USACE NAVIGATION OVERVIEW FOR AAPA

Paul Clouse
Deputy Chief, Navigation
USACE HQ
27 March 2023

US Army Corps of Engineers®

ADMINISTRATION PRIORITIES

Upgrade the Nation's waterways and ports to strengthen supply chains and economic growth

Build innovative, climate-resilient infrastructure to protect communities and ecosystems

Modernize civil works programs to better serve the needs of disadvantaged communities

Invest in science, research and development to deliver enduring water-resource solutions

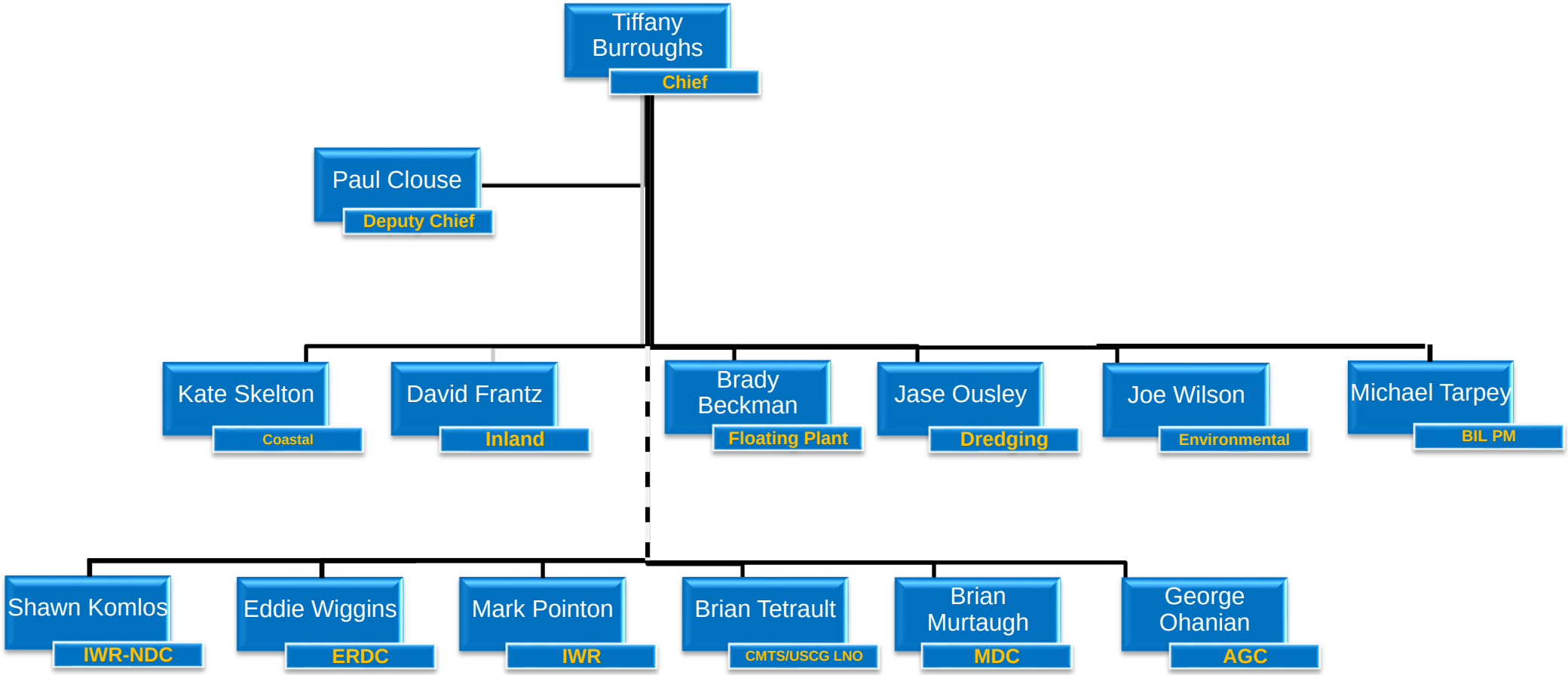
Strengthen communications and relationships to solve water resource challenges

USACE NAVIGATION MISSION

Navigation is the US Army Corps of Engineers' earliest Civil Works mission, dating to Federal laws in 1824 authorizing and funding the USACE to improve safety on the Ohio and Mississippi Rivers and several ports.

USACE provides safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.

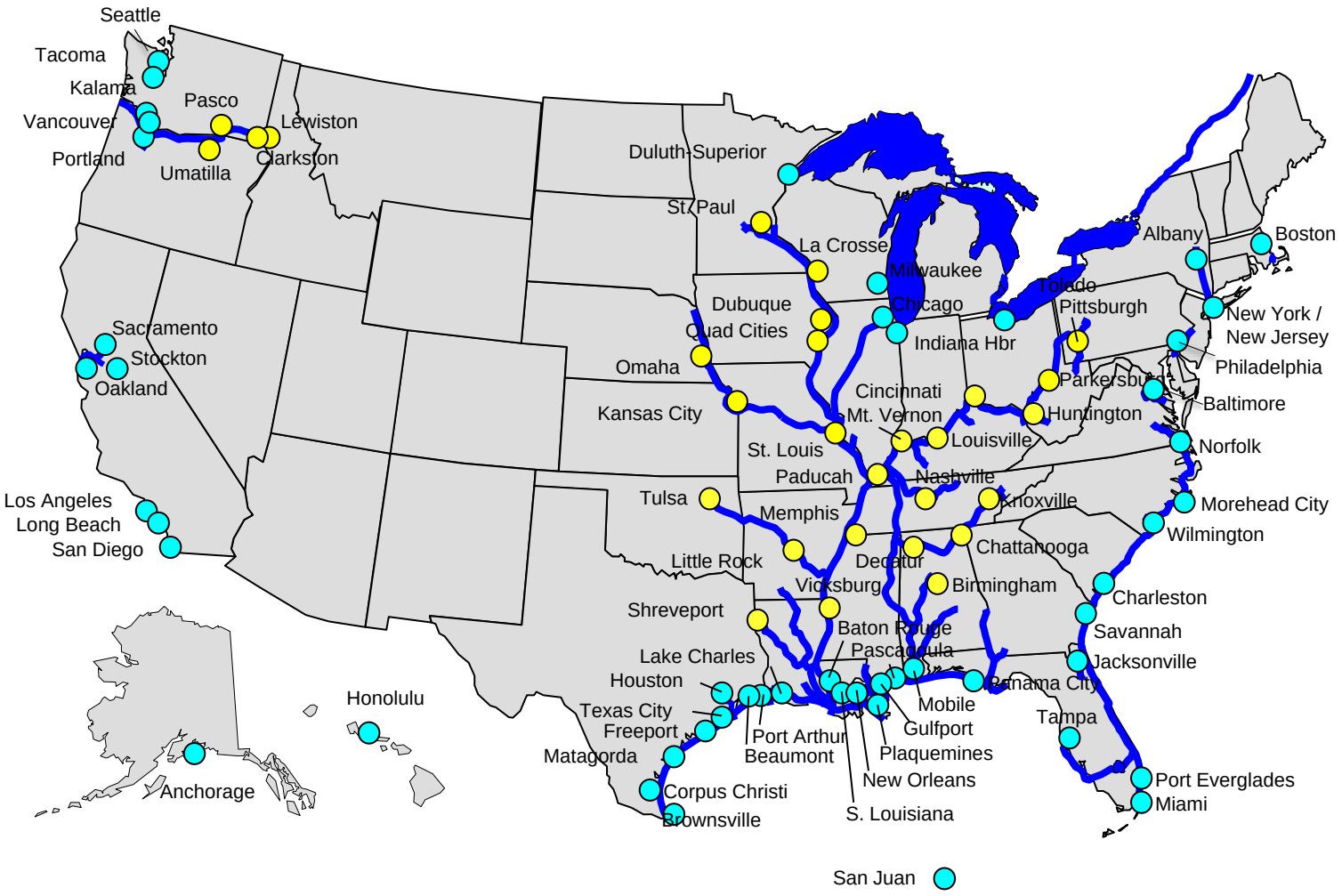
USACE HQ Navigation Team



As of 24 March 2023

USACE Navigation System

- U.S. Marine Transportation Industry Supports
  ~ $2 Trillion in Commerce Annually
- **More than 48%** of Consumer Goods Bought by Americans Pass Through Harbors Maintained by Corps.
- Over **1.5 Billion Short Tons** of Foreign Goods Moved Through U.S. Ports/Waterways in 2020
- Over **743 Million Short Tons** of Domestic Goods Moved Thru U.S. Ports/Waterways in 2020
- **15%** of U.S. Domestic Freight Carried by Water
- **237** Lock Chambers at **192** sites
- **13,000** Miles of Coastal and Deep Draft Channels
- **12,000** Miles of Commercial Inland and Intracoastal Waterways
- **1,072** Coastal, Great Lakes and Inland Harbors
- **45** States are directly served by USACE Channels & Waterways



DELIVERING THE SUPPLY CHAIN DURING EXTREME DROUGHT

(AS OF 17 NOV 2022)

U.S. ARMY CORPS OF ENGINEERS

MISSISSIPPI RIVER

LOW WATER EVENT 2022

START DATE OF EVENT: 01 SEP 2022

When our nation's busiest commercial waterway is impacted by low water levels, USACE working with Federal, State, and Local partners levy resources to create action.

VALUE TO THE NATION

MISSISSIPPI RIVER ANNUAL TONNAGE VALUE: **~$2 TRILLION**

MISSISSIPPI RIVER ANNUAL TONNAGE: **681 MILLION** SHORT TONNES OF CARGO

TOP FIVE MISSISSIPPI RIVER COMMODITIES

- PETROLEUM & PETRO-CHEM PRODUCTS
- CHEMICALS & RELATED PRODUCTS
- COAL
- FOOD & FARM PRODUCTS (Corn & Soybean Primarily)
- CRUDE MATERIALS

CONSISTENT INVESTMENT | USACE MISSISSIPPI RIVER INVESTMENT SINCE 2012

BIPARTISAN INFRASTRUCTURE LAW

$274 MILLION

Investment to address damages incurred to revetments and dikes from prior high water events and to address dredging needs.

MISSISSIPPI RIVER & TRIBUTARIES PROJECT (MR&T)

$1.52 BILLION

Investment in revetments and dikes; nearly 2.2M revetment squares sunk equaling roughly 120 miles of work, and approximately 14 miles of new dikes constructed.

REGULATED WORKS

$55.2 MILLION

Investment to remove additional rock at Thebes and Grand Tower (Pinnacles), placed 3.5 miles of revetment to stabilize the river channel and to construct nearly 50 river training structures including dikes, weirs and chevrons.

PROACTIVE MITIGATION

NUMBER OF ACTIVE DREDGES BY TYPE: **8 TOTAL**

- CUTTERHEAD DREDGE 3
- DUSTPAN DREDGE 4
- MECHANICAL DREDGE 1

DOLLARS INVESTED IN LOW WATER 2022 DREDGING SINCE 01 SEP 2022: **$29.6 MILLION**

CUBIC YARDS (CYS) OF DREDGED MATERIAL SINCE 01 SEP 2022: **9.2 MILLION CYS**

U.S.ARMY

U.S. Army Corps of Engineers®

U.S. ARMY CORPS OF ENGINEERS

DREDGING BY THE NUMBERS

The US Army Corps of Engineers (USACE) is responsible for maintaining and improving nearly 12,000 miles of inland and intracoastal waterways, 13,000 miles of coastal channels, and 400 ports, harbors, and turning basins throughout the United States. Maintaining our Federal channels and waterways is essential for strengthening the economy, creating jobs, reducing risks, and bolstering our long-term global competitiveness and national security.

HISTORIC MISSION FACTS

AVERAGE ANNUAL BUDGET (2010-PRESENT) **$1.5** BILLION

AVERAGE ANNUAL MILLIONS OF CUBIC YARDS (MCY) DREDGED (2010-PRESENT) **220** MCY

MATERIAL REMOVED FROM USACE CONSTRUCTED & MAINTAINED CHANNELS IN FY 2020 **264.5** MCY

COST TO REMOVE DREDGED MATERIAL FY2020 **$2.5** BILLION

USACE DREDGING

12,000 MILES OF INLAND AND INTRACOASTAL WATERWAYS

13,000 MILES OF COASTAL WATERWAYS

PORTS **400**

% COMPLETED BY TYPE FY2020

MAINTENANCE DREDGING **77.5%**

NEW CONSTRUCTION (CHANNEL DEEPENING/ BEACH RENOURISHMENT) **13.2%**

EMERGENCY DREDGING **9.3%**

FY2020 AVG COST PER CUBIC YARD MAINTENANCE / NEW CONSTRUCTION

$6.77 / $21.14

FUNDING

TOTAL DREDGING ALLOCATION FY2022 **$1.6** BILLION

TOTAL ALLOCATION FY2022 PRESIDENTS BUDGET **$1.2** BILLION

SUPPLEMENTAL ALLOCATION FY2022 INFRASTRUCTURE INVESTMENT & JOBS ACT **$0.4** BILLION

DREDGING CONTRACTS STATS FY2020

Total Contracts- **110**
Companies Submitting- **77**
-Large Companies 14
- Small/Hubzone/Emerging 31

Bids Received- **237**
Number of Companies Awarded- **45**

% REMOVED BY PRIVATE CONTRACTORS FY2020 **83.3%** (220.4MCY)

COST **$2.3** BILLION

TYPES OF DREDGE VESSELS

Pipeline dredge involves a dredge that floats on the water and pumps the material through a temporary pipeline to an off-site location, often several thousand feet away.

Mechanical dredge involves the use of an excavator or another type of heavy equipment — usually situated on a barge or on the water's edge — to dig out the bed of the body of water and remove the sediment.

Hopper dredge is a self-propelled seagoing ship equipped with a suction pipe, which trails over the side of the vessel or through a well in the hull. The suction pipe hydraulically discharges the material into a hopper or, in the case of a side casting dredge, over the side of the vessel. The hopper dredge transports material to a placement site for open water disposal or pump out to the upland, beach, or other beneficial use.

DREDGE USE BY TYPE FY2020

Pipeline Dredge
% of Contracts- 44.5%
% of Contract Dollars- 52%
% of Material Removed- 51.3%
*Most Common Dredge Type

Mechanical Dredge
% of Contract Dollars- 7.6%
% of Material Removed- 3.5%

Hopper Dredge
% of Contract Dollars- 29.9%
% of Material Removed- 37.7%

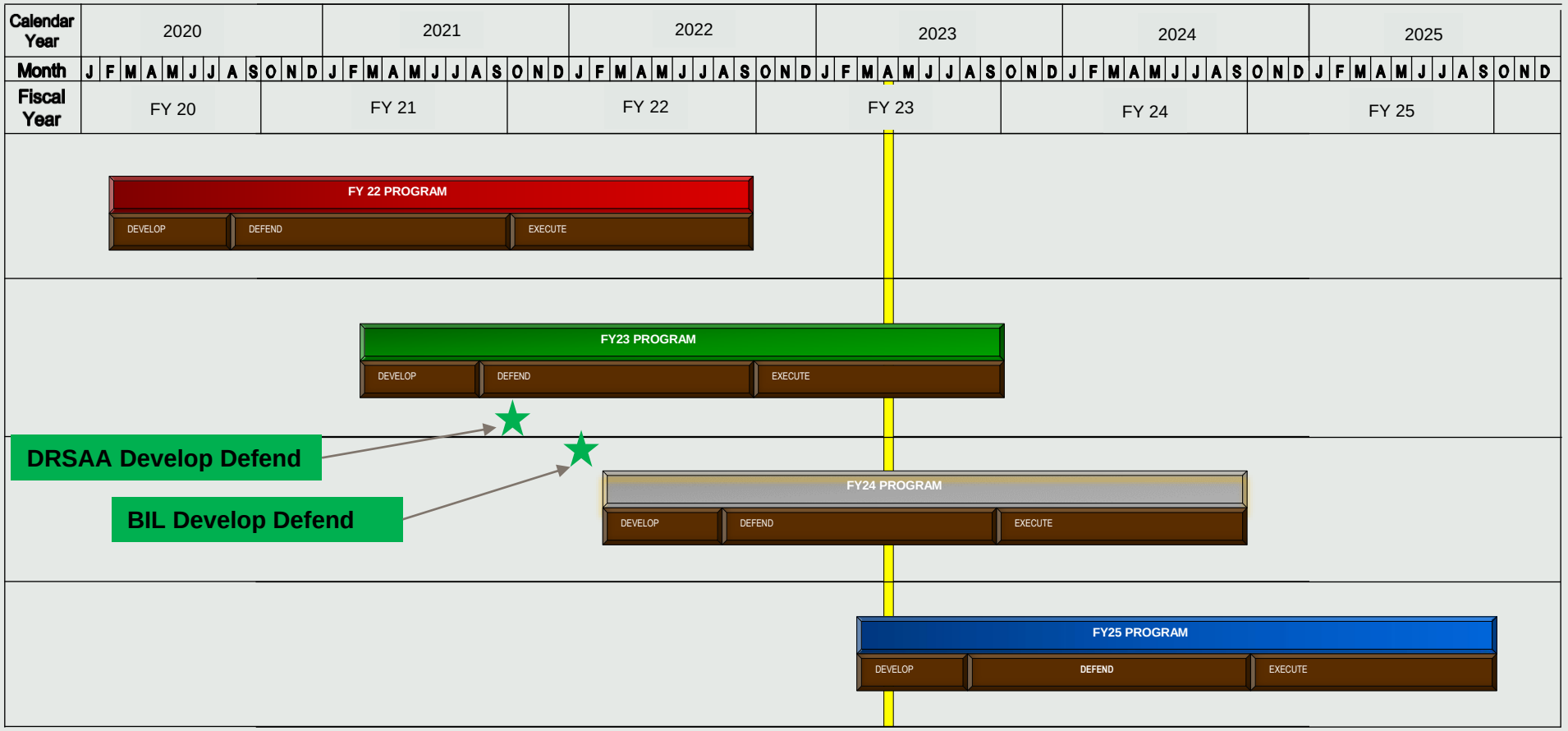
U.S.ARMY

U.S. Army Corps of Engineers®

BUILDING STRONG®

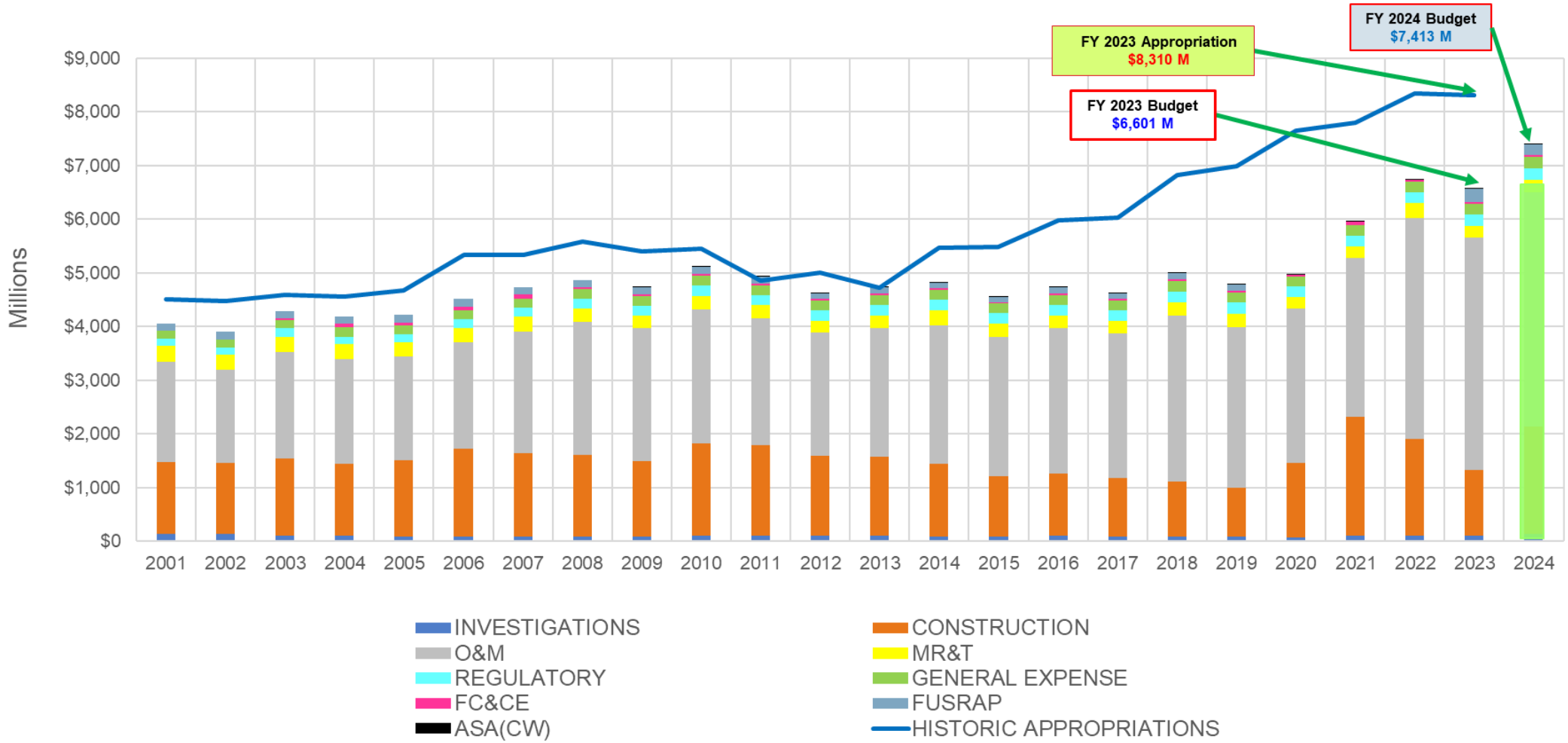
Visit our Navigation Mission Explorer at: https://navigation.usace.army.mil/DIF/Explore

Civil Works Program/Budget Timeline



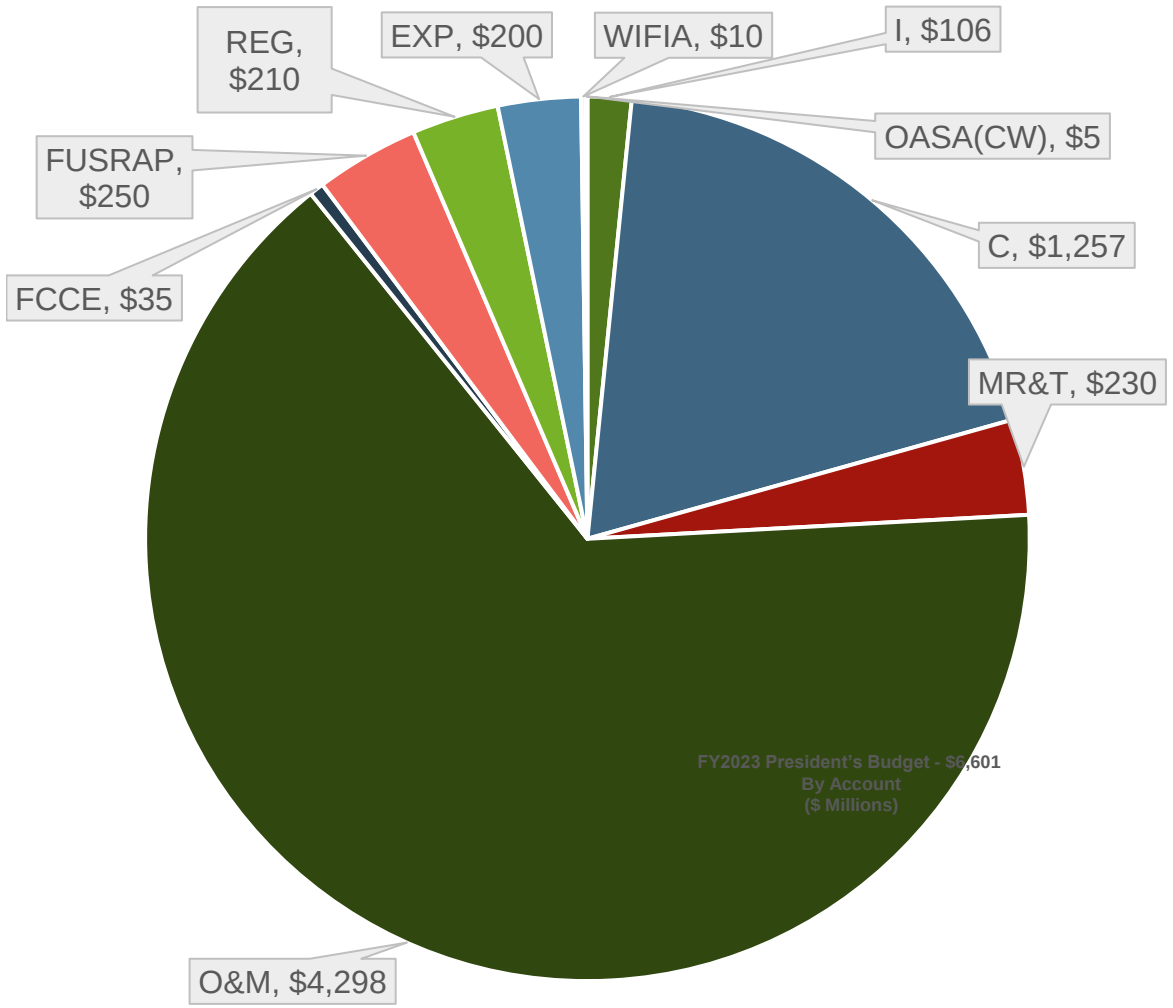
CIVIL WORKS INVESTMENT TRENDS

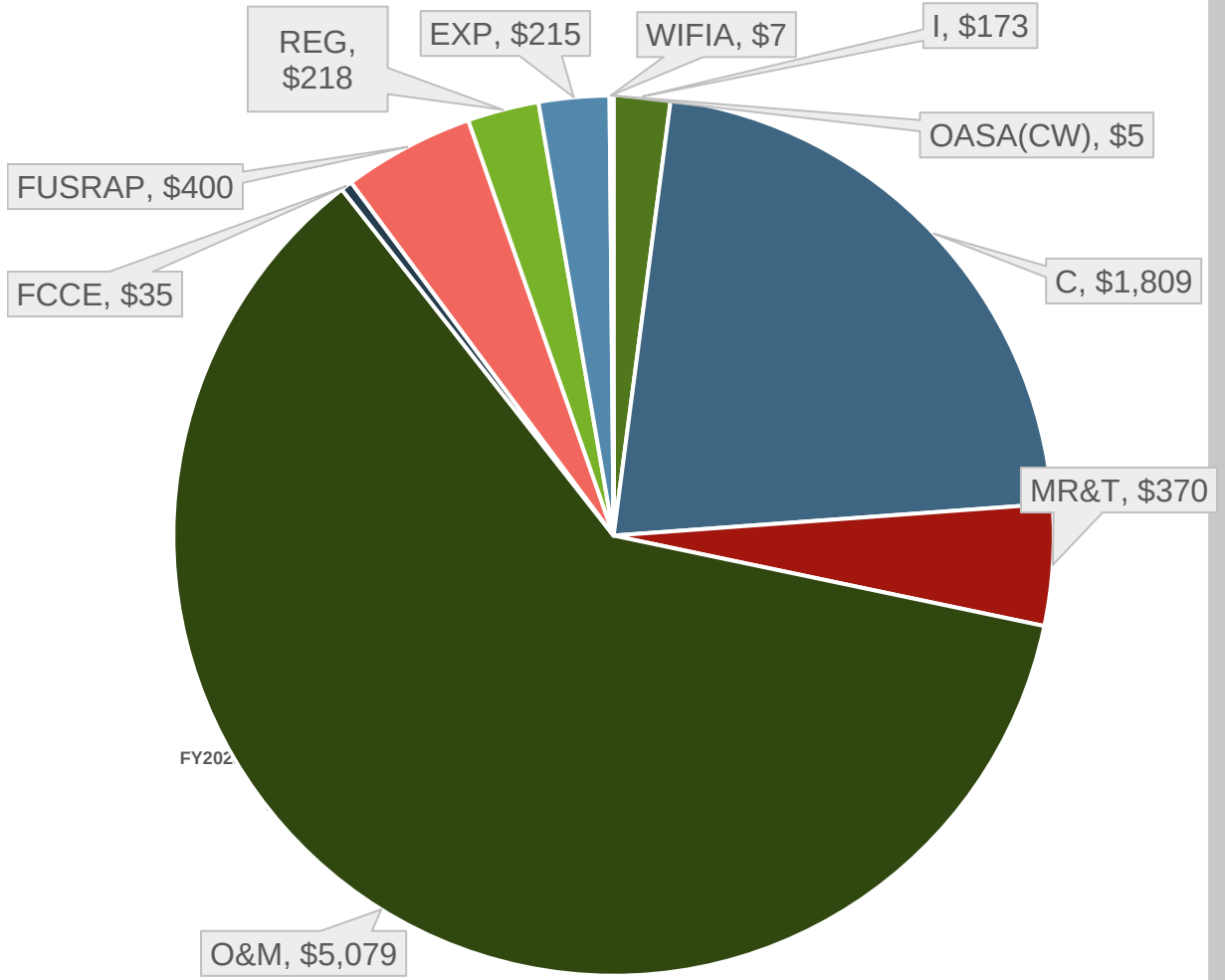
(EXCLUDES SUPPLEMENTAL FUNDING)



FY24 Budget is ~11% increase above FY23 Budget
FY23 Work Plan is ~21% increase above the FY23 Budget
FY23 Work Plan is ~0.4% decrease below FY22 Work Plan

FY23 CIVIL WORKS REGULAR PROGRAM SUMMARY

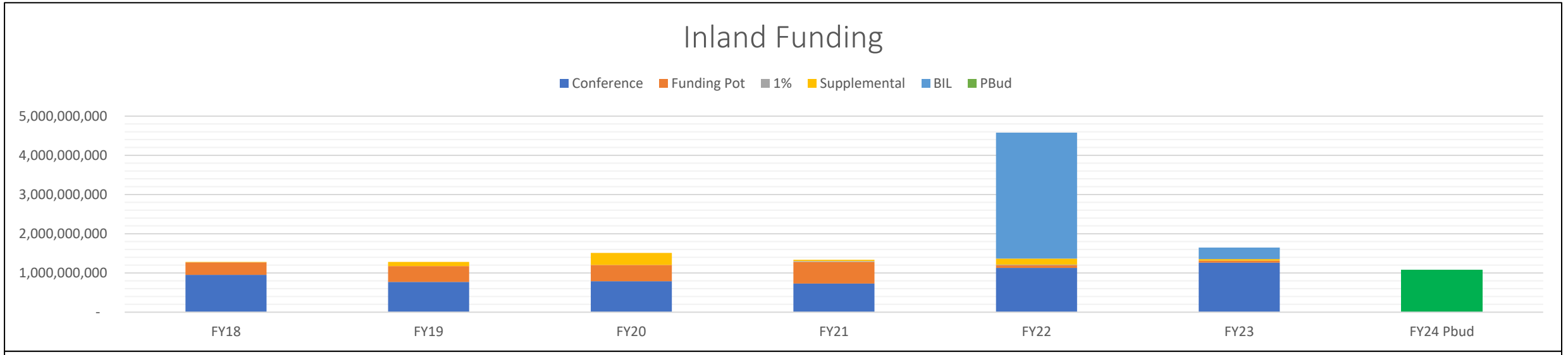


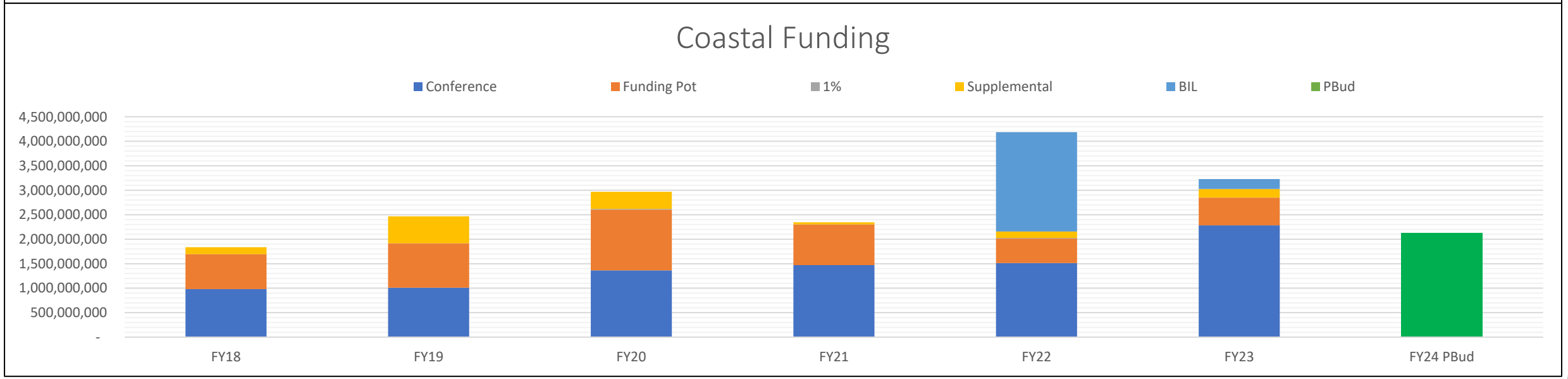


- **FY23 Approp is $1.709B above FY23 PBUD**
- **O&M Approp is $780M above PBUD**
- **C Approp is $552M above PBUD**
- **MR&T Approp is $140M above PBUD**

INLAND & COASTAL FUNDING TRENDS

INCLUDES INVESTIGATIONS, CONSTRUCTION, O&M, AND MR&T. DOES NOT INCLUDE REMAINING ITEMS OR JOINT COSTS



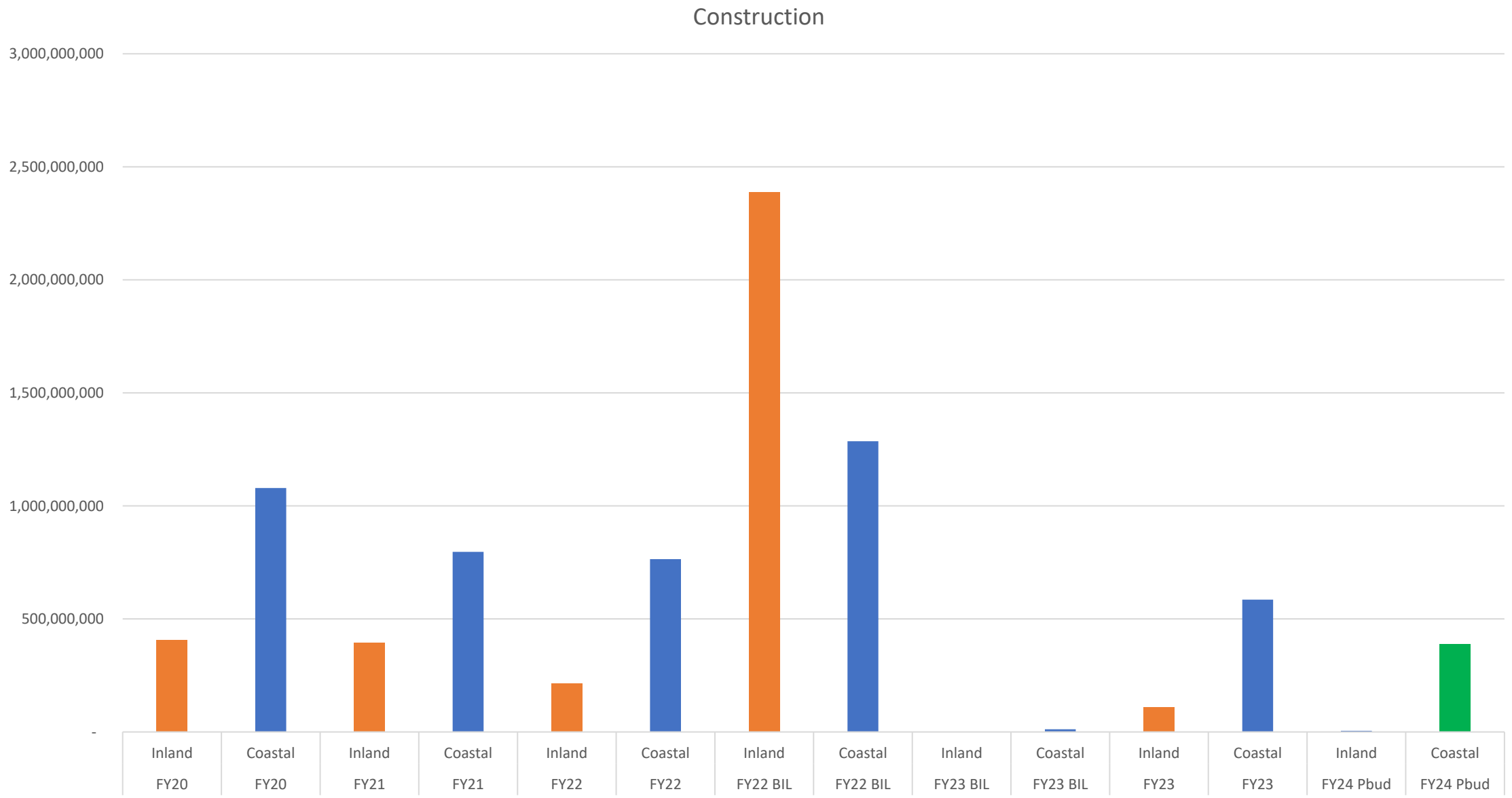


INVESTIGATIONS FUNDING TRENDS

INCLUDES MR&T. DOES NOT INCLUDE REMAINING ITEMS OR JOINT COSTS

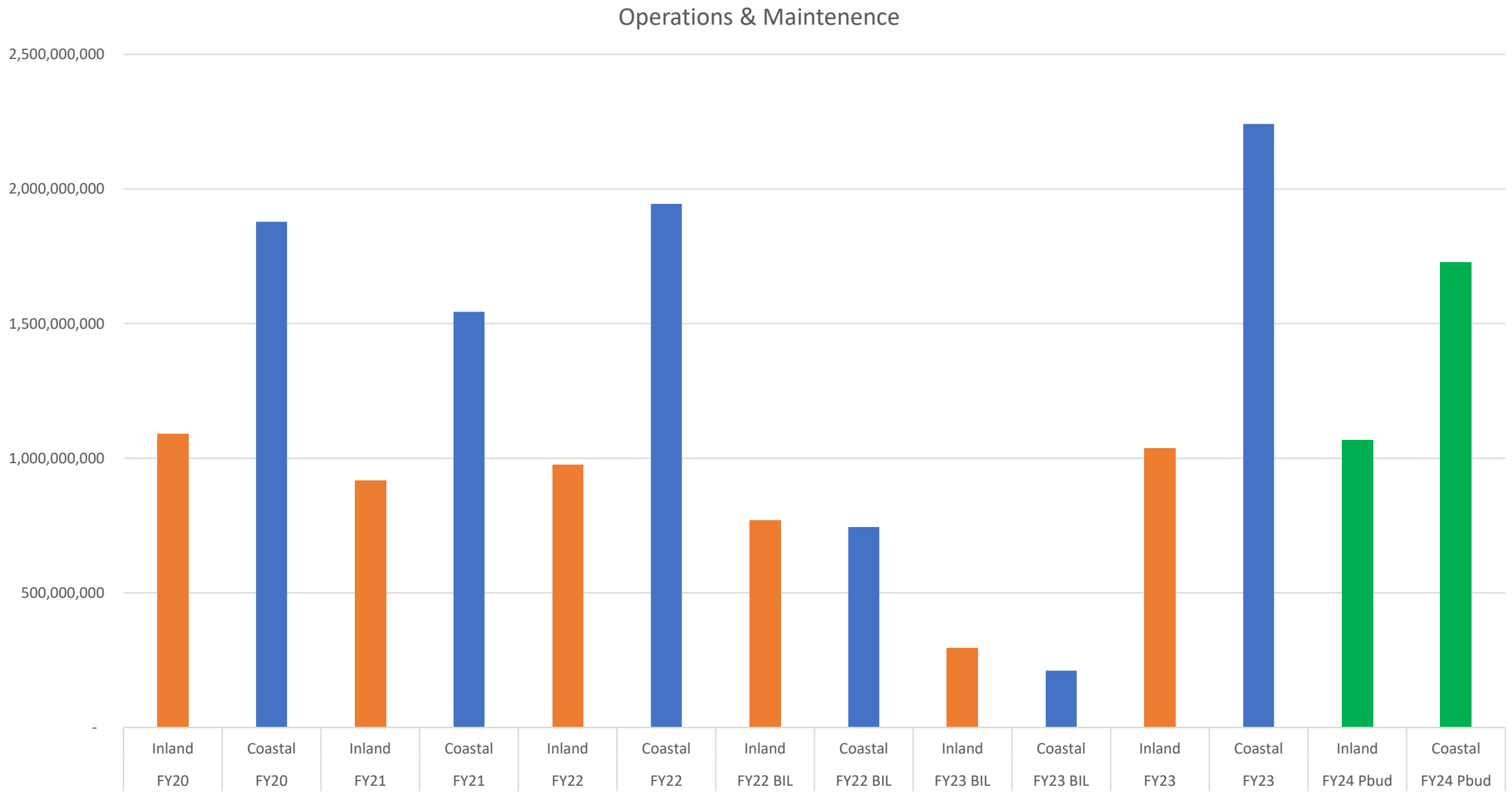
CONSTRUCTION FUNDING TRENDS

INCLUDES MR&T. DOES NOT INCLUDE REMAINING ITEMS OR JOINT COSTS



O&M FUNDING TRENDS

INCLUDES MR&T. DOES NOT INCLUDE REMAINING ITEMS OR JOINT COSTS



FISCAL YEAR 2023 INVESTIGATIONS HIGHLIGHTS INLAND NAVIGATION

- Tennessee Tombigbee and Black Warrior Tombigbee Deepening Study, AL & MS
- Lower Missouri River Basin, KS, MO, & IA
- Lower St. Anthonys Falls, Mississippi River, MN
- John Day Lock and Dam, OR & WA
- Atlantic Intracoastal Waterway, North Landing Bridge, VA
- Bonneville Lock and Dam, OR & WA

FISCAL YEAR 2023 INVESTIGATIONS HIGHLIGHTS
COASTAL NAVIGATION

- Homer Navigation Improvements, AK
- St. George Harbor Improvements, AK
- Savoonga Subsistence Harbor, AK (TPP)
- Fruitvale Avenue Railroad Bridge, CA
- Oakland Inner Harbor Turning Basin Widening, CA
- Brunswick Harbor, GA
- Port Fourchon Belle Pass Channel, LA
- Port of Iberia, LA
- Menominee River Deepening, MI & WI
- Gulfport Harbor, MS
- Wilmington Harbor Navigation Improvements, NC
- New York and New Jersey Harbor Deepening and Channel Improvement Study, NY & NJ
- Little Narragansett Bay, RI
- Port Royal Harbor, SC
- Matagorda Ship Channel, TX (Deficiency Correction)
- Norfolk Harbor and Channels, VA (Elizabeth River and Southern Branch)
- Christiansted Harbor, VI
- Columbia River Turning Basin Navigation Improvements, WA & OR
- Tacoma Harbor, WA

FISCAL YEAR 2023 CONSTRUCTION HIGHLIGHTS

Inland Navigation

- McClellan Kerr Arkansas River System 12’ Channel, AR & OK
- Upper Mississippi River – Illinois Waterway System, IL, IA, MN, MO & WI (NESP)
- J Bennett Johnson Waterway, LA
- Mississippi River Between The Ohio and Missouri Rivers (Reg Works), MO & IL
- AIWW, Bridges at Deep Creek, VA
- Channel Improvement Dikes, AR, AL, KY, LA, MS, MO, & TN

Coastal Navigation

- Unalaska (Dutch Harbor), AK
- Port Everglades Harbor Deepening, FL
- Calcasieu River and Pass, LA
- Sault Ste. Marie (Replacement Lock), MI
- Columbia River Channel Improvements, OR & WA
- Charleston Harbor, SC\
- Corpus Christi Ship Channel, TX (Main Channel and Barge Lanes), TX
- Freeport Harbor Channel Improvements, TX
- Houston Ship Channel, TX
- Sabine-Neches Waterway, TX
- Norfolk Harbor and Channels, Craney Island, VA

FISCAL YEAR 2023 O&M HIGHLIGHTS

Inland Navigation

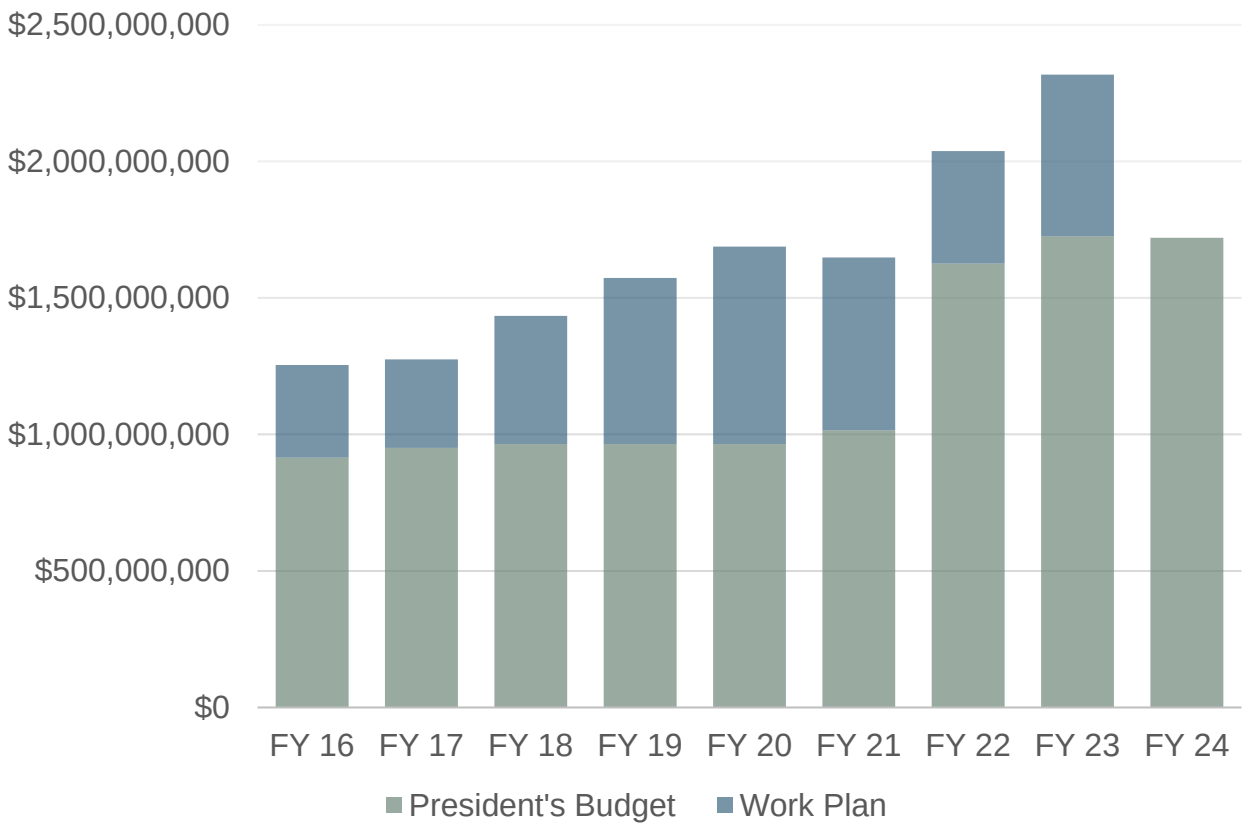
- Major Maintenance $75.9M
- Routine Maintenance $450.8M
- Dredging $186.4M
- Operations $295.6M

Coastal Navigation

- Major Maintenance $94.6M
- Routine Maintenance $374.0M
- Dredging $1,536.3M
- Operations $164.3M

HARBOR MAINTENANCE TRUST FUND

HMTF Allocation Trends



-FY 22 EOY Balance- $9.5B

-FY23 bill directed $2.318B in funding

-With the exception of a minor dip in FY 20 collections have remained at about $1.5B/year

-The additional HMTF investments have allowed us to:

- maintain further into the portfolio those low use projects
- address breakwater and jetty maintenance
- consider advanced maintenance activities at critical harbors

USACE NAVIGATION ALIGNED TO ADMINISTRATION PRIORITIES

Upgrade Waterways and Ports to Strengthen Supply Chain

- 12 Post Panamax Port Deepening Projects on-going or funded
- 8 Lock and Dam Modernization/New Construction Projects on-going or funded
- Leveraging the Capital Investment Strategy

Strengthen Communications and Relationships

- Increased regional and enterprise coordination meetings for dredge scheduling
- Improved partnerships through strategic stakeholder and industry engagements

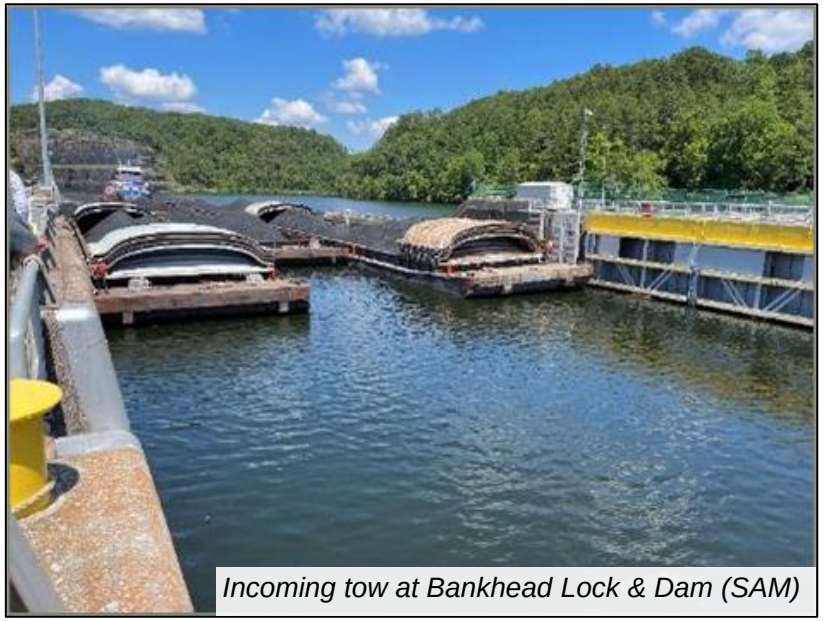
Build Innovative, Climate Resilient Infrastructure

- Focus on increasing beneficial use of dredged material to 70% by 2030

Modernize Civil Works Programs

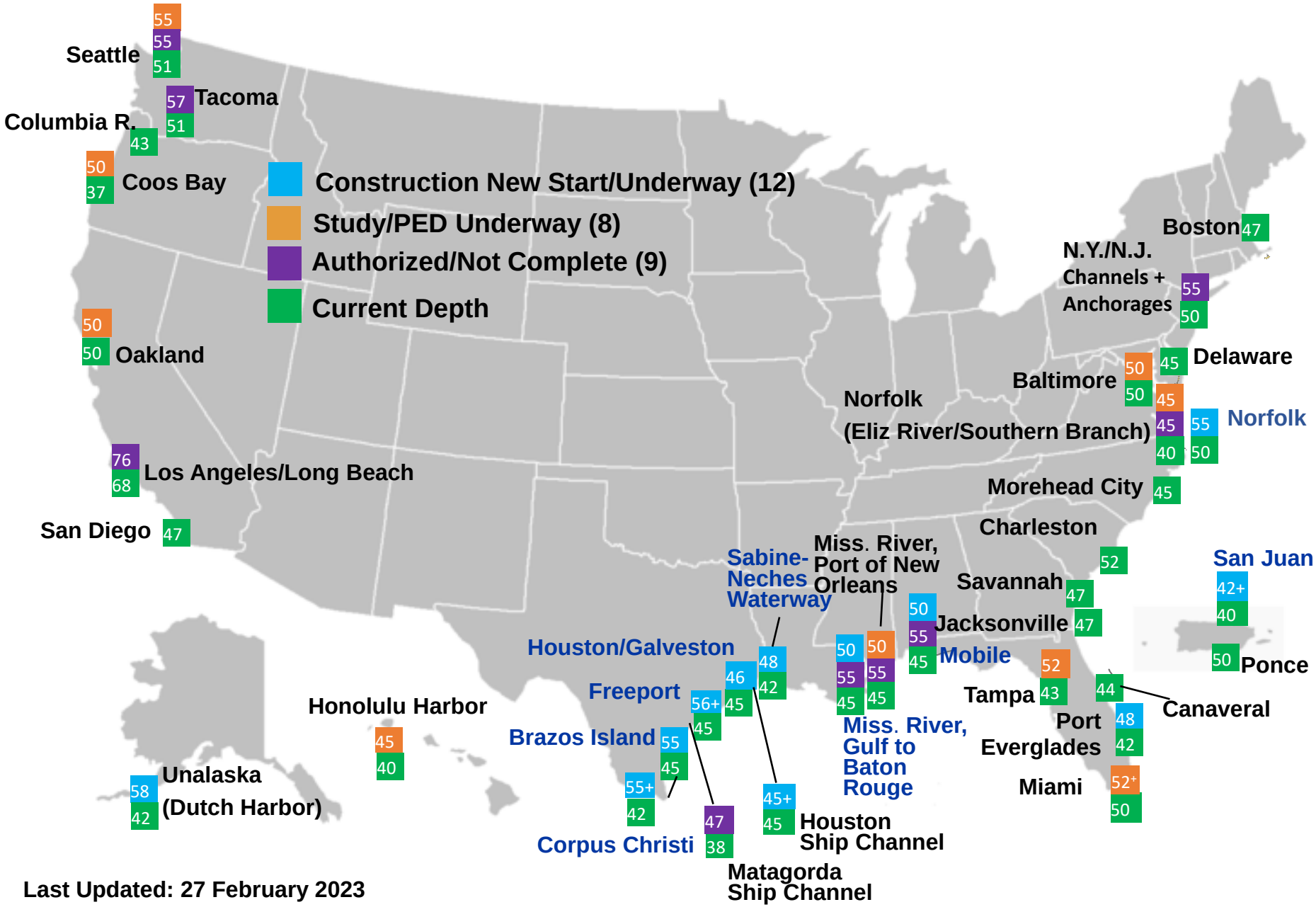
- Developing remote lock operations
- Coordinating closures to complete necessary major lock maintenance and rehab
- Improving major maintenance and rehab policies to efficiently manage critical assets - locks, breakwaters, and jetties

Charleroi L&D construction photos (LRP)



Incoming tow at Bankhead Lock & Dam (SAM)

Post-Panamax Port Projects/Studies



Last Updated: 27 February 2023

PROJECT COST INCREASES

- Within the last two years, US Construction Industry has been facing unprecedented increase in material costs, supply-chain bottlenecks and a tighter labor market
  - Labor shortages
    - During pandemic, several small contractors, laborers etc. could not sustain the shutdown and moved on to booming residential construction industry. They have not returned since.
    - BLS data is currently showing about 340,000 construction jobs unfilled
    - Based on discussions with industry experts, the forecast is that this trend will continue into the future
    - Contractor will have to compete amongst themselves to lure skilled and unskilled labor by offering incentives such as high premium, which would result in higher bid prices.

- What is USACE Doing
  - Require certified cost estimates every 2 years for authorized construction projects from Cost MCX
  - Cost estimates reflect current market conditions based on materials quotes from manufacturers and labor availability research
  - Civil Works Construction Cost Index System Engineer Manual (EM1110-2-1304)
  - HQUSACE, NAVFAC and AFCEC Cost Engineering discipline working group (DWG) engages with industry experts to feel the pulse of the market
    - Review and validate controllable costs such as scope and schedule

FLOATING PLANT / WAGE GRADE RECRUITMENT AND RETENTION CHALLENGES PATH FORWARD

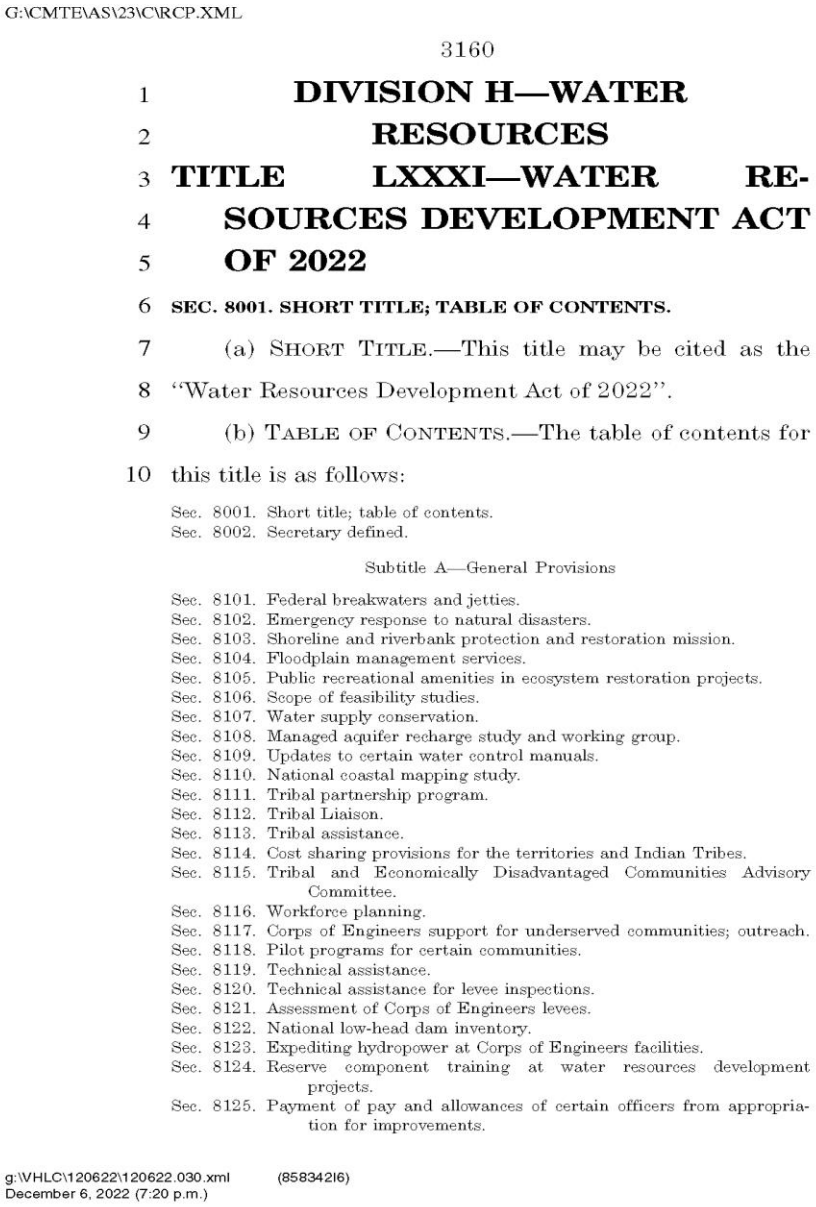
23

- Recruitment Challenges:
  - Corps is developing solutions and executing actions to increase promotion of Federal Wage System (FWS) Career Fields
  - Continue to educate Operations Hiring Managers and Human Resource Managers on availability and use of Recruitment Incentives, Military to Mariner Program, etc.

- Retention Challenges
  - Corps is developing solutions and executing actions to increase retention of hard to fill series
  - Continue to educate Managers on availability and use of Benefits and Retention Incentives

WRDA 2022 IMPLEMENTATION

- Public comment period closed on March 21
- Comments from the listening sessions are being compiled
- Implementation guidance will be posted online once completed at https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/Legislative-Links/WRDA2022/



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3160

DIVISION H—WATER RESOURCES

TITLE LXXXI—WATER RESOURCES DEVELOPMENT ACT OF 2022

SEC. 8001. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This title may be cited as the "Water Resources Development Act of 2022".

(b) TABLE OF CONTENTS.—The table of contents for this title is as follows:

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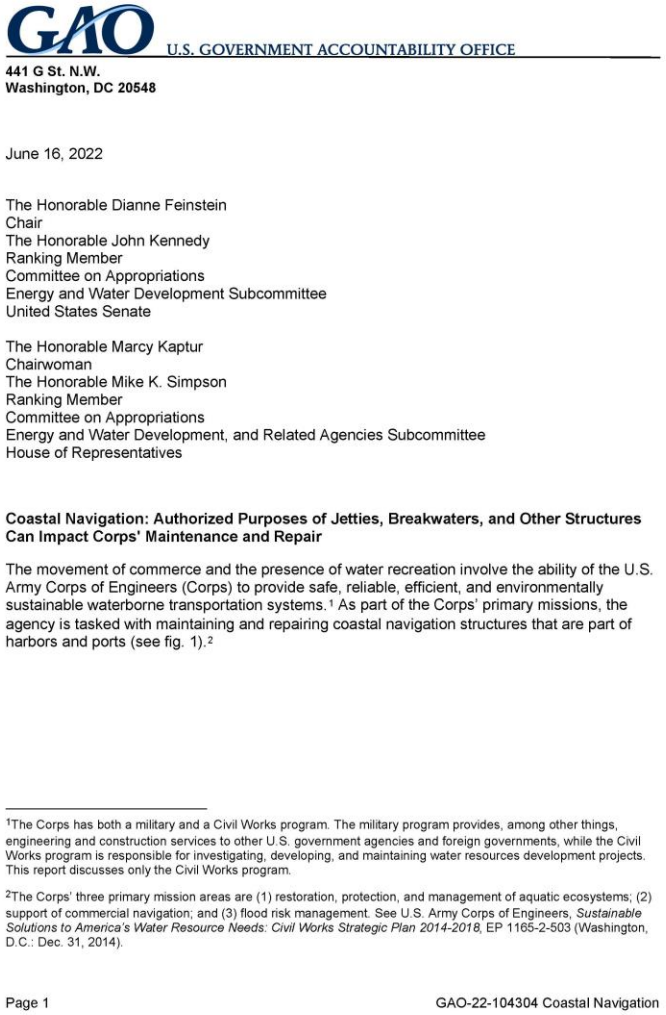
December 6, 2022 (7:20 p.m.)

GAO REPORT

COASTAL NAVIGATION: AUTHORIZED PURPOSES OF JETTIES, BREAKWATERS, AND OTHER STRUCTURES CAN IMPACT CORPS' MAINTENANCE AND REPAIR

- Corps maintained navigation structures
- 2020 Appropriations include provision to review Corps' capacity to repair and maintain structures
- No recommendations for the Corps
- Examples used for the report
  - Mouth of the Columbia River, OR & WA
  - Narragansett, RI
  - Buffalo Harbor, NY
  - Grays Harbor, WA
  - Laupahoehoe Harbor, HI

https://www.gao.gov/products/gao-22-104304



GAO U.S. GOVERNMENT ACCOUNTABILITY OFFICE

441 G St. N.W.
Washington, DC 20548

June 16, 2022

The Honorable Dianne Feinstein
Chair
The Honorable John Kennedy
Ranking Member
Committee on Appropriations
Energy and Water Development Subcommittee
United States Senate

The Honorable Marcy Kaptur
Chairwoman
The Honorable Mike K. Simpson
Ranking Member
Committee on Appropriations
Energy and Water Development, and Related Agencies Subcommittee
House of Representatives

Coastal Navigation: Authorized Purposes of Jetties, Breakwaters, and Other Structures Can Impact Corps' Maintenance and Repair

The movement of commerce and the presence of water recreation involve the ability of the U.S. Army Corps of Engineers (Corps) to provide safe, reliable, efficient, and environmentally sustainable waterborne transportation systems.[1] As part of the Corps' primary missions, the agency is tasked with maintaining and repairing coastal navigation structures that are part of harbors and ports (see fig. 1).[2]

[1]The Corps has both a military and a Civil Works program. The military program provides, among other things, engineering and construction services to other U.S. government agencies and foreign governments, while the Civil Works program is responsible for investigating, developing, and maintaining water resources development projects. This report discusses only the Civil Works program.

[2]The Corps' three primary mission areas are (1) restoration, protection, and management of aquatic ecosystems; (2) support of commercial navigation; and (3) flood risk management. See U.S. Army Corps of Engineers, *Sustainable Solutions to America's Water Resource Needs: Civil Works Strategic Plan 2014-2018*, EP 1165-2-503 (Washington, D.C.: Dec. 31, 2014).

Page 1 GAO-22-104304 Coastal Navigation

REGIONAL DREDGING PROGRAM

Potential Benefits per Senate Report 116-102

- Improved project schedules/faster construction execution at the demonstration projects;
- Fewer disruptions to other projects across the enterprise due to emergencies at the Southwest Pass (pulling dredges off projects);
- Fewer or no bid busts (bid higher than the Independent Government Estimate by 25%) for the demonstration projects;
- Reduced cost per cubic yard at the demonstration projects and/or across the enterprise for hopper dredge contracts;
- Efficiency of contract award process at the demonstration projects; and
- Fewer “no bid” responses at Mississippi River Baton Rouge to Gulf hopper dredge contracts.

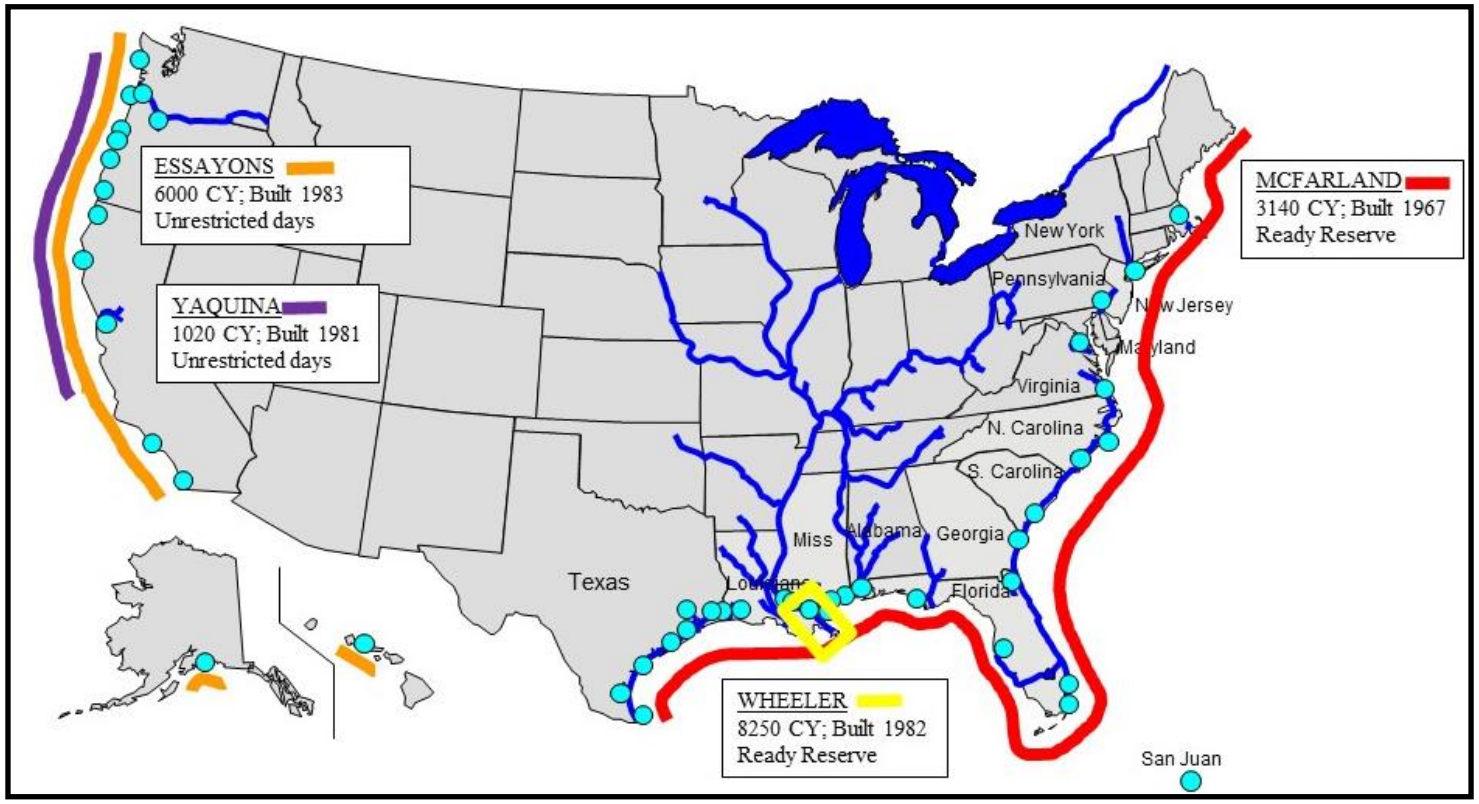
Use of regional dredging contracts have positively impacted dredging execution across the enterprise. We consider the regional dredge program to be a success and have leveraged the approach on the West, Gulf, and East Coasts. 280M CY dredged in FY21, highest in over a decade without any disruptions.

USACE FLEET RECAPITALIZATION

Public Law 95-269 "Industry Capability Program" was passed to encourage the growth of private dredging industry. (April 1978)

- The Secretary shall have dredging and related work done by contract if he determines private industry has the capability to do such work and it can be done at reasonable prices and in a timely manner
- To carry out emergency and national defense work the Secretary shall retain only the minimum federally owned fleet capable to perform such work and he may exempt from the provisions of this section such amount of work as he determines to be reasonably necessary to keep such fleet fully operational.
- The minimum federally owned fleet shall be maintained to technologically modern and efficient standards, including replacement, as necessary.

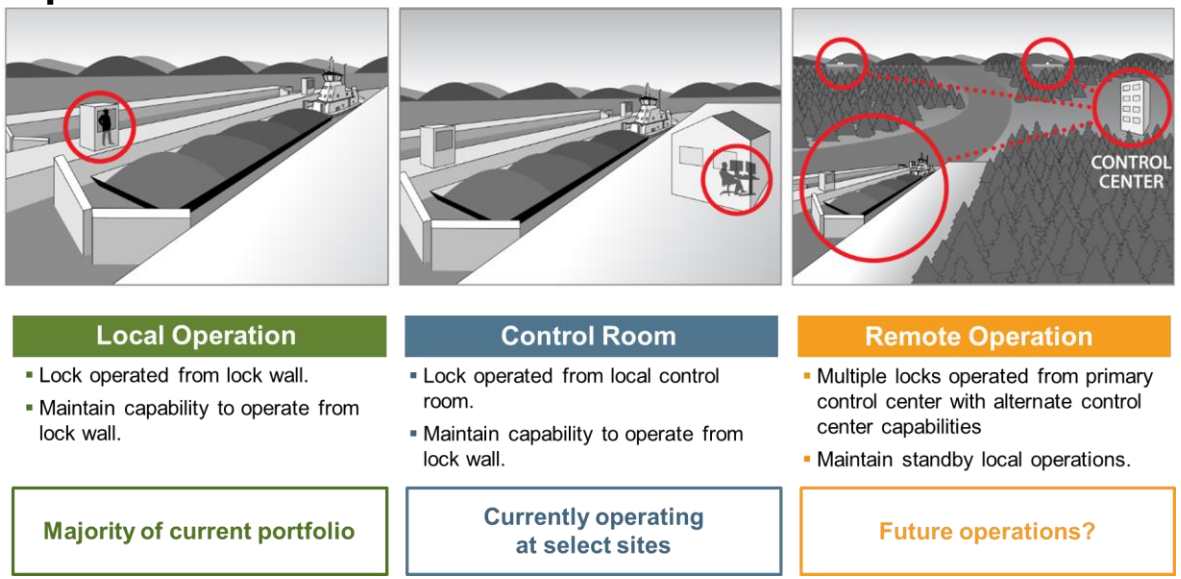
USACE HOPPER DREDGE FLEET—Operational Framework



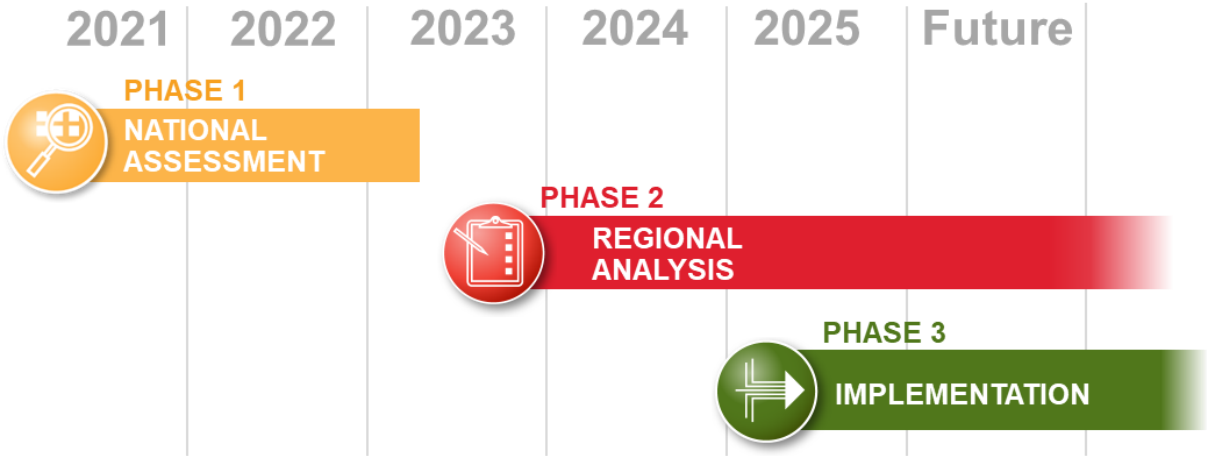
REMOTE LOCK OPERATIONS INITIATIVE

- **Current scope:** High-level national assessment
  - Producing remote lock operations framework and implementation plan
- **Value:** Modernize USACE locks; improve resiliency and continuity of operations
- **Commitment:**
  - **Safety** is essential!
  - **Reliable & consistent** commercial locking operations
  - Maintain **public access** & assistance during recreational locking
  - Protect system – ensure physical & **cybersecurity**
  - **Committed** to USACE workforce – orderly & deliberate transition while providing additional opportunities
- **Next steps:**
  - Regional analysis at select sites
  - Creating policies, standards for implementation
  - Aligning with planned construction schedule

Operational Scenarios



Future Schedule



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A podcast that goes behind castle doors to have real conversations with real people about solving the nation's toughest challenges.

https://www.dvidshub.net/podcast/443/inside-the-castle

Episodes of Interest:

- Spotlight on the Water Resources Development Act
- Interview with Assistant Secretary of the Army for Civil Works
- Environmental Infrastructure
- USACE Budget Process
- Interview with Chief of Engineers
- USACE Supplemental Program Overview
- Inland Navigation Design Center
- Aging Infrastructure
- Overview of USACE Operations Division