

Upper Kansas Custom Watershed Discovery Meeting

September 2021

While we are waiting, please enter your name
and community in the chat box!



FEMA



wood.

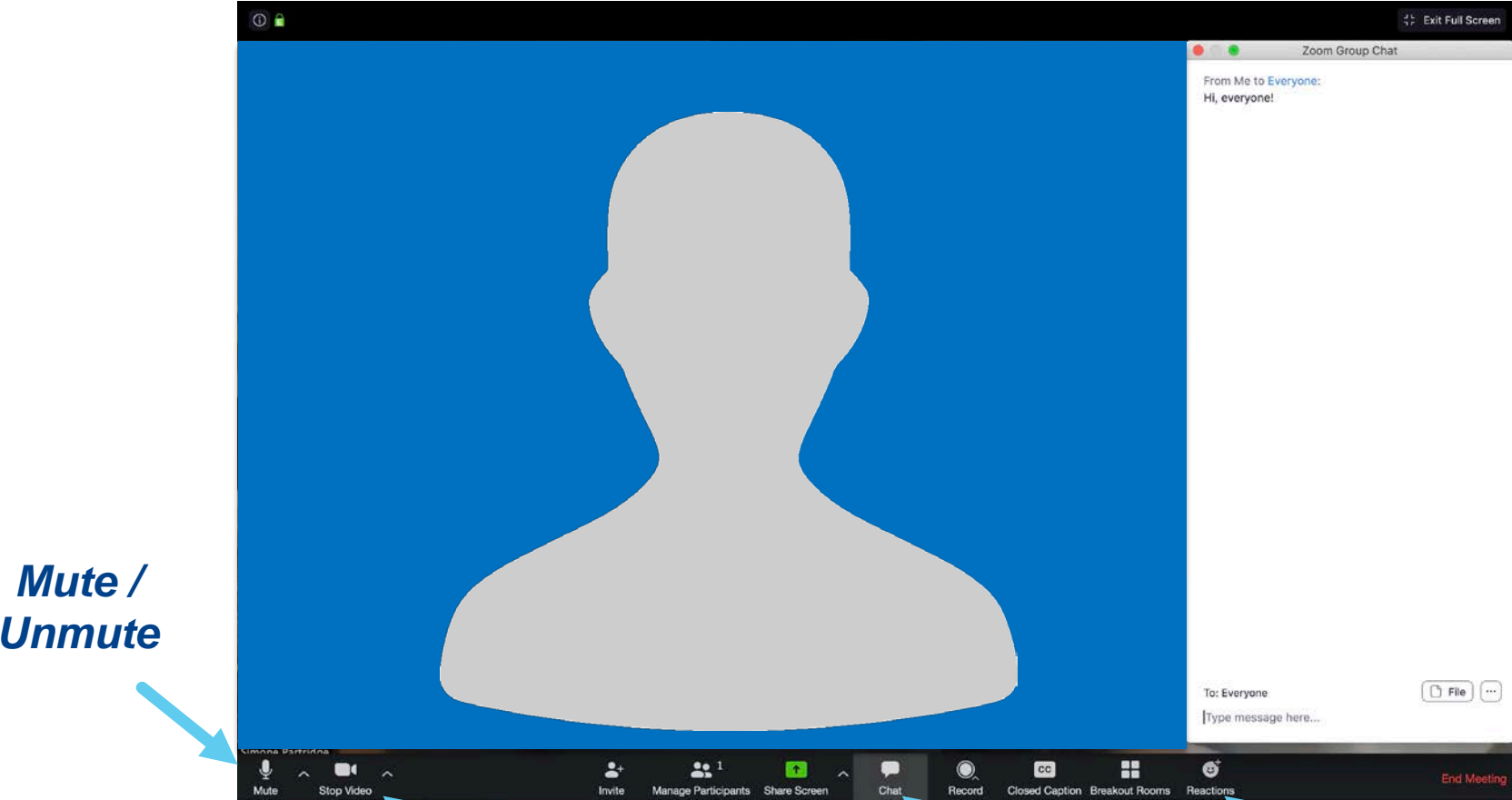


*Thank you for
joining us today!*

**Your input is very
important to this
work.**



Zoom Features



*Mute /
Unmute*

Start your Video

*Use the Chat
Feature*

Reactions

Rules of the Road

- Attendees will be muted during the presentation, to help eliminate background noise.
- Check out the chat to ask questions during the presentation! Or feel free to “raise your hand.” We will pause for questions at various stopping points and have several poll questions.
- If you want to share your video, please do!
- For technical difficulties: send a private chat to Joanna Rohlf or email Joanna.Rohlf@ks.gov.
- We’ll be recording this webinar for those who aren’t able to attend today.

Introductions

Kansas Department of Agriculture

Tara Lanzrath, *CFM*
Floodplain Mapping Coordinator

Joanna Rohlf, *CFM*
Floodplain Mapping Specialist

William Pace, *CFM*
Floodplain Mapping Specialist

Steve Samuelson, *CFM*
State NFIP Coordinator

Cheyenne Sun Eagle,
NFIP Specialist



Wood Environment & Infrastructure Solutions

Joe File, *PE, CFM*
Senior Associate/Program Manager

Maria Neeland, *PE, CFM*
Engineer

FEMA Region VII

Andy Megrail, *Regional Project Officer* ⁵

Today's Goals

Review

Review WHY WE DO THIS WORK



Share

Share WHERE WE ARE NOW & what the data is telling us about flood risk



Discuss

Discuss how WE CAN HELP



Preview

Preview the PLANNED WORK AHEAD and how we propose doing it.



Next Steps

Discuss Next Steps and YOUR ROLE in the Process

Why We Do This Work



FEMA Floodplain Mapping Program

- Risk Mapping, Assessment, and Planning (Risk MAP).
- Performed on a watershed basis.
- Consists of both Regulatory & Non-Regulatory Products.
- Through Risk MAP, we provide updated floodplain maps, as well as other (free!) data and tools that can help you plan to reduce your community's risk.

RiskMAP
Increasing Resilience Together

Planning: The “P” in Risk MAP

- The flood risk data from this work can – and should – inform your regional Hazard Mitigation Plan (HMP).
 - Region I: Geary, Pottawatomie, Riley, Wabaunsee County
 - Region J: Shawnee County
 - Region K: Douglas, Jackson & Jefferson Counties
- Common themes in the regional plans:
 - Identify and seek additional methods of financial and technical assistance for hazard mitigation projects.
 - Acquire or conduct structural remediation of floodprone properties.
 - Study and implement drainage issues in floodprone areas and make recommendations for flood control measures, flood management procedures, and low-water crossing improvements.





Where We Plan to Update Your Map

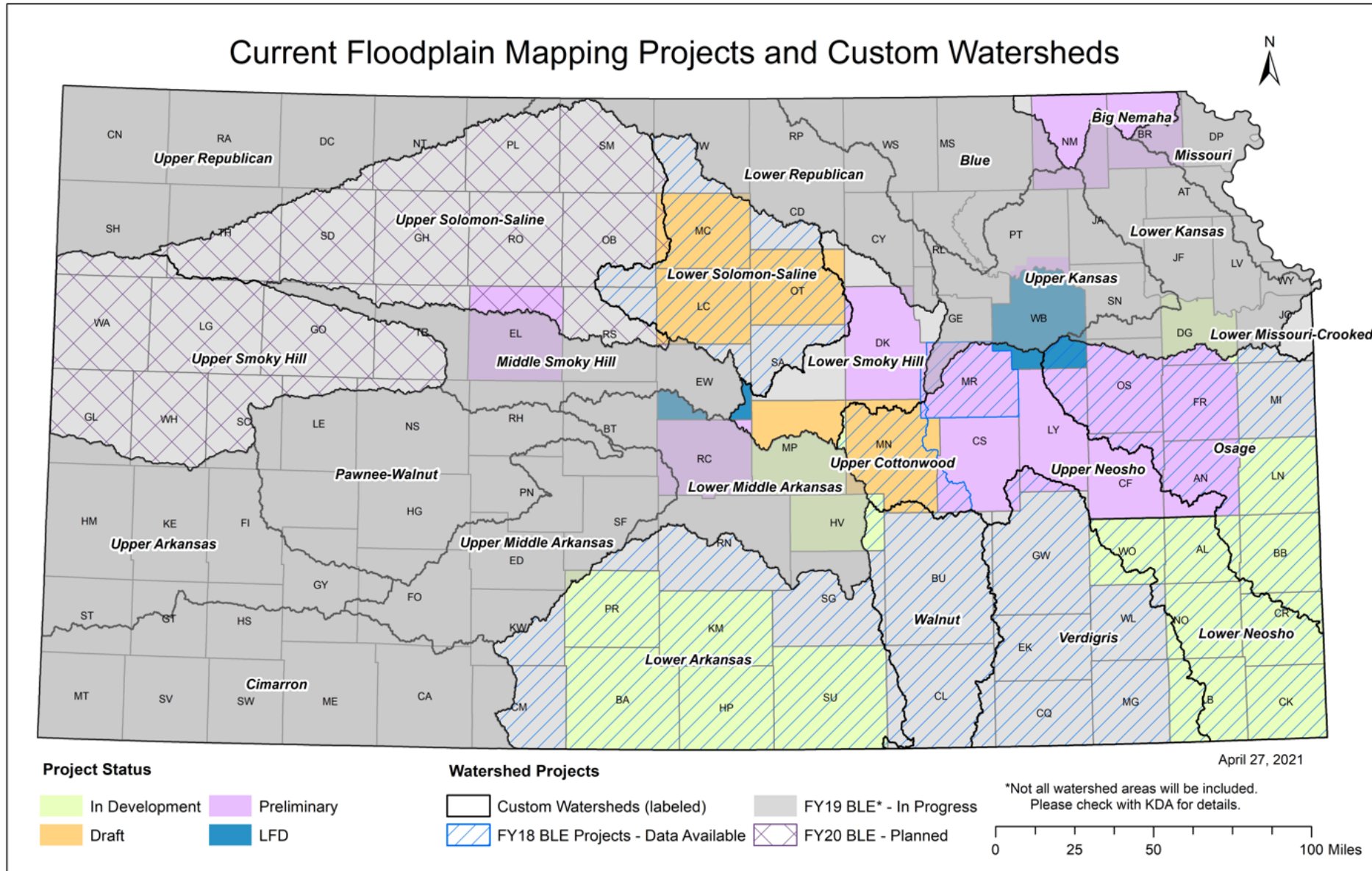
Preview of the Planned Work



- Pottawatomie County-
 - Mapping Update for areas outside of recent PMR Anticipated for 2022
- Jackson County-
 - Mapping Update Anticipated for 2022
- Douglas County-
 - Mapping Update in 2021/2022
- Other Counties-
 - TBD Based on Needs

Key	
	Mapping Update 2022
	Mapping Update 2021/2022

We are doing this work across Kansas...



Participation in the National Flood Insurance Program

- Blue = Participates Red = Not Participating
- Cities of Alma, Belvue, Delia, Emmett, Grandview Plaza, Grantville, Havensville, Hoyt, Leonardville, Louisville, Manhattan, Maple Hill, Mayetta, McFarland, Meriden, Ogden, Onaga, Paxico, Riley, Rossville, St. George, St. Marys, Silver Lake, Soldier, Topeka, Wamego, Westmoreland, Wheaton, and Willard
- Douglas, Geary, Jackson, Jefferson, Pottawatomie, Riley, Shawnee, and Wabaunsee Counties

Number of Flood Insurance Policies

- Douglas County – 69
- Geary County – 11
 - Grandview Plaza- 1
- Jackson County – 9
 - Delia- 0
 - Hoyt- 0
 - Mayetta- 0
 - Soldier- NP
- Jefferson County – 38
 - Grantville- NP
 - Meriden – 0
- Pottawatomie County – 83
 - Belvue- 0
 - Emmett- NP
 - Havensville- 0
 - Louisville- NP
 - Onaga- 1
 - St. George- 2
 - St. Marys- 10
 - Wamego- 22
 - Westmoreland- NP
 - Wheaton- NP
- Riley County – 67
 - Leonardville- NP
 - Manhattan- 419
 - Ogden- 11
 - Riley- 6
- Shawnee County- 187
 - Rossville- 99
 - Silver Lake- 22
 - Topeka- 758
 - Willard- 1
- Wabaunsee County- 14
 - Alma- 0
 - Maple Hill- 1
 - McFarland- 0
 - Paxico- 12

A person with long, wavy brown hair, wearing a blue jacket, is seen from behind, looking at a map. The map is held up and shows various geographical features and lines. The background is a blurred outdoor setting. The image is split vertically, with the left side having a blue overlay where the text is located.

Where We Are Now & What the Early Flood Risk Data is Telling Us

Base Level Engineering is Complete

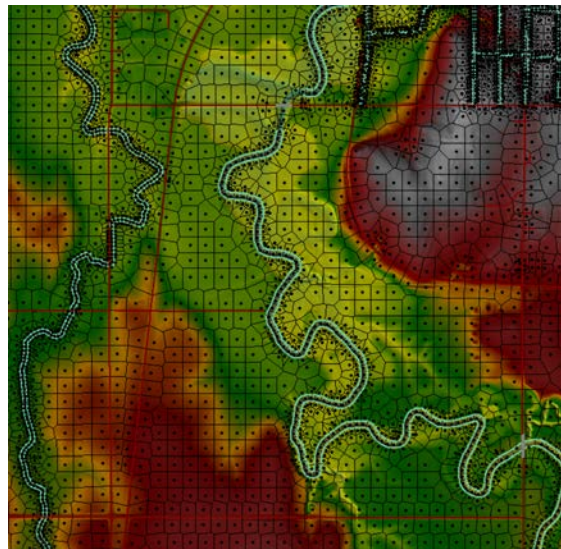
- BLE is an engineering approach that provides an initial high-level (or “base line”) understanding of flood hazards, with enough information for us to draft initial floodplain designations.
- We’re starting to develop and share this initial data because we’ve learned that the earlier we start partnering with you, the more accurate the map.

FLOODPLAIN: On the maps we create, the floodplains, also known as Special Flood Hazard Areas (SFHAs), are areas with high flood risk – where a flood of a certain level has a 1-percent chance of happening each year.

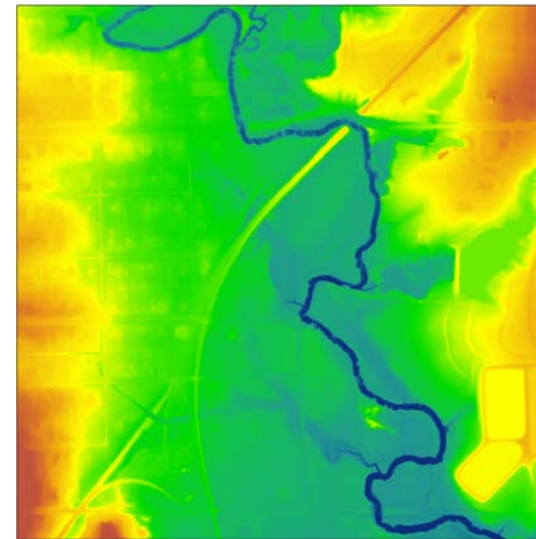
We Use 2D Hydraulic Modeling and LIDAR in our BLE

- Your current maps are done in one dimension (1D) and are based on 10-meter Digital Elevation Model
- Two-dimensional (2D) modeling and LIDAR- enhanced maps provide greater resolution and the ability to analyze how water moves across land using elevations and depth grids

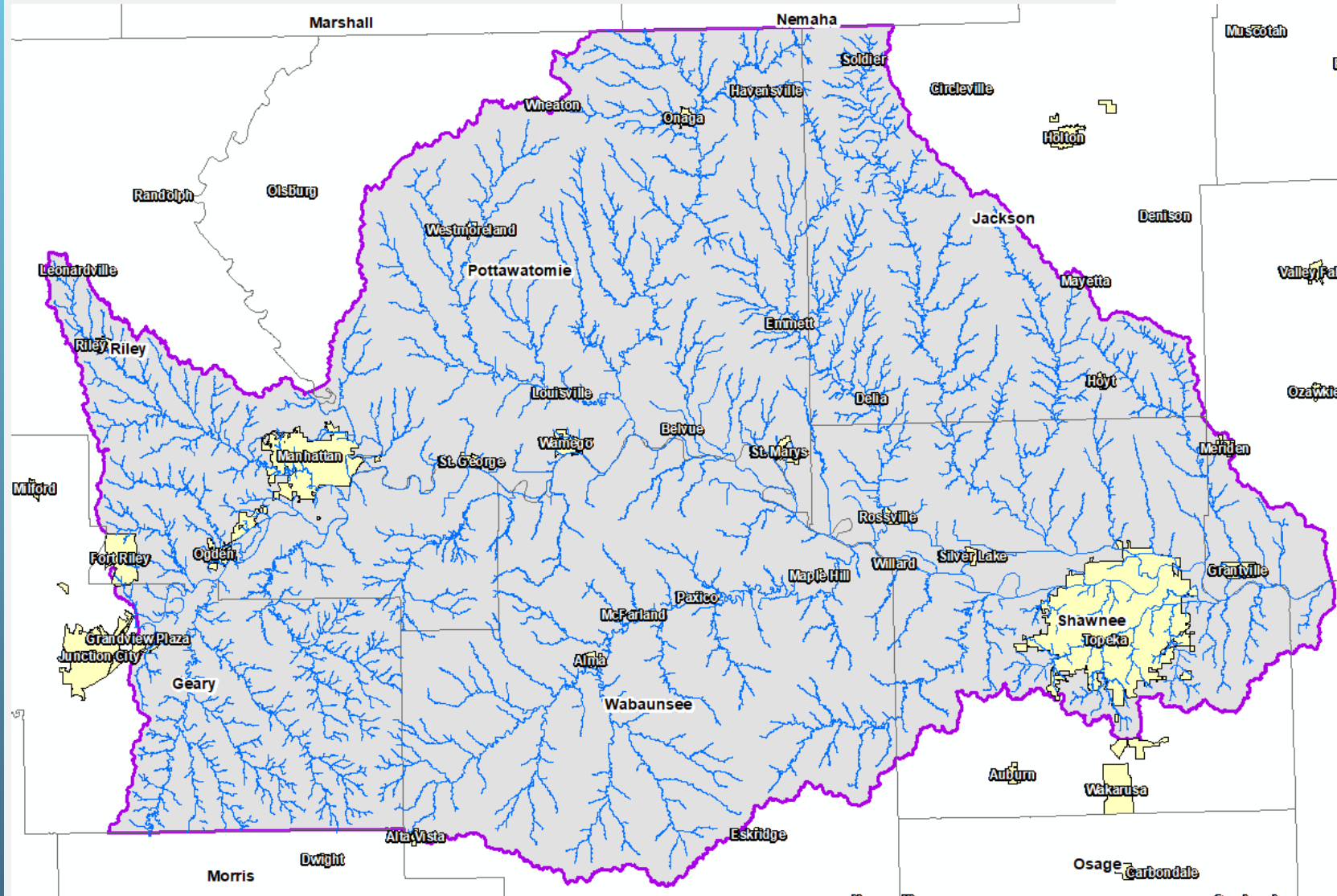
2D



LiDAR



BLE Study Area



- BLE floodplains are complete for this study area

Limitations of BLE Modeling

- Hydraulic structures, such as culvert and bridge openings, are not included
- Storm sewer networks in communities are not included
- Levees are not accurately modeled because closure structures are not included into the model to prevent backwater

Identified Flood Risk Areas

- Areas impacted by releases from Tuttle Creek Reservoir
- Sedimentation and debris jams leading to reduced channel capacity
- Shallow flooding areas due to water not being able move
- Lack of defined overflow channels or outlets during large floods
- Levees offer flood protection, but there is also a level of risk.

Where We Are Now: DISCOVERY

This is one of the most important phases of our work, where we:

- Review the flood risk information together and get your feedback;
- Identify the new data we might need to accurately update your flood risk; and
- Determine, with you, where mitigation (taking steps to reduce risk) makes sense for your community.

Discovery Report and Map

Discovery Report

Upper Kansas Custom Watershed
 HUCS 10270101, 10270102, 10270205

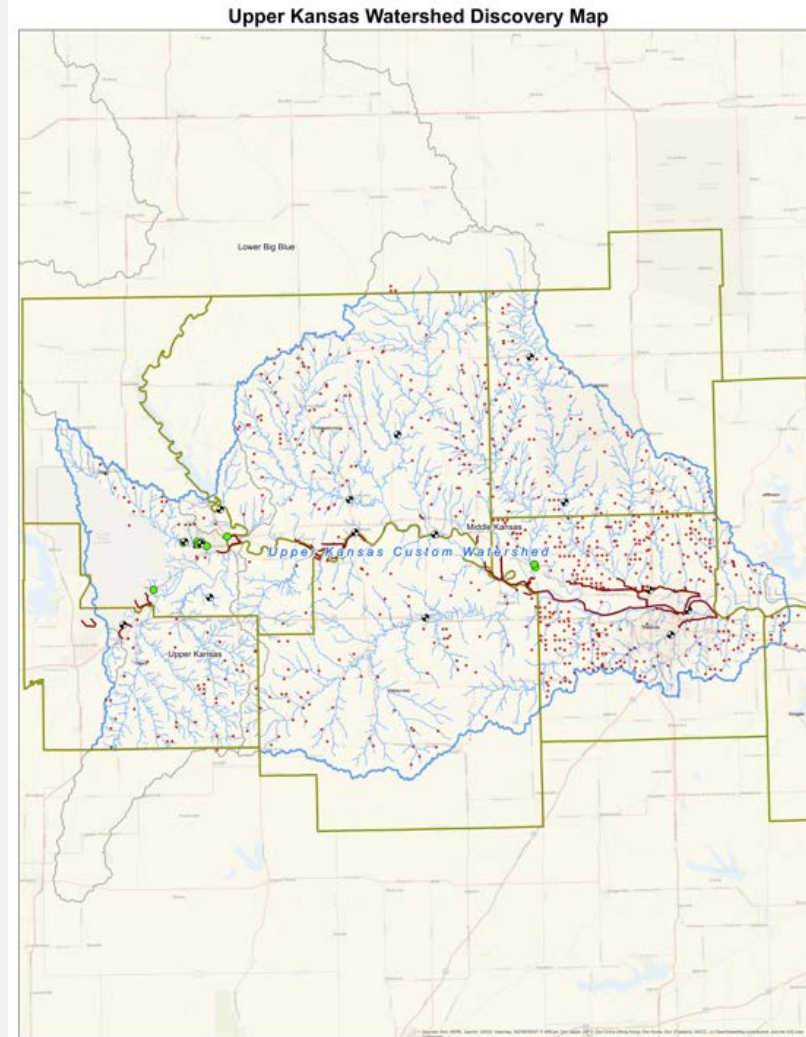
Cities of Alma, Alta Vista, Belvue, Delia, Emmett, Fort Riley, Grandview Plaza, Grantville, Havensville, Hoyt, Louisville, Manhattan, Maple Hill, Mayetta, McFarland, Meriden, Ogden, Onaga, Paxico, Riley, Rossville, Silver Lake, Soldier, St. George, St. Marys, Topeka, Wamego, Westmoreland, Wheaton, Willard

Douglas, Geary, Jackson, Jefferson, Pottawatomie, Riley, Shawnee, Wabaunsee Counties

Prairie Band Potawatomi Nation

Report Number 01

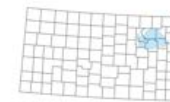
DRAFT



**MAP SYMBOLOLOGY
 RISK MAP DATA**

- Gages
 - Repetitive Loss Clusters
 - Dams
 - Levees
 - Counties
 - BLE Stream Lines
- NFIP**
- NA
 - No
 - Yes
 - Upper Kansas Custom Watershed

WATERSHED LOCATOR



Douglas, Geary, Jackson, Jefferson, Pottawatomie, Riley, Shawnee, and Wabaunsee Counties

**NATIONAL FLOOD INSURANCE PROGRAM
 Discovery FLOOD RISK MAP**

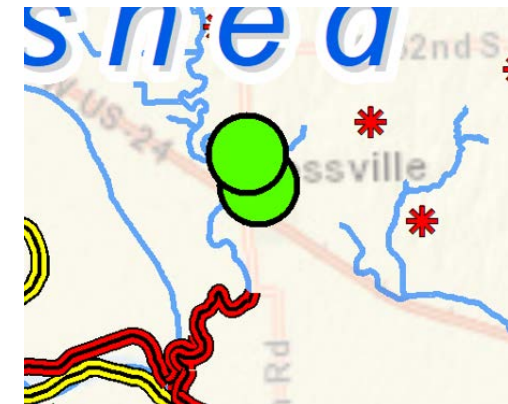
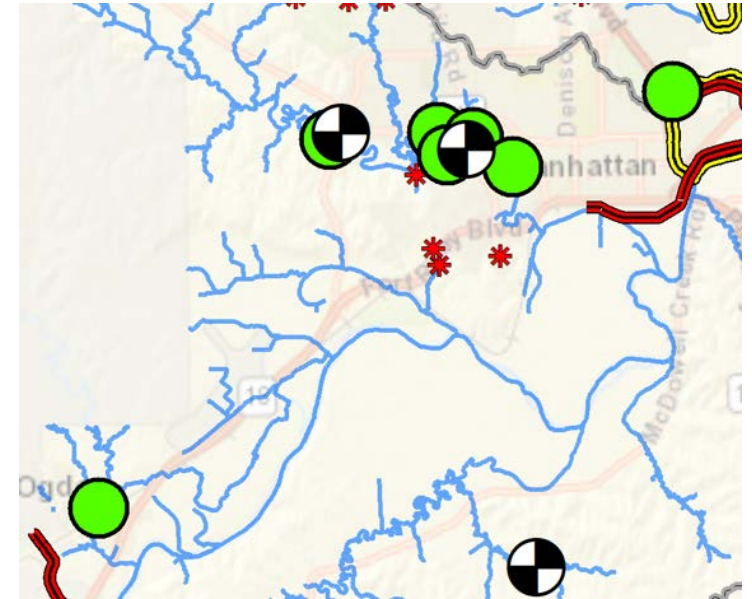


Repetitive Loss Structures

Insurable buildings for which the NFIP paid 2 or more claims of more than \$1,000 in a 10-year period.

- Six clusters in or near Manhattan
- One cluster in Ogden
- Two clusters in Rossville

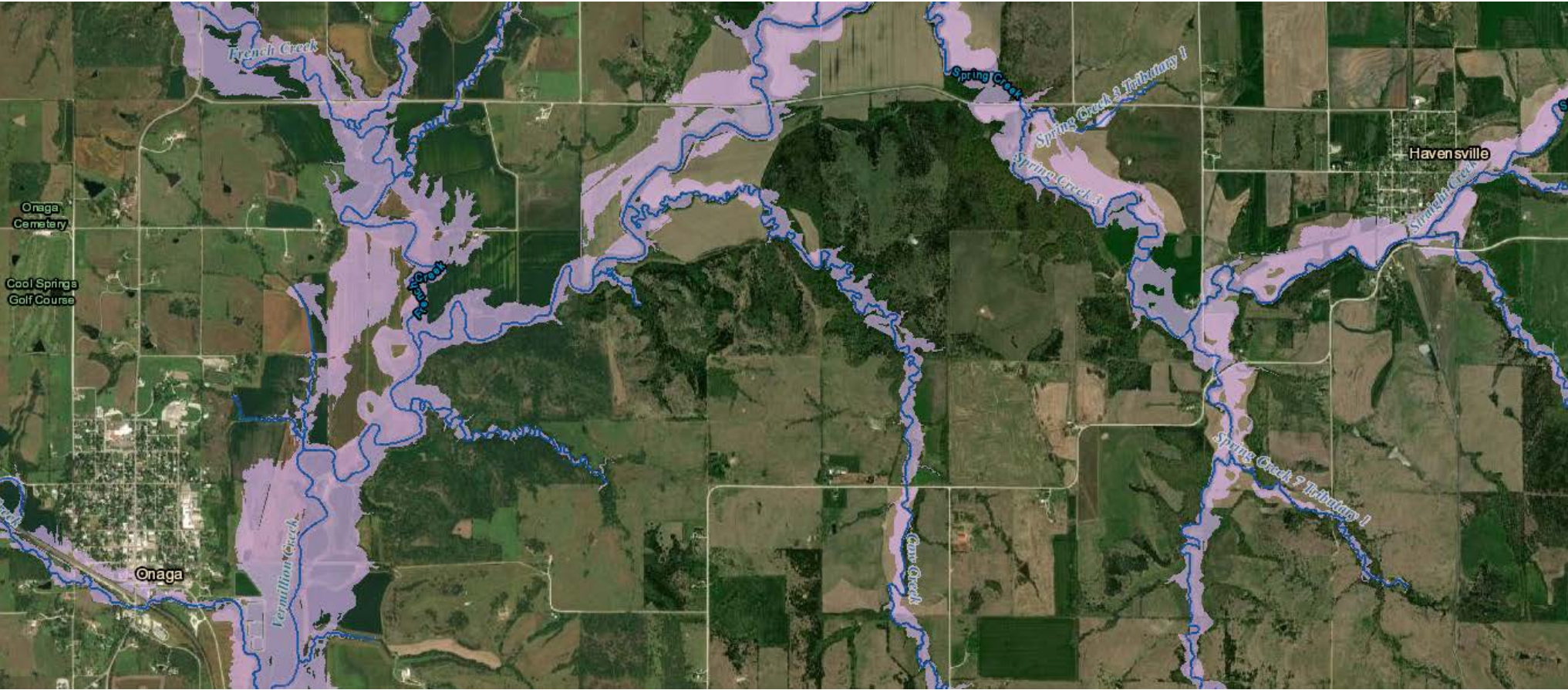
NOTE: if you have an area where structures have been repeatedly damaged, we want to know! It's worth taking a closer look, and we might be able to help.



● Repetitive Loss Clusters

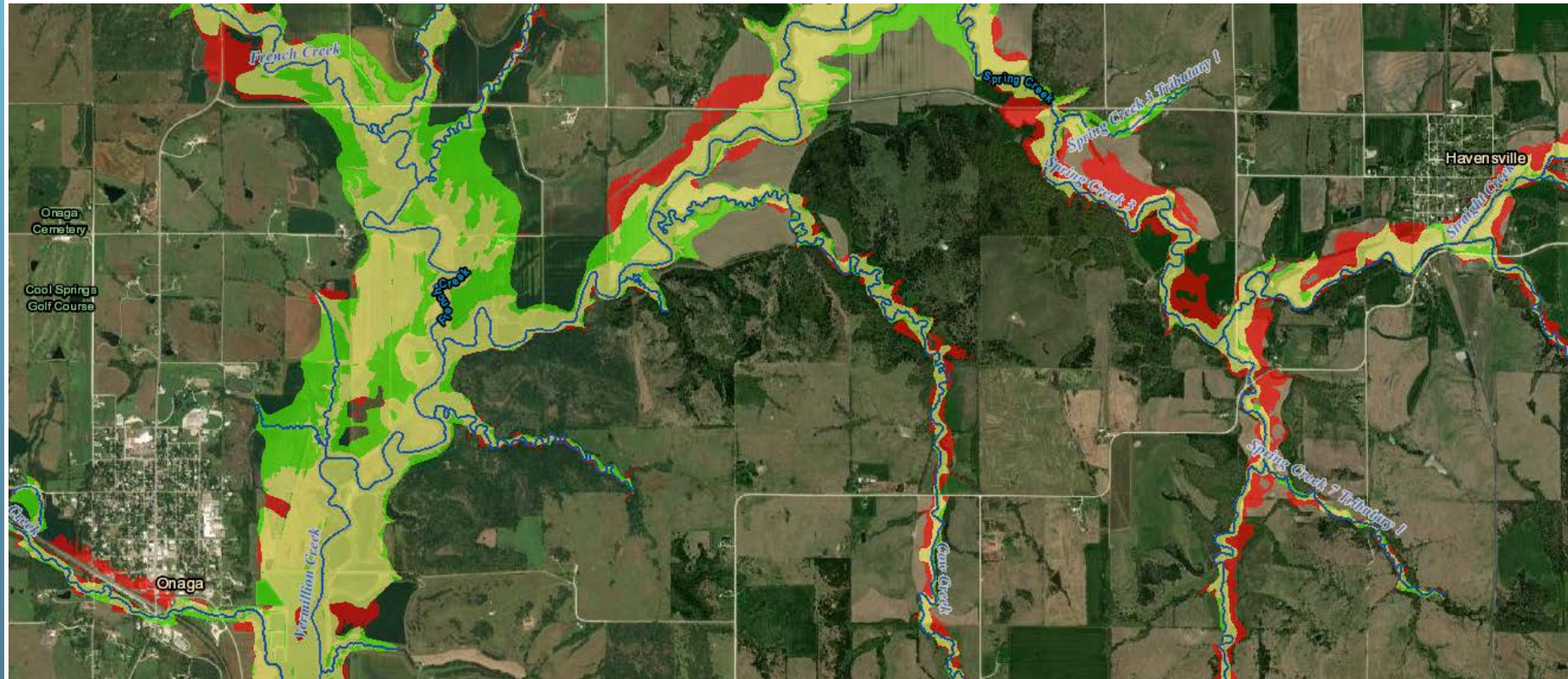
Draft Floodplains

BLE Floodplain



Changes Since Last Flood Insurance Rate Map (FIRM)

BLE Floodplain compared to Current Effective Floodplain



Yellow: Same

Red:
New SFHA

Green:
Removed SFHA

How We Can Help

“Mitigation Technical Assistance”



Some Ways We Can Help

- Provide ideas on how to reduce flooding in trouble spots.
- Provide risk assessments for structures in your community, to help property owners understand the need for flood insurance, or to help you protect important public buildings.
- Use engineering analysis to show you what types of projects could reduce the impacts in floodprone areas.
- Assist with the Benefit-Cost Analysis if you are putting together a grant application.
- Support your participation in the Community Rating System.
- Help you explain flood risk and what it means to your community members.

Technical Assistance

TECHNICAL ASSISTANCE PROJECTS

- Hoisington
- South Hutchinson
- Solomon
- Topeka
- Gypsum
- Osawatomie
- Sun City
- Winfield
- Dodge City
- Upper Republican
- Garden Plain

TECHNICAL ASSISTANCE INFORMATION

FEMA Funds for technical assistance projects have come available in recent Cooperating Technical Partner (CTP) funding cycles. These projects do not include funding for construction of projects, but they can be utilized for modeling mitigation scenarios for possible projects. These funds can be applied for grant-related purposes, ordinance or code support, engineering and analysis, planning, outreach and education. Communities within Kansas can apply for Technical Assistance support through KDA, though priority will be given where there are active [mapping projects](#). For questions, please contact Tara Lanzrath, by phone at 785-296-2513 or [email](#).

[Technical Assistance Request Fillable Form](#)

You can visit the KDA website for more information, including a link to a fillable request form:

<https://www.agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/technical-assistance>

Preview of the Planned Work

Which We Call Our Data
Development Scope



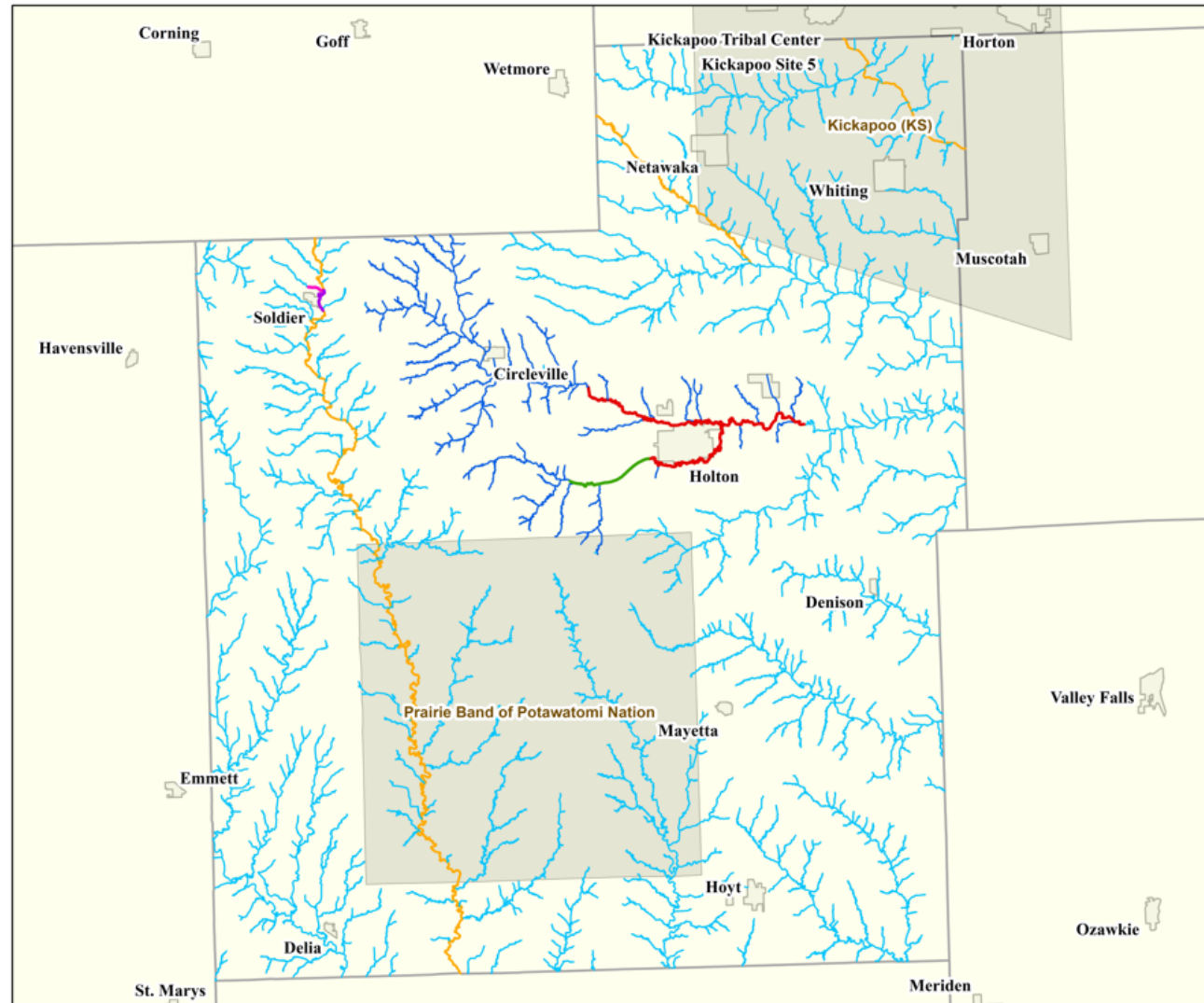
Where We Plan to Update Your Map

Preview of the Planned Work

Jackson County 2022 Proposed Mapping Updates

Scoped Studies

- New Zone A - Excess Rainfall on Grid**
New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.
- New Zone A - Gage Analysis**
New Zone A studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to Gage Analysis flows.
- New Zone A - HEC-HMS**
New Zone A studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to HEC-HMS model flows.
- New Zone AE with Floodway - HEC-HMS**
New Zone AE studies will be developed for these streams using 1D or 2D Hec-Ras hydraulics and hydrology calibrated to HEC-HMS model flows. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
- New Static AE - HEC-HMS**
New Static Zone AE studies will be developed for these streams using a HEC-HMS model to determine static water surface elevations.
- New Enhanced A - Gage Analysis**
New Enhanced Zone A studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to Gage Analysis Flows. Field measured structure data will be incorporated into the modeling.
- New Enhanced Zone A - Excess Rainfall on Grid**
New Enhanced Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Field measured structure data will be incorporated into the modeling.



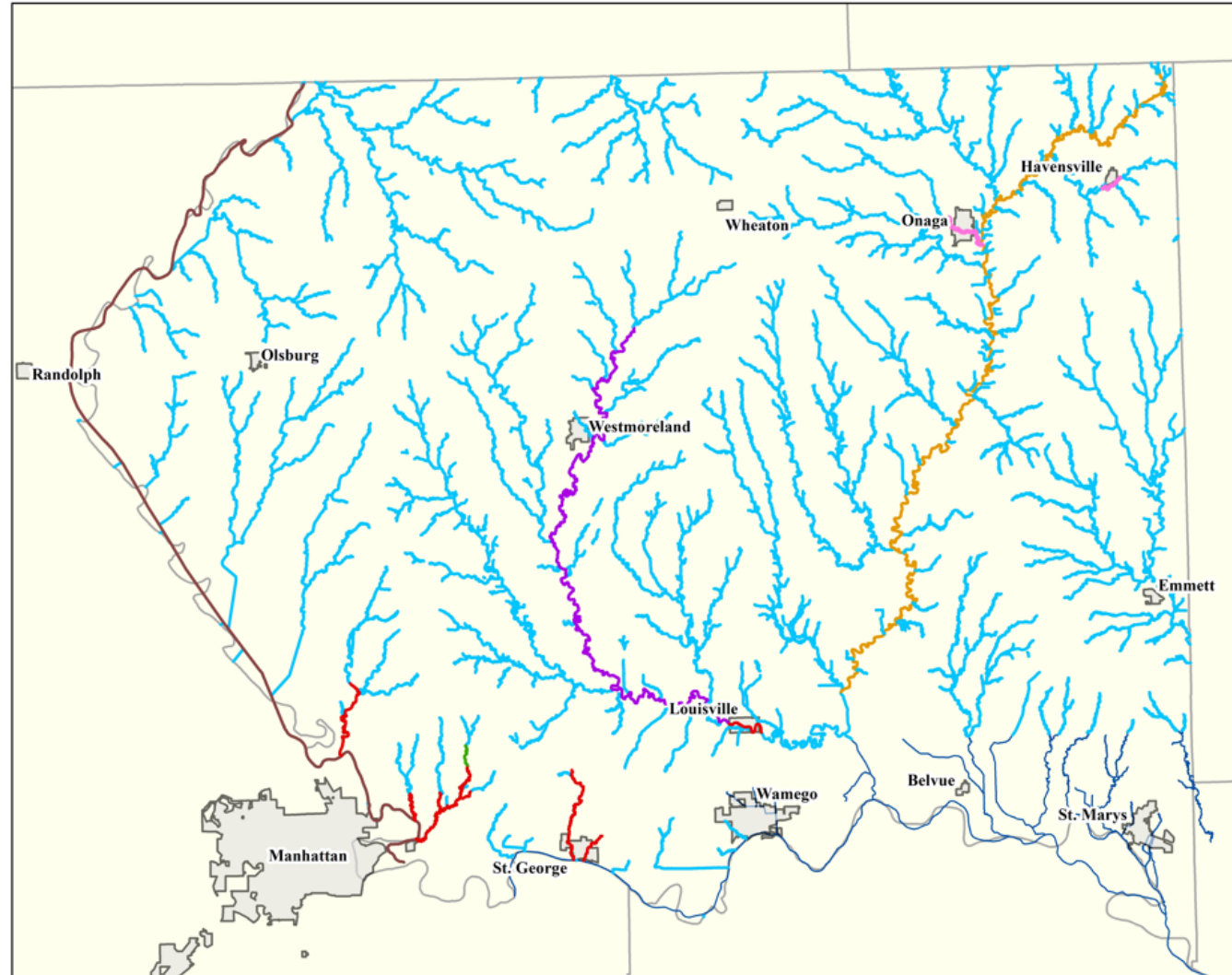
Where We Plan to Update Your Map

Preview of the Planned Work

Pottawatomie County 2022 Proposed Mapping Updates

Scoped Studies

- New Zone A - Excess Rainfall on Grid**
New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.
- New Zone A - Gage Analysis**
New Zone A studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to Gage Analysis flows.
- New Zone AE with Floodway - HEC-HMS**
New Zone AE studies will be developed for these streams using 1D or 2D Hec-Ras hydraulics and hydrology calibrated to HEC-HMS model flows. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
- New Zone AE without Floodway - Gage Analysis**
New Zone AE studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to Gage Analysis Flows. Floodways will not be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
- New Static AE - HEC-HMS**
New Static Zone AE studies will be developed for these streams using a HEC-HMS model to determine static water surface elevations.
- New Enhanced Zone A - Excess Rainfall on Grid**
New Enhanced Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Field measured structure data will be incorporated into the modeling.
- Redelineation**
Effective water surface elevations for these streams/areas will be re-mapped on newer LiDAR topography, creating updated boundaries for the Special Flood Hazard Area.
- Incorporation of Recent Mapping Updates for the Middle Kansas Watershed project.**











Where We Plan to Update Your Map

Preview of the Planned Work

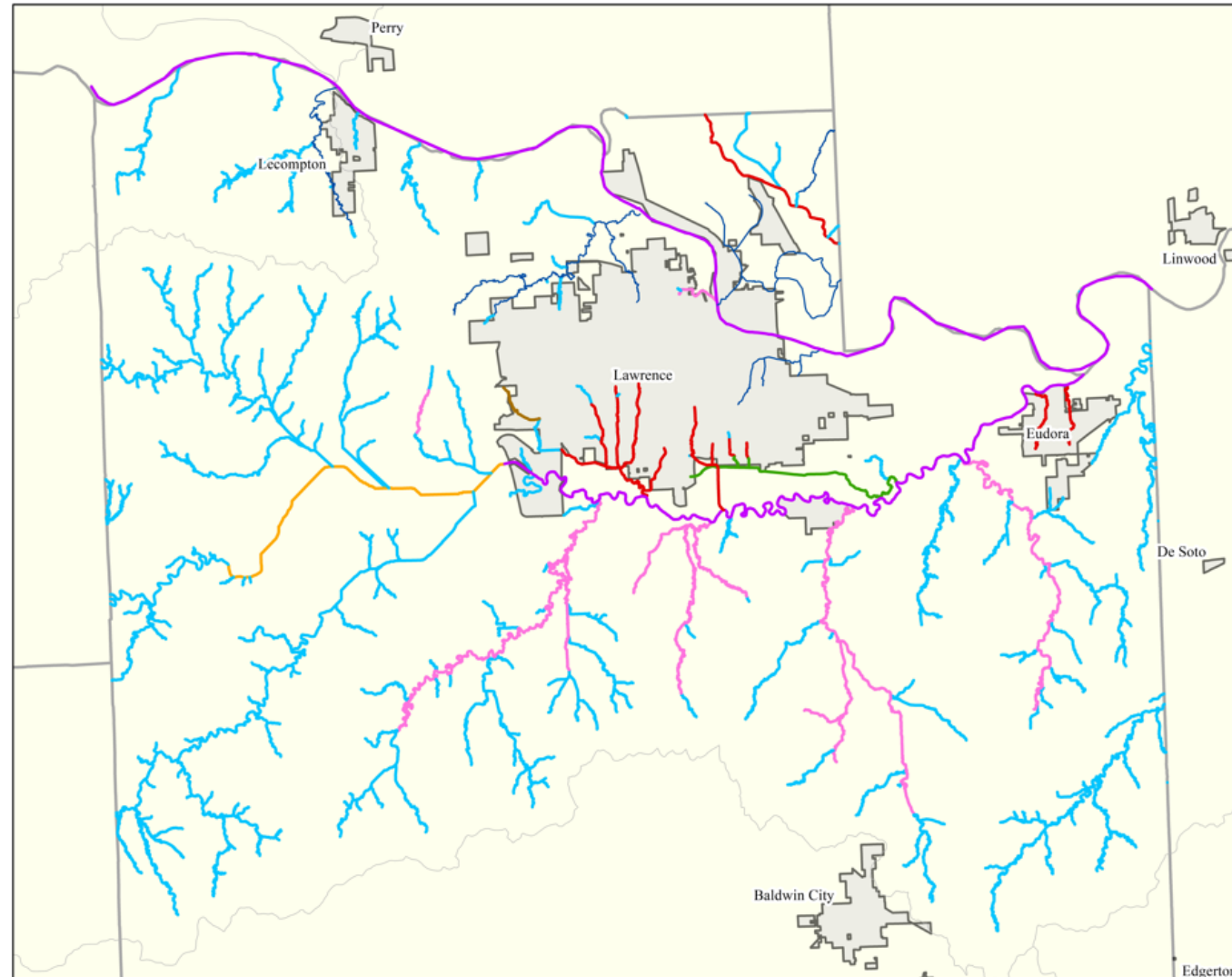
Douglas County 2021 Proposed Mapping Updates

Scoped Studies

-  **New Zone A - Excess Rainfall on Grid**
New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.
-  **New Zone AE with Floodway - HEC-HMS**
New Zone AE studies will be developed for these streams using 1D or 2D Hec-Ras hydraulics and hydrology calibrated to HEC-HMS model flows. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
-  **New Zone AE with Floodway - Gage Analysis**
New Zone AE studies will be developed for these streams using 1D or 2D Hec-Ras hydraulics and hydrology calibrated to Gage Analysis Flows. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
-  **New Zone AE with Floodway - Excess Rainfall on Grid**
New Zone AE studies will be developed for these streams using 1D or 2D Hec-Ras hydraulics and excess rainfall-on grid hydrology. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
-  **New Zone AE without Floodway- HEC-HMS**
New Zone AE studies will be developed for these streams using 2D Hec-Ras hydraulics and hydrology calibrated to HEC-HMS model flows. Floodways will not be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
-  **New Static AE - Statistical Analysis**
New Static Zone AE studies will be developed for these streams using a statistical analysis of USACE information to determine static water surface elevations.
-  **New Static AE - HEC-HMS**
New Static Zone AE studies will be developed for these streams using a HEC-HMS model to determine static water surface elevations.
-  **Incorporation of Existing Studies**



0 2.5 5 10 Miles



Data Development Scope

- Zone A
 - Additional Calibration to:
 - Gage Analysis for watershed
 - Rainfall-Runoff Modeling (HEC-HMS) in watershed
 - Historical Information
 - No Base Flood Elevations (BFEs) on the regulatory map, but available
 - Water Surface Elevation and Depth Grids generated
 - In most areas, not a lot will change from the BLE data

Data Development Scope

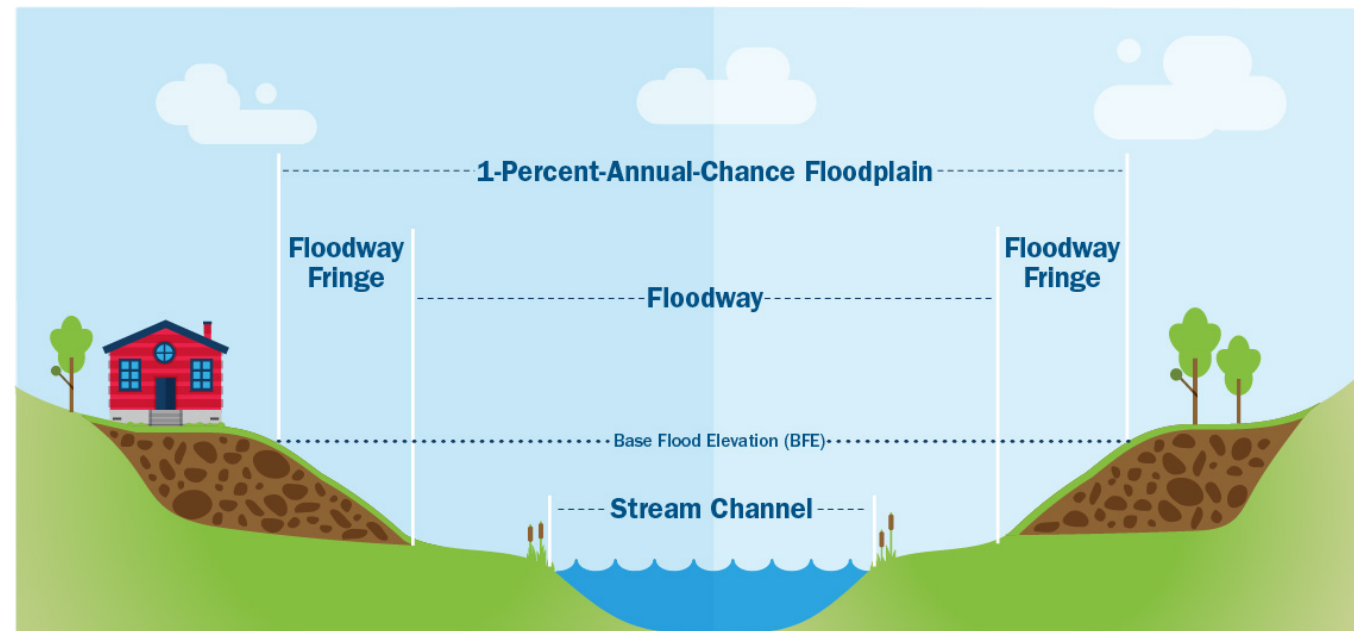
- Zone AE
 - Culvert and bridge openings are included in the modeling
 - Added detail to breaklines and land cover data in the modeling
 - Additional calibration to:
 - Gage Analysis
 - Rainfall-Runoff Modeling (HEC-HMS)
 - Historical Information
 - May have a floodway
 - Base Flood Elevations (BFEs) will be shown on the regulatory map
 - Water Surface Elevation and Depth Grids will be generated

Data Development Scope

- Static AE
 - Static Elevations determined from:
 - Statistical Analysis of stage data
 - Rainfall-Runoff Modeling (HEC-HMS)
 - Base Flood Elevations (BFEs) will be shown on the regulatory map
 - Water Surface Elevation and Depth Grids will be generated

What is a Floodway?

- Zone AE: with or without a floodway
 - If there is a floodway on the current map, the new map must have a floodway
 - If there is not a current floodway, a floodway is optional



Next Steps and Your Role in the Process



Project Timeline

Discovery Meeting: Today!

- *What data could contribute to making the map as accurate as possible?*
- *Revisit what flood risk reduction steps you are considering and how we can help!*
- *Provide feedback on data development scope, and mapping needs by 10/15/2021*

Data Development Work:

- *Douglas County (2021 and 2022)*
- *Jackson County (anticipated for 2022)*
- *Pottawatomie County (anticipated for 2022)*

Your review and feedback on the draft maps

Project Timeline, continued

Once **feedback is received**, there is a public review of the draft maps

- *We'll need your help in getting the word out to your residents*

**Preliminary
Map
Products**

**Post-
Preliminary
Processing**



STEP ONE: Provide Feedback on the BLE Maps

We want to incorporate your feedback into our work ahead.
This could include:

- Review BLE floodplains and comment
- Review stream extents and comment
- Provide information on community needs or areas of specific concern.
 - Intersections that often flood and stop traffic
 - Drainage problems
 - Parts of town where homes or businesses have flooded

How?

- Provide comments directly on the map (we'll show you how in a minute)
- Email this team
- Call one of us!

STEP TWO: Provide Insight and Data

Provide information that would be useful for our mapping team to be aware of.

- Are there areas of recent construction/development?
- Are there plans for new construction/development?
- Are there tricky areas that may require a closer look?
- Do you have projects underway, related to flooding, that we could help with?
- Do you have information you have about past flooding, such as high water marks?
- Do you have updated Aerial Imagery (We typically use the latest imagery from NAIP)?
- Do you have survey or as-built plan information (culverts, bridge openings, channel geometry)?
- Are there any revision approved for your previous map (Letters of Map Revision or Amendments)?

STEP THREE: Review Modeling Approach

Provide input on our proposed approach for the Data Development that will inform your regulatory map (also known as your Flood Insurance Rate Map, or FIRM)

- Comment period goes until 10/15/2021 (More time can be provided if needed)

Benefits of joining the NFIP!

- Property owners would be able to insure against flood losses
- Qualify for federal grants or loans for development
- Qualify for federal disaster assistance for damages caused by a flood
- Adoption of a floodplain management ordinance leads to smart development against flood risk



Key Takeaways

- This process is going to take time.
- Your involvement will help us produce better maps!
 - Get the word out and encourage participation in this project.
 - Review information as it becomes available.

DON'T HESITATE TO CALL; WE ARE AVAILABLE.

Stay Informed

- Email List
 - Get us names, addresses, and titles
 - Will be main source of project updates
- Project Updates
 - When important milestones are reached
 - When action is necessary (reminders)
- Meetings
 - Five planned meetings
 - **For BLE/Discovery:** Kickoff (**DONE**), Discovery Meeting (**Today!**)
 - **For Regulatory Updates:** Flood Risk Review, Open House, Post-Preliminary CCO meeting
 - Others, as needed

Resources and Contact Information

Online Project Information

- **Project Website**

- Scoping Maps, Project Timeline, Meeting Presentations, Newsletters, Technical Reports, Web Review Map
- https://agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/mapping-projects/lists/mapping-projects/upper_kansas/

- **Web Review Map**

- Review of BLE data
 - Link will not be public facing until the project has been through Data Development. Link available on request.


- **Story Maps**

- Project Info
- “Floodplain Current:” Mapping Process ‘Nuts and Bolts’

Base Flood Elevation Portal

For Zone A floodplains, you can request BFE data. Keep in mind, BLE data is subject to change.

https://maps.kgs.ku.edu/fpm_bfe/login.cfm



The screenshot shows the registration page for the Kansas Base Flood Elevation Portal. At the top left is the Kansas Department of Agriculture logo with the motto "QUAESTRA PER ARVEM". To the right of the logo is the text "Kansas Base Flood Elevation Portal". Below this is a navigation bar with three buttons: "Home", "About", and "Help". The main heading is "Portal Registration". The form consists of the following fields:

- First Name:
- Last Name:
- User name:
- Title:
- Phone:
- Email Address:
- Address:
- City:
- Zip:
- State:

At the bottom right of the form is an orange "Register" button.

KDA Contact Information

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Floodplain Mapping Specialist

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State NFIP Coordinator

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NFIP Specialist

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Senior Associate / Program Manager

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maria.neeland@woodplc.com

D: 785-414-3127 M: 785-410-7499

Project Manager

FEMA Contact Information

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Andy.Megrail@fema.dhs.gov

O: 816-283-7982 M: 816-807-3014

Regional Project Officer

Any Questions?

Interactive Map Review and Discussion