Silver Jackets – Non-Structural Solutions

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USACE, Rock Island District
10/16/2015

US Army Corps of Engineers
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Good Morning!

- Thanks for starting your day with Track 1!
- Engineer Disclaimer
- Death by PPT Disclaimer
- Government Employee Acronym Disclaimer (GEAD)


YCLONES

Agenda:

- National Silver Jackets Overview
- Illinois SJ Program
- Iowa SJ Program
- Toby
- Paul
- Questions

Who are the Silver Jackets?

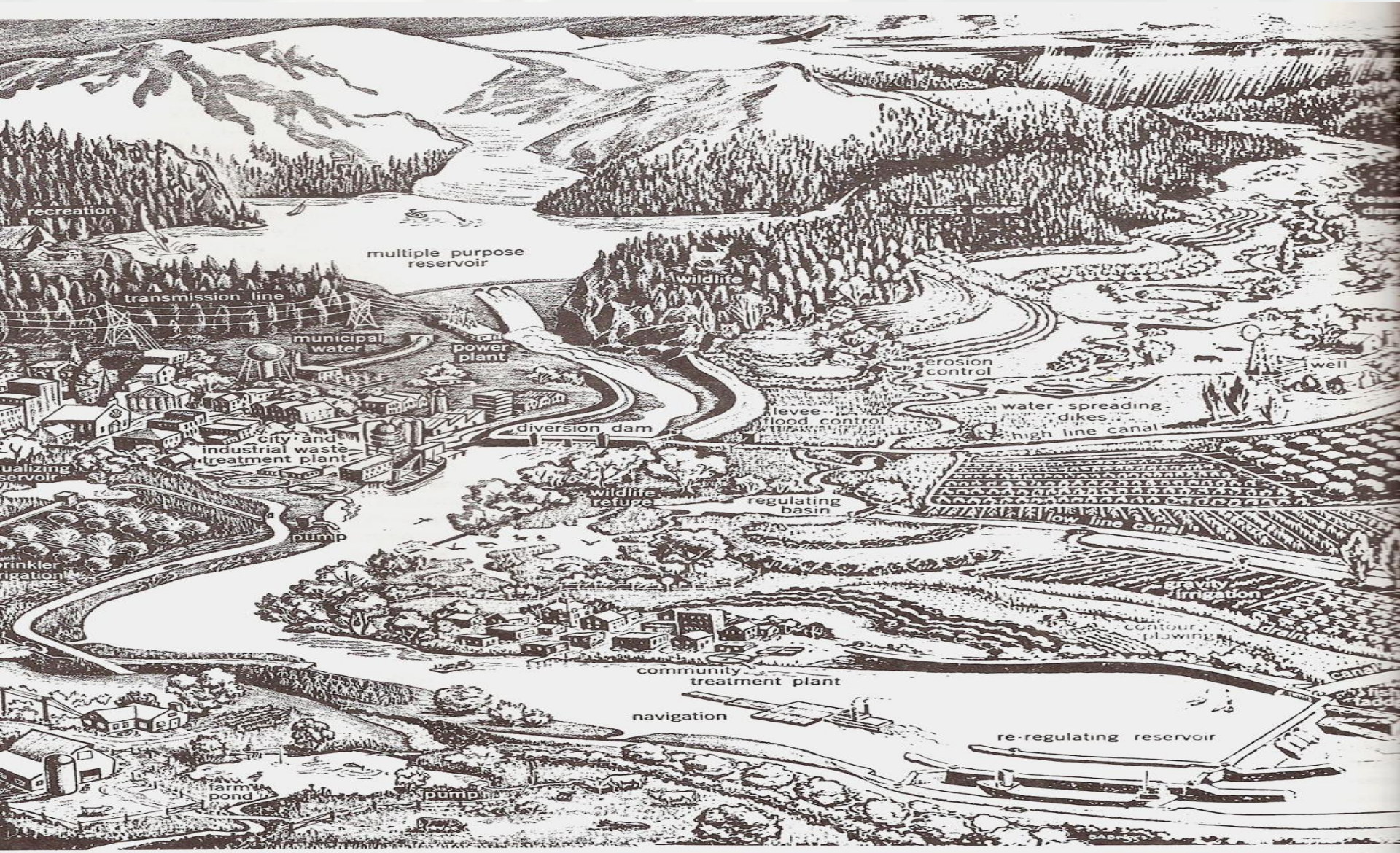
- USACE
- FEMA
- ILDNR/IADNR
- NWS
- USGS
- USDA/NRCS

- 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 1st, 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

Integrated Water Resource Management!



A Multiple-Purpose River Basin Development

(Reprinted from *A Water Policy for the American People*, The Report of the President's Water Resources Policy Commission, 1950

Pilot Projects

- Started in 2011 with 18 projects
- Goals
  - Collaboration
  - Interagency Effort
  - Implement State Mitigation Plans
  - Facilitate Integrated FRM Solutions
- Currently have started or completed 138 projects in 42 States + Washington DC

Pilot Projects

- Flood Risk Management – 21 projects
- Levee Safety – 12 projects
- Nonstructural – 83 projects
- Other – 4
- Initial Pilots - 18

Investment

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

Goal & Selection Criteria

- **Goal:** Promote participation by USACE staff in small interagency projects undertaken in conjunction with other partners to achieve flood risk management benefits that could not be achieved by one party alone
- **Selection Criteria:**

  1. Directly protects life safety, reduces or stems increases in loss of property, and/or increases resiliency; or reduces future expenditures
  2. Promotes shared responsibility
  3. Addresses priority in State or Local Hazard Mitigation Plan
  4. Leverages partner resources AND is completed in collaboration with partners
  5. Increases innovation in evaluating nonstructural benefits, and/or advances development of policy, including non-monetary benefits

Demonstrable Outcomes

- **Selection Criterion 1:** Directly protects life safety, reduces or stems increases in loss of property, and/or increases resiliency; or reduces future expenditures
- Seeking:
  - Progression from assessment and awareness, through action, to **reduced risk**
  - Progression from what **COULD happen** to specific changes that **WILL result** (upfront project scoping engagement, including with those who have decision authority, helps ensure specific action)
  - Maximized project impact (measurable benefits)

Demonstrable Outcomes

- **Selection Criterion 1:** Directly protects life safety, reduces or stems increases in loss of property, and/or increases resiliency; or reduces future expenditures
- **Distinguishing Factors:**
  - Describing how partners are committed to permanently removing existing structures from harm's way (Think FRED)
  - Describing how community action – or commitment to action – is tied to specific reduction in flood risk or flood-related expenditures
  - Using multiple partners' programs in combination to achieve a greater, or more likely, reduction in flood risk or flood-related expenditures
  - Specific identification of who plans to take action to achieve a result
  - Unique proposals with outcomes suitable for wider application and a clear means for achieving that wider application

Demonstrable Outcomes

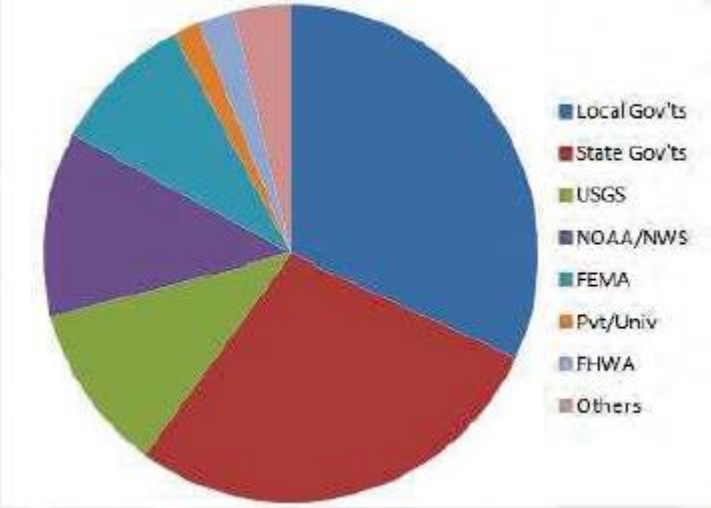
- **Selection Criterion 1:** Directly protects life safety, reduces or stems increases in loss of property, and/or increases resiliency; or reduces future expenditures
- **Examples:**
  - Community adopted new ordinance for new buildings: BFE plus 2 ft (KS)
  - Tribe requested assistance in starting first tribal Hazard Mitigation Plan (NV)
  - Local landowner removed berm that was cutting off conveyance/floodplain, lowering flood heights and reconnecting habitat (NE)

Leveraging

- **Selection Criterion 4:** Leverages partner resources AND is completed in collaboration with partners
- **Leveraging resources allows more comprehensive solutions in flood risk management**
  - Interagency projects leverage partner resources; no single agency has sufficient funds or authority to manage flood risk alone
  - Resources: funds or in-kind services
  - USACE funding is not a grant: combines USACE labor with partner programs to achieve a greater whole
  - Leveraging demonstrates commitment of all partners to managing/reducing flood risk collaboratively

Leveraging

- **Selection Criterion 4:** Leverages partner resources AND is completed in collaboration with partners
- **Distinguishing Factors:**
  - Describing specific partner roles/tasks in conducting the project
  - Framing significant partner contributions to conducting the project (including but not limited to funding)



Each dollar invested by USACE leverages nearly another dollar from project partners

Illinois Silver Jackets

- Lead for USACE – Chris Haring

Illinois Silver Jackets Pilot Studies

- **Current 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

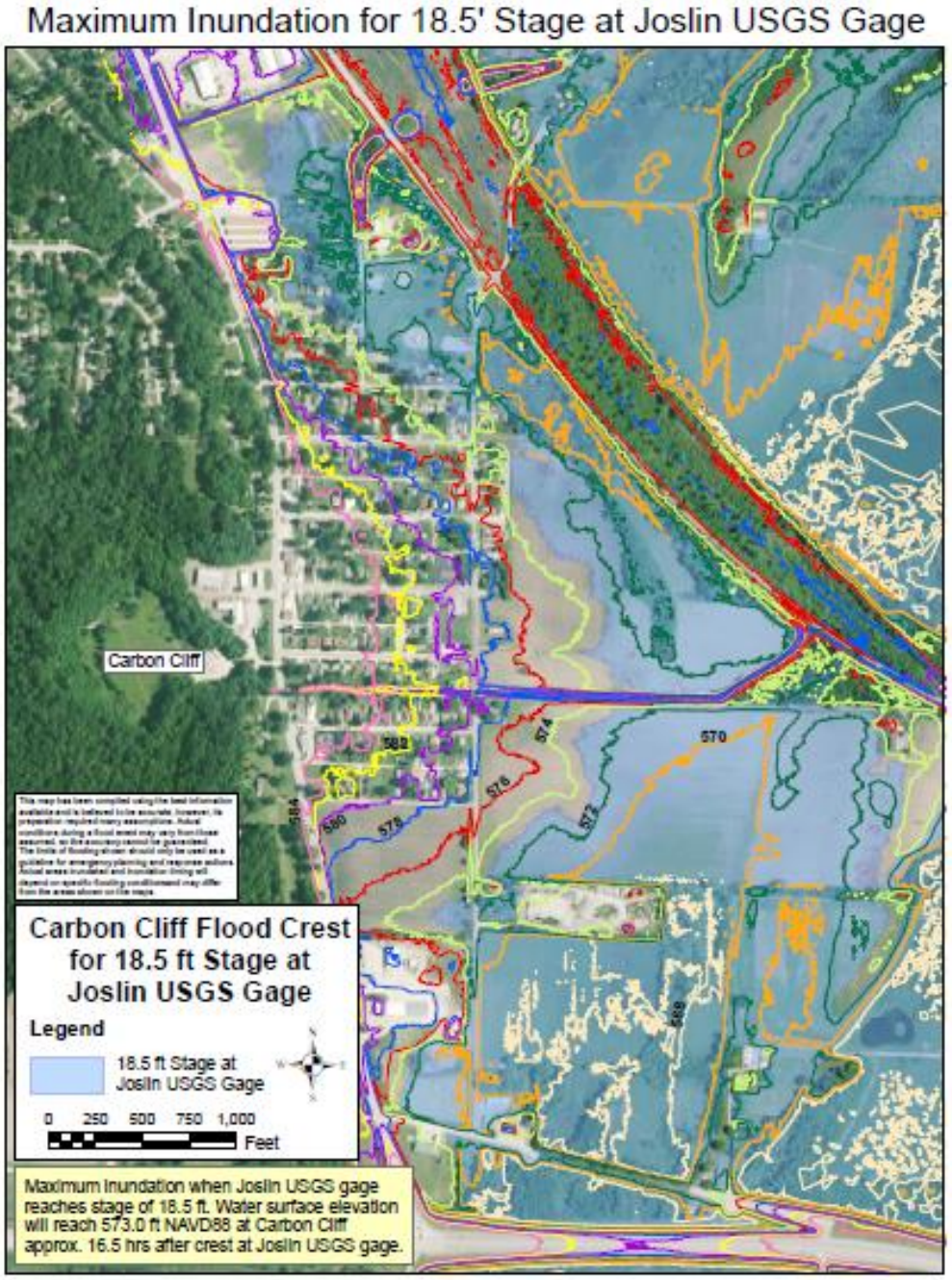
3) Alexander Co. and Cairo, Illinois Area Levee Breach Analysis for Risk and Evacuation Planning:

- 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

IL Small Communities Flooding Operations Planning, Barstow and Carbon Cliff (FY14)

The development of topographic maps, inundation maps, and flood response plans were completed based on the community's needs.

The project leveraged the large amount of recently completed work (LIDAR data collection and hydraulic modeling) with a small incremental cost to organize the products into a comprehensive, collaborative community based flood operations planning tools.



Major Milestones & Deliverables

Accomplished

- **Initial Meeting** w/ Barstow and Carbon Cliff: December 2014
- Sample mapping products reviewed by partners: March 2015
- Provided communities **Final Report Products**: April 2015
- **Carbon Cliff webpage ~ http://www.carbon-cliff.com/**
- EAP Handbook Template: **Barstow/Carbon Cliff Flood Action Plan**

http://www.mvp.usace.army.mil/Missions/CivilWorks/FloodRiskManagement/EmergencyActionPlanGuidebook.aspx

City Feedback – Timely product delivery!

Available time for spring flood season!

Progress Toward Program Objectives

Supports Risk Communication and Evacuation Planning

Improve the protection of human life and safety Reduce Structural Damage

Flood Proofing Critical Infrastructure (City Hall, Police Dept, Houses Inundation Fringe)

Safety of flood fight personnel improved

Implement Nationwide for small flood prone communities where recent modeling / mapping products are available ~ cost effective flood preparedness planning

County updating Hazard Mitigation Plan / EAP w/ study products

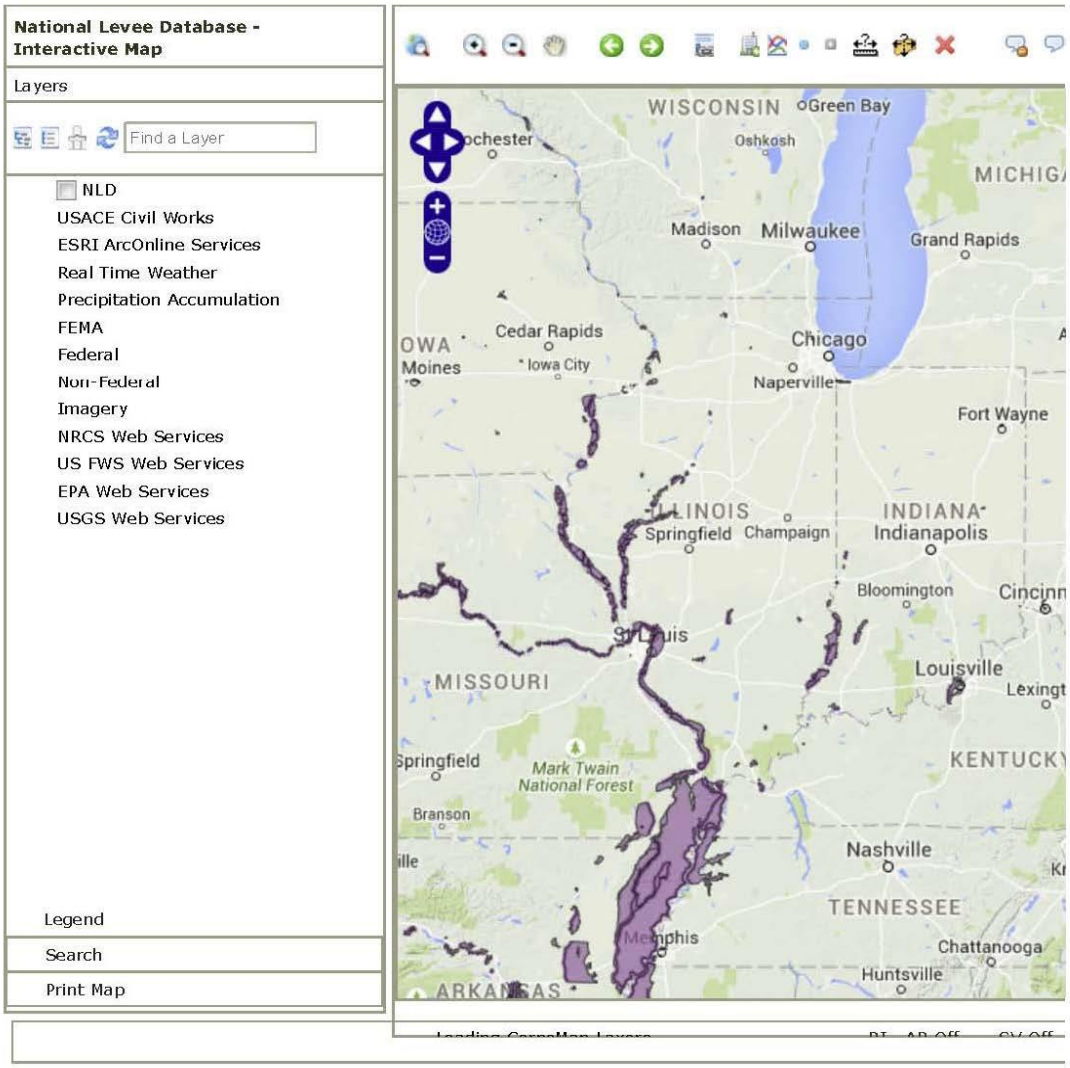
Leverages Resources (USACE Project Budget: $30,000)

Agency	Investment
Communities of Barstow and Carbon Cliff Emergency Action Partnership	**Personnel / Risk Communication and Evacuation Planning $150,000 State LIDAR data / Hydraulic model**
Rock Island Co EMA (Potential Stakeholder)	**Personnel / Risk Communication and Evacuation Planning**

Rock Island District: Illinois SJ, Coordination of IL Flood Risk Information Development, Utilization and Communication with the NLD

The project will enhance Federal, State and local partnerships in conjunction with FRM activities associated with the NLD, FEMA (Risk Map), USACE, and State initiatives. The project will work to combine all FRM efforts in the State of Illinois by coordinating and updating the NLD for maintaining one comprehensive data set to be used for future flood risk mitigation efforts.

Chris Haring-Illinois Silver Jackets Lead
Rock Island District
August 6, 2015
Interim Project Review of Inter-agency Projects



Major Milestones & Deliverables

25 %

Major Changes:

- No major changes have occurred

Accomplished

- IL FRM Meetings – April 27, 2015
- NLD Conf Call – June 26, 2015

Remaining:

- NLD Conf Call-(Aug 10th)
- NLD Webinar on updates – (Sept 2015)
- Continued collaboration between NLD, MVR, FEMA and State of Illinois

Progress Toward Program Objectives

Overall

Addresses Expressed State Need

- The team is making progress towards goals of Regional FRM data coordination.

Leverages Resources (USACE Project Budget: $50K)

- Table of multiple agencies and their additional project investments

Agency	Investment
FEMA	$20,000
State of IL	$46,000
USACE	$50,000

Reduces/Manages Flood Risk

- The project will result in reducing FRM for the Federal and State Agencies involved as long as NLD can be manipulated to be accessible to all of the study partners.

Reduces Future Expenditures

- The project will lead to a template of how other States can coordinate with NLD to accomplish Region FRM goals

Results in Action by others

- The result of the project will be a NLD that will be accessible to our State and Federal partners to use for Regional FRM activities

IL Mobile Information Collection Application Demonstration Project ~ Phase I

This pilot project has established a standard operating procedure to provide the Illinois Emergency Management Agency (IEMA) and the Department of Natural Resources, Office of Water Resources, National Weather Service personnel log-in access to the mobile information collection application (MICA).

The pilot project Phase II would leverage MICA Phase I knowledge to develop and incorporate additional essential features such as sketch tool, photo geo-location documentation, data storage and retrieval.

MICA Approach

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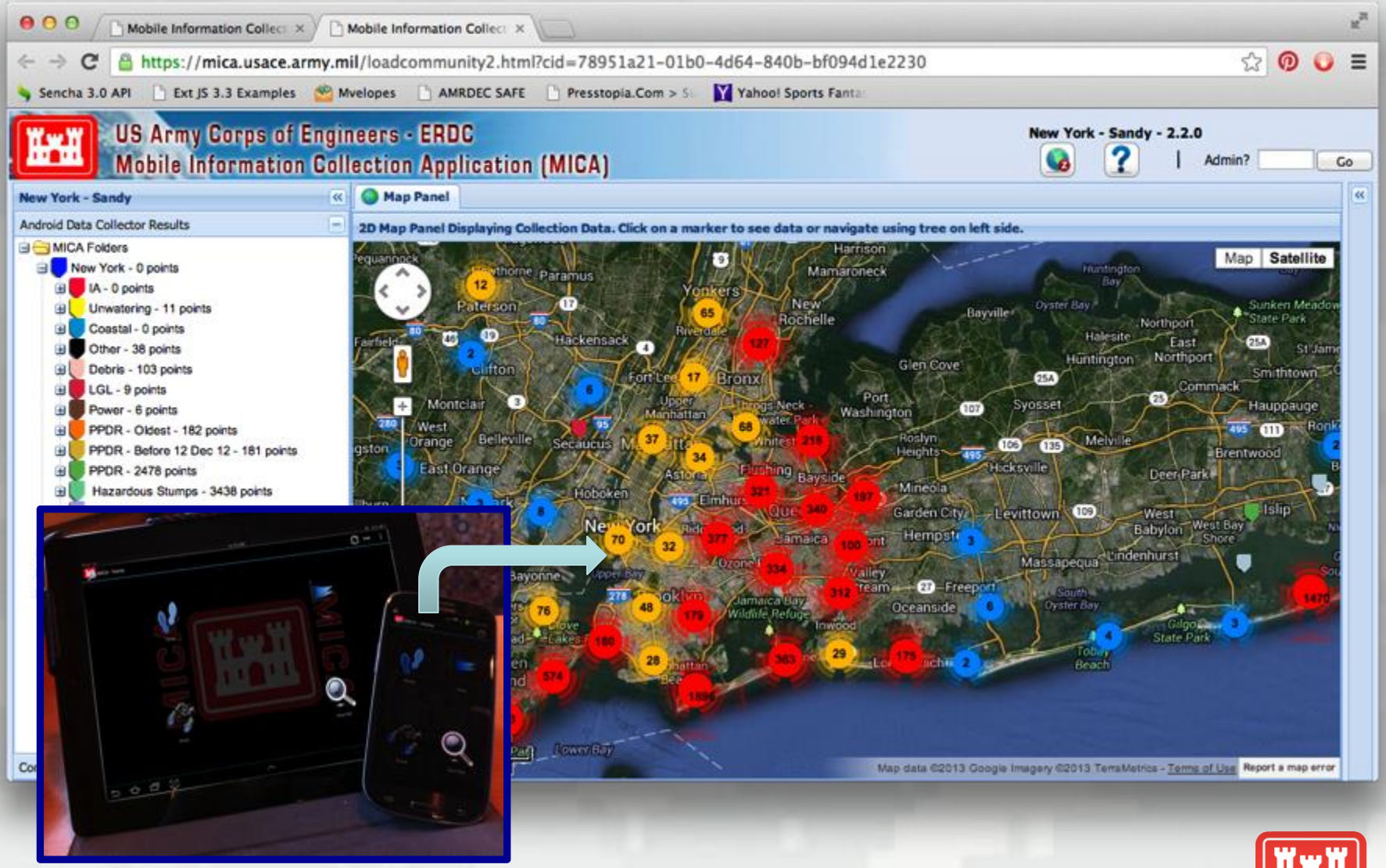

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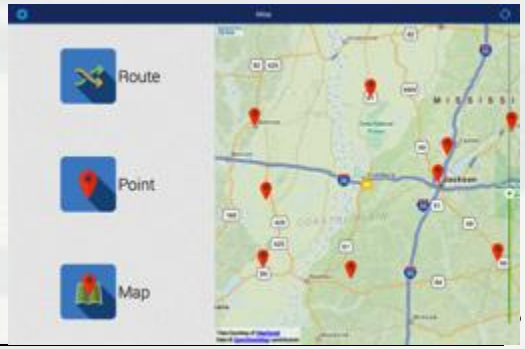
Mobile Information Collection Application (MICA)

- 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



Major Milestones & Deliverables

Accomplished Phase I

- Received funding: March 2015
- **Team Meeting**: **April 1, 2015 ~**
- MICA Tablet field use by Team Members Apr-Sep
- **Record Illinois River Flooding July 1,2,3, 2015!!!!!!!**
- **Added** IEMA Initial Damage Assessment Form

Remaining

- Methodology refinements: **Phase II ~** October 2015??

Progress Toward Program Objectives

Addresses flood risk to achieve goal of protecting life and property

Risk Communication and Evacuation Planning

Components to identify lead times, evacuation plans, quantities, equipment, materials, and personnel to respond to a flood event thereby shifting limited resources from planning to implementation.

Safety of flood fight personnel improved

Implement Nationwide efficiencies gained where data not readily available

Leverages Resources (USACE Project Budget: $35,000) ERDC set-up/loan 15 MICA Tablets

Agency	Investment
Illinois DNR, IEMA, NOAA, FEMA,	Team Members Flood Risk Communication
15 Cities/Counties $25,000 In-Kind	Team Members Flood Risk Communication

Accomplishments to Date

Planned	Status/Accomplished
MICA Smartphone application expansion to Apple and Windows ➢ Authentication ➢ MICA Version iOS/iPhone/iPad ➢ Sync while routing ➢ Custom Overlays ➢ Form Renderer Completion	**MICA Smartphone application expansion to Apple and Windows** ✓ Authentication ✓ MICA Version iOS/iPhone/iPad ○ Sync while routing ○ Custom Overlays ✓ Form Renderer Completion
Common Operating Picture (COP) ➢Form Builder ➢Export Data ➢Authentication ➢Form Data Query Tools ➢Import Existing Point Data	**Common Operating Picture (COP)** ✓ Form Builder ○ Export Data ✓ Authentication ✓ Form Data Query Tools ✓ Import Existing Point Data
Project Management and Coordination ➢Quarterly Progress Reports ➢Overall Project Management	**Project Management and Coordination** ✓ Quarterly Progress Reports ✓ Overall Project Management

Illinois Silver Jackets Pilot Studies

- **Proposed 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)

Iowa Silver Jackets Program

- Lead for USACE - Steve Rumple

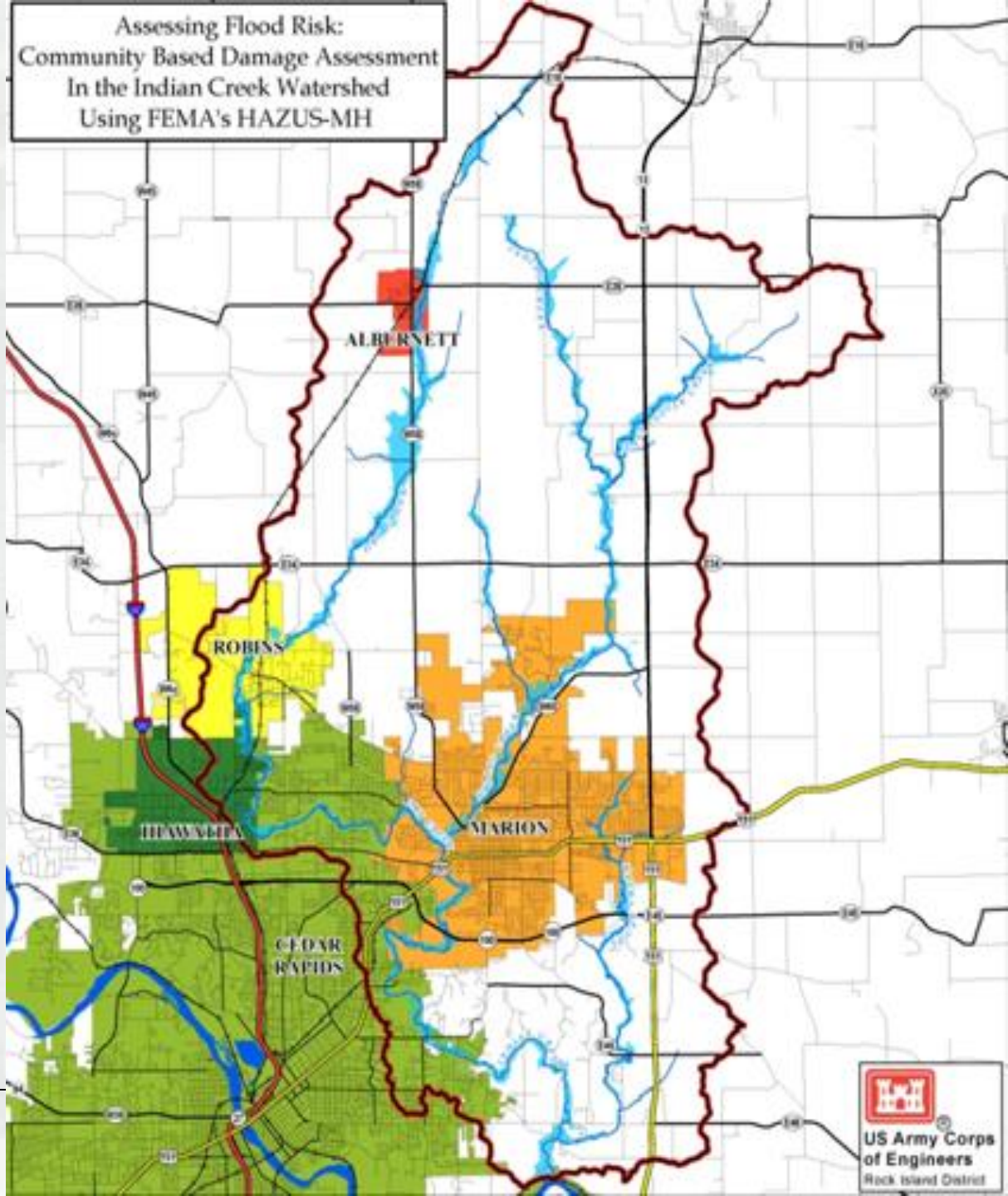
Iowa Silver Jackets Pilot Studies FY15

1) Des Moines Evaluation of Urban Flooding Scenarios Study.

2) Iowa Bridge Sensor Rating Curve Demonstration Project Phase I.

IA (MVR)
Community Based Hydrologic Warning System for Indian Creek

Designed a flood warning system for the Indian Creek Watershed using existing observation infrastructure and modeling tools, and identified information needs necessary for creating a system capable of providing communities with adequate time for action.



Community	Population Affected by 1% & .2% Chance Event (Per Capita)	% of Community w/in the Floodplain
Alburnett	43%	17%
Cedar Rapids	20%	9%
Hiawatha	25%	6%
Marion	13%	7%
Robins	30%	78%

Major Milestones & Deliverables

Accomplished

- **Collaboration w/ Iowa Flood Center** (Iowa Flood Information System for FWS data and display)
- **Kick-off Meeting w/ Stakeholders**: October 29, 2013
- **Leveraged IFC personnel availability**
- **Shared preliminary results w/ Stakeholders**
- **IFC Web-based Action Levels & Communication System** for Stakeholder Use September 4, 2014

Goals & Objectives

- Leverage all existing data to minimize cost of system development.
- Provide accurate and consistent rainfall, stage, and soil conditions on a reliable real-time basis.
- Display the data in a user-friendly format to local, regional, and federal agencies and the public to facilitate making decisions before, during and after storm events
- Reduce the risk of life loss, injuries, and property damage

Progress Toward Program Objectives

Addresses Need to Reduce the risk of life loss, injuries, property damage w/in the Watershed

Emergency Action Plans ~ Watershed Management Authority (5 communities w/in Linn Co.)

Component of the Iowa-Cedar NIWR/IWR DSS

Prototype Cyber Platform & Communication Project

FEMA Community Rating System Credits

Opportunities to Implement Nationwide

Leverages Resources (USACE Project Budget: $70,000)

Agency	Investment In-Kind	
Iowa Flood Center NWS / USGS	Expand Iowa Flood Information System (IFIS) http://ifis.iowafloodcenter.org/ifis/main Adding Indian Creek FWS	$25,000
ICWMA	Personnel / Implementation / Maintenance	$25,000
Linn Co EMA	Personnel / Implementation / Maintenance	$10,000

Iowa Flood Center
IFIS Demonstration

http://ifis.iowafloodcenter.org/ifis/main/

IOWA FLOOD INFORMATION SYSTEM

The Iowa Flood Information System (IFIS) is a one-stop web-platform to access community-based flood conditions, forecasts, visualizations, inundation maps and flood-related data, information, and applications

LAUNCH IFIS

Watch IFIS Tutorial Video 

ABOUT IFIS 

IFIS HELP 

IFIS APPS 

IFIS WEB SERVICE 

IFIS MOBILE 

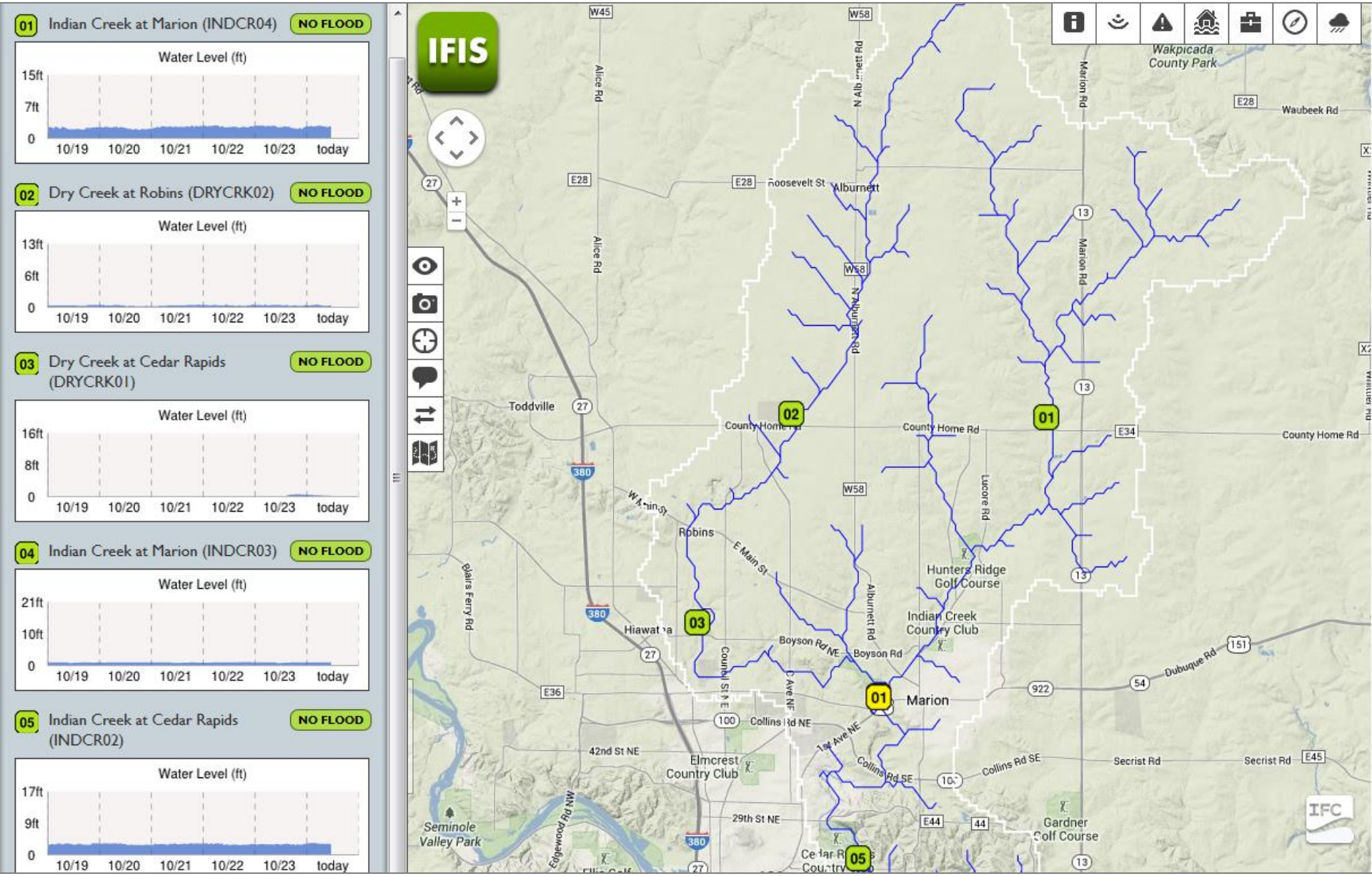
CONTACT IFIS 

Iowa Flood Center

IIHR

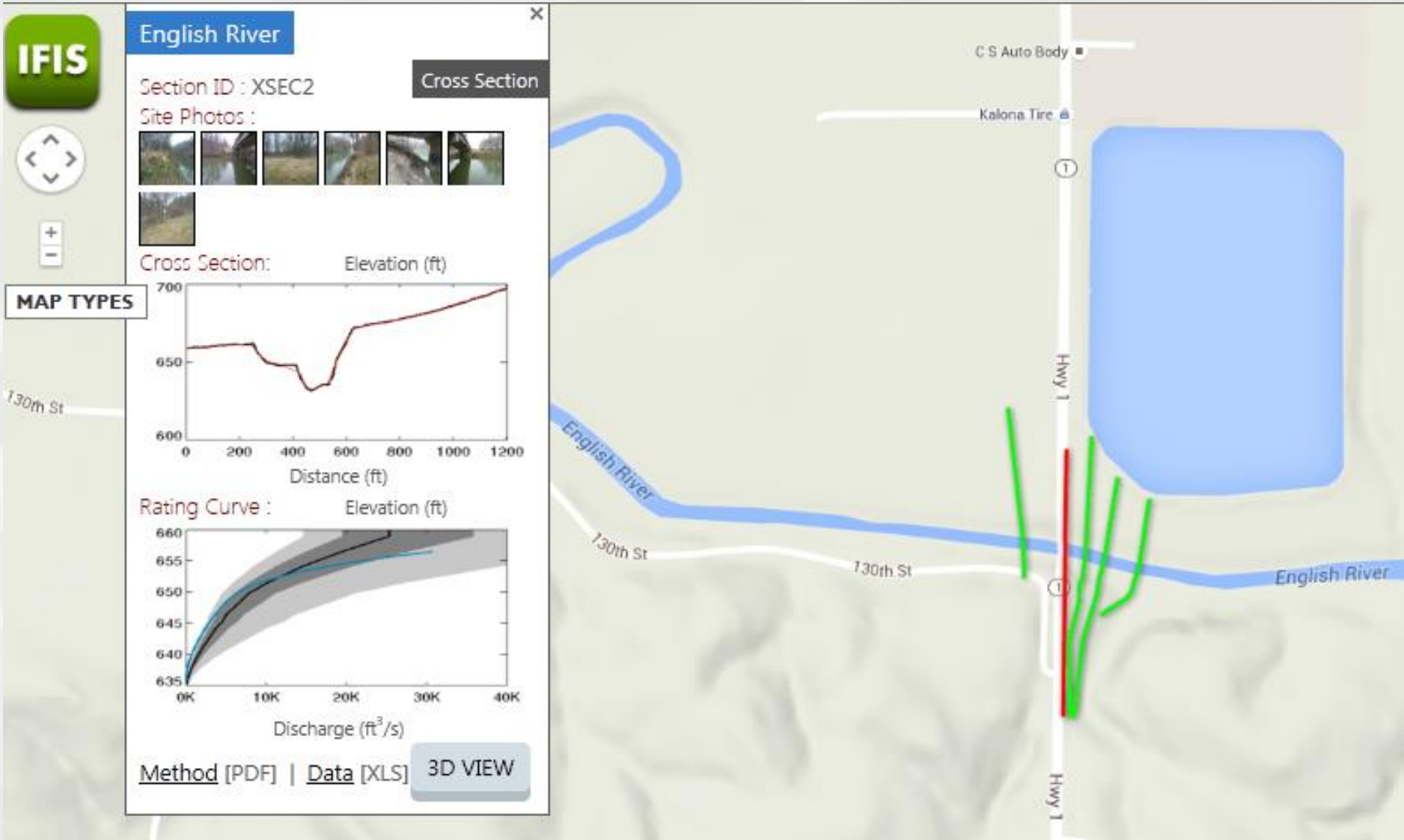
The University of Iowa

Follow


01 Indian Creek at Marion (INDCR04) NO FLOOD
Water Level (ft)
15ft
7ft
0
10/19 10/20 10/21 10/22 10/23 today
02 Dry Creek at Robins (DRYCRK02) NO FLOOD
Water Level (ft)
13ft
6ft
0
10/19 10/20 10/21 10/22 10/23 today
03 Dry Creek at Cedar Rapids (DRYCRK01) NO FLOOD
Water Level (ft)
16ft
8ft
0
10/19 10/20 10/21 10/22 10/23 today
04 Indian Creek at Marion (INDCR03) NO FLOOD
Water Level (ft)
21ft
10ft
0
10/19 10/20 10/21 10/22 10/23 today
05 Indian Creek at Cedar Rapids (INDCR02) NO FLOOD
Water Level (ft)
17ft
9ft
0
10/19 10/20 10/21 10/22 10/23 today
IFIS
Wakpicada County Park
Waubeek Rd
Alice Rd
Marion Rd
Roosevelt St
Alburnett
N Alburnett Rd
Toddville
County Home Rd
Robins
E Main St
Hunters Ridge Golf Course
Indian Creek Country Club
Hiawatha
Blairs Ferry Rd
Boyson Rd NE
Boyson Rd
Alburnett Rd
Lucore Rd
Marion
Dubuque Rd
Collins Rd NE
Collins Rd SE
1st Ave NE
42nd St NE
Elmcrest Country Club
Seminole Valley Park
29th St NE
Edgewood Rd NW
Gardner Golf Course
Serrist Rd
IFC

Iowa Bridge Sensor Rating Curve FRM Demonstration Project ~ Phase I

This project leverages the existing IFC bridge sensor network (IFIS) data to demonstrate the need for rating curve development at bridge sensor locations. Study partners (USACE, IFC, NWS, USGS, IDNR, HSEMD) has prioritized state-wide rating curve needs and is developing a standard procedure for rating curve data collection by leveraging available data (Iowa state LIDR data, bridge plans). The demonstration study products will be made available for flood preparedness planning.



Major Milestones & Deliverables

Accomplished Phase I

- Received funding: March 2015
- Team coordination / 5 sites selected / survey: April
- Preliminary results for team review: August
- http://ifis.iowafloodcenter.org/ifis/sc/ratingcurve

Remaining

- Team Review and Discussion: September
- Methodology refinements: October
- Phase II ~ double # of sites, refine methodology

Progress Toward Program Objectives

Addresses flood risk to achieve a shared goal of protecting life and property

Risk Communication and Evacuation Planning / Reduce Structural Damage

Complements Iowa Governor's 2014 Long Term Recovery Task Force

Safety of flood fight personnel improved

Implement Nationwide; efficiencies gained with where data is not readily available

Leverages Resources (USACE Project Budget: $45,000)

Agency	**Investment In-Kind $45,000**
Iowa Flood Center and USGS	Personnel / Bridge Sensor Network / IFIS Website
Iowa DNR, NWS, USGS, IFC, IDOT, HSEMD	Personnel / Risk Communication and Evacuation Planning

Iowa Silver Jackets Pilot Studies FY16

1) Iowa Bridge Sensor Rating Curve Demonstration Pilot Phase II (selected from June submissions)

2) Des Moines Evaluation of Urban Flooding Scenarios Study Phase II

3) Ecosystem Goods and Services Benefits of Non-Structural Flood Risk Management

4) Agricultural Flood Risk in the Iowa-Cedar Basin

Questions?

Steve
Iowa

Anthony
Peoria FAE

Chris
Illinois