

2015 Interagency Flood Risk Management Workshop: Flood Risk Management, Response and Resiliency

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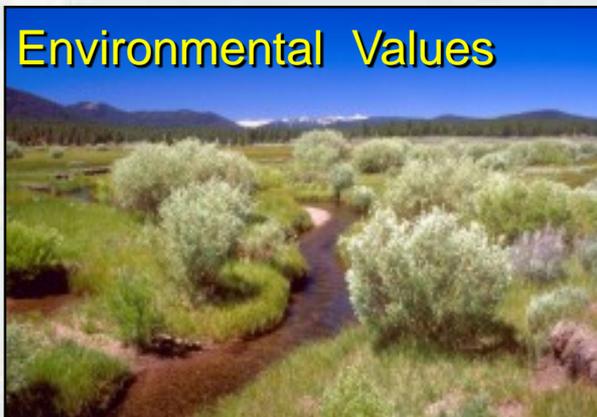
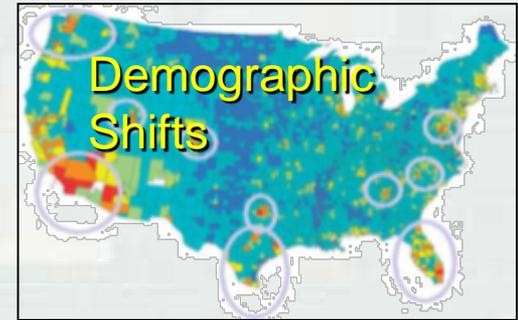
December 3, 2015



Where we are – U.S. Army Corps of Engineers



National Water Resource Challenges



Life-Cycle Risk Management

“Getting Ready”

Actions taken **BEFORE** the event, including planning, training, and preparations

- Train, Equip, & Exercise Teams
- Improve & Sustain Readiness
- Capture Lessons Learned
- Update Doctrine
- Develop All Hazards Plans

Flood Risk Management system assessment / inspections

Monitoring / forecasting threats

State and Local Coordination

Reservoir operations

Flood Fight Preparation

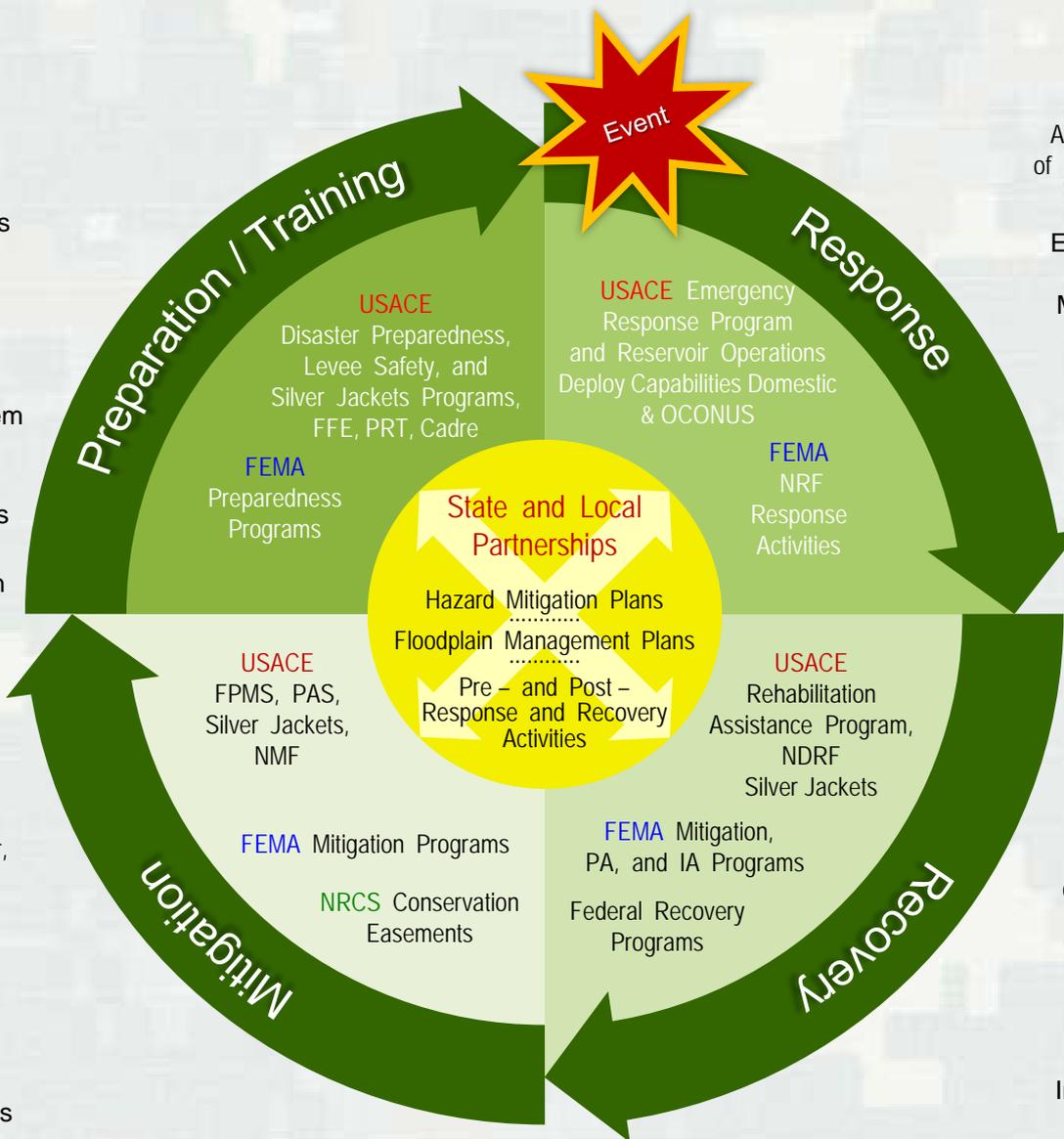
“Driving Down the Risks”

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

USACE Support to National Emergencies



Public Law 84-99
(Flood Control & Coastal
Emergency Act of 1955)
Prepare
Respond
Repair

.....

“Flood Fight”

Public Law 93-288
Stafford Act
(National Response Framework)
Public Works and Engineering assistance to
DHS/FEMA -led national response

.....

**“Natural Disaster /
Emergency Response”**



**Alaska Flood Support
(May 2013- Jan 2015)**



2015 Responses

**Clark County, NV Flooding
(Feb 2014- Jan 2015)**



Hurricane Anna (Oct 2014)



GUAM

Typhoon Dolphin (May 2015)



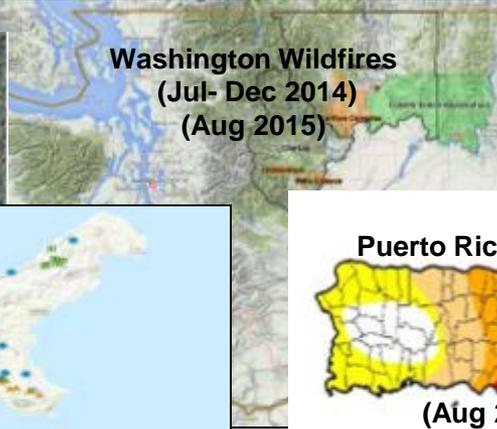
**Navajo Nation
Flood Support
(Jul 2014- Jan 2015)**



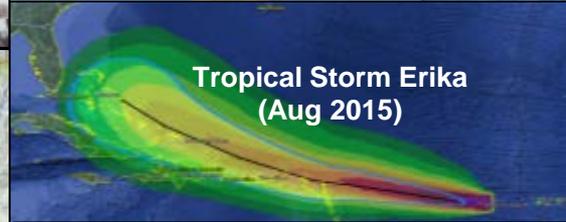
**Hawaii Lava Flow
(Oct 2014)**



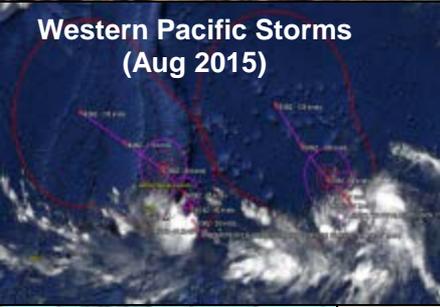
**Washington Wildfires
(Jul- Dec 2014)
(Aug 2015)**



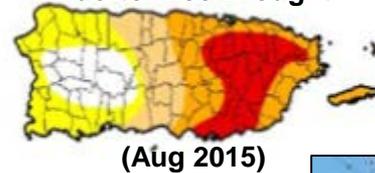
**Tropical Storm Erika
(Aug 2015)**



**Western Pacific Storms
(Aug 2015)**



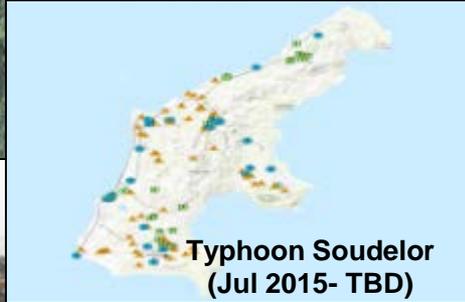
Puerto Rico Drought



**Platte River Ice Jams
(Jan-Feb 2015)**



**Typhoon Soudelor
(Jul 2015- TBD)**



**Western Washington
Flooding
(Nov-Dec 2014)**



**Tohono O'odham
Nation Flooding
(Oct 2014)**



**Northwest Coastal
Storm
(Dec 2014)**



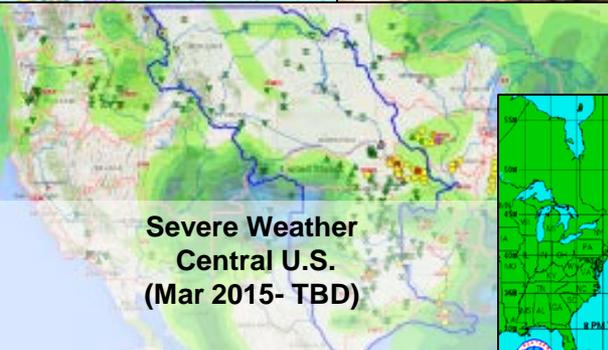
**Typhoon Cham-Hom
(Jul 2015)**



**Typhoon Vongfong
(Oct 2014)**



**Severe Weather
Central U.S.
(Mar 2015- TBD)**



**Hurricane
Gonzalo
(Oct 2014)**



**Typhoon Goni
(Aug 2015)**



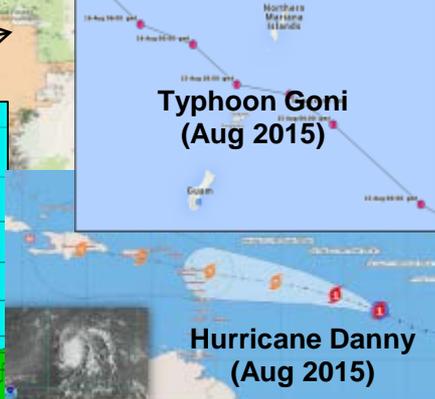
**Northeast
Winter Storm
(Jan 2015)**



**Tropical Storm
Kilo
(Aug 2015)**



**Hurricane Danny
(Aug 2015)**



Leveraging Partners



Veterans Administration

- Infrastructure Assessment



DHS IP

- Infrastructure systems modeling



EPA (Water)

- Water and wastewater infrastructure support



Department of Interior

- Recovery mission support



Navy Supervisor of Salvage

- Navigation obstructions and unwatering



US Coast Guard

- Navigation Restoration, unwatering, vessel removal



Department of Labor (OSHA)

- Employee Safety



EPA (Debris)

- Hazardous Debris



Civil Air Patrol

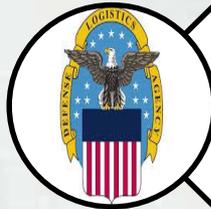
- Transportation, assessment support



Forest Service

- Road Clearance Teams

Leveraging Partners



Defense Logistics Agency

- Contracting requirements for generators and fuel



Department of Energy

- Situational Awareness, grid and facilities restoration



Department of Transportation

- Route planning, expedite permitting



General Services Administration

- Sourcing for resources and facilities



Department of State

- Donation management, floodfight control



NVOAD

- Temporary Roofing, debris clearance

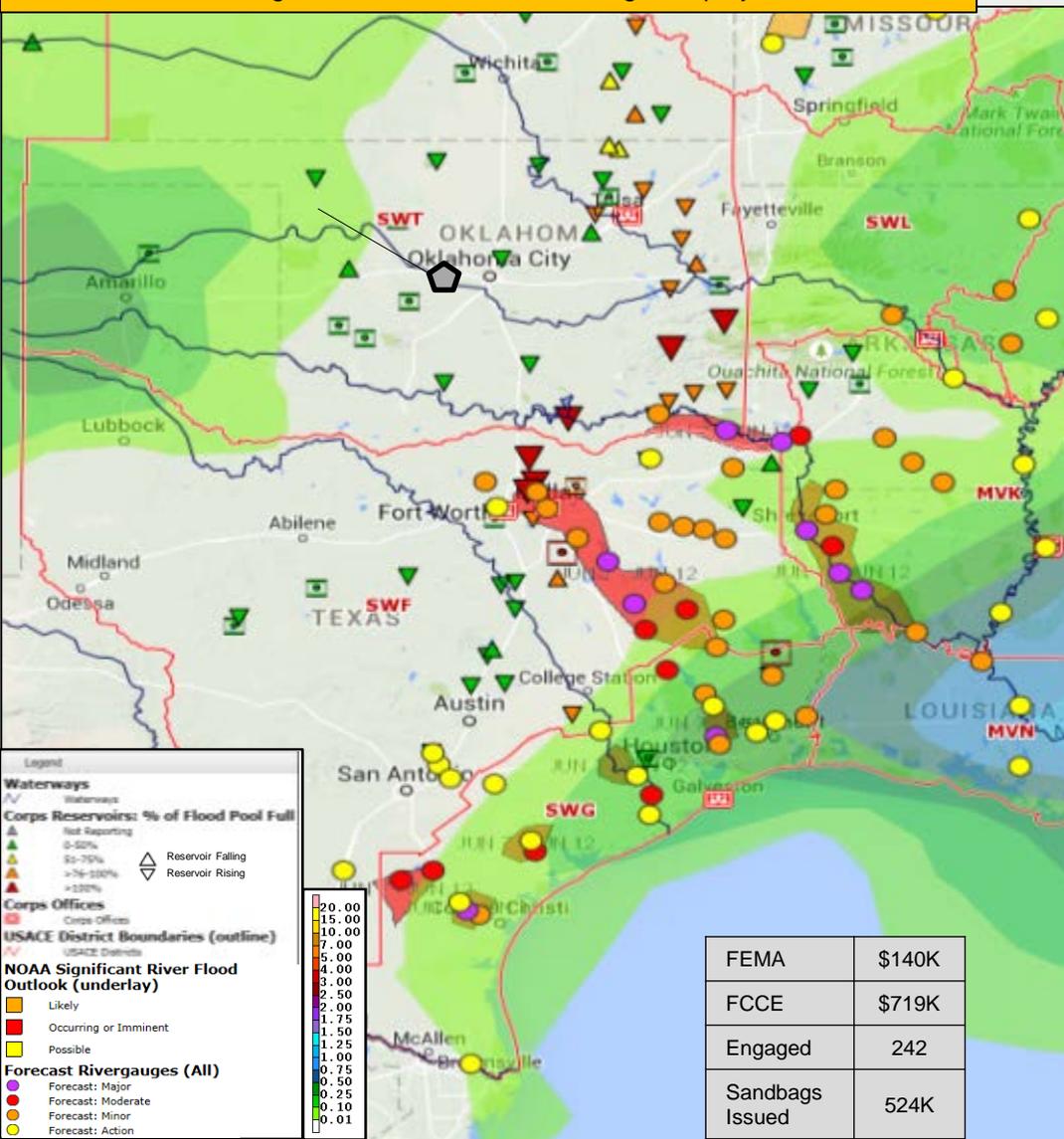


CNCS

- Mission Support

Severe Weather - Southern Plains (SWD)

Utilizing > 50% Flood Control Storage: 37 projects
 Utilizing > 100% Flood Control Storage: 11 projects



FEMA	\$140K
FCCE	\$719K
Engaged	242
Sandbags Issued	524K

Across the Region

- Record rainfall in May/June:
 - 14.4 inches in OK,
 - 8.8 inches in TX.
 - Biggest flood in 70 years
 - 51 flood control lakes in flood pool
 - 20 flood control lakes in surcharge pool
-
- More than \$13 billion in damages prevented

As of 8 JUN 2015

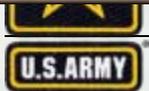
Before and After the Rain May 2015



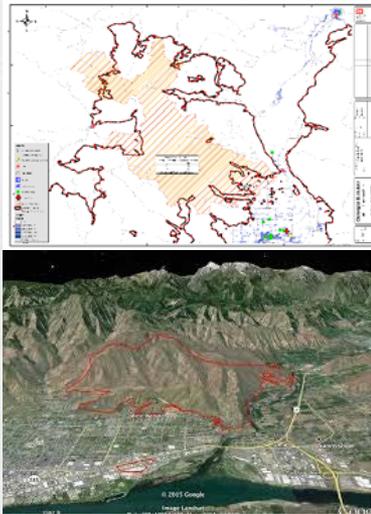
Dallas, Texas



Houston, Texas



USACE Technical Assistance Washington and Idaho post-Wildfires



Assessment of Infrastructure and determination of flood risk

- Roads
- Public Facilities
- Utilities
- Communities

Emergency Protective Measures

- Contingency Planning
- Recommendations for:
 - Diversion structures
 - Culverts
 - Debris



Although the flames are out, the risks will remain for several years!



High Severity



Ground cover & organic matter consumed

- Primary flood areas
- High probability of accelerated erosion
- Slower vegetative recovery
- High potential threat to downstream values

Moderate Severity



Most - not all ground cover consumed and surface ash is blackened with gray patches

- May act as flood source areas
- Accelerated hill-slope erosion
- Moderate threat to downstream values

Low Severity



Surface organics not consumed & roots unchanged

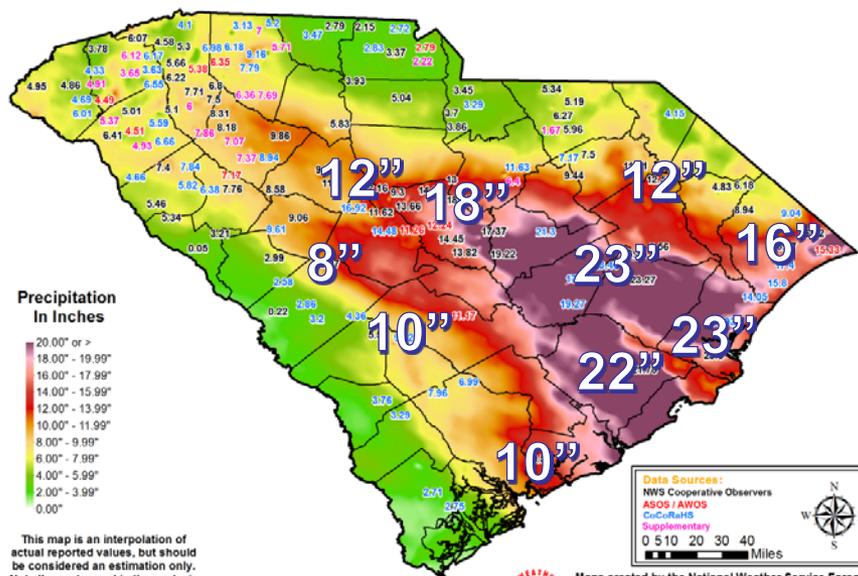
- Rapid native vegetative recovery
- Low probability of accelerated hill-slope erosion
- Low flood source potential



Southeast Flooding – October 2015

From 1-5 OCT 15, interaction between a stalled front along the East Coast and Hurricane Joaquin produced record rainfall in much of the Carolinas. South Carolina received the brunt of the storm, to include an average of 15 -20 inches of rain, with local reports as high as 25 inches. Widespread flash flooding, significant river flooding, and significant coastal erosion of North and South Carolina beaches resulted. Two Divisions and eight Districts were activated all along the eastern seaboard, in preparation for the potential landfall of Joaquin. USACE deployed capabilities in support of FEMA, our own authorities, and installation support to Ft. Jackson. Throughout South Carolina, 20 earthen dams were breached and 166 bridges and 296 roads were closed.

South Carolina Precipitation Storm Total Ending at 7 AM Oct. 5th, 2015



Maps created by the National Weather Service Forecast Office in Greenville/Spartanburg and in cooperation with the NWS Forecast Offices in Columbia and Charleston South Carolina as well as Wilmington North Carolina.

Deployed Capabilities:

- Geotechnical Engineering
- 249th Temporary Power
- UAS Team
- Coastal Engineers
- Debris Technical Expertise
- Infrastructure SME
- Dewatering SME
- Cost Estimator
- Project Worksheet Writers
- Dam Safety Engineers



Semmes Lake Dam Breach (Ft. Jackson)

Totals:

- Personnel Deployed: 9 Military 51 Civilians
- FCCE Funds Issued: \$673.5K
- FEMA Mission Assignments: \$3.8M

USACE completed 652 initial dam assessments, 75 follow-on dam assessments, 68 facility assessments, six UAS missions, and assessments of 17 coastline counties throughout NC/SC.



Flood Risk Management

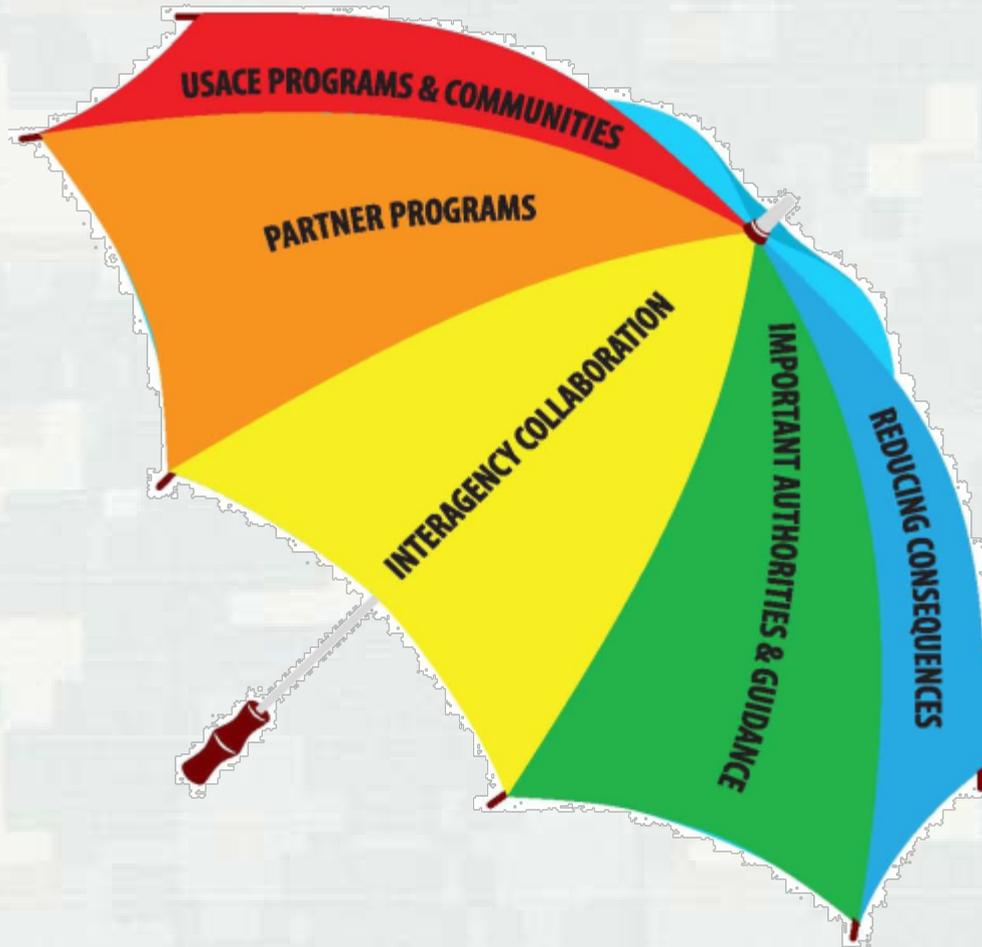
PL 84-99 Policy Revision

- Interim Policy for Determining Eligibility Status in the Rehabilitation Program issued 21 March 2014:
 - ▶ interim criteria for levees
 - ▶ Vegetation on levees not an eligibility criteria
 - ▶ Recognizes owners' ongoing actions to reduce flood risk while maintaining eligibility in the Rehabilitation Program

- Future revisions and rule-making:
 - ▶ Revising eligibility criteria to promote Flood Risk Management activities
 - Emergency preparedness planning
 - Risk communication
 - ▶ Risk-based prioritization of maintenance activities
 - ▶ Aligning with levee safety program
 - ▶ Public comment process



National Flood Risk Management



Planning • FMPS / PAS • OPS / Regulatory
FRM Business Line • FRM PCX • R&D
Environmental • International • Coastal
Dam and Levee Safety • Levee Vegetation

FEMA • DOI • EPA • NOAA / NWS
NOAA CSC • USBR • HUD • USDS • DHS
NRCS • Tribes • States • Locals

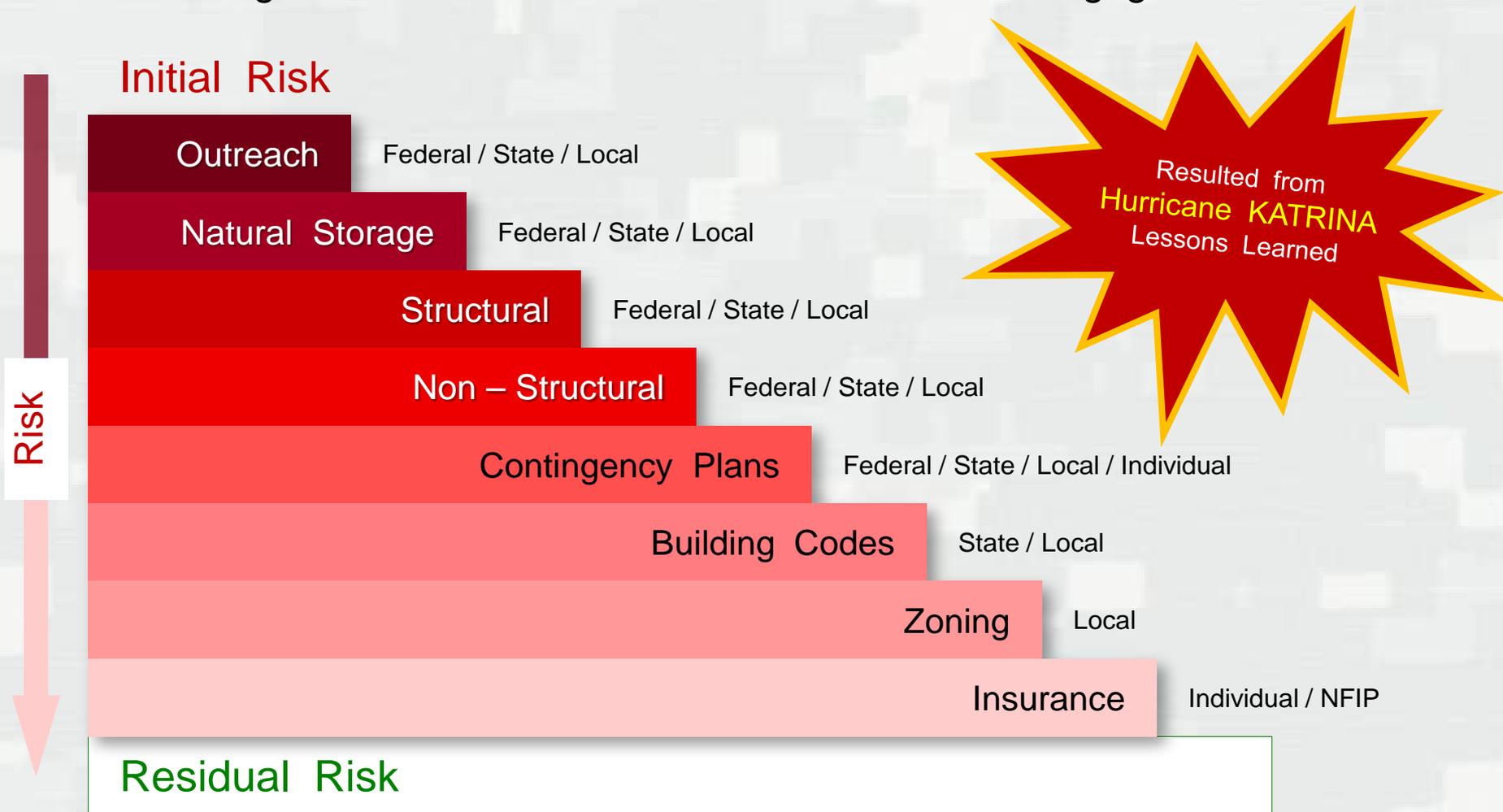
Silver Jackets • FIFM-TF • ILTF / RFRMT
Roundtables • Regional FRM Teams • CERB

EO 11988 • PL 84-99 • Section 404
Unified National Plan • RiskMAP
Disaster Response • Mitigation

Land Use Planning / Zoning • Emergency Services
Contingency Response • Evacuation • Flood Fighting
Water Resources Management • Building Codes
Floodproofing • Environmental Protection

Shared Disaster Risk Management

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



All Stakeholders contribute to reducing risk !

