

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

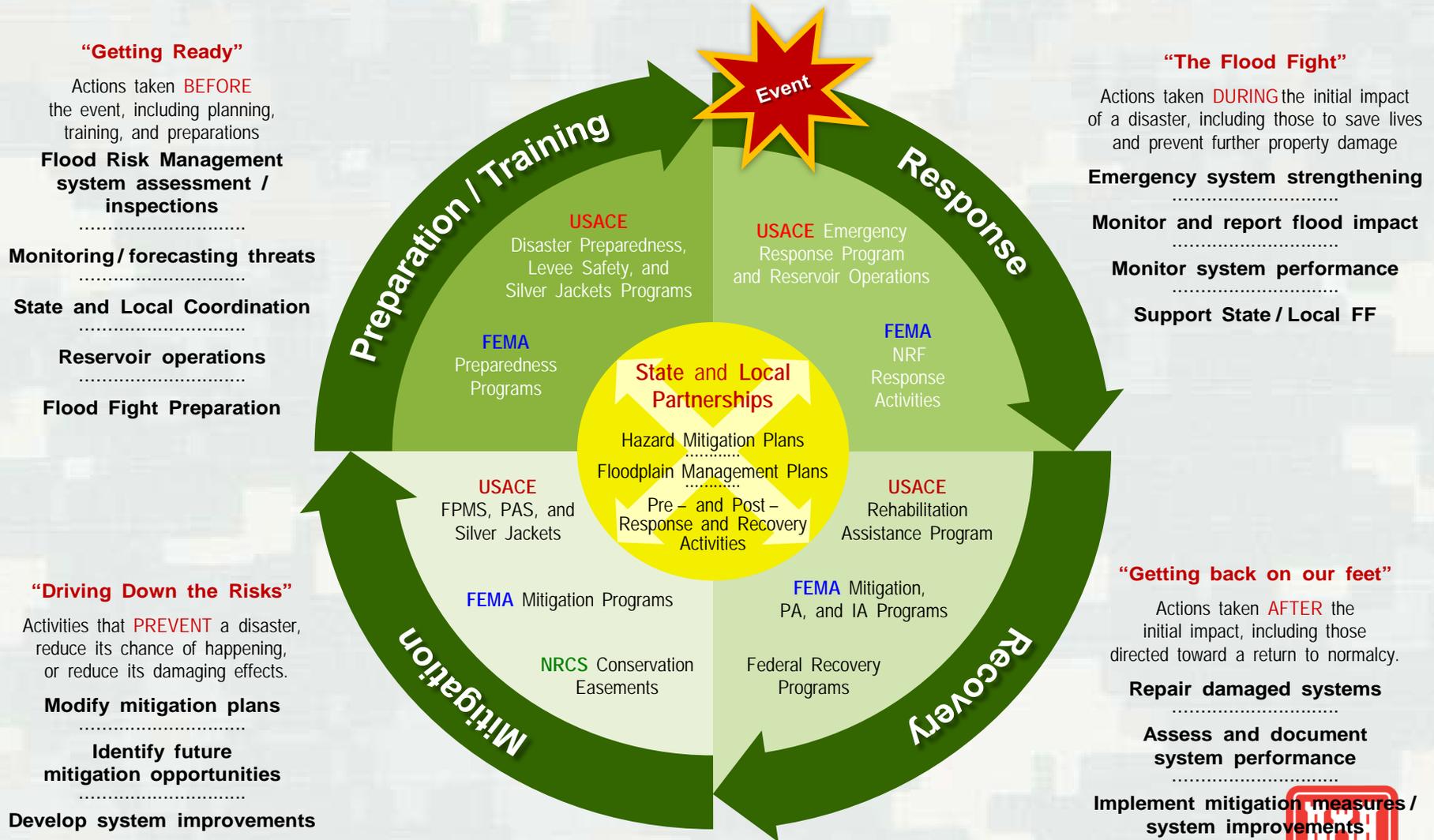
**U.S. Geological Survey –  
U.S. Army Corps of Engineers  
Joint Headquarters Meeting**

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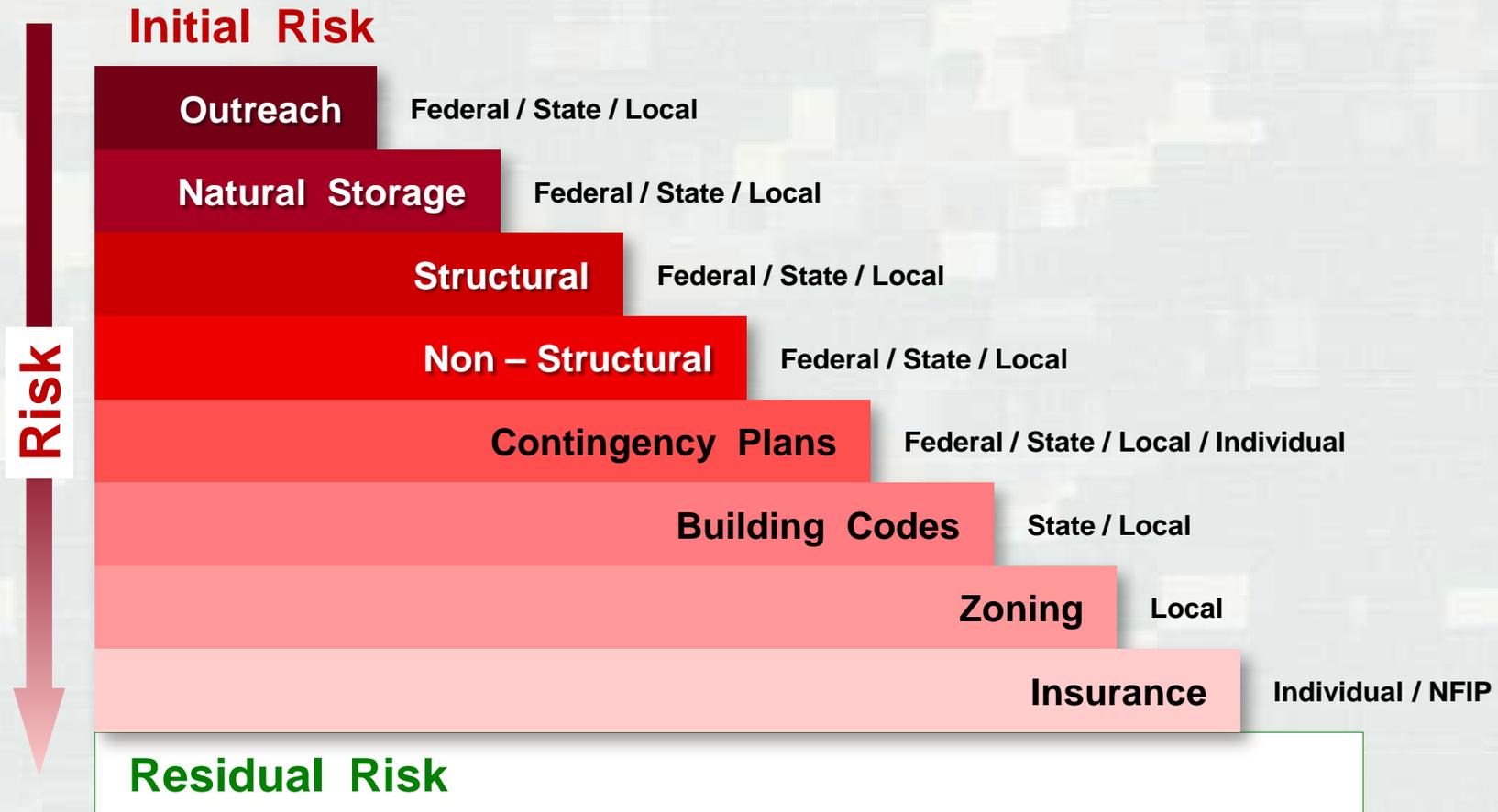


# Life-Cycle Risk Management



# Shared Flood Risk Management

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



All Stakeholders contribute to reducing risk !



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# Silver Jackets

## “Operationalizing” Inter-Agency Flood Risk Management

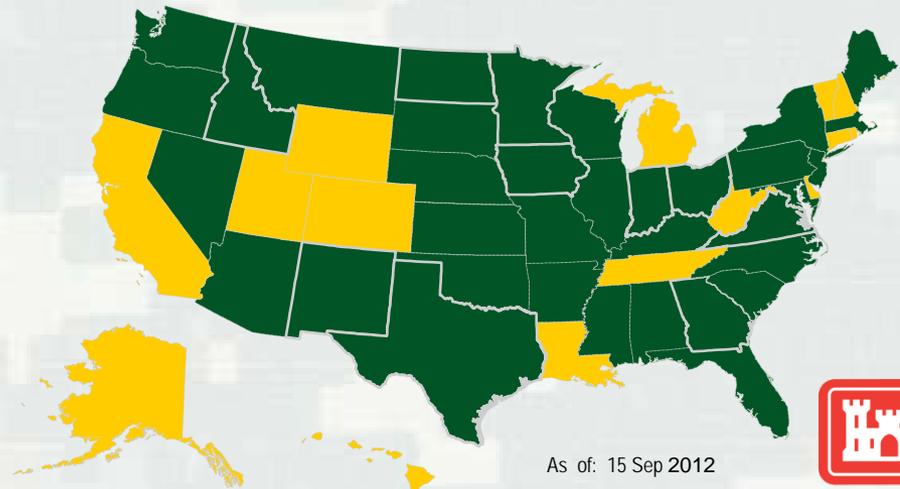
### Partners

- 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



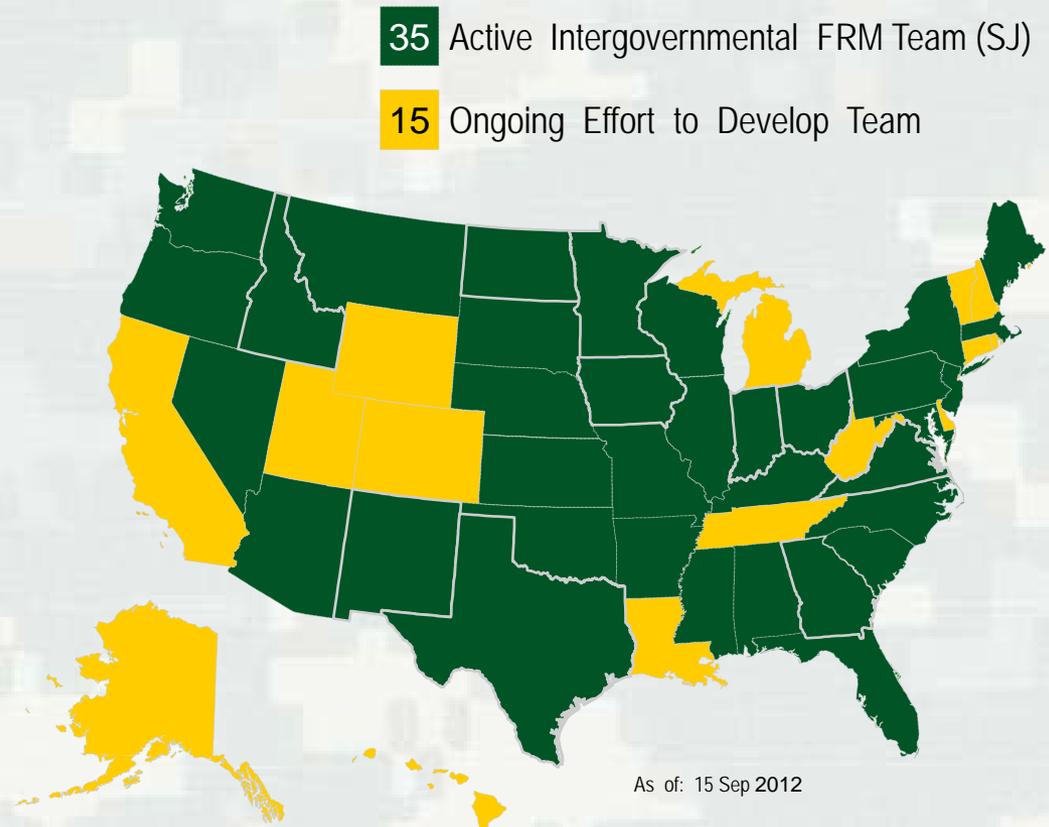
35 Active Intergovernmental FRM Team (SJ)

15 Ongoing Effort to Develop Team



# 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



# 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 mgmt 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

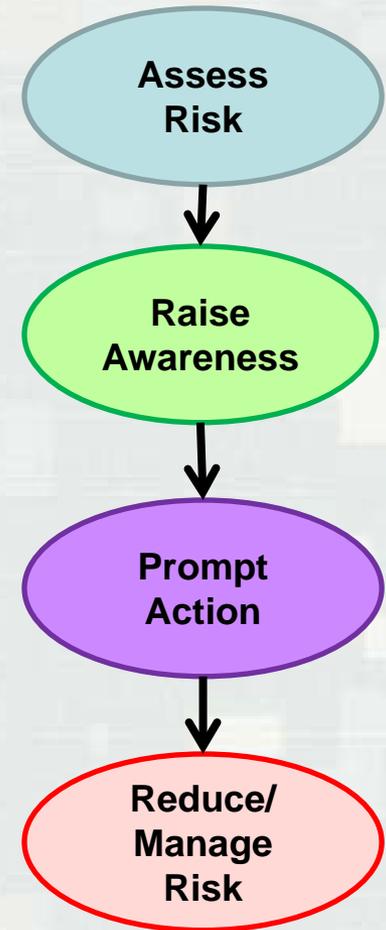
- ▶ Use existing authorities
- ▶ Leverage resources among Fed, State, Local, Tribal
- ▶ Maximize return on federal investment
- ▶ Evaluate Outcomes, Tell the story effectively:
  - quantitatively *and* qualitatively
  - by individual project *and* as cumulative program
  - Draft White Paper available ([www.nfrmp.us/state](http://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)

PA Emergency Management Agency (\$10k in-kind)

USGS (\$25k + \$25k match)

The Harrisburg Authority (match)

NOAA (\$30k in-kind)

Susquehanna River Basin Commission (\$30k in-kind)

FEMA (10k 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 Streamgauge 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	Louisville Metro Emergency
FEMA	KY Emergency Management	Management
NRCS	KY Transportation Cabinet	City of Frankfort
USGS	KY Dept for Local Gov't	Franklin County
	KY Geological Survey	Kentucky Utilities



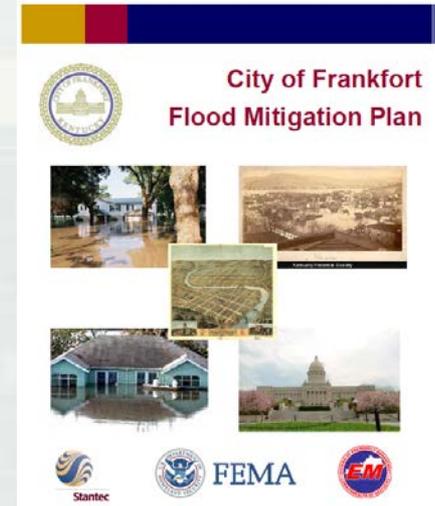
# KY: Mapping with Dam/Levee Failure Analyses

- **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



FEMA



# Questions and Discussion



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# 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?

