‘Operationalizing’ the USACE Flood Risk Management Program: The Silver Jackets Initiative

U.S. Geological Survey – U.S. Army Corps of Engineers Joint Headquarters Meeting

04 October 2012

Jennifer Dunn
Silver Jackets Program Manager
USACE Institute for Water Resources
Life-Cycle Risk Management

“Getting Ready”
Actions taken BEFORE the event, including planning, training, and preparations
- Flood Risk Management system assessment / inspections
- Monitoring / forecasting threats
- State and Local Coordination
- Reservoir operations
- Flood Fight Preparation

“Driving Down the Risks”
Activities that PREVENT a disaster, reduce its chance of happening, or reduce its damaging effects.
- Modify mitigation plans
- Identify future mitigation opportunities
- Develop system improvements

“The Flood Fight”
Actions taken DURING the initial impact of a disaster, including those to save lives and prevent further property damage
- Emergency system strengthening
- Monitor and report flood impact
- Monitor system performance
- Support State / Local FF

“Getting back on our feet”
Actions taken AFTER the initial impact, including those directed toward a return to normalcy.
- Repair damaged systems
- Assess and document system performance
- Implement mitigation measures / system improvements

State and Local Partnerships
- Hazard Mitigation Plans
- Floodplain Management Plans
- Pre- and Post-Response and Recovery Activities

USACE
- Disaster Preparedness, Levee Safety, and Silver Jackets Programs
- FPMS, PAS, and Silver Jackets
- Emergency Response Program and Reservoir Operations
- Rehabilitation Assistance Program

FEMA
- Preparedness Programs
- Mitigation Programs
- Mitigation, PA, and IA Programs
- NRF Response Activities

NRCS
- Conservation Easements
- Federal Recovery Programs

USACE
- Pre- and Post-Response and Recovery Activities

FEMA
- Mitigation Programs
- NFIP Response Activities

NRCS
- Conservation Easements
- Federal Recovery Programs
Shared Flood Risk Management

“Driving Down the Risks with an Informed and Engaged Public”

All Stakeholders contribute to reducing risk!
Silver Jackets
“Operationalizing” Inter-Agency Flood Risk Management

- State-Led (Voice of our Customers)
  - States set priorities for Interagency Federal support
  - States can invite partners Feds cannot

- Interagency Method of Delivery (MOD)
  - Collaboration across agencies / levels of government
  - Leverage resources: talent, data, funding

- Continuous, not project-specific

- Life-Cycle Risk Management

- Watershed Perspective
  - State teams facilitate regional, state-to-state flood risk management

As of: 15 Sep 2012
Team Status Update: 35 Active

- 2 Pilot SJ teams in 2005, 2006…growth!
- New or existing teams (state decision)
- Flood or All Hazards (state decision)
- USGS active on most
- But what does ‘Active’ mean?
  - Ongoing Commitment to Interagency Collaboration
  - Coordinated strategic approach to state priorities

As of: 15 Sep 2012
What Do Silver Jackets Teams Do?
Activities are as Diverse as the States

- Interagency focus on state priorities (problem-solving collaboration + SME support)
- Improve overall risk communication (joint messaging)
- Promote comprehensive flood risk management strategies and policies (shared strategies)
- Share information (reduce duplication, fill data gaps)
- High interest in inundation mapping, real-time inundation mapping, and inundation forecast mapping with USGS and NWS
- Inter-state basin coordination (state-to-state and regional task forces)
- Risk MAP support (Discovery and implementation)
- Gage installation
- Coastal and Estuarine Erosion – impacts on risk
- Storm Surge Modeling
- State Hazard Mitigation Plan (team assistance in updating)
- HAZUS data updates
- High Water Mark, HWM training for communities
What do Silver Jackets Teams Do? (cont’d)

- Post-Disaster Mitigation Planning
- Recovery (Lee/Irene HMGP and ESF; exploring RSF)
- Levee Assessment
- Joint Levee communication
- Coordinating Levee Safety Programs
- Developing FIRMs for unmapped counties, releasing DFIRMs and results of FEMA Coastal Study
- Specific actions in SHMP: ex. Buy-outs
- Strengthen participation in FEMA’s CTP program.
- Table Top Exercises
- Flood Warning
- Produce/Update EAPs for dams state-wide
- Emergency Warning Systems
- Gage data consolidation
- ID public works structures at risk, encourage mitigation
- CRS education and implementation
- ID and implement Non Structural alternatives
- Watershed assessments and comprehensive planning
- FRM training and education at all levels
Silver Jackets Interagency Projects

- **Why Pilots?**
  
  Demonstrate Benefits of Interagency Approach
  
  - Use existing authorities
  
  - Leverage resources among Fed, State, Local, Tribal
  
  - Maximize return on federal investment
  
  - Evaluate Outcomes, Tell the story effectively:
    - quantitatively and qualitatively
    - by individual project and as cumulative program
    - Draft White Paper available (www.nfrmp.us/state)

- **Pilot Projects ($1.5M):**
  
  - 18 Ongoing Interagency Pilot Projects in 18 states

- **Projects ($1.3M):**
  
  - 15 Recently Funded projects in 13 states
Example Projects

- Pennsylvania
  Harrisburg Flood Inundation Mapping Project

- Kentucky
  Mapping with Dam/Levee Failure Analyses

- Nevada
  Mapping with Dam/Levee Failure Analyses
PA: Flood Inundation Mapping

- **Background:** Harrisburg history of major flooding, inc 2011
- **Project:** Flood inundation mapping tool to inform general public, local officials, emergency managers of flood risks
  - Inundation map library for the City of Harrisburg and communities 10 miles upstream and 10 miles downstream
  - Maps tied to the NWS’s flood forecast point
  - Map library displayed digitally on various map viewer websites

- **Partners:**
  - USACE ($105k)
  - USGS ($25k + $25k match)
  - NOAA ($30k in-kind)
  - FEMA (10k in-kind)
  - PA Emergency Management Agency ($10k in-kind)
  - The Harrisburg Authority (match)
  - Susquehanna River Basin Commission ($30k in-kind)
PA: Flood Inundation Mapping

- **Project Tasks:**
  - **Data Collection** *(USGS lead)*
    Deployed storm surge sensors prior to Tropical Storm Lee, field surveys, researched & compiled existing data
  - **Hydrologic Data Development** *(USGS lead)*
    Developed new rating curve for USGS Streamgage on Susquehanna River
  - **Hydraulic Model Development** *(USACE lead)*
    Developed HEC-RAS model for the study reach based on field survey data and high resolution Digital Elevation Model (DEM)
  - **Develop Flood Inundation Layers** *(USACE lead)*
    Water surface profile to intersect with DEM ground surface profile to create inundation layers for each 1 ft. stage at USGS gage.
  - **Develop Depth Grid** *(USACE lead)*
    Developing depth grids for each of the inundation layers to display expected depth of flooding to nearest 1 ft.
PA: Flood Inundation Mapping

- **Project Tasks (continued):**
  - **Serve Maps on Mapviewers** (SRBC, NWS)
    Inundation map layers will be served on various mapviewers for public access: Susquehanna Inundation Map Viewer (SIMV) and NWS’s Advanced Hydrologic Prediction Service (AHPS), possibly USGS & USACE SimSuite
  - **Outreach/Education** (SRBC/NWS lead)
    Ensure that maps are understood and utilized so appropriate action is taken during a flood
    - **Stakeholder Meeting and Webinar**
      Provide project information, stakeholders to review/confirm accuracy of hydraulic modeling/mapping showing Lee and Agnes flooding
    - **Public Meetings**
      Release map library and educate public on how to use it online
    - **Media Campaigns**
      When maps are released + start of 2013 flood season
    - **Potential Resources** – brochure, refrigerator magnet
KY: Mapping with Dam/Levee Failure Analyses

- **Background:** Major flooding May 2010 in City of Frankfort,
- **Project:** 3 major activities:
  - Flood inundation mapping initiative
  - Levee failure analysis
  - Incorporation of Dix River Dam Emergency Action Plan
- **Partners:**
  - USACE  KY Div of Water
  - FEMA  KY Emergency Management
  - NRCS  KY Transportation Cabinet
  - USGS  KY Dept for Local Gov’t
  - KY Geological Survey
  - Louisville Metro Emergency Management
  - City of Frankfort
  - Franklin County
  - Kentucky Utilities
KY: Mapping with Dam/Levee Failure Analyses

- Leveraging Resources
  - Federal, state, local, private
  - Examples
    - LIDAR
    - Hydraulic modeling on KY River
    - High Water Marks
    - Survey, bathymetry
    - Levee failure analysis
    - Dix River Dam EAP
    - Local property valuation data
    - Cash!
KY: Mapping with Dam/Levee Failure Analyses

- **Goal:** Actions resulting in risk reduction
  - Increased awareness
    - Flooding on Kentucky River
    - Levee
      - Flood storage/electricity-producing dam
  - Identification of at risk structures/sensitive areas
  - Identification of inaccessible evacuation routes
  - Assessment of levee failure including areas impacted, business interruptions, and long term recovery requirements
  - Assessment of the piping or overtopping failure of Dix River Dam
  - Updates to the City of Frankfort Flood Mitigation Plan
  - Higher CRS rating for the City of Frankfort
  - Leverage pilot project into other activities e.g. Risk MAP
NV: Flood Chronology Website

- **Background:**
  Fast-growing communities lack full awareness of flood risk

- **Project:**
  - Compile flood and streamflow information for the Carson River Basin newly available since initial USGS website development (2005),
  - Enhance functionality, provide additional capabilities for flood analysis

- **Partners:**
  - USACE Nevada Division of Water Resources
  - NOAA Nevada Division of Emergency Management
  - NWS Potentially one or two tribes
  - USGS Potentially local communities
  - FEMA

- **Project just now being initiated**
Agency HQ Support to Silver Jackets Teams

- Federal Interagency Floodplain Management - Task Force Letter
  - Agency POCs through Working Group
  - Federal Coordination in support of state-led Silver Jackets teams
Questions and Discussion
Applying the “Silver Jackets” Approach

- What are your Flood Risk Mgmt priorities?
  What is at the top of your ‘to do’ list?
  What do you need to do it?
  What are the critical data gaps?

- What resources does your agency have to offer?
  (Resources = data/information, talent, funding)

- Who needs to be involved to succeed?
  Who shares your goals?