

# FLOODPLAIN MANAGEMENT SERVICES PROGRAM (FPMS) OVERVIEW

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# WEBINAR OVERVIEW

- FPMS Background
- Getting Started
- Project Examples
- Questions and Discussion



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# PRIOR FPMS EXPERIENCE?

Not much

Some

Manage FPMS  
Projects



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# FLOOD PLAIN MANAGEMENT SERVICES PROGRAM

Flood Plain Management Services (FPMS)

Authority: Section 206 of Flood Control Act of 1960


Advises, recommends, educates, informs, and provides technical support in response to state, regional or local governments; other non-Federal public agencies and Indian tribes

Provides USACE expertise to address flood plain and off flood plain use changes, flood risk and flood hazards

Full Federal cost (but cost-recovery basis for other Federal agencies or private persons), with potential for additional voluntary contributions

Excludes:

- USACE execution of FPMS outputs
- Detailed planning, design and economic analysis
- Detailed and extensive mapping



**Corps Planning:  
Floodplain Management Services**

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**The Floodplain Management Services Program**

The U.S. Army Corps of Engineers is the federal government's largest water resources development and management agency. Through the Floodplain Management Services (FPMS) program, the Corps provides information on flood hazards to local interests, state agencies, and other federal agencies to guide development of the floodplains of the rivers of the United States.

The FPMS program addresses the needs of people who live and work in floodplains to know about flood hazards, and the actions they can take to reduce property damage and prevent the loss of life caused by flooding. The program's objective is to foster public understanding of the options for dealing with flood hazards and to promote prudent use and management of the nation's floodplains. The FPMS program provides a full range of technical services and planning guidance that is needed to support effective floodplain management.

Under the FPMS Program, the Corps is authorized to compile and disseminate information on floods and flood damages, including identification of areas subject to inundation by floods of various magnitudes and frequencies, and general criteria for guidance of federal and non-federal interests and agencies in the use of floodplain areas; and to provide advice to other federal agencies and local interests for their use in planning to ameliorate the flood hazard.

Authorized by Section 206 of the Flood Control Act of 1960, as amended (33 U.S. Code § 709a), FPMS is sometimes referred to as the "Section 206" program.

**Elements of the FPMS Program**

Floodplain management services cover the full range of information, technical services, and planning guidance and assistance on floods and floodplain issues within the broad umbrella of floodplain management. Technical services and planning guidance under the FPMS Program are provided to state, regional, and local governments without charge, within program funding limits. FPMS services for federal agencies and private persons are on a cost-recovery or fee basis. The Corps may also accept voluntarily contributed funds to expand the scope of services requested.

Under FPMS, the Corps can provide:

- General Technical Services. Flood and floodplain data are obtained, developed, and interpreted, using available data whenever practical. The Corps will use data from all appropriate sources, including hydrologic and hydraulic information developed within the Corps, but also other federal, state, or local agencies. Outreach to communities, localities, and other public entities may be provided on request.
- General Planning Guidance. On a broader scale, assistance and guidance in the form of "Special Studies" are provided on all aspects of floodplain management planning, including the possible impacts of off-floodplain use changes on the physical, socioeconomic, and environmental conditions of the floodplain.
- Guides, Pamphlets, and Supporting Studies. Flood and floodplain data/information are disseminated to states, local governments, federal agencies, and private citizens to convey the nature of flood hazards and to foster public understanding of options for dealing with flood

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[https://planning.erdc.dren.mil/toolbox/library/FactSheets/fpmsfactsheet\\_June2017.pdf](https://planning.erdc.dren.mil/toolbox/library/FactSheets/fpmsfactsheet_June2017.pdf)



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# WHAT FPMS OFFERS

## General Technical Services

- Obtain, develop, and interpret flood and floodplain data
- Outreach to public entities upon request

## General Planning Guidance

- Undertake “special studies” on all aspects of floodplain management planning
- Includes physical, socioeconomic, and environmental conditions of floodplain

## Guides, Pamphlets, Supporting Studies

- Disseminate flood and floodplain data to foster public understanding of hazards and options

## National Flood Insurance Program Support (on reimbursable basis)



## Some FPMS Activities & Products

Floodplain delineation
Flood hazard evaluation
Hurricane evacuation
Flood warning / preparedness
Comprehensive floodplain management
Flood risk reduction
Urbanization impacts
Storm water management
Flood proofing
Inventory of flood-prone structures
Workshops
Guides and Pamphlets / Risk Communication
Tabletop exercises
Emergency Action Plan / Floodplain Management Plan Assistance
Natural and nature-based solutions
Assessment tools and processes

*Studies / guidance / assistance for non-Federal governments at full Federal cost; ability to accept contributions to achieve greater outcomes*



# INTERAGENCY NONSTRUCTURAL SPECIAL STUDIES



Set-aside under FPMS (CCS 251)

## – Interagency

- **At least 2 governmental partners beyond USACE**
- Other partners as helpful; not limited to governmental


## – Nonstructural

- **Seek to reduce flood risk through nonstructural means**
- Reduce flood consequences (as opposed to altering nature or extent of flood hazard)

Goals:

- Collaborative work with partners
- Integrated solutions
- Outcomes: include or enable flood risk management action

Unlike other parts of FPMS, annual proposal process to allocate funds to Districts, typically for USACE labor



## INTERAGENCY NONSTRUCTURAL EFFORTS: How the Corps Can Assist with Activities that Reduce Flood Risk

### U.S. ARMY CORPS OF ENGINEERS

One of the missions of the U.S. Army Corps of Engineers is to provide responsive water resources management, including reducing the consequences of flooding to life and property. Under the Floodplain Management Services (FPMS) Program, the Corps provides a wide range of technical services and planning guidance to support effective management of the floodplains associated with the rivers of the United States. Interagency nonstructural efforts that focus on flood risk reduction activities and services that can be provided through FPMS and support non-federal governments while promoting a collaborative approach.

Interagency nonstructural efforts are not grants. Instead, they combine complementary services from the Corps and others to achieve more comprehensive and effective solutions. Interagency nonstructural efforts are defined by how the work will be undertaken as well as by what activities will be considered.

**Interagency:** The work is planned and undertaken collaboratively by the Corps and at least two other governmental partners who also supply services or resources toward the effort. Additional partnerships are encouraged, including with non-governmental and private partners. Working collaboratively to meet a common goal accommodates the incorporation of a wider set of skills and programs, achieving more together than could be achieved separately.

**Nonstructural:** The efforts reduce the consequences of flooding to life and property instead of altering the nature of the flood hazard itself. Some common non-structural measures include acquiring, elevating, reinforcing, or floodproofing structures, flood warning systems, evacuation planning, floodplain mapping, land use regulations and zoning, floodplain management plans, flood emergency preparedness plans, and risk communication.

### AUTHORITIES

The FPMS program was authorized by Section 206 of the Flood Control Act of 1960, as amended (33 U.S.C. Code § 2706). FPMS is sometimes referred to as the "Section 206" program.

### REQUESTING ASSISTANCE

A non-federal government or non-federal public agency, such as those listed in the box to the left, may contact the Corps to request assistance with its priority floodplain management concerns. Other these concerns are described in a state or local hazard mitigation plan. If the

**POTENTIAL PARTNERS** requested by and available for the benefit of:

- State, Territory, or Local Governments
- Indian Tribes
- Other Non-Federal Public Agencies

In these circumstances, the Corps may participate in its collaborative effort at no fee/low cost.

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WWW.USACE.army.mil

*Fact sheet:*

[https://planning.ercd.dren.mil/toolbox/library/FactSheets/USA\\_CE\\_InteragencyNonStructEfforts\\_FactSheet\\_April2020.pdf](https://planning.ercd.dren.mil/toolbox/library/FactSheets/USA_CE_InteragencyNonStructEfforts_FactSheet_April2020.pdf)

# WHO CAN PARTICIPATE

- At full federal cost
  - State governments;
  - Regional governments;
  - Local governments;
  - Non-federal public agencies;
  - Federally-recognized Indian Tribes; \*
  - Specified territories; \*
    - Indian tribes, Puerto Rico, Virgin Islands, Guam, American Samoa, Northern Mariana Islands
- On a 100% cost-reimbursable basis
  - Other federal agencies
  - Nongovernmental entities
  - “Private persons”



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# KEY CONSIDERATIONS FOR USING FPMS

- FPMS technical assistance should not duplicate efforts that should be or are being accomplished under other authority
- Available data should be used whenever practical and use of data from all sources is encouraged
- Detailed planning, design, and economic analysis and extensive or extensive mapping are not allowed
- Implementation is the responsibility of the requestor



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# GETTING STARTED

## Request for Assistance

- Requestor must submit a request for assistance to the District
- District should develop a rough order of magnitude cost and plan in order to submit funding request to Division and HQ

## “Letter Agreement” for Voluntarily Contributed Funds or Reimbursable Work

- Must be executed with requesting entity
- Approval authority delegated to the Division and may be further delegated to the District

## Funding

- Districts submit requests to Division for review and prioritization (base program)
- Districts submit proposals to Division and HQ for review/ranking (Interagency Nonstructural)
- HQ provides funding based on prioritization as funds available (best chance to receive funds comes at beginning of FY, but funds can be provided at any time)



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# CALL FOR FY23 PROPOSALS

*Details: See 19 Nov email from Mark Roupas (attached to this webinar's calendar invitation)*



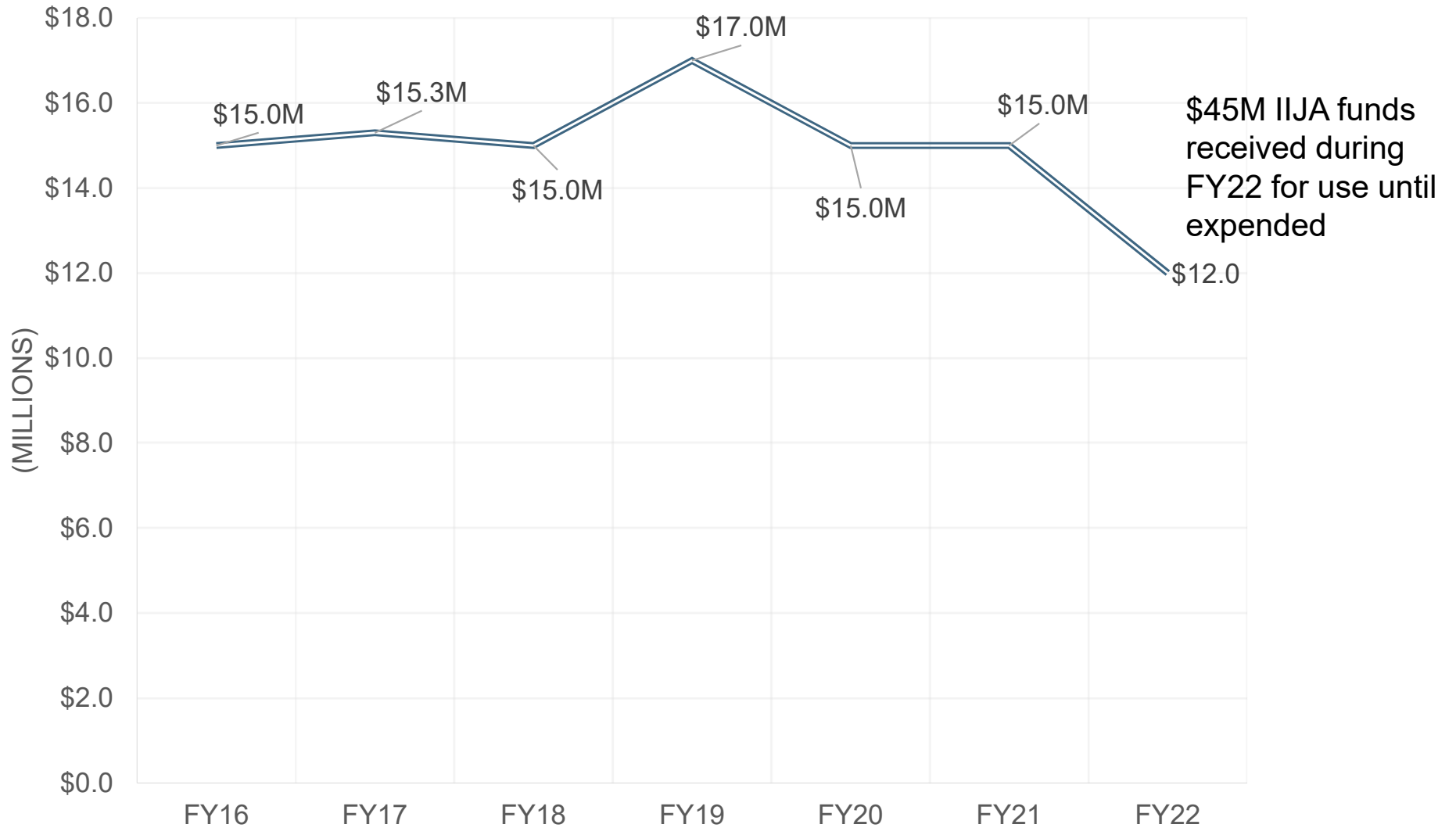
## Timeline:

- District proposals to SharePoint by 31 March  
(template + attachments in single file posted to SharePoint);
- MSCs review and work issues with Districts in April
- Interdisciplinary committee + MSCs rank proposals in May & June
  - *Questions for District POC input are critical opportunity to influence ranking*
- Selected efforts notified mid-July

## Prior to submission:

- Coordinate proposal with partners; reflect in template
- Obtain documented support from one non-federal governmental partner
  - How proposal helps achieve partner goals
  - Partner role in conducting proposed effort
  - Partner commitment to long-term outcomes
- Coordinate proposal internally within USACE; reflect contact in template

# FPMS BUDGET TRENDS





# Systems Approach to Geomorphic Engineering (SAGE)

- Interagency Community of Practice focused on best practices in natural infrastructure alternatives.
- SAGE and EWN Finance Project- Develop best practices to finance natural infrastructure.
- Analysis of challenges and opportunities to implement natural infrastructure in civil works studies and projects.





# SAGE Current Initiatives

- SAGE and EWN Finance Project- Develop best practices and case study of success to finance natural infrastructure.
- Analysis of design features for Nature Based Solutions.
- Ecosystem, Governance, Restoration, & Equity Tool (EGRET)- a mapping tool to look at opportunities for NNBF and assess social equity.
- Analysis of guidance and policy on Natural and Nature Based Features.

# Resources

SAGE:

<http://www.sagecoast.org/>

IWR Coastal:

<http://www.iwr.usace.army.mil/Missions/Coasts/Programs-and-Initiatives/>

Federal Highways Administration Coastal Green Infrastructure:

[https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing\\_and\\_current\\_research/green\\_infrastructure/index.cfm](https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/green_infrastructure/index.cfm)

POC: Marriah Abellera



# NATIONAL HURRICANE PROGRAM OVERVIEW



## MISSION:

Provide technical assistance in support of hurricane evacuation and response planning, readiness and operational decision making.

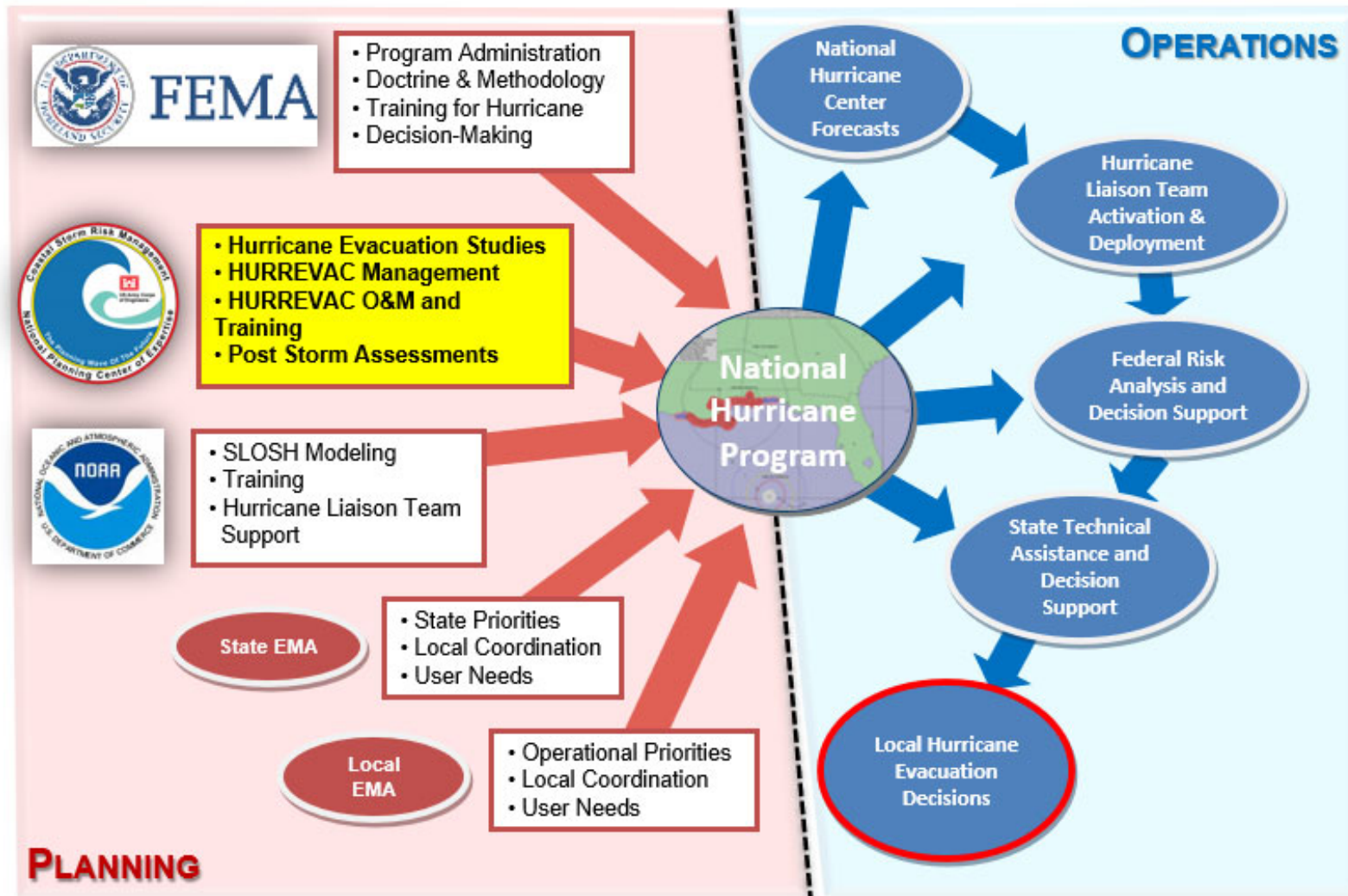
## THREE GOALS

Designed to deliver on the mission and statutory requirements:

1. Provide data, resources, and technical assistance to support hurricane evacuation and response planning.
2. Deliver comprehensive hurricane readiness training to Emergency Managers and partners.
3. Provide operational tools, information, and technical assistance to Emergency Managers to support hurricane evacuation and response decisions during hurricane threats.

POC: Marco Ciarla, Tom Laczko

# PROGRAM ROLES & RESPONSIBILITIES



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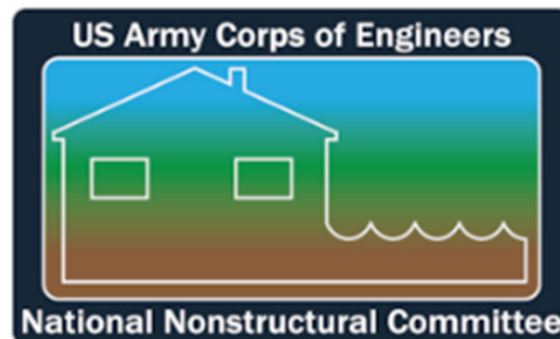




# NATIONAL NONSTRUCTURAL COMMITTEE

- Charted in 1985 to promote use of nonstructural measures for reducing loss of life and minimizing property damages
- Functions under Section 206 of the 1960 Flood Control Act, as amended
- Objective to support HQUSACE by providing leadership in development and implementation of nonstructural flood risk management measures, and by providing support for all USACE floodplain and flood risk management activities
- Definition of nonstructural measures
  - Nonstructural measures are proven methods and techniques for reducing flood risk and damages by adapting to the natural characteristics of the floodplain
  - Categorized as physical or nonphysical measures used to mitigate loss of life and existing and future flood damages
  - Permanent or temporary measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding
  - Modify the consequences of flooding rather than the probability of flooding

POC: Lea Adams



# WHAT TYPE OF ASSISTANCE CAN THE NNC PROVIDE?

The NNC offers technical consultation on a full array of nonstructural flood risk management measures in support of the USACE planning process, from initial assessments and plan formulation through technical review, with additional support provided to Engineering & Construction, Regulatory and Operations by request. Some of the most common types of assistance include:

- Nonstructural assessments
- Nonstructural plan formulation
- Workshops and webinars
- Public meeting presentations
- Technical Reviews
- Risk reduction behind levees and below dams

<https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/nnc/>



# FPMS PROJECT EXAMPLES





# CALIFORNIA

## California Post-Wildfire Resources Guide



### Project Description

- The CA Silver Jackets team developed a resource guide that has increased public awareness of the increased flood risk in areas affected by wildfire and helps communities organize, prepare for, and mitigate potential flooding.
- This project developed a post-wildfire website, as well as a brochure summarizing the website content.



### Flood Risk Reduction Benefits

- Increase community participation in the recovery process by providing potential organizational structures and resources for communities to use in the reduction of flood risk after a wildfire.
- Give people the information they need to prepare for and respond to a flood after a wildfire which could reduce future expenditures from post-wildfire floods.

### Challenges Overcome

- Coordinating with technical resources who were deployed to the wildfire emergencies.



### Partners and Project Cost

Agency	Investment
DWR	\$20K In-kind
USACE	\$60K
CGS	\$10K In-kind
Cal OES	\$12K In-kind
USGS CA Water Science Center	\$10K In-kind
Cal Fire	\$10K In-kind
<b>TOTAL</b>	<b>\$122K</b>

### Successes/Best Practices

- Documenting resources in a consolidated format helps state and local agencies know what resources are available to them after a wildfire.
- Multiple agencies are bringing diverse knowledge, expertise and resources to the table.
- This project reinforces the message that flood awareness is everyone's responsibility and that it is important to be prepared, especially after a wildfire.

**Project Point of Contact**  
 Rachael Orellana, PE  
 USACE Sacramento District



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# COLORADO

## Advanced Floodplain Management Workshops



### Project Description

- Two workshops held in Colorado in Spring 2020
- Topics determined by surveying floodplain managers
- Workshops to cover pre-disaster planning, flood insurance, special topics in floodplain management, flood response and recovery, among others
- Presentations by several State and Federal agencies

### Flood Risk Reduction Outcomes

- Provides training to local officials on floodplain management, flood response and recovery topics
- Local officials will be better prepared for flood events and more knowledgeable about how to manage flood risk in their communities
- Helps develop relationships between local, State and Federal agencies that can be leveraged in the event of a flood to improve outcomes

### Challenges Overcome / Continuing Challenges

- State staff changed midway through the project
- Identifying other agencies to participate and securing commitments

### Partners and Project Cost

Agency	Investment
FEMA	\$27.6K In-kind
State	\$30K In-kind
USACE	\$41.9K
<b>TOTAL:</b>	<b>\$99.5K</b>

### Successes/Best Practices

- Participation from EPA, USGS, FEMA, USACE and State agencies will introduce participants to many programs and agencies
- Survey of local floodplain managers used to determine workshop topics
- Local officials given first priority for registration

### Point of Contact

Jamie Prochno, Civil Engineer  
USACE/Omaha



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# IOWA

## Davenport, IA Flood Response & Recovery Planning



### Project Description

Record Mississippi River flooding in Davenport, IA resulted in a breach of a HESCO flood barrier. Failure of this barrier resulted in millions of dollars of damage and displacement of numerous people from their homes and businesses. This breach highlighted the relatively high existing flood risk in Davenport. The Project will evaluate and provide non-structural recommendations to support the City of Davenport Flood Response plan as part of a City-led multi party team. Flood damage assessments for all structures (approx. 1500) located within the City’s floodplain will be developed using multi-frequency flood depth grids. Survey data will be collected for the lowest entry point and first floor elevation for all residential, commercial, and industrial structures within the 1% annual chance floodplain. Information will be used to update the City flood response plan and Master Plan for the corridor.

### Flood Risk Reduction Outcomes

**Raises Awareness and Prompts Action** – Project raises awareness by developing a detailed and robust dataset of potential structure damages to inform the mayor-led flood task force and residents of the specific flood risk to homes and business. Project provides quality planning data for flood risk mitigation and emergency management preparation. Maps will be prepared for mitigation actions illustrating high risk areas based on potential losses and population at risk, which are likely to prompt structure elevation or relocation in highest risk areas.

**Reduces or Better Manages Flood Risk** – Reduces risk by providing State, county, and the local community officials access to enhanced flood risk information and tools to assist with community communication and decision-making processes regarding land-use and future development in high risk flood areas. Use of this information by the community will educate the public yielding life safety benefits.

### Challenges Overcome

- Overcome City’s funding limitations with City’s willingness to fund first floor elevation survey of all 1500 structures.
- Overcome IT compatibility issues with USACE network constraints and running of the HAZUS program by identifying a GIS script that retrieves info from HAZUS then conducts evaluation processes outside of HAZUS in an ArcGIS format.
- Overcome natural instinct to do something fast and cheap to show public doing something versus doing something deliberate and more costly to have a valuable long-term product for meaningful flood risk mitigation.

### Partners and Project Cost

Agency	Investment
USACE	\$100K
City of Davenport	\$150K In-kind
IA DNR	\$40K In-kind
NWS	\$15K In-kind
IHSEMD	\$30K In-kind
<b>Total</b>	<b>\$335,000</b>

### Successes/Best Practices

- Utilizing standard floodplain modeling practices to develop depth grids. Utilizing readily available structure values and depth-damage relationships to estimate damages.
- City is conducting physical survey of all 1500 structures to obtain first floor elevations for detailed HAZUS style structure evaluation.
- Utilizing standard non-structural principles to identify the potential mitigation actions for each structure based on depth of flooding and associated potential damages.

### Point of Contact

Jason Smith  
USACE Rock Island District



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# KANSAS

## Historic Flood Signs



### Project Description

- This project provided free flood signs to raise awareness about historic flood events (KS, MO now active)
- A story and photo are the main elements
- Depths at familiar landmarks help relate historical accounts
- Flood damages and loss of life also add to story



### Flood Risk Reduction Outcomes

- Provided 24 free signs for 17 different communities in Kansas by 2019
- Signs raise flood awareness and help affect cognitive bias on flood areas
- People and developers have increased awareness of flood hazards and how to mitigate risks



### Challenges Overcome / Continuing Challenges

- Finding a quality photograph may be tough (Internet has made it easier to find digital photos): visit locals
- Contracting production of signs offers various schedule risks to the project vs. USACE operations facilities, like Truman Reservoir Sign Shop
- Collecting final, mounted photos may also be tough, but many communities are very excited...keep the momentum

### Partners and Project Cost

Agency	Investment
USACE	\$60,000 In-kind
KDA DWR	\$10,000 In-kind
KS Historical Society	\$10,000 In-kind
FEMA	\$10,000 In-kind
Local	\$80,000 In-kind
KAFM	\$10,000 In-kind
NOAA NWS	\$10,000 In-kind
USGS	\$10,000 In-kind
<b>TOTAL:</b>	<b>\$200,000</b>

### Successes/Best Practices

- An historic approach avoids political issues; more subtle than other campaigns on high water lines
- A useful PDF application form gets communities engaged quickly (template app and sign available)
- Quick Response (QR) Codes are a square graphic linking smart phone users to more media
- Signs in USACE leveed areas get text on the sign steering the public to the National Levee Database.

### Point of Contact

Brian Rast, Lead Silver Jackets Coordinator  
USACE Kansas City District



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# KENTUCKY

## Pike County FRM Tabletop Exercise (TTX)



### Project Description

- Conducted a TTX by assisting Pike County and all Local Protection Projects in the county with FRM, flood awareness, emergency planning and preparedness
- The TTX also exercised the Emergency Action Plan (EAP) at USACE Fishtrap Dam
- Tested response and readiness for three levee systems in Pike County
- Involved a variety of stakeholders from throughout Pike County
- Took advantage of tremendous products from the Corps Readiness Support Center (RSC)

### Flood Risk Reduction Outcomes

- In cooperation with the RSC, developed a realistic flood scenario based on an actual event that occurred in the District
- Ran realistic scenarios that the County may face during flooding
- Stakeholders made aware of implications of severe floods
- Helped participants find the “unknown-unknown’s” in their plans and facilitated updating of EAP’s
- Jump started processes within the County to update key parts of their EAP including; evacuation plans, MOA’s; resource constraints and even hidden capabilities
- See the Tabletop Scenario at <https://arcg.is/1bme4g>



### Challenges Overcome / Continuing Challenges

- The project area for TTX is prone to quick “flashy” floods that quickly became unmanageable for local stakeholders
- Developing a challenging, yet attainable scenario was difficult because of the quick nature of floods in the area
- Going through several iterations of flood models led to a severe scenario that tested the participants but did not overwhelm their capabilities

### Partners and Project Cost

Agency	Investment
NOAA NWS	\$10K In-kind
USACE	\$100K
Kentucky Division of Water	\$10K In-kind
Pike County EMA	\$10K In-kind
Kentucky Department of Transportation	\$2.5K In-kind
Kentucky Division of Emergency Management	\$2.5K In-kind
<b>TOTAL:</b>	<b>\$135K</b>

### Successes/Best Practices

- Using the Corps RSC to create the exercise, Story Map led to an amazing immersive visual experience for the participants
- Developing a severe flood model that progressed over several weeks allowed the stakeholders to explore many aspects of their plans and processes
- Engaging local stakeholders and obtaining buy-in early was key to success

### Point of Contact

Charles D. Goad Community Planner  
USACE / Huntington District



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# NEW HAMPSHIRE

## Flood Hazards Handbook for Local Municipal Officials



### Project Description

- NH Silver Jackets developed and released the *Flood Hazards Handbook for Municipal Officials*, a new guide intended to help communities in the state prepare for, respond to, recover from, and mitigate floods more effectively.
- The Handbook includes guidance, best practices, information about roles and responsibilities, and available federal and state resources organized into situation-specific sections: Before the Flood, During the Flood, and After the Flood.
- Content for the Handbook was developed collaboratively by the state and federal agencies that comprise the NH Silver Jackets team and in coordination with several external agencies that provided additional information on certain topics.
- The Handbook is available online for download and hard copies have been printed for distribution to each community in the state.



### Flood Risk Reduction Outcomes

- With the *Flood Hazards Handbook*, local communities will have better access to information they need to respond to and recover from flood events more effectively when they happen.
- The Handbook will also equip local officials with expert guidance and potential sources of assistance from state and federal programs that can help them work towards a more flood-resilient future through better community preparedness and mitigation efforts.



### Challenges Overcome / Continuing Challenges

- Most communities in NH are small with limited staff and resources, which affects their ability to prepare for, respond to, and mitigate floods.
- Further, many communities in the state haven't experienced a significant flood in over a decade and are managed by staff with little to no experience with flood response and recovery activities.
- For these reasons, community officials may be unaware of best practices related to flood mitigation, preparedness, response, and recovery activities, or resources at the state and federal levels that may be available to assist their communities.

### Partners and Project Cost

Agency	Investment
USACE	\$30,000 Cash
NH Office of Strategic Initiatives	\$16,800 In-Kind
NH Dept of Environmental Services	\$13,400 In-Kind
NH Homeland Security/Emergency Management	\$10,000 In-Kind
USGS	\$5,000 In-Kind
NOAA	\$3,500 In-Kind
FEMA	\$1,000 In-Kind
Other Agencies	\$1,800 In-Kind
<b>TOTAL:</b>	<b>\$81,500</b>

### Successes/Best Practices

- Project included development of an outreach plan, key messages, and collateral materials to encourage each agency to be involved in outreach efforts to community officials about the availability and purpose of the Handbook.
- Training workshop for community officials planned for Spring 2020 (in collaboration with external partners) about coastal flood resilience with the Handbook as its centerpiece.
- Future plans to gauge effectiveness based on feedback from community officials following significant flood events.

### Points of Contact

**Sheila Warren & Shane Csiki**

USACE New England District / NH Geological Survey, NH Dept of Environmental Services



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# OREGON

## Channel Migration Policy, Upper Sandy River Floodplain Management Plan



### Project Description

- The Upper Sandy River lies on the flanks of Mount Hood and has been impacted by past eruptions of this active volcano. High sediment loads have led to active channel migration.
- Development adjacent to rivers and recreation homes in this area are vulnerable to channel and bank erosion.
- No statewide policy exists for managing areas within active Channel Migration Zones (CMZs).
- NFIP is based on elevation, not erosion undermining foundations. Although Erosion Zones are defined for FEMA, they aren't mapped in any community in Oregon.

### Flood Risk Reduction Outcomes

- Stakeholder analysis and engagement has helped message the impacts of channel migration to people who live in the area much more efficiently than the small project team could accomplish
- County has a Floodplain Management Plan and a Public Engagement Plan (PEP) that is now helping them plan for a Floodplain Ordinance update.
- State partners are now getting support for mapping channel migration zones across the state.

### Challenges Overcome / Continuing Challenges

- An engaged community partner is essential, but don't lose site of needed collaboration and socialization of innovative policy for other departments and partners org.
- Policy updates and Hazard Mitigation moves slow, don't be surprised if immediate benefits aren't apparent.
- Innovative ideas mean that mis-steps can happen, flexibility is essential.

### Partners and Project Cost

Agency	Investment
Clackamas County	\$20K In-kind
State of Oregon	\$20K In-kind
USACE	\$100K
FEMA	\$2K In-Kind
USGS	\$3K In-Kind
Portland State University	\$50K In-kind
NOAA-NMFS	\$5K In-kind
<b>TOTAL:</b>	<b>\$200K</b>

### Successes/Best Practices

- Formalizing a communication structure through stakeholders has informed more property owners than public meetings could ever do.
- Networking channel migration through professional contacts led to State engagement and legislative consideration for setting policy.
- Silver Jackets partnerships led to project proposals for restoration and mitigation.

### Point of Contact

Paul Sclafani, SJ Coordinator  
USACE/Portland District



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# QUESTIONS AND DISCUSSION



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## Contact Information:

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