The Army Civil Works Program

Presentation to
Society of American Military Engineers
DoD & Federal Agency Programs Briefings
26 March 2013

MG Michael Walsh
Deputy Commanding General
Civil & Emergency Operations
Our Vision

Civil Works Strategic Plan

“Contribute to the strength of the Nation through innovative and environmentally Sustainable solutions to the Nation’s water Resources challenges”

USACE Campaign Plan

“USACE Vision: A GREAT engineering force of highly disciplined people working with our partners through disciplined thought and action to deliver innovative and sustainable solutions to the Nation’s engineering challenges”
BUT – To Achieve That Vision, We Need to Change

- We are now in a non-earmark environment
- We fund too many studies/projects at less than capability
- It takes too long to get studies and projects completed
- It costs too much!!
- We make sponsors and stakeholders unhappy due to lack of timeliness and cost effectiveness
- We try too hard to justify unviable projects
- We lack emphasis on the importance of quality assurance and quality products
- In a budget constrained era, we must do what it takes to Be RELEVANT!!
Win in the Turns

- Win in the turns - Invest in our infrastructure
- New starts - Think future water resources direction
- Use systems-based and watershed approach
- Find ways to finance the Nation's infrastructure
- Become the Nation’s water resource solutioneer
Growing Our Capabilities

- Become **leading agent** in systems-based watershed planning and management
- Communicate **transparency**, be responsive at all levels and **engage partners** in our processes
- Build a ready, responsive and **capable workforce**, **Recruit** the best in key skills
- Maintain key **core skills** (e.g., H&H, Cost Estimators, PDTs and the planning process, etc) in centers/virtual teams
- Develop **risk competencies** throughout our workforce, **communicate risk** openly
- Build a **cost and time conscious culture**
Major Transformation Initiatives

- Planning
- Budget Development
- Infrastructure Strategy
- Methods of Delivery
Planning Modernization: Top Four Performance Priorities

• Improve planning project delivery (investigations and CG) and instill accountability at all levels
• Develop a sustainable national & regional planning operational and organization model
• Improve planner knowledge and experience (build the bench)
• Modernize planning guidance and processes
Planning Modernization Achievements

- Completed 22 Chief’s Reports Post WRDA 2007
- Issued Feasibility Study Execution Guidance Memorandum
- Reduced Active Feasibility Study Portfolio by One Third
- Economics Production Center
- Planning Toolbox Website (www.corpsplanning.us)
- Mandatory Training Guidance for Planners
- Updated Planning Core Curriculum & Planning Associates Program
- National Civil Works Pilot Program
- Reissued Environmental Operating Principles
- Issued Planning Guidance including SMART Planning
Budget Development Transformation

- Implement watershed budget development process, while continuing to produce a performance-based budget
- Prioritize. Fund projects likely to produce greatest benefits to capacity, get them operating, then move on to the next.
- Avoid “salami slicing” and stop-and-start funding
- Vertically align and integrate programs and business lines to National goals and objectives
- Seek alternative funding mechanisms and partnerships

*End state:* Maximized value to taxpayers of Civil Works Budget
Budget Transformation Achievements

- Completed FY14 MSC Budget pilots
- Included 5-year sustainable plan that meets national objectives with focus on effects of funding decisions for each watershed/system
- Work packages to compete for annual funding within annual budget process
- Documented work package linkage to National goals/priorities and objectives, as well as how stakeholder input was obtained and shaped priorities
- Ranked work packages for each business line in the watershed/system.
Infrastructure Strategy

• An integrated approach to manage our assets, the life cycle of the system and seeking alternative financing:

  ✓ **Levels of Service**: Which assets need to be operating 24-7? How long do seasons be at recreation areas? Which harbors most need dredging? Etc.

  ✓ **Re-purposing, Outleasing or Divestiture of Assets**

  ✓ **Life cycle system**: Ensure future systems’ viability through risk assessment and management, funding prioritization and sound decision making

  ✓ **Alternative financing**: Provide a safe and reliable infrastructure by looking into alternative financing options

  ✓ **Strategic communication**: A robust strategy with key messages to increase national attention to water infrastructure, its value to the nation, critical needs and sustainability of our systems

*End state*: RELIABLE, SUSTAINABLE INFRASTRUCTURE!
Infrastructure Strategy Actions to Date

- Developed national inventory of Corps assets
- Completed Asset Management Portfolio Analytics (AMPA) case study using FY14 budget work packages
- Completed Maintenance Management Improvement Plan (MMIP) pilots
- Completed first White Paper on analysis of alternative financing options
- Watershed budget pilot partnering with SPD
- Developed initial decision support software WISDM and iBET
- Developed initial process to complete condition assessments for Corps assets
Methods of Delivery

- Relook our methods of delivery to be more efficient, cost-effective & timely
- Link technical capabilities to desired levels of service
- Integrate a Human Capital Plan to maintain core competencies
- Improve operation and management of our water infrastructure-reduce enterprise risk
- Focus areas-Centers of Expertise (CXs):
  - Dam safety, inland navigation design and deep draft navigation economics
Methods of Delivery Accomplishments

- National Technical Competency Team Study
  - Technical competence focus
  - Focusing on enhancing / maintaining competencies
  - Need business process changes
- Regional and National Production Centers in selected key CW competencies
  - Dam Safety
  - Inland Navigation
- Dam Safety Production Centers
  - 7 National Centers Identified
    - In various states of implementation
    - ER 10-1-51 issued outlining the MCX role
  - Plan of Operations finalized in 2012
- Inland Navigation Design Center
  - National Plan proposed
  - One center with two locations
  - Undergoing final approval
- Regions realigning to improve technical support
Best Practices:
System Program Management

- Acquisition Strategy
  - Design Build / Cost Plus Contracts
  - Best Value Source Selection
  - Early Contractor Involvement (ECI)
  - Program Management Support Contract

- Construction Materials
  - Government Furnished Borrow
  - Supply Contracts for Sheet Piles and Borrow

- Improved Techniques
  - Value Engineering – systems study complete
  - Pile Load Tests – in advance of contract award
  - Press Pile, Spiral welded piles
  - Deep soil mixing, sand blanket and wick drains

- Earned Value Management System (EVMS)
- Leverage National & Regional Resources
Summary: Transformation Accomplishments

- Focused Feasibility studies
- 3X3X3 rule
- Planners’ guidance
- Centers of Expertise
- Implementation guidance in transformation areas
- Several OPORDs (Level of Services, Infrastructure Strategy, etc.)
- Systems-based budget pilots--IWRM
- Alternative financing and workshops
- Asset Management and Pilot projects
Civil Works FY 2013 Funding *

$ Millions

Total: $5.002 Billion – Before Sequestration

by Account

- Construction: $1,617 M
- Operation & Maintenance: $2,345 M
- Flood & Coastal Emergencies: $112 M
- FUSRAP: $109 M

by Business Line

- Navigation, Ports: $973 M
- Navigation, Inland: $973 M
- Flood Damage Reduction: $1,425 M
- Environmental:
  - $119 M
  - $192 M
- Recreation:
  - $192 M
- Water Supply: $6 M

* Does not include supplemental appropriations

In Fiscal Year 2013, USACE is operating under a Continuing Resolution Authority, authorized to spend at FY 2012 levels, minus $253 million sequestered
Major Construction Projects
($5 M or More in President's FY13 Budget; Final Spending level will be in Work Plan)

- Flood Risk Management
- Aquatic Ecosystem Restoration
- Navigation
- Hydropower

- Hamilton Airfields
- Folsom Dam
- American River
- Santa Ana River Mainstem
- Rio Grande Floodway
- Canton Lake
- S. W. Valley, Albuquerque
- S. Fla. Ecosystem Restoration
- Bluestone Lake
- Wilmington Hbr.
- Wilmington Hbr.
- Río Puerto Nuevo, PR
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- Río Puerto Nuevo, PR
- La Coastal Area Ecosystem Restoration
- S. Fla. Ecosystem Restoration
- Atchafalaya Basin
- Mississippi R. Levees
- Mississippi R. betw. Ohio & Missouri R's
- Mississippi R. Channel Improvement
- Mississippi River Restoration
- McCook & Thornton Reservoirs
- Chicago Sanitary & Ship Canal Dispersal Barrier
- Bolivar Dam
- E. Br. Clarion R. Lake
- Delaware R. Main Channel
- Delaware R. Main Channel
- Delaware R. Main Channel
- Delaware R. Main Channel
- Delaware R. Main Channel
- Briggate to Great Egg Inlet
- Brigantine to Great Egg Inlet
- Poplar Island
- Poplar Island
- Portugues and Bucana Rivers, PR
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- S. Fla. Ecosystem Restoration
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Sequestration

- Reflected in Continuing Resolution passed last week
- 5% for most accounts
- Annual appropriations sequestered $253M
- Sandy supplemental funds sequestered $268M
- Non-Federal cost sharing funds sequestered $14M
- Effects by appropriation account and business line, and specific project impacts, to be determined in FY13 “work plan” due out 30 April
- Civil Works will be able to avoid employee furloughs
FY 14 Budget

Stay tuned!
It’s scheduled to be out April 8
What Else is Going On?

- Post Sandy Reconstruction
  - USACE lead agency
  - Collaborating with NOAA. (Supportive role, data, forecasting, mapping)
  - Developing principles and scope for reconstruction
  - Other agencies will have supportive role

- Developing a flood risk index standard (it will help us identify location of risk, high and less risk areas) to inform, educate and develop effective preparedness and response plans

- Discussions of a WRDA
The Next WRDA – Some Ideas

• Integrated Water Resources Management as national policy
  • Balanced approach to long-term coordination
  • Intergovernmental cooperation based on concept of State leadership with Federal assistance
• Long-term funding solution for Inland Waterways Trust Fund
• Balanced management of flood plains
• Make Sec. 214 regulatory funding authority permanent
  • Allow ports, other non-Federal entities to partner with Corps
• Project De-authorizations
• Watershed-Scoped Project Planning
• Floodplain Management and Emergency Evacuation
• Assistance to States for IWRM Plans
• Planning Centers of Expertise
• Levee Safety Program
• Asset Management
• Alternative Financing
Partnering for a Common Vision

• Leverage Efforts
• Emphasize Value to Nation
• Find consensus for Major Initiatives
  • Funding to Reach Outcomes
  • Advocate for a WRDA?
  • Engage in Transformation
• Be mutually supportive
• Align and Shared Messages
• Involve & Engage End-Users
• Influence Decision-Makers
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US Army Corps of Engineers
BUILDING STRONG®
If time permits …
Marine Transportation System Overview
U.S. Ports and Inland Waterways: Vital to Trade & our National Economy

Our Inland Waterways...
- Nearly 12,000 miles of navigable channels 9 ft & over
- 196 lock sites / 241 chambers
- Moving over 600 million tons annually
- Carrying 18% of Nation’s domestic freight at a cost of 2/3 that of rail and 1/10 of truck
World Container Trade 2020 Forecast

- World container trade (in TEUs) forecast to double from 2009 dip to over 200 million TEUs by 2020.
- Asia-North American trade grows 65% from 2009 to 2015 to 28 million TEUs.
- Total North American trade volume to grow by 91% by 2029 (all types of cargo, tons)
- U.S. ports challenged to handle this volume

Source: Global Insight, May 2011.
Ready for the Panama Canal?
U.S. Harbors 45’ or Greater

WEST COAST
- Seattle/Tacoma (>50’)
- Oakland (50’)
- LA/LB (>50’)
- San Diego (47’)

GULF COAST
- Mobile, AL
- New Orleans
- Houston/Galveston/Texas City
- Corpus Christi
- Freeport, TX

EAST COAST
- NY/NJ (50’ underway)
- Baltimore (50’)
- Hampton Roads (50’)
- Morehead City, NC
- Charleston, SC
Dimension of Locks and New-Panamax vessels

Existing Locks Max Vessel: **4,400 TEU’s**

New Locks Max Vessel: **12,600 TEU’s**

Source: Panama Canal Authority (ACP)
“America’s ailing ports invisible amid the country’s failing infrastructure”
- Washington Post, 13 Sep 2012

ASCE estimates that it will require an investment of $30 billion – twice as much as we’re spending today – to keep America competitive in a global environment.

What’s at risk? We could lose:

• $270 billion in U.S. exports
• $697 billion in GDP
• 738,000 jobs annually
• $872 billion in personal income.

Source: ASCE
Advancing key infrastructure projects at 5 East Coast ports:
  • NY / NJ
  • Charleston
  • Savannah
  • Jacksonville
  • Miami
Harbor Deepening Challenges

• **Study Process:** Difficult and lengthy from study to authorization

• **Funding:** Federal appropriation process uncertainties

• **Dredging:** Escalating costs, placement, environmental mitigation

• **Handling Facilities and Space:** Need expanded cargo handling facilities and improved intermodal connections
Response to Hurricane Sandy
Effects of Hurricane Sandy

Breezy Point, NY. 30 OCT 12

Battery Tunnel flooded in NY

South Ferry Station, New York, NY

Battery Tunnel flooded in NY

WTC Construction Site, New York, NY. 30 OCT 2012
Hurricane Sandy by the Numbers

- National Hurricane Center predicts storm surges up to 15 feet in the NY/NJ metropolitan area.
- USACE aggressively prepositions technical experts, Planning and Response Teams (PRTs) and ESF#3 experts.
- Incident Support Bases established in PA, MA, NJ, and NY.
- The USACE North Atlantic (NAD) is declared the Supported Division for USACE Sandy Response activities.
- Hurricane Sandy makes landfall as a category 1 Hurricane. It causes over 7.2 million power outages, and widespread flooding and destruction of property.
- Flooding is observed at the NYC Battery, 13.8 feet, and a levee in Moonachie, NJ, is overtopped. Numerous coast line breaches are formed.
### FEMA Mission Assignments

#### PRE-DECLARATION

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Pre-Dec Total (10 MAs) **$3,127,000**

#### EMERGENCY DECLARATION

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Emergency Dec Total (10 MAs) **$10,344,000**

#### POST-DECLARATION

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Post-Dec Total (45 MAs) **$338,140,000**

TOTAL MISSION ASSIGNMENT (68 MAs) **$351,611,000**

• USACE received over 68 FEMA Mission Assignments exceeding $350M
• 10 Mission Assignments for 6 States were received prior to landfall. As unused assignments were de-obligated, total funding authorized dropped just below $250M.
• USACE received Post Presidential Declaration Mission Assignments totaling $338M: $250M in New York, $85M in New Jersey, $1.9M in Connecticut and $50K in Rhode Island.
• Several unprecedented Mission Assignments were received that were a significant departure from prior disaster operations:
  • **$20M** for unwatering missions – a significant increase over previous flooding disasters.
  • **$5M** to establish a forward C2 node in the disaster affected region.
Response to Hurricane Sandy: Unique Attributes

• Daily updates to President and to Secretary of Defense
• Direct daily engagement with NORTHCOM Commander on support requirements
• FEMA Mission Assignment for USACE to “stand up organizational structure to coordinate missions in multiple states.”
• Surge Personnel
  • 2 USACE Command Post Forward with 2 General Officers
  • Colonels and Lieutenant Colonels to key operational nodes
• Unique Missions
  • Temporary emergency power to gas stations
  • Temporary emergency power to public housing
  • Un-watering tunnels
  • Oversight of “joint” forces pumping/un-watering
Unwatering

- USACE deployed unwatering experts from Mississippi Valley Division.
- TF Unwatering conducted major operations at strategic sites.
- At peak USACE controlled 162 pumps un-watering over 475.5M gallons of water; equivalent to 719 Olympic-sized swimming pools.
- Un-watering presented technical challenges; extremely deep tunnels requiring very highly powered pumps with low flow rates to prevent tunnel collapses.
- Brooklyn Battery Tunnel, longest underwater vehicular tunnel in North America and second longest in the world, was flooded with over 70 million gallons of water.
**Electric Power Restoration**

- Prior to impact, USACE surged personnel and materiel to Incident Support Bases (ISBs)
- Priority of power restoration focused on public-owned facilities responsible for life-saving, life-sustaining, public health, safety, and public administration.
- National priority power restoration missions included Hoboken Ferry Terminal, Kinder Morgan and Inwood-Carbo fuel pipeline terminals, and major public housing projects.
- 249th “Prime Power” battalion pushed HQ element to a forward location in Queens, NY, resulting in more rapid mission execution.
- At peak, USACE elements had over 500 generators in controlled inventory and supplied 55MW of power to facilities – enough to power 50,000 homes.
- 742 power mission taskings received, 682 assessments were conducted, and 210 generators were installed.
Recovery

• USACE provided contractor debris support for NY State and City. As of 25 Feb 2013, 675,692 Cubic Yards of debris has been removed.

• USACE in cooperation with State Government and FEMA refitted three buildings (42 Units) for temporary housing at Fort Monmouth, NJ.

• Repairs have begun on the shoreline breaches in barrier islands throughout New York and New Jersey.
Coastal Restoration

Reduce damage to upland developments caused by wind- and tidal-generated waves and currents along the Nation's coasts and shores, and lakes, estuaries, and bays.

- Inspect and evaluate projects - pre and post storm
- Ongoing Damage Assessment – aerial and ground
- LIDAR (Light Detection and Ranging Digital Elevation Data)
- Data acquisition and analysis to support rough order of magnitude (ROM) damage assessments

Beach Profile Cross Section

Beach Nourishment/Periodic Renourishment: The protective dune, along with the protective beach, is part of the sacrificial storm damage reduction system where loss of material from the system is anticipated.

- Emergency Stabilization: Expedient measures to prevent further damage.
- Repair: Return authorized hurricane/storm damage reduction projects in 9 states to pre-Sandy conditions. Repair damages at Corps operating projects and facilities due to Sandy
- Restoration: Return authorized hurricane/storm damage reduction projects to authorized design levels.
- New Construction: Construct hurricane/storm damage reduction projects that have been authorized, but not constructed.
Response to Midwest Drought of 2012-13
What a Difference a Year Makes!

2011

2012
2012-13 Drought

• Rainfall & snow runoff down 13% across Missouri Basin this year.
• Drawing on reserves in lakes in North Dakota and Montana.
• “Bank account” of reservoir water is designed to see region through a 12-year Dust Bowl scenario.
• Not unusual to use water supplies. Goal each year is to draw reservoirs down by March 1 to make room for new runoff.
• While Mississippi River fell to 15 feet below normal near Memphis, Missouri River has stayed level.
• Rivers across Kansas and Nebraska are reaching record lows and critical shortages.
• If the drought continues for years, USACE would start holding back more water and shortening navigation season for river traffic.
Impacts

- If sufficient water storage is not recovered, some possible impacts are:
  - Low river stages insufficient to support municipal and industrial water intakes.
  - Continued low flows in some areas result in industry not being able to discharge effluent due to water quality concerns.
  - Power plants not having enough water for cooling (both fossil fuel and nuclear plants).
  - Inability to meet EPA requirements for threatened and endangered species.
  - As drought conditions persist, USACE cautions swimmers and boaters to watch for hazards, such as trees or rocks, which may be exposed or closer to the water surface due to lower lake levels.
Rock & Pinnacle Removal

- Rock removal operations into final stages on Middle Mississippi River.
- Rock formations pose a threat to navigation in low water in a six-mile stretch of river near Thebes, Illinois.
- Removal is primarily done with excavating equipment. Other means include use of a submersible heavy jackhammer and marine blasting.
- Rock removal, dredging, and other actions to maintain the channel depth on the middle Mississippi River will enable commercial navigation to continue between St. Louis, Missouri and Cairo, Illinois.
- Rock removal and river training structures will provide permanent improvements to the Mississippi River’s navigable channels.