

# Silver Jackets – Non-Structural Solutions

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Peoria Flood Area Engineer  
USACE, Rock Island District  
IAFSM Conference  
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US Army Corps of Engineers  
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# Who I am

- Clogging your inbox during a flood
- Responsible for outreach & flood response
- Cover a 25 county area in Illinois based on watersheds
- 8 years with USACE, have responded to floods, hurricanes & earthquakes in MVR, MVP, MVS, MVK, MVM, MVN, POA



# Who I am



Rockford – Alaena Ensey  
Dresden – Alaena Ensey  
Peoria – Anthony Heddlesten  
Quincy – Bryan Snook  
Burlington – Jon Fleischman  
Quad City – Amanda Geddes  
Clinton – Chris Haring  
St. Louis – Mike Rodgers  
Louisville - ?  
Chicago - ?

Emergency Management Dept  
Chief – Rodney Delp  
Mods – Paul St. Louis  
NFFMC – Sarah Jones  
Inspections – Cory Haberman  
Repairs – Beth Crutcher



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# Disclaimers

- GEAD – Government Employee Acronym Disclaimer
- I'm an engineer...



# Agenda:

- Program Overview
  - ▶ Silver Jackets
  - ▶ MICA
- Partners
- Outcomes of Phase I
- Expansion into Phase II
- The Future...



# Silver Jackets



# Who are the Silver Jackets?

- USACE
- FEMA
- ILDNR/IADNR
- NWS
- USGS
- USDA/NRCS



- HUD
- EDA
- ASFPM
- IEMA/IAHSEMD



# Silver Jackets Program History

- Started as part of the National Flood Risk Management Program (~2006)
- Implementation started in the Summer/Fall 2008
- Illinois & Iowa among 1<sup>st</sup>, currently 44 active teams throughout the nation (Wyoming, Michigan, Vermont, Connecticut, Delaware, Hawaii & Rhode Island are developing)
- Brought leadership to Federal FRM initiatives
- Funding provided by IWR and USACE-HQ





# Investment

- FY11 - \$1.154M
- FY12 - \$1.956M
- FY13 - \$2.676M
- FY14 - \$2.212M
- FY15 - \$3M
- FY16 - \$6M



# Illinois Silver Jackets Pilot Studies

## ■ Illinois Silver Jackets Studies (FY15):

1) Coordination of Illinois Flood Risk Information Development, Utilization and Communication with the National Levee Database (2015-16):

2) Nonstructural Mobile Information Collection Application (MICA) Demonstration Project (2015):

- over 300 pts taken, aiding in flood fighting efforts (Spring-Summer 2015)
- NWS using data to update flood impact descriptions

3) Alexander Co. and Cairo, Illinois Area Levee Breach Analysis for Risk and Evacuation Planning:

- updating hydraulic models for the Mississippi and Ohio Rivers
- use HEC-RAS 2-D model to simulate several breach inundation scenarios
- emergency action planning and heightened community response



# Illinois Silver Jackets Pilot Studies

- **Illinois Silver Jackets Studies (FY16):**

- 1) Nonstructural Mobile Information Collection Application (MICA) Demonstration Project-Phase II (2016) (MVR).

- 2) Upper Mississippi River System Hydraulic Model Update (2016) (MVR/MVP)

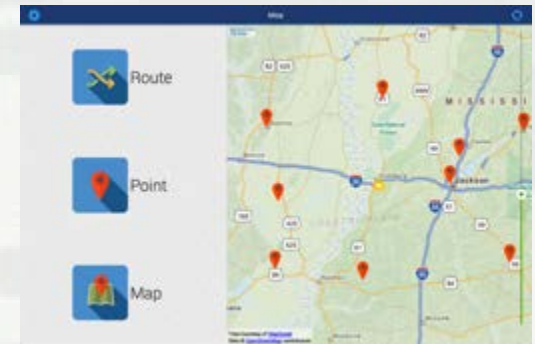
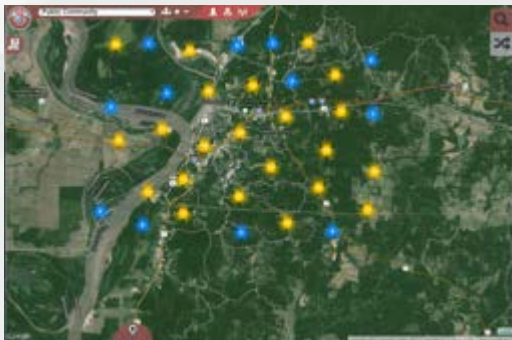
- 3) RainReady Alert-Urban Flooding (2016) (LRC)

- 4) Fast Track to Borrow Tool (2016) (MVS-MVR)



# Mobile Information Collection Application (MICA)

- MICA is a system which allows disconnected data collection using cheap/readily available USACE approved mobile devices (Android/iOS/Windows - tablets/phones)
- In a connected environment allows near real time viewing of collected data
- Digitally entered data saves time/money of manually entering data after the fact (handling data twice)
- Flexible to fit many missions without requiring new code





# MICA Approach



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Mobile Information Collect x Mobile Information Collect x

https://mica.usace.army.mil/loadcommunity2.html?cid=78951a21-01b0-4d64-840b-bf094d1e2230

Sencha 3.0 API Ext JS 3.3 Examples Mvelopes AMRDEC SAFE Presstopia.Com > 5 Yahoo! Sports Fant

# US Army Corps of Engineers - ERDC Mobile Information Collection Application (MICA)

New York - Sandy - 2.2.0

Admin? Go

New York - Sandy

Android Data Collector Results

MICA Folders

- New York - 0 points
- IA - 0 points
- Unwatering - 11 points
- Coastal - 0 points
- Other - 38 points
- Debris - 103 points
- LGL - 9 points
- Power - 6 points
- PPDR - Oldest - 182 points
- PPDR - Before 12 Dec 12 - 181 points
- PPDR - 2478 points
- Hazardous Stumps - 3438 points

2D Map Panel Displaying Collection Data. Click on a marker to see data or navigate using tree on left side.

Map data ©2013 Google Imagery ©2013 TamsMetrics - Terms of Use Report a map error



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# Partners

- **USACE – Rock Island**
- **USACE – ERDC**
- **NWS**
- **IEMA**
- **IDNR-OWR**
- **County & City Reps**
- 15 participants
  - ▶ Myself/Sny Levee District/Rock Island County
  - ▶ City of Peoria
  - ▶ City of Ottawa
  - ▶ City of East Peoria
  - ▶ Cass County
  - ▶ LaSalle County
  - ▶ Fulton County
  - ▶ Mason County
  - ▶ Henderson County
  - ▶ Adams County
  - ▶ Winnebago County
  - ▶ Ogle County
  - ▶ Pike County
  - ▶ Tazewell County
  - ▶ East Peoria Drainage and Levee District



# Phase I

- Shared Knowledge
- Instantaneous Flood Response Info
- Improved Flood Response
- Improved Flood Recovery



# Phase I

- Started April 2015 – scheduled to last 6 months
- July 2015 – near record flood event along Illinois River
- October 2015 – turn in date got delayed while we waited for Phase II funding
- November 2015 – MICA 3.0 beta released to a few people in the group
- December 2015 – additional record floods along Mackinaw & Sangamon Rivers, near record flood along Illinois River (data collected on MICA 2.0 & 3.0)
- February 2016 – turn in date for old units and passed out new units for Phase II (all units MICA 3.0)



# Shared Knowledge

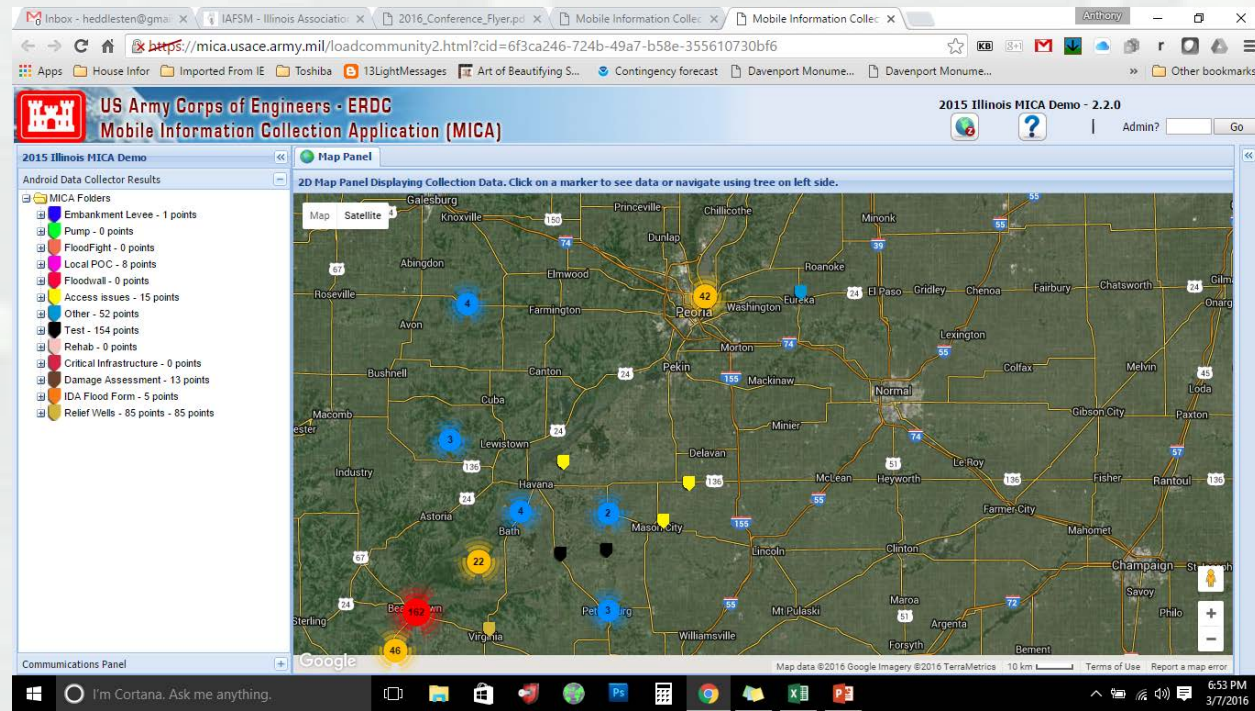
- Cass County – boils & relief well data
- Mason County – communities in floodplain
- Mason/Cass – incorrect overtopping elevations
- Ottawa – review of levee from 3 hours away
- DNR – had the ability to see all that USACE was responding to from their office
- NWS – got real time overtopping data for modeling and gage reference pages





# Instant Flood Response

- One KML download of the group data sets users up to see live feed of newly synced data
- Each of the 15 locations can be sending simultaneous data for triage



# Improved Flood Response

- My team is 16 people for 25 counties
- Using the data, I send people to critical locations or point clusters
- I can solve some problems at my desk by reviewing pictures, videos, notes, etc. and calling the person taking the data
- My team can use the GPS to find each point in the field
- Can search and sort points



# Improved Flood Recovery

- Points taken in the field during the event with the idea that damage assistance requests might be needed
- All items GPS located to help with estimates
- Data can be auto loaded into FREEBOARD – upward reporting and money requests greatly improved (internally)
- Permitting and review agencies have instant access to know where to expect requests from as well
- Illinois Damage Assessment forms were digitized on MICA for use



# Expansion to Phase II

Planned	Status/Accomplished
<b>MICA Smartphone application expansion to Apple and Windows</b> <ul style="list-style-type: none"> <li>➤ Authentication</li> <li>➤ MICA Version iOS/iPhone/iPad</li> <li>➤ Sync while routing</li> <li>➤ Custom Overlays</li> <li>➤ Form Renderer Completion</li> </ul>	<b>MICA Smartphone application expansion to Apple and Windows</b> <ul style="list-style-type: none"> <li>✓ Authentication</li> <li>✓ MICA Version iOS/iPhone/iPad</li> <li>○ Sync while routing</li> <li>○ Custom Overlays</li> <li>✓ Form Renderer Completion</li> </ul>
<b>Common Operating Picture (COP)</b> <ul style="list-style-type: none"> <li>➤ Form Builder</li> <li>➤ Export Data</li> <li>➤ Authentication</li> <li>➤ Form Data Query Tools</li> <li>➤ Import Existing Point Data</li> </ul>	<b>Common Operating Picture (COP)</b> <ul style="list-style-type: none"> <li>✓ Form Builder</li> <li>○ Export Data</li> <li>✓ Authentication</li> <li>✓ Form Data Query Tools</li> <li>✓ Import Existing Point Data</li> </ul>
<b>Project Management and Coordination</b> <ul style="list-style-type: none"> <li>➤ Quarterly Progress Reports</li> <li>➤ Overall Project Management</li> </ul>	<b>Project Management and Coordination</b> <ul style="list-style-type: none"> <li>✓ Quarterly Progress Reports</li> <li>✓ Overall Project Management</li> </ul>



# Expansion into Phase II

- Many updates were requested in Phase I, almost all were incorporated into MICA 3.0
  - ▶ Editable points
  - ▶ Editable drawings
  - ▶ Improved searchable interface online
  - ▶ Individual logins
- 10 new participants added & a couple dropped out
  - ▶ IDNR
  - ▶ IEMA (2 units)
  - ▶ GEER Team
  - ▶ Whiteside County
  - ▶ Bureau County
  - ▶ City of Marseilles
  - ▶ USACE Flood Area Engineers (Burlington, Quincy, Quad City, Clinton, Rockford)





# Phase II – “Scavenger Hunts”

- Wanted more participation & focus for phase II
- Monthly scavenger hunts require each participant to collect 10 points
  - ▶ 10 updates to NWS Gage Pages
  - ▶ 10 critical infrastructure items in floodplain
  - ▶ 10 most likely to be damaged properties
  - ▶ 10...



# The future...

- Any day now – iOS, Windows, Android capable
- May – Hopefully will be BYOD
- After our 12 months – Hopefully will be hosted on a non-DoD server
- Long term – Hopefully will be available for all public entities & professionals to use and collect data
- Open to other creative ideas as part of this pilot project!



# Contact Info

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ROCK ISLAND DISTRICT

[www.mvr.usace.army.mil](http://www.mvr.usace.army.mil)

<https://www.facebook.com/RockIslandDistrictUSACE/>

@USACERockIsland ← Twitter

SPRING FLOOD OUTLOOK MEETINGS

3/15 - QUINCY, IL (I'm attending this one) (8-12, 1-5)

3/16 - MUSCATINE, IA (8-12, 1-5)



# Questions



Artwork provided to the Rock Island District courtesy of Michael Blaser  
[www.blaserstudio.com](http://www.blaserstudio.com)

[www.steamboatmikey.com](http://www.steamboatmikey.com)

