USACE RESILIENCE STRATEGY

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District Commander & District Engineer

AUGUST 2018

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."
CIVIL WORKS STRUCTURE

Assistant Secretary of the Army
(Civil Works)
Washington, D.C.

Headquarters
Washington, D.C.

Divisions
9 Regional Offices

Districts
45 Local Offices

Chief of Engineers
LTG Todd T Semonite

Assistant Secretary of the Army
for Civil Works
Honorable R.D. James
U.S. Army Corps of Engineers Division Boundaries

CURRENT AS OF AUGUST 2016

Lieutenant General Todd T. Semonite
Commanding General and Chief of Engineers
Headquarters, U.S. Army Corps of Engineers

HQ, USACE FACTS:
- U.S. Army Corps of Engineers (USACE) employs approximately 32,000 Civilian Employees and 700 Military personnel, with a presence in more than 30 countries and providing reach-back technical and construction expertise to more than 110+ counties worldwide.
- USACE owns and operates more than 700 dams; maintains 12,000 miles of waterways, 236 locks and 926 Coastal, Great Lakes and inland channels and harbors. About 2 trillion of U.S. trade moves through the ports and waterways that we manage.
- USACE is the Nation’s largest provider of outdoor recreation, operating 2,350 recreation areas. Our projects host about 360 million visitors who spend some $13 billion yearly; supporting an estimated 187,000 jobs.
- USACE is the largest owner and operator of hydroelectric power plants in the U.S., providing 3% of the total national electric capacity, producing approximately 83.7 billion kilowatt-hours of electricity in its 75 hydropower plants. The electricity generated nearly $4 billion in gross revenue.
Great Lakes and Ohio River Division
District Civil Works Boundaries

CURRENT AS OF AUGUST 2016

Brigadier General
Mark Toy
Commander and Division Engineer
Great Lakes and Ohio River Division

DIVISION FACTS:

- The Great Lakes and Ohio River Division, located in Cincinnati, Ohio, operates as a regional business center with seven districts that covers 335,000 miles.

- The Division has seven engineer districts totaling over 4800 people operating in a seventeen state area, and is charged with directing federal water resource development in the Great Lakes and Ohio River basins with infrastructure valued at over $80 billion.

- With an annual operating and construction budget exceeding $2 billion, missions include planning, construction and operations of navigation structures and flood damage reduction, hydropower, environmental restoration, water conservation, recreation and disaster assistance.

- The Division also executes military construction in Ohio, Kentucky, Indiana, Illinois and Michigan with design and construction of barracks, hospitals, airfields and family housing on military installations.
Nashville District
River Basins and Boundaries

CURRENT AS OF JULY 2017

Lieutenant Colonel
Cullen A. Jones, P.E., PMP
Commander and District Engineer
Nashville District

DISTRICT FACTS:

- The Nashville District’s geographic area touches seven states and covers 59,000 square miles and is represented by 14 Senators and 21 Congressmen.

- The District is comprised of over 700 team members, with the majority located in 49 field offices. These employees are regional experts in the areas of Recreation, Hydropower, Regulatory, Navigation and Flood Risk Management.

- With an annual workload budget around $200M, the District’s main construction projects are Wolf Creek and Center Hill Dam Rehabilitation, Chickamauga Lock Replacement, Kentucky Lock Addition and support to Department of Energy at Oak Ridge, TN.

- The District operates and maintains 1,175 commercially navigable river miles, almost 10 percent of the total within the U.S. Army Corps of Engineers. The District has the capacity to produce more than 914 megawatts of clean electricity from hydropower plants on the Cumberland River basin.

Legend:
- Red square: Lock & Dam
- Blue square: Cumberland River Basin
- Green triangle: Dam
- Orange triangle: Tennessee River Basin
- Black square: Regulatory Boundary
- Blue square: Civil Works Boundary
- Red square: Emergency Management Boundary
USACE RESILIENCE STRATEGY

Resilience Initiative Roadmap

1. Evolve Corps Standards and Criteria
2. Support Community Resilience
Long held principle of USACE Engineering Designs:

– Robust – Building Strong!
– Resilient – Designs which can cope with rapidly changing conditions
– Redundant – Designs which avoid a single point of failure

Part of USACE overall approach to Flood Risk Mitigation for Communities to help them be more resilient
– Dams & Levees
– “Non-Structural” Solutions
– Flood Risk Planning
– State and Local Partners
USACE AND RESILIENCE

Dam and Levee Safety
– A Resilient System for Assessing and Updating Flood Risk Management Projects
– Formation of the Risk Management Center – Established a Risk Based Assessment System for the entire USACE portfolio.
– Focused on expert assessment of “potential failure modes” and how these issues can be addressed
– Built into the project evaluation cycle for Dams and Levees:
  • Periodic Inspections and Instrumentation programs
  • Periodic Assessments – qualitative risk assessment every 10 years
  • Quantitative Risk Assessments and How to Address the Risk – IES, DSMS
  • Where needed: Dam and Levee Modification Projects
CENTER HILL DAM SAFETY PROJECT

- MRER approved 2006
  Main Dam Grouting 2007-2010
  Main Dam Barrier Wall 2009-2015
- Supplemental MRER & RA1 2011-2015
  Saddle Dam RCC Berm 2016-2019
  Total Project Est. $353M

- PIE & RA2 2016: Residual Risk Gates:
  Dam Safety Modification Study
RESILIENCE IN CONSTRUCTION
Continue to take resilience into account during design and construction

USACE Adding New Goals in the Roadmap:
• Increase performance reliability in anticipated use
• Continue to Reduce Risk of “Failures” during Extreme Events
• Maintain primary function under changing conditions
• And/Or Help meet Community Specific Resilience Goals

Current Nashville District Projects:
Upgrades and Kentucky and Chickamauga Locks to support Navigation
CHICKAMAUGA LOCK REPLACEMENT PROJECT OVERVIEW

- Road & Bridges - $6M
  Completed Feb 2007

- Lock Chamber - $240M
  Awarded: Sep 2017
  Duration: 5-7 years

- Approach Walls
  Award scheduled: Sep '21

- Cofferdam - $86M
  Awarded Sep 2006, Comp 2012

- Cofferdam Stabilization - $3.1M
  Awarded Sep 2015, Comp 2016

- Lock Excavation - $34.4M
  Awarded Sep 2016
  Scheduled Comp: Nov 2018

- Bridge Fabrication - $400K
  Completed June 2011

- Gates & Valves - $17M
  Awarded Sep 2009, Comp 2012

- Approach Beams - $14M
  Awarded Apr 2010, Comp 2013

- Decommissioning/Site Work
  Award scheduled: Sep '20

- Total
  Lock & Associated Facilities - $754M
  Road and Bridges - 6M
  Total - $760M

$217.4M Expended thru Mar 2018 = 29% completed

Contract Legend

- Completed
- Current
- Future
USACE FLOOD RISK MANAGEMENT

- Strategies and Means to help communities become more resilient
  - Disaster Preparedness
  - Dam and Levee Safety
  - Emergency Response
  - Rehabilitation Assistance Programs
- Silver Jackets / PAS Programs
- State and Local Partnerships
DISASTER RECOVERY
• Assisting Communities affected by Disasters – Recovery Phase
  • Hurricanes Harvey, Irma, Maria
    • Puerto Rico
    • Virgin Islands
    • Texas
    • Florida
  • Blue Roof
  • Temporary Power
  • Debris Removal
  • Task Force Power Restoration
USACE Nashville 4QTR FY18 and FY19 Forecast

- **Barkley Major Hydropower Rehabilitation (4Q FY18)**
  - More than $10M
  - Full and Open Competition (FAOC) (TBA)

- **Barkley Medium Voltage Cable Replacement (4Q FY18)**
  - Between $1-5M
  - SB Set-Aside (TBA)

- **Barkley Lock Emergency Lift Gate Repair (2Q FY19)**
  - $1 - 5M
  - SB Set-Aside (TBA)

- **Barkley Purchase Hydropower Trash Screens (1Q FY19)**
  - $1 - 5M
  - SB Set-Aside (TBA)

- **Fort Campbell Storm Water Program Support (4Q FY18)**
  - Between $100-250K
  - SB Set-Aside (TBA)

- **Barkley Lock Emergency Lift Gate Repair (2Q FY19)**
  - $1 - 5M
  - SB Set-Aside (TBA)

- **Chickamauga Lock Electrical System Replacement (2Q FY19)**
  - $1 - 5M
  - SB Set-Aside (TBA)

- **Center Hill Power House Roof Repair (3Q FY19)**
  - Above $250K (SAT)
  - SB Set-Aside (TBA)

- **Cordell Hull Washhouses and Comfort stations renovation (1Q FY19)**
  - Above $250K (SAT)
  - SB Set-Aside (TBA)