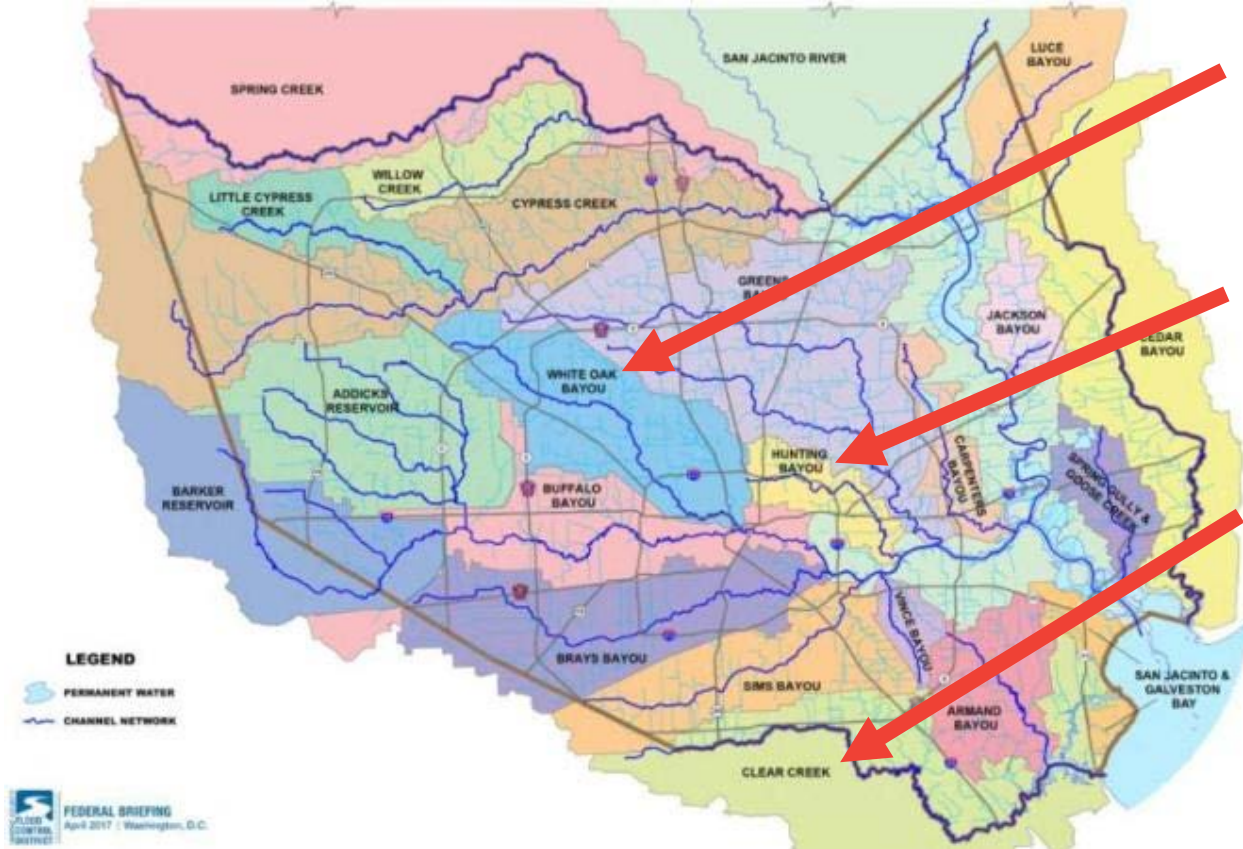
\* As modified by BBA 18.





# New Start Authorized and Funded Houston Bayou FRM Construction Projects

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- **White Oak Bayou FRM Project:** (\$131 M; cost share 65% Fed/35% non-Fed)\*
- **Hunting Bayou FRM Project:** (\$171 M; cost share 65% Fed/35% non-Fed)\*
- **Clear Creek FRM Project:** (\$284 M; cost share 65% Fed/35% non-Fed)\*
  - \$100K for Economic Update (cost share 50%/50%)

\* As modified by BBA 18.







# Houston Bayou FRM

## Projects Funded under BBA 18\*

24

### USACE and Harris County Flood Control District (HCFCD) Partnered Projects:

- **Greens Bayou Project, Houston, TX:** \$4.1 M in FY 18 WP funding to complete construction of channel improvements and detention basin.
- **Brays Bayou Project, Houston, TX Sec 211 (f):** \$75 M for continued construction of detention basins. This project also received \$14.7 M in FY 18 WP funding to reimburse HCFCD for past construction. Currently pending audit \$10.6 M in invoiced reimbursements, to be provided by SEP 18. Pending Invoices for \$14.7 M received in FY 18 WP for audit/reimbursement. Scheduled construction end date FY 21.
- **White Oak Bayou Project, Houston, TX Sec 211 (f):** \$45 M for construction of channel modification and detention basins. Scheduled construction end date FY 21.
- **Hunting Bayou Project, Houston, TX Sec 211 (f):** \$65 M for construction of channel modification and detention basins. Scheduled construction end date FY 21.
- **Clear Creek Project, Houston, TX:** \$295 M to perform economics update, design and construct conveyance and in-creek hydraulic detention areas that create a system to reduce flood damages.

Sub-Total = \$484.1 M

\* 100% FED cost under BBA 18 for Sec 211f project contracts initiated after 9 FEB 18.





## Partnered Studies:

- **Brazos River, TX, Erosion Study:** \$3 M to investigate FRM measures to reduce erosion losses near City of Richmond, TX.
- **Buffalo Bayou and Tributaries, TX, Resiliency Study:** \$6 M to investigate and identify alternatives to reduce flooding in and around reservoir dams during major storm events.
- **Houston, TX, Regional Watershed Assessment:** \$3 M to assess interaction of the 22 regional watersheds during flood events, and identify potential measures to improve operations of existing reservoir dams, conveyance channels and detention basins.



Barker Dam



Addicks Dam

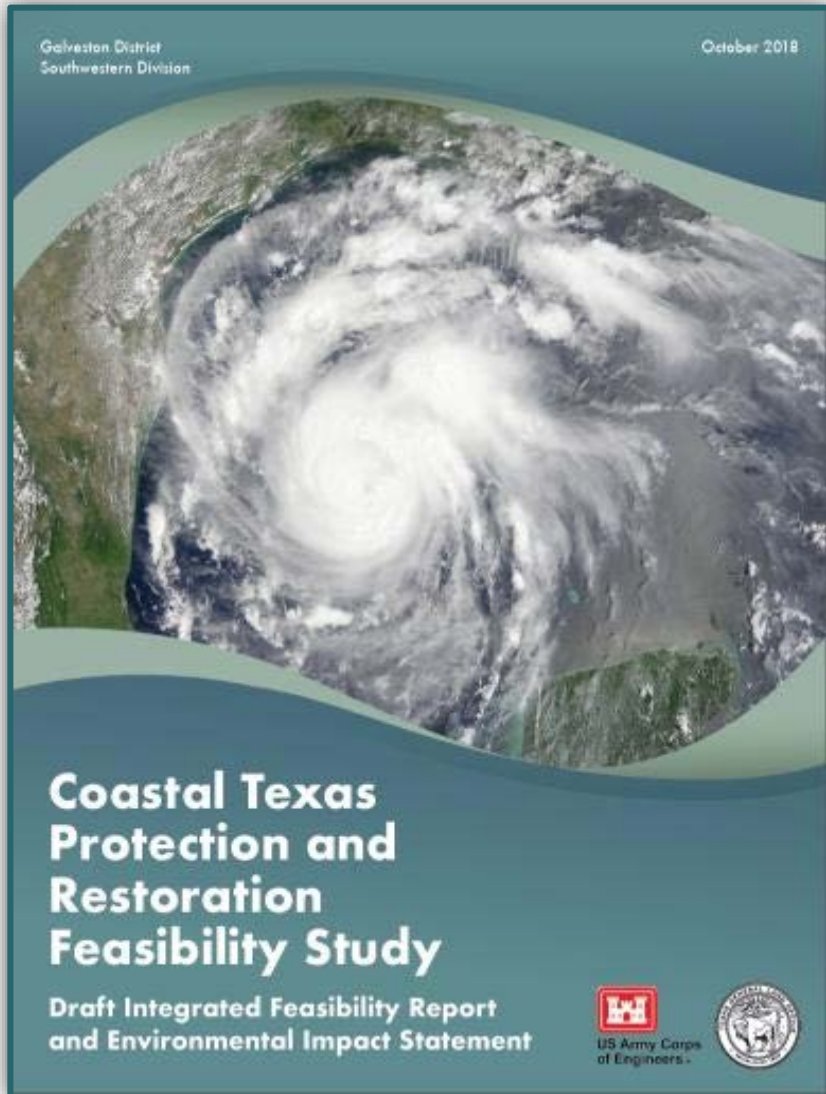
\* 100% FED cost under BBA 18.





# Coastal Texas Protection and Restoration Project

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**Location:** Coast of Texas

**Phase:** Feasibility Study

**Authorized Study Cost:** \$19.8 M 50-50% FED-Non FED cost share, with additional \$3.8 M cost shared via BBA 18

**Non-Federal Sponsor:** Texas General Land Office

**Scope:** Coastal Storm Risk Management & Ecosystem Restoration along the Texas Coast

**Current Status:** Draft Report released for public comment 26 OCT 2018

**Est. Study Completion Date:** APR 2021

<http://coastalstudy.texas.gov/>

