High Visibility Projects for Flood Risk Management (FRM)

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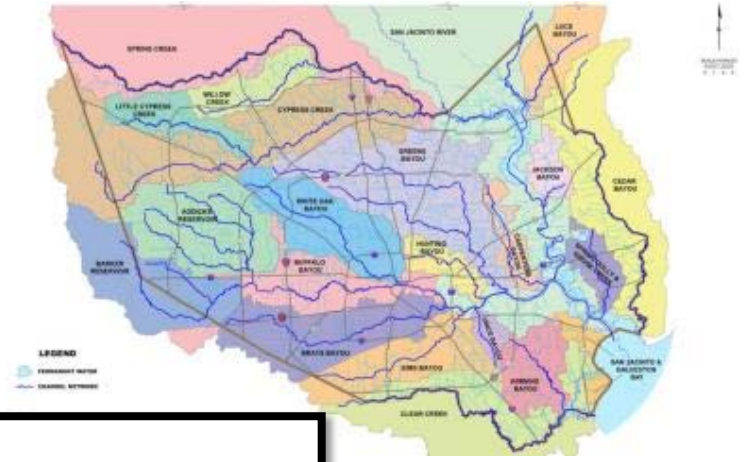
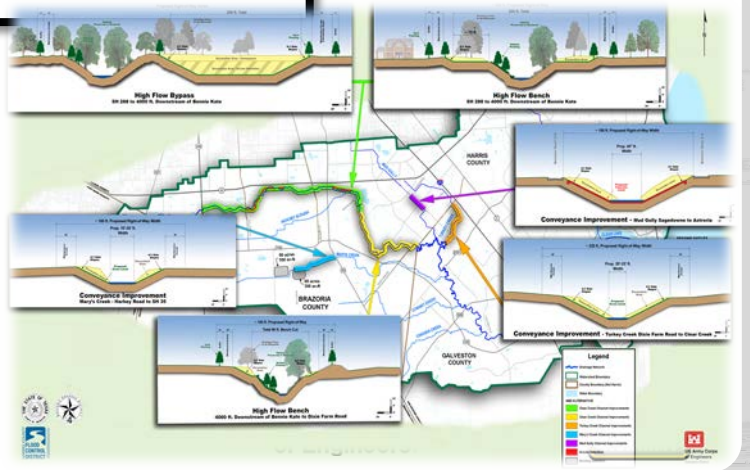
BBA 18 Program Workload Groupings

- Feasibility study portfolio (BRES)
- Sec 211(f) HCFCD reimbursable bayou FRM projects
- Houston bayou FED FRM project
- SPGB CSRM
- NAV Harvey Restoration





Funded BBA 18 Projects

Sabine Pass to Galveston Bay, 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.

Addicks & Barker Reservoir Dam Safety Project, Houston, TX:

$1.4 M in funds to continue on-going construction of rehabilitation features. Work includes replacement of outlet structures and improvement of slurry cut off walls in earthen dam embankments. Project also received $2 M in FY 18 WP funding.

Funded BBA 18 Projects (cont)

USACE and 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 (211f):** $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. Scheduled construction end date 2021.
- **White Oak Bayou Project, Houston, TX (211f)**: $45 M for construction of channel modification and detention basins. Scheduled construction end date 2021.
- **Hunting Bayou Project, Houston, TX (211f):** $65 M for construction of channel modification and detention basins. Scheduled construction end date 2021.
- **Clear Creek Project, Houston, TX:** $295 M to perform an economics update, design and construct conveyance and in-creek hydraulic detention areas that create a system to reduce flood damages in the upper portion.

Sub-Total = $484.1 M

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Funded BBA 18 Studies

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.
- **Coastal Texas Protection and Restoration Study:** $1.9 M for continuation of on-going study, which is evaluating several alternatives to reduce coastal storm damage potential, and alternatives for other CSRM and ER measures along Texas coast.

Sub-Total = $ 13.9 M

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ANALYSIS OF DALTON MEMO SCHEDULE REQUIREMENTS

Sabine to Galveston ($3.95B)

- Need an additional 4 years for completion at end of FY28
- Will employ both DB and DBB approaches to move dirt early and continuously
- **1st contract awards on time**
- This approach will allow us to prioritize construction cost and quality while building USACE technical expertise
- Will use both USACE enterprise and AE resources to ensure early completion while we build the bench

Clear Creek ($295M)

- Need an additional 9 months for completion at end of FY23 rather than Q1
- Will employ both DB and DBB approaches to move dirt early and continuously
- **1st contract awards on time**
- Will use both USACE enterprise and AE resources to ensure early completion while we build the bench

Dalton 2018 New Start Construction Requirements

- >$500M
  - Compl PED – 1 yr
  - Award 1st Contract – Oct 2020
  - Const Complete – Jan 2024
- $100M-$500M
  - Compl PED – 1 yr
  - Award 1st Contract – Jan 2020
  - Const Complete – Jan 2023

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ACQUISITION TOOLS IN PROGRESS

- A-E Services IDCs ($96M)
- Hydrographic Survey IDCs ($7M)
- Geotechnical Field Exploration and Laboratory Testing IDC ($9M)
- Horizontal Construction MATOC (~$250M)
- Unanticipated Shoaling Pipeline Dredging MATOC ($48M)
- Discussion ongoing to:
  - Identify and reserve capacity from regional/nation-wide contracts
  - Identify next round of acquisition tool needs, e.g. Construction Phase Services

A-E CONTRACTS

- A-E Services IDCs
  - Total capacity: $96M (includes contingency)
  - Primarily for SWG but could be used within SWD
  - 9 teams across 3 business categories
  - Period of Performance: 7 yrs (5 yr base/2 yr option)
  - Current status:
    - Awaiting final PARC approval
    - Synopsis ready to post on FedBizOpps
    - Pre-proposal Conference planned for early September
- Stand-alone A-E Contracts
  - Awaiting project funds to begin market research

S2G ORANGE COUNTY COA 5/7

- Because of the extremely large design component, its more likely to be successful through AE. Optimizes USACE resource allocation.
  - May require multiple AE contracts (Geotech & Design). Large scale H&H will be done by ERDC or contract.
- DBB contract provides highest construction quality for this complex life-safety project
- DB will be used for key separable features like pump stations.
- Fewer contracts reduces contractor conflicts, improving quality and resulting in faster completion
  - Initial design analysis will optimize the acquisition plan

COA	Pros	Cons
COA 1 – USACE Resources, DBB, 1 Contract	Builds & Maintains USACE tech competency, highest level of technical quality, Fast time to complete construction, Easier for CM, No conflicting contractors	Longest start time, very large single contract (~$800M), Must address resource constraints, Limits competition
COA 2 – USACE Resources, DBB, 2-3 Contracts	Builds & Maintains USACE tech competency, highest level of technical quality, Easier CM than 10 contracts, Faster start time, Fast time to complete construction	Multiple large contracts (~$300M), Contractor conflicts and scheduling lead to longer finish time
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COA 4 –DB, 1 Contract	Fastest obligation and start time, Potential positive public or VT perception, no contractor conflicts, No resource constraints, Fast finish time, Fast time to complete construction	Potential construction quality issues, Less control over design, Potential brand implications
COA 5 –DB, Multiple Contracts	Fastest obligation and start time, Potential positive public or VT perception, No resource constraints,	Slower finish time, Contractor conflicts exacerbated by design
COA 6 – AE Design, DBB, 1 Contract	High level of technical quality, Fast time to complete construction, Easiest for CM, No conflicting contractors	Longest start time, very large single contract , Must address resource constraints, Doesn't build USACE competency
COA 7 – AE Design, DBB, 2-3 Contracts	High level of technical quality, Easier CM than 10 contracts, Fast time to complete construction	Multiple large contracts (~$300M), Contractor conflicts and scheduling lead to longer finish time, Doesn't build USACE competency
COA 8 – AE Design, DBB, >3 Contracts	Acceptable level of construction quality, Faster start time,	Many contracts, Contractor conflicts and scheduling lead to longest finish time, Doesn't build USACE competency

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S2G PORT ARTHUR COA 2/5

- Primary design will be done in-house using SWG and enterprise resources to build and maintain competency.
  - Will still require geotech data collection contract. Large scale H&H will be done by ERDC or contract.
- DBB contract provides highest construction quality for this complex life-safety project
- DB will be used for key separable features like pump stations.
- Fewer contracts reduces contractor conflicts, improving quality and resulting in faster completion
  - Initial design analysis will optimize the acquisition plan

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S2G FREEPORT COA 5/7

- Because of the extremely complex design component and limited USACE resources, its more likely to be successful through AE. Optimizes USACE resource allocation.
  - May require multiple AE contracts (Geotech & Design). Large scale H&H will be done by ERDC or contract.
- DBB contract provides highest construction quality for this complex life-safety project
- DB will be used for key separable features like pump stations.
- Fewer contracts reduces contractor conflicts, improving quality and resulting in faster completion
  - Initial design analysis will optimize the acquisition plan

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CLEAR CREEK COA 2/5

- Primary design will be done in-house using SWG and enterprise resources to take advantage of USACE expertise.
  - Will still require geotech data collection contract. Large scale H&H will be done by ERDC or contract.
- DBB contract provides highest construction quality for this complex life-safety project
- DB will be used for key separable features like pump stations.
- Fewer contracts reduces contractor conflicts, improving quality and resulting in faster completion
  - Design analysis will be conducted to optimize the # of contracts

COA	Pros	Cons
COA 1 – USACE Resources, DBB, 1 Contract	Builds & Maintains USACE tech competency, highest level of technical quality, Fast time to complete construction, Easier for CM, No conflicting contractors	Longest start time, very large single contract (~$800M), Must address resource constraints, Limits competition
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WHARTON COA 6

- Primary design will be executed by SWF using an AE contract. SWG will participate in reviews.
- DBB contract provides highest construction quality for this complex life-safety project
- Fewer contracts reduces contractor conflicts, improving quality and resulting in faster completion
- SWG will manage and award contract construction contract

COA	Pros	Cons
COA 1 – USACE Resources, DBB, 1 Contract	Builds & Maintains USACE tech competency, highest level of technical quality, Fast time to complete construction, Easier for CM, No conflicting contractors	Longest start time, very large single contract (~$800M), Must address resource constraints, Limits competition
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O&M CCSC JETTY REPAIRS COA 1

- Primary design will be done in-house using SWG and enterprise resources to build and maintain competency and to take advantage of local expertise.
- DBB contract provides highest construction quality for this project
- Smaller scale project will only require a single contract

COA	Pros	Cons
COA 1 – USACE Resources, DBB, 1 Contract	Builds & Maintains USACE tech competency, highest level of technical quality, Fast time to complete construction, Easier for CM, No conflicting contractors	Another contract adds additional work on in-house staff
COA 2 – USACE Resources, DBB, 2-3 Contracts	Builds & Maintains USACE tech competency, highest level of technical quality, Easier CM than 10 contracts, Faster start time, Fast time to complete construction	Multiple large contracts (~$300M), Contractor conflicts and scheduling lead to longer finish time
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O&M HSC PA REPAIRS AND DIKE RAISE COA 4

- These repairs will be acquired through DB to take advantage of the relatively straight forward nature of these projects.
- SWG engineering and construction management staff have deep experience with this work making it easier to guarantee quality of construction using this method.
- Reduces strain on USACE resources, while ensuring execution on schedule and budget
- RFPs will be prepared using SWG and Enterprise resources

COA	Pros	Cons
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211F PROJECTS (WHITE OAK, BRAYS, HUNTING)

- These projects will be completed by HCFCD. USACE role is review and reimbursement. The rate of USACE engagement will be dictated by the rate of HCFCD execution.
- At the historic rate of $20M per year for Brays Bayou only, USACE expended about 1 FTE for required services. Presumably, HCFCD will increase the rate of execution and will cover 3 projects.
- The intended COA is to staff
  - 1 FTE dedicated Construction Control Representative
  - 1 FTE split between engineering & H&H to review work as completed.
  - 1 FTE will be required in PM-G.
  - 1 FTE will be required in PM-J.
- The rate of execution by HCFCD will require modification of this COA as its known.

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GENERAL STUDY COAS

COA	Pros	Cons
COA 1 – SWG Resources with Minor Contracts	Builds & Maintains SWG tech competency, Highest level of technical quality, Most flexibility in schedule and scope changes, Drives innovative solutions, Most knowledgeable about Galveston District, Strongest USACE and SWG brand management	Must address resource constraints, Don't always have enough specific skill sets even if there are enough staff available
COA 2 – USACE Enterprise Resources with Minor Contracts	Builds & Maintains USACE tech competency, Highest level of technical quality, Drives innovative solutions, Knowledgeable about USACE processes, Strong USACE brand management	Still must address USACE resource constraints, Helps USACE tech competency but not SWG, Less flexibility in schedule and scope changes, High learning curve for Galveston District knowledge, Need to address NFS perception of SWG capability
COA 3 – AE Resources	High level of technical quality, Not constrained by resources	Least flexibility in schedule and scope changes, Highest cost, Local knowledge is Contractor dependent, USACE brand management is managed through contract, Drives innovative solutions only as contracted
COA 4 – Work In Kind Resources	Can help address resource constraints	Does not build SWG tech competency, Lowest level of technical quality, Less flexibility in schedule and scope changes, Drives innovative solutions only as scoped, Uncertain knowledge about Galveston District, Least USACE and SWG brand management, Least ability to manage design work

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ADDICKS & BARKER 216/DSMS COA 1/2/4

- For this extremely high risk life-safety project we must use the very best technical resources available from around USACE. We also must develop SWG engineers to be experts on all A&B related work.
- A mix of SWG and Enterprise resources (including the SWD DSPC) helps to execute this study unconstrained, ensuring the fastest possible quality solution.
- Some non-reimbursable WIK is expected to take advantage of HCFCD expertise and capability due to 100% Federal cost efforts.

COA	Pros	Cons
COA 1 – SWG Resources with Minor Contracts	Builds & Maintains SWG tech competency, Highest level of technical quality, Most flexibility in schedule and scope changes, Drives innovative solutions, Most knowledgeable about Galveston District, Strongest USACE and SWG brand management	Must address resource constraints, Don't always have enough specific skill sets even if there are enough staff available
COA 2 – USACE Enterprise Resources with Minor Contracts	Builds & Maintains USACE tech competency, Highest level of technical quality, Drives innovative solutions, Knowledgeable about USACE processes, Strong USACE brand management	Still must address USACE resource constraints, Helps USACE tech competency but not SWG, Less flexibility in schedule and scope changes, High learning curve for Galveston District knowledge, Need to address NFS perception of SWG capability
COA 3 – AE Resources	High level of technical quality, Not constrained by resources	Least flexibility in schedule and scope changes, Highest cost, Local knowledge is Contractor dependent, USACE brand management is managed through contract, Drives innovative solutions only as contracted
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METRO HOUSTON WATERSHED ASSESSMENT COA 1/2

- A mix of SWG and Enterprise resources helps to execute this study unconstrained, ensuring the fastest possible quality solution.
- Discussion with the Nashville District has them tentatively tasked with H&H modeling work required to inform this effort.
- Some WIK would be valuable to take advantage of HCFCD expertise and capability. Need guidance on how we fund NFS participation in these 100% Federal cost efforts.

COA	Pros	Cons
COA 1 – SWG Resources with Minor Contracts	Builds & Maintains SWG tech competency, Highest level of technical quality, Most flexibility in schedule and scope changes, Drives innovative solutions, Most knowledgeable about Galveston District, Strongest USACE and SWG brand management	Must address resource constraints, Don't always have enough specific skill sets even if there are enough staff available
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COASTAL TX COA 1/2/4

- This study is well underway and will be switching cost share next FY.
- A mix of SWG and Enterprise resources helps to execute this study unconstrained, ensuring the fastest possible quality solution.
- WIK has been a critical part of this execution plan so far. We need to identify a process by which we can continue to use those services without changing contractors.

COA	Pros	Cons
COA 1 – SWG Resources with Minor Contracts	Builds & Maintains SWG tech competency, Highest level of technical quality, Most flexibility in schedule and scope changes, Drives innovative solutions, Most knowledgeable about Galveston District, Strongest USACE and SWG brand management	Must address resource constraints, Don't always have enough specific skill sets even if there are enough staff available
COA 2 – USACE Enterprise Resources with Minor Contracts	Builds & Maintains USACE tech competency, Highest level of technical quality, Drives innovative solutions, Knowledgeable about USACE processes, Strong USACE brand management	Still must address USACE resource constraints, Helps USACE tech competency but not SWG, Less flexibility in schedule and scope changes, High learning curve for Galveston District knowledge, Need to address NFS perception of SWG capability
COA 3 – AE Resources	High level of technical quality, Not constrained by resources	Least flexibility in schedule and scope changes, Highest cost, Local knowledge is Contractor dependent, USACE brand management is managed through contract, Drives innovative solutions only as contracted
COA 4 – Work In Kind Resources	Can help address resource constraints	Does not build SWG tech competency, Lowest level of technical quality, Less flexibility in schedule and scope changes, Drives innovative solutions only as scoped, Uncertain knowledge about Galveston District, Least USACE and SWG brand management, Least ability to manage design work

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Path Forward to BBA 18 Program Initiation

Investigations
Brazos River, FB
Buffalo Bayou & Trib
Coastal Texas
Houston Regional Wtr
Construction
Brays Bayou
Buffalo Bayou & Trib
Clear Creek
Hunting Bayou
Sabine Pass PED
White Oak
O&M
Buffalo Bayou
Channel to Victoria
Corpus Christi Ship Channel
Galveston Harbor Channel
Gulf Intracoastal Waterway
Houston Ship Channel
Sabine Neches Waterway
Wallisville Lake

- Receive approved Project List – 5 JUL 18 (actual)
- SWD Program Execution Workshop – 26 JUL 18 (completed)
- Funding to kickoff (Agreement Development; Charette; Advertise/AE Market Research) – AUG 18 (requested)
- Implementation Guidance – AUG 18 (partially received)
  - PPA Guidance remaining
- Initial Schedule Development – AUG/SEP 18 (planned)
- Agreements Executed – SEP 18 (proposed)
- PMP's/Review Plans – OCT 18 (proposed)
- Defined Schedules – NOV/DEC 18 (proposed)

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90-Day Look Ahead

- Will perform as IG and list of funded studies/projects fielded
- Include assumptions about attrition rates, insourcing, outsourcing
- Lay out a personnel acquisition strategy that meets execution requirements
- Seek to embed A/E contractors within teams for support
- Seek to embed agency representatives in teams for streamlining interactions
- Refine PES once SWG receives the BBA 18 IG and funding list
- Brief the VT on the revised PES
- Perform workforce, stakeholder, and vendor communications on the BBA 18 program
- Brief Members of Congress and other key elected officials on the BBA 18 program
- Hold a media roundtable on the BBA 18 program

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