Introduction to Multi-Disciplinary Tracks

Hosted by
Gregory W. Hughes
Multi-Disciplinary Concurrent Sessions

- 15 Separate Tracks
- 15 Separate Rooms
- Each Track Presented 3 Times
- 1\textsuperscript{st} Showing 1400-1450 Hours
- 2\textsuperscript{nd} Showing 1530-1620 Hours
- 3\textsuperscript{rd} Showing 1630-1720 Hours
- Ice Breaker 1730-1900 Hours
Track 1
ACQUISITION STRATEGIES FOR CIVIL WORKS
Room 230

Walt Norko & Bill Augustine
CECW-CE / CECW-B
HQ USACE
What acquisition strategy should you use?
MAJOR ISSUES IN CIVIL WORKS PROJECTS

• Continuing Contracts
  – Change in current USACE policy

• Reprogramming Commitments
  – Trail of past under funded projects

• More funding needed
  – Current requirements exceed available funds
ACQUISITION STRATEGIES TOOLBOX

IDIQ SINGLE CONTRACTS
IDIQ MULTIPLE AWARD CONTRACTS
COST REIMBURSEMENT CONTRACTS
PURCHASE ORDER <$100K
OTHER IDT CONTRACTS
SOLE SOURCE 8(a) (RFP)
INVITATION FOR BID/REQUEST FOR PROPOSAL
DESIGN/BUILD
FIXED PRICE CONTRACT
CW Acquisition Strategies

• For presentation, discussion and questions?
• Visit us in Room 220
• 3 sessions
  – 2:00 to 2:50 PM
  – 3:30 to 4:20 PM
  – 4:30 to 5:20 PM
Track 2

“Risk and Reliability Engineering”

Room 231

Anjana K. Chudgar/CECW-CE
David M. Schaaf/CELRL-ED-DS
Potential for loss or harm to systems due to likelihood of an unwanted event and its adverse consequences. Risk is combination of the probability and consequences of an adverse event.
Reliability

The probability that a system will perform its intended function for a specific period of time under a given set of conditions.

Reliability is the probability that unsatisfactory performance or failure will not occur.
Outline of Presentation: Track 2 - Room 231

- Why Risk and Reliability Engineering: Chudgar
- Overview of HQ’s Supported Activities: Chudgar
  - Major Rehabilitation
  - Dam Safety – PRA
  - Homeland Security
  - Major Maintenance
- Guidance-Risk and Reliability Engineering: Schaaf
- Navigation Risk and Recovery Study-CELRD: Schaaf
- R&D: Chudgar
- Related Presentations: Chudgar
- Questions and Discussion: All
Track 3
Integrating Risk & Reliability Into USACE
Infrastructure Management
Room 232

Presentation for the Multi-Disciplinary Concurrent Session
Tri-Service Infrastructure Conference
August 2005
Risk & Reliability

• What’s wrong?
• How likely is it to occur?
• What are the consequences?
Discussion Topics

• Why Risk & Reliability?
• How is USACE Integrating Risk & Reliability into Infrastructure Management?
• Influence on Engineering & Construction Communities of Practice
• The Way Ahead
• Question and Answer Session
Track 4

- Hydrology, Hydraulics & Coastal Engineering
- Jerry Webb & Darryl Davis
- Room 240
Hydrology, Hydraulics, and Coastal Engineering Support for USACE

- Multi-disciplinary Session, by HH&C CoP lead: Jerry Webb, Principal Hydrologic and Hydraulic Engineer, HQUSACE

- For: Tri-services Infrastructure Conference, St. Louis, MO August 2, 2005
Session Summary

- Conference Agenda/Opportunities
- HH&C CoP Membership.
- CoP Charter and Governance.
  - Executive Advisory Group.
  - MSC, Lab, & Support POCs.
- Standing Technical Committees.
- Technical Excellence Network.
- HH&C Support to USACE, other DoD, Federal, and non-Federal partners.
USACE HH&C CoP Membership

• Who?: USACE Engineers and Scientists.
  – Surface and groundwater hydrology, river hydraulics and sediment transport, hydrologic statistics and risk, cold regions hydrology and hydraulics, reservoir systems analysis, hydraulic design, hydroelectric power water supply navigation, dam safety, water control management, water quality, environmental restoration, and estuary coastal, and ocean engineering and processes.

• Where from?:
  – HQUSACE, MSCs, districts, R&D laboratories, support offices, and others.
Track 5

- Civil Works R&D Forum
- Joan Pope
- Room 241
Track 5 Civil Works R&D

- **Vision** – technology leader for water resources management
- **Capabilities/Products** address needs of Corps’ Civil Works program, with primary emphasis on:
  - Navigation
  - Flood & Storm Damage Reduction
  - Environmental
  - Watershed Assessment & Management
- **Customers** – Corps Districts
Water Resources Support to the Nation

Physical Models

Navigation

Coastal Engineering

Flood Control

Numerical Models
Water and the Ecosystem

Dredging and Disposal

Water Quality

Wetlands

Invasive Species

Fisheries Mitigation
ERDC’s Role
USACE’s R&D Major Subordinate Command
DoD & Army Lead Engineering R & D Center

- Problem solvers
- Technology advisors
- Technology developers
- Business development partners
- USACE’s National Science & Technology resource
Civil Works R&D
Changes and Drivers

- Changes 2003 - 2005
  - 4 thrust areas now vs. 6
  - 12 ERDC work packages now vs. 15
  - $29 M now vs. $27 M
  - HEC added to Senior Management Team
  - More reliance on MSC’s/CoP Structure for R&D needs

- Drivers
  - USACE 2012
  - Civil Works Strategic Plan
  - Business Line budgeting
  - Congressional adds
  - Integration of ERDC/IWR collaboration
## ERDC Civil Works R&D

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*SM w/estimated S&S removed*
Track 6

- Civil Works Security Engineering
- Joe Hartman & Bryan Huston
- Room 242
CIVIL WORKS
SECURITY ENGINEERING

TRACK 6 - ROOM 242

- USACE Civil Works Infrastructure
- USACE response after 9/11
- Risk
  - Threats
  - Vulnerabilities
  - Consequences
- Bases of Design for Protective Measures
Track 7

- Building Information Model Applications
- Brian Huston & Daniel Hawk
- Room 226
• BIM is finally the way that we can see real benefits of modeling both graphical and non-graphical data of structures simultaneously.

• Realizing those benefits is within our grasp. We need only to be open minded and resourceful to be successful.
Track 8

- Design Build for Military Projects
- Mark Grammer
- Room 220
Design-Build and Army Military Construction Preview

Mark Grammer, P.E.
Design-Build Requires Letting Go of Some Things We’ve Always Held
Presentation Outline

- Overview of Design-Build
- Design-Build Pitfalls
- Key Items for Design Review
- Procurement Strategy
- Contract Management Strategy
- RFP Content and Format
- Managing for Success
Mark Grammer, CECW-SAD
Room 220
mark.grammer@usace.army.mil
202-761-4108
Track 9

- Army Transformation/Global Posture Initiative/Force Modernization
- Al Young & Claude Matsui
- Room 221
Engineering and Construction for Army Transformation

- What is Army Transformation and how is it affecting traditional engineering and construction practices for the Army?
- What’s MILCON Transformation and how will it meet the accelerated pace of Transformation?
- How can industry innovation and “best commercial practices” help the Army overcome the affects of a “Perfect Storm”?

The largest stationing action in Army history ... Army Modular Force, BRAC, and Global Posturing Initiative?

Yesterday
2004 = 33 Combat Brigades

Tomorrow
2007 = 43 Combat Brigades
Future Technology Demands

- **Manned Systems**
  - Infantry Carrier Vehicle
  - Mounted Combat System
  - Non-Line of Sight Cannon
  - Recovery and Maintenance Vehicle
  - Command & Control Vehicle
  - Recon and Surveillance Vehicle
  - Non-Line of Sight Mortar
  - Medical Treatment & Evacuation

- **Unmanned Air Vehicles**
  - Class I
  - Class II
  - Class III
  - Class IV
  - Unattended Munitions
  - NLOS LS
  - Intelligent Munitions System

- **Unmanned Ground Vehicles**
  - ARV Assault
  - Armed Robotic Vehicle (ARV)
  - ARV RSTA
  - ARV-A (L)
  - Unattended Ground Sensors
  - Unattended Munitions
  - Small (Manpackable) UGV
  - MULE: (Countermine)
  - MULE: (Transport)
Challenges to be Met

- Programmed technology insertions will drive space allowances and necessitates adaptive/multipurpose facility designs
- Unprecedented connectivity required in facilities not previously considered
- Accelerated pace of change requires a faster construction execution window
- Fiscal reality causing need to reduce repetitive modification as Transformation occurs
- Current acquisition and contracting practices unable to meet pace and demand
- Change in facility duty cycle renders habitually used materials and methods less economical
Track 10

- Force Protection – Army Access Control Points
- John Trout
- Room 222
Track 10 Army Access Control Points
Criteria Sources

- Unified Facilities Criteria for ECFs/ACPs
- Army Standard Design for ACPs
Active Barriers

Passive Barriers

Passive Barriers

Entry Gate
Access Control Zone

Canopy

ID Check Area

Gatehouse

Traffic Island

Guard Booths

Turn Arounds

ACCESS TO PASSENGER VEHICLE SEARCH AREA (GEOMETRY MAY VARY)

MIN RECOMMENDED (DISTANCE CAN BE ADJUSTED BASED ON ENGINEERING JUDGEMENT AND SITE SPECIFIC REQUIREMENTS)
Performance Standard

- Defeat the prescribed vehicle and pedestrian threats
- Ensure the safety of innocent motorists, pedestrians, and guards
General Design Strategy

– Detect Threat Vehicle
– Deploy Final Barriers
– Delay Threat Vehicle
– Defeat Threat at the Final Barriers
Defeated Bad Guy
Track 11

- Cost Engineering Forum on Government Estimates
- Ray Lynn, Jack Shelton, Joe Bonaparte, Kim Callan, Miguel Jumilla & Ami Ghosh
- Room 227
The purpose of a properly developed Programming Estimate is to reflect what the construction “should cost”; a Bid reflects what the construction “will cost.”
Track 12
E&C Technology Integration
M. K. Miles, PE, PLS
Chief, Construction and Technology Integration Engineering and Construction
HQUSACE

Status Update: August 2005
Room 228
Integrating People, Processes and Technology through eGIS, SET and TEN

**Enterprise GIS**
- CorpsMap
- CADD/GIS Standards
- Data Reference Model
- Geospatial One Stop

**Science and Engineering Technology**
- Corps Enterprise Architecture
- Common Delivery Framework
- SET Software Inventory
- Technology Transfer

**Technical Excellence Network**
- Communities of Practice
- Body of Knowledge
- Subject Matter Experts
- Career Development

**People - Processes - Technology**
At the Breakout Session you will find out:

- What are **Enterprise Geographic Information Systems**
- Why we need eGIS
- How we plan to get there
- Update on the Deputy Chief’s memo on eGIS & CAD/GIS data standardization & the field’s responses
- Action items from the Director of Civil Works’ VTC for the MSC Commanders
- Schedule for upcoming free training for CAD & GIS Data Standards
At the Breakout Session you will find out:

- What is the *Science and Engineering Technology (SET) Initiative*
- Results of the latest software usage survey
- Latest Information on Enterprise Licenses for CAD & GIS Software
- National Management Board (NMB) decision on Virtual Design Software
- Use of Building Information Models (BIM) in the Corps of Engineers
At the Breakout Session you will find out:

- What is the **Technical Excellence Network (TEN)**
- Status of TEN today
- Some capabilities of TEN to locate information about E&C CoPs
- Next steps for TEN development
- Progress of some of the E&C CoPs

[http://ten.usace.army.mil](http://ten.usace.army.mil)
Integrating People, Processes and Technology through eGIS, SET and TEN

Enterprise GIS
- CorpsMap
- CADD/GIS Standards
- Data Reference Model
- Geospatial One Stop

Science and Engineering Technology
- Corps Enterprise Architecture
- Common Delivery Framework
- SET Software Inventory
- Technology Transfer

Technical Excellence Network
- Communities of Practice
- Body of Knowledge
- Subject Matter Experts
- Career Development

People - Processes - Technology
Track 13 Sustainable Design
Tri-Service Infrastructure Systems Conference & Exhibition

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202-761-4736
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Annette Stumpf
U.S. Army Corps of Engineers,
Engineer Research & Development Center
Construction Engineering Research Laboratory
Phone: 217-373-4492
Email: annette.l.stumpf@erdc.usace.army.mil
Overview

- May 2001, started rating all MCA projects with SPiRiT (Sustainable Project Rating Tool).
- SPiRiT is based U.S. Green Building Council’s (USGBC) LEED (Leadership in Energy and Environmental Design) 2.0
- SPiRiT Gold is target for all MCA and AFH projects FY06 and beyond.
- Soon we will be transitioning from SPiRiT to LEED to rate our facilities.
- The Army/USACE is a member of USGBC.
Policy

Foundation


Current

SPiRiT Rating

- Points: 100 Possible.
- Score at least the following number to obtain the indicated rating:
  - 75-100: Platinum
  - 50-74: Gold
  - 35-49: Silver
  - 25-34: Bronze
- Beginning in FY06 Gold is minimum expected score.
SPiRiT/LEED Goal Setting and Self Rating

- Project teams self rate projects using SPiRiT/LEED at 4 stages:
  - Planning Charrette* (identify SPiRiT/LEED goals/$$)
  - Parametric Design*
  - End of Design*
  - End of Construction*
- All stakeholders should concur on the ratings
- PDTs should submit score sheets to HQ w/ planning & design charrette results
- Cost template helpful for justifying project funding
- Keep copy of rating /design analysis in project file
- CG has asked to include SDD rating in Command Mgmt Review (CMR)
- Consolidated Command Guidance (CCG) is being updated, Districts will be required to report SPiRiT/LEED levels for each project
- Put SPiRiT/LEED Level and comments in P2.
  *need member with SDD experience!
Track 14

- ACASS/CCASS/CPARS
- Ed Marceau & Marilyn Nedell
- Room 224
Architect-Engineer Contract Administration Support System (ACASS)

Construction Contractor Appraisal Support System (CCASS)

Ed Marceau
Modernization Project Manager
Naval Sea Logistics Center Portsmouth, NH
603-431-9460 x463
Edmond.Marceau@navy.mil

Modernization Coming October 1!
Overview

• Evaluation of Architect-Engineer and Construction Contractors
  – Why it’s important

• A new, automated process of completing the evaluation forms
  – Discussion of process workflow and system features
Overview (cont.)

• Suggestions for making the process work
• What’s changing
  – Manual vs. automated
• Training opportunities and available help
• Status of project
Track 15

- Whole Building Design Guide
- Earle kennett
- Room 229
WBDG Objectives

- Effective implementation of unified facilities criteria allowing for the sharing and consolidation of criteria, procedures and dissemination

- Partnering and integration of public and private sector efforts through the appropriate integration of the best federal/private sector criteria

- Centralized Knowledge Portal providing single point access to criteria
Since DoD designated WBDG as the sole portal for its design & construction criteria, visitors have increased over 200% in just six months!

WBDG provides a viable platform for Product Guide
WBDG/CCB Federal Agency Participation

- Department of Defense
- Naval Facilities Engineering Command
- Army Corps of Engineers
- U.S. Air Force, AFCESA
- General Services Administration
- Department of Veterans Affairs
- National Aeronautics and Space Administration
- Federal Emergency Management Agency
- National Institute of Standards and Technology
- Department of Energy
- Department of State
- National Institutes of Health
- U.S. Access Board
- Department of Interior
- Environmental Protection Agency
WBDG Focus On

WBDG has four case studies of projects that demonstrate the Whole Building Design process. Check out our new case study on the Center for Neighborhood Technology, an organization committed to inventing and implementing new tools and methods that create livable urban communities for everyone.

New and Updated WBDG Pages
- Passive Solar Heating

GSA LEED® Cost Study & Applications Guide

The LEED Cost Study for the U.S. General Services Administration defines costs associated with the US Green Building Council's Leadership in Energy and Environmental Design (LEED) ratings. Two building types (new construction courthouses and Federal Building modernization) are modelled against two scenarios for each LEED rating (Certification, Silver, Gold), identifying differential costs of construction, design, and documentation/submission requirements. Read more

The newly issued GSA LEED Applications Guide, which is a companion document to the GSA LEED Cost Study, outlines an evaluation process in which the...
2005 Tri-Service Infrastructure Systems Conference & Exhibition Re-Energizing Engineering Excellence

Wednesday & Thursday
Concurrent Sessions
Sessions Start at 0800
Tri-Service
Infrastructure Systems
Ice Breaker

- 1730-1900 Hours
- Located in Exhibit Hall
- Free Finger Food
- Free Soft Drinks
- Tickets for Alcoholic Beverages
Multi-Disciplinary Concurrent Sessions

1. Acquisition Strategies for Civil Works – Room 230
2. Risk & Reliability Engineering – Room 231
3. Portfolio Risk Assessment – Room 232
4. Hydrology, Hydraulics & Coastal Engineering – Room 240
5. Civil Works R&D Forum – Room 241
7. Building Information Model Applications – Room 226
8. Design Build for Military Projects – Room 220
10. Force Protection – Army Access Control Points – Room 222
12. Engineering & Construction Information Technology – Room 228
13. Sustainable Design – Room 223
14. ACASS/CCASS/CPARS – Room 224
15. Whole Building Design Guide – Room 229