

Lower Middle Arkansas Custom Watershed Discovery Meeting

January 13, 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.**

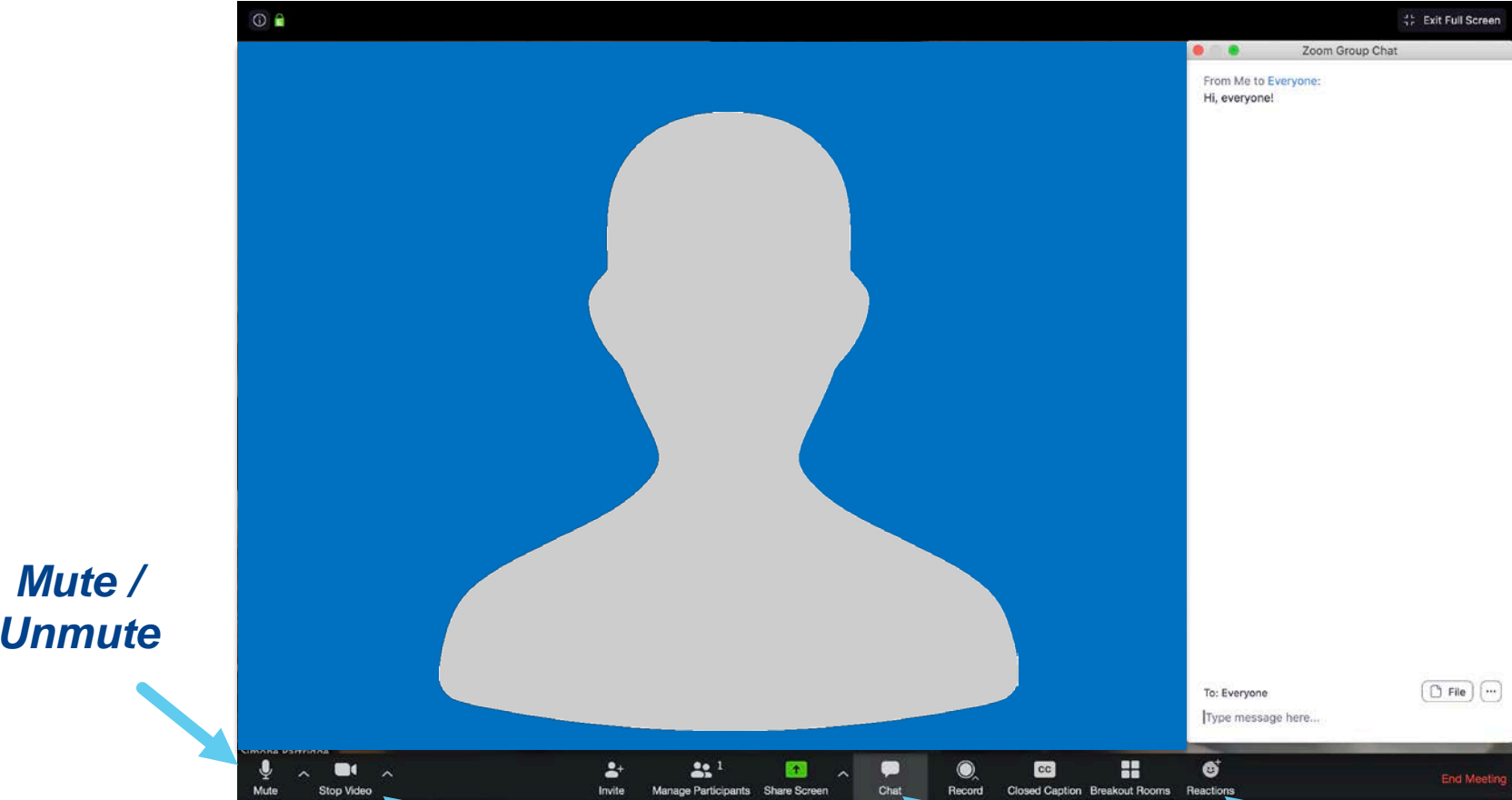
A close-up photograph of a yellow sign with the words "THANK YOU" in large, bold, black, sans-serif capital letters. The sign is mounted on a wall and is the central focus of the right half of the image.

**THANK
YOU**

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.

Zoom Features



*Mute /
Unmute*

Start your Video

*Use the Chat
Feature*

Reactions

Intros

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*
Project Manager

FEMA Region VII

Andy Megrail, *Regional Project Officer* ⁵

Today's Goals

Review

Review WHY WE DO THIS WORK in the first place



Update

Update you on WHAT WE'VE LEARNED to date



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.

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

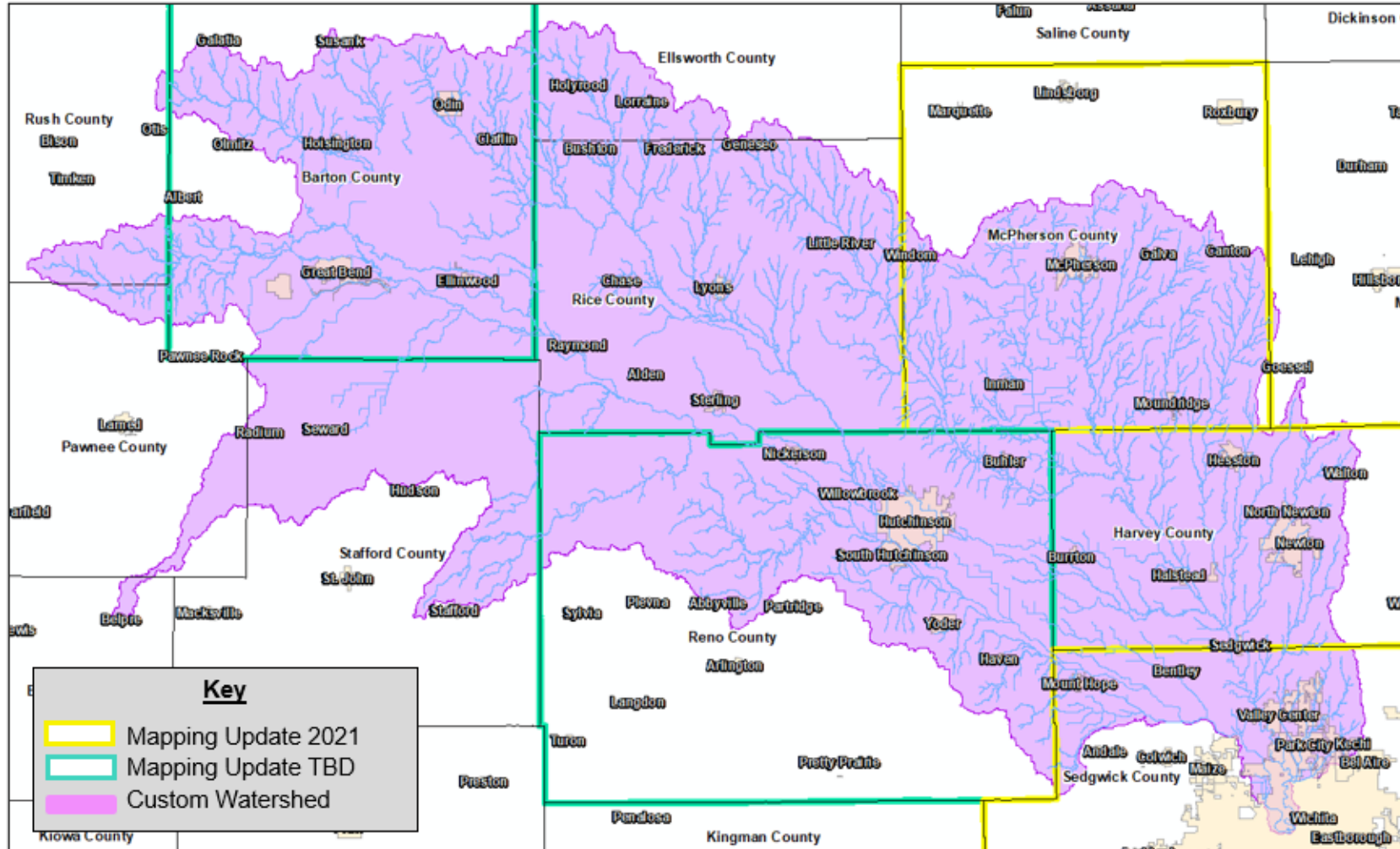
Planning: The “P” in Risk MAP

- The flood risk data from this work can – and should – inform your regional Hazard Mitigation Plan (HMP).
 - Region E: Barton and Stafford
 - Region G: Harvey, McPherson, Rice, Reno, and Sedgwick
 - Region F: Ellsworth
- 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

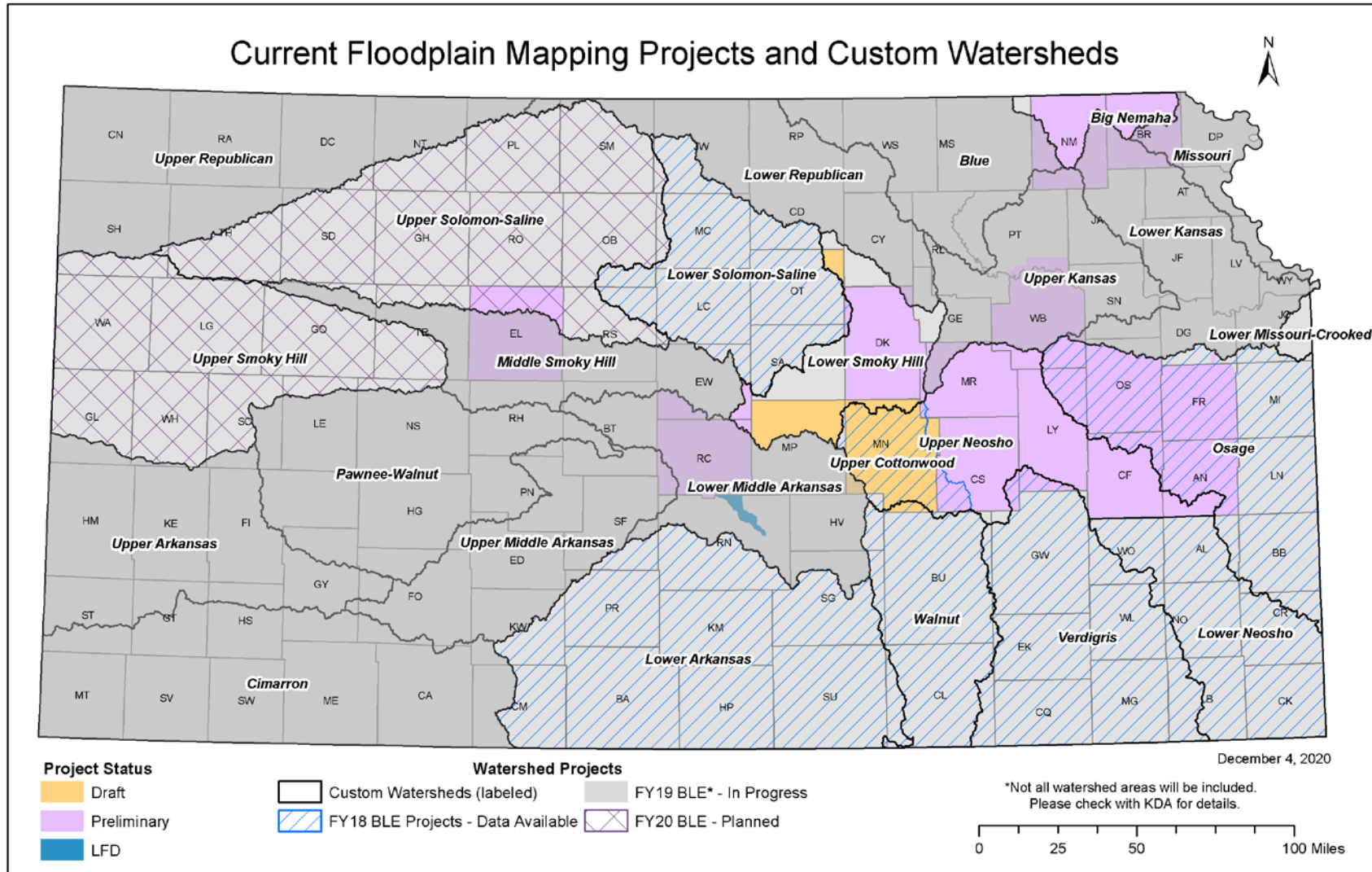
Lower Middle Arkansas Custom Watershed



Preview of the Planned Work

- Harvey County-
 - Update Planned for 2021
- McPherson County-
 - Update Planned for 2021
- Sedgwick County-
 - Targeted Update for certain streams of interest
 - Planned for 2021
- Reno County-
 - Targeted Update for certain streams of interest.
 - Tentatively Planned for 2022
- Barton County-
 - Update for areas not in recent map update
 - Tentatively Planned for 2022
- Other Counties-
 - TBD

We are doing this work across Kansas...



What We've Learned to Date



Identified Flood Risk Areas

- Slow moving water in flat terrain leads to sedimentation and debris jams leading to reduced channel capacity which can be a significant concern
- Shallow flooding areas due to water not being able move
- Lack of defined overflow channels or outlets during large floods
 - Newton
 - Heston
 - Northwest SG County
- Levees
 - Reno County/Hutchinson/South Hutchinson/Willowbrook
 - Halstead
 - Great Bend
 - Wichita
 - Others

Participation in the National Flood Insurance Program

- Blue = Participates Red = Not Participating
- Cities of Abbyville, Alden, Bel Aire, Bentley, Buhler, Burrton, Bushton, Canton, Chase, Claflin, **Frederick**, Galva, **Geneseo**, Halstead, Haven, Hesston, Hoisington, Hutchinson, Inman, Kechi, Little River, Lyons, Maize, McPherson, Moundridge, Mount Hope, Newton, Nickerson, North Newton, Odin, Olmitz, Park City, Sedgwick, South Hutchinson, Stafford, Sterling, Susank, Valley Center, **Walton**, Wichita, Willowbrook, **Windom**, Yoder
- Barton, Ellsworth, Harvey, McPherson, Reno, Rice, Sedgwick, **Stafford** Counties

Number of Flood Insurance Policies

- Barton County – 45
 - Albert – 16
 - Ellinwood – 19
 - Great Bend – 12
 - Hoisington – 10
 - Pawnee Rock – 13
- Ellsworth County – 4
 - Ellsworth - 23
 - Holyrood – 1
- Harvey County – 71
 - Halstead – 2
 - Hesston – 9
 - Newton – 98
 - Sedgwick – 23
 - North Newton - 4
- McPherson County – 51
 - Lindsborg – 20
 - McPherson – 50
 - Moundridge – 6
 - Galva – 4
- Reno County – 116
 - Hutchinson – 30
 - Nickerson – 35
 - Willowbrook – 2
 - Arlington – 6
 - Buhler – 9
 - South Hutch – 8
 - Pretty Prairie - 12
- Rice County - 35
 - Little River – 1
 - Lyons – 7
 - Raymond – 1
 - Sterling – 25
- Sedgwick County – 222
 - Andale – 1
 - Derby – 105
 - Haysville – 25
 - Mount Hope – 1
 - Mulvane – 95
 - Valley Center – 61
 - Wichita - 804
- Sedgwick County – cont.
 - Bentley – 2
 - Kechi – 14
 - Clearwater – 1
 - Colwich – 8
 - Garden Plain – 5
 - Goddard – 2
 - Maize – 9
 - Bel Aire – 9
 - Park City - 10

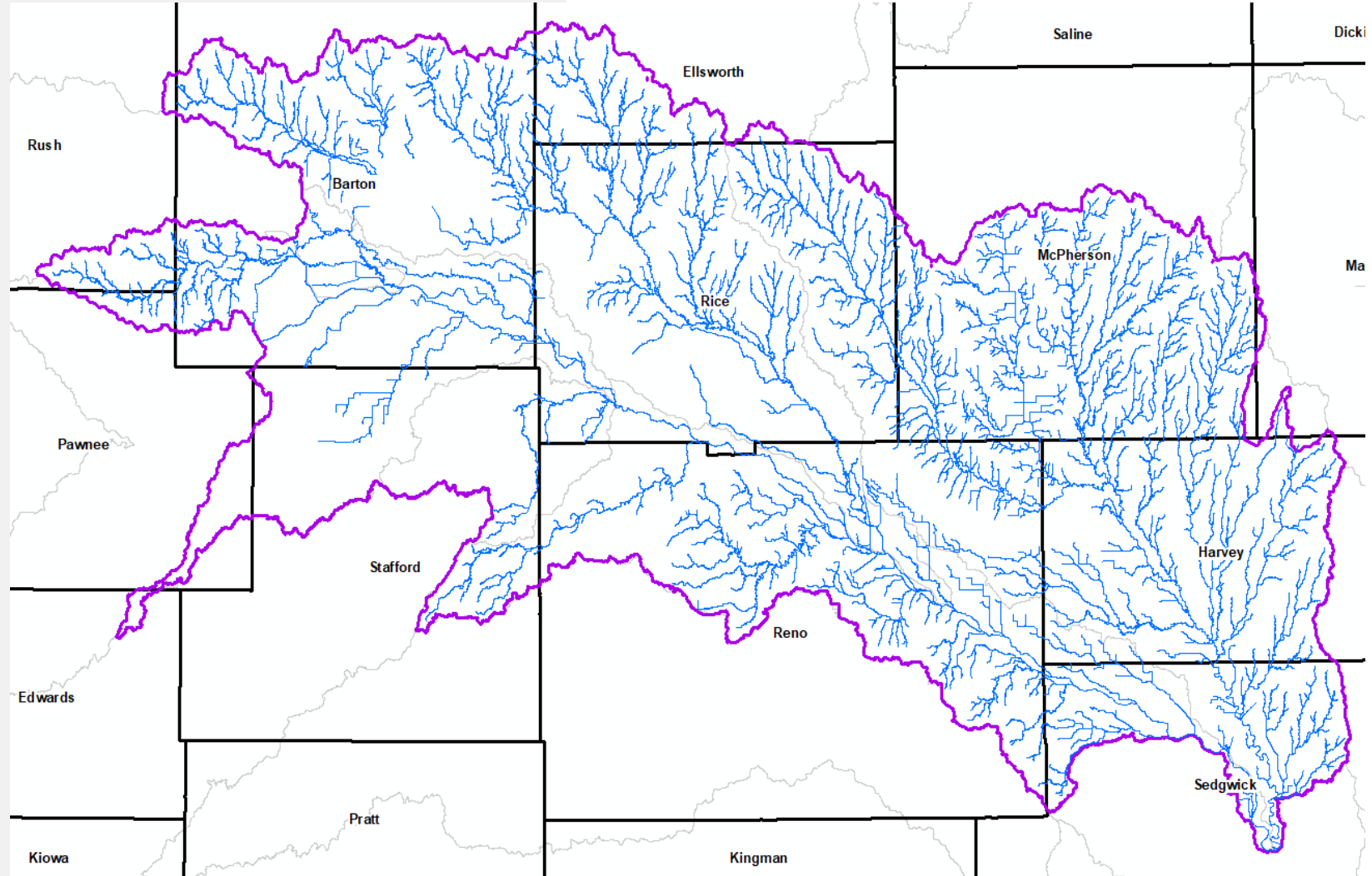
What the early data is telling us about your flood risk

- Results from our initial Base Level Engineering (BLE)
 - 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.
 - Unfortunately, BLE has limitations around levees. While some of the information can be useful, the floodplains are not representative of reality.

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.

BLE Study Area

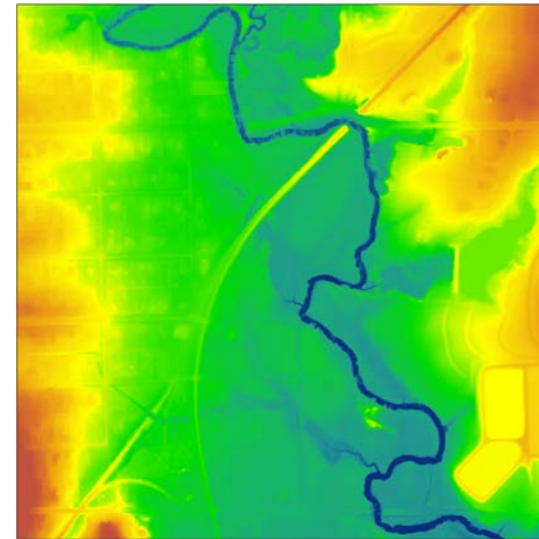
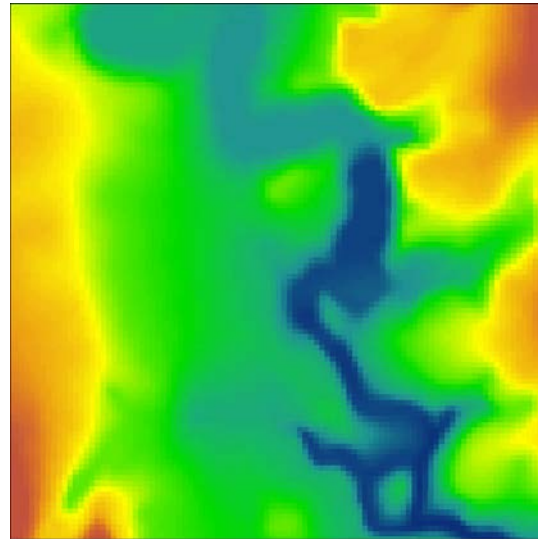
— Study Lines



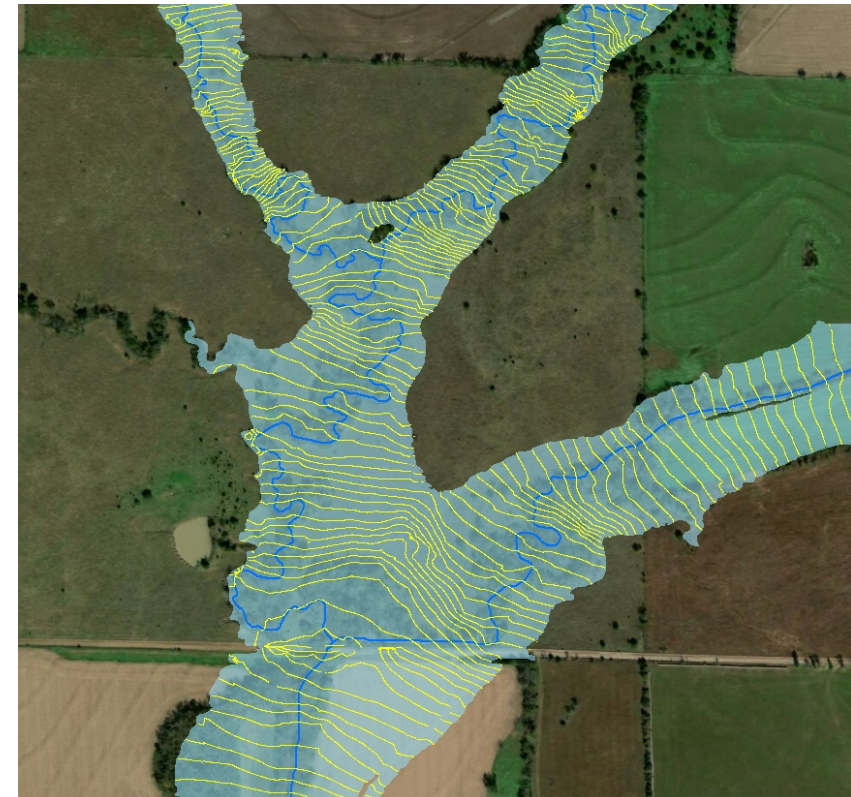
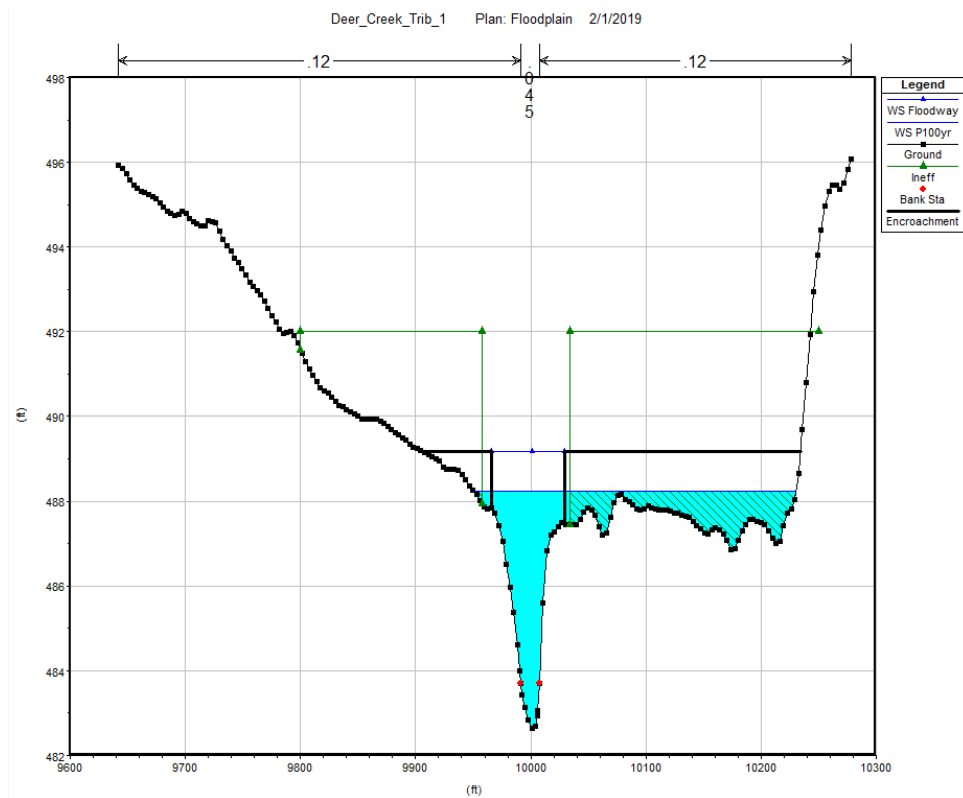
***BLE floodplains are complete for this study area**

We Use 2D Hydraulic Modeling and LIDAR in our BLE

- Your current maps are done in one dimension (1D) and some are based on a 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



More precise data gives you more information about flood risk



Key Takeaways for Base Level Engineering

1

It uses highly advanced engineering techniques

2

It provides early insight into community flood risk

3

It's an important step in our partnership to get the data right

A person with long, wavy brown hair, wearing a blue jacket, is seen from behind, looking at a map. The map is held open, and the person's hand is visible near the bottom edge. The background is a blurred outdoor setting. The image is split into two vertical panels: the left panel is a solid blue color with white text, and the right panel shows the person and map.

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

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

Lower Middle Arkansas Watershed
 HUCS 11030010, 11030011, 11030012

Cities of Abbyville, Alden, Bel Aire, Bentley, Buhler, Burrton, Bushton, Canton, Chase, Claflin, Frederick, Galva, Geneseo, Halstead, Haven, Hesston, Hoisington, Hutchinson, Inman, Kechi, Little River, Lyons, Maize, McPherson, Moundridge, Mount Hope, Newton, Nickerson, North Newton, Odin, Olmitz, Park City, Sedgwick, South Hutchinson, Stafford, Sterling, Susank, Valley Center, Walton, Wichita, Willowbrook, Windom, Yoder

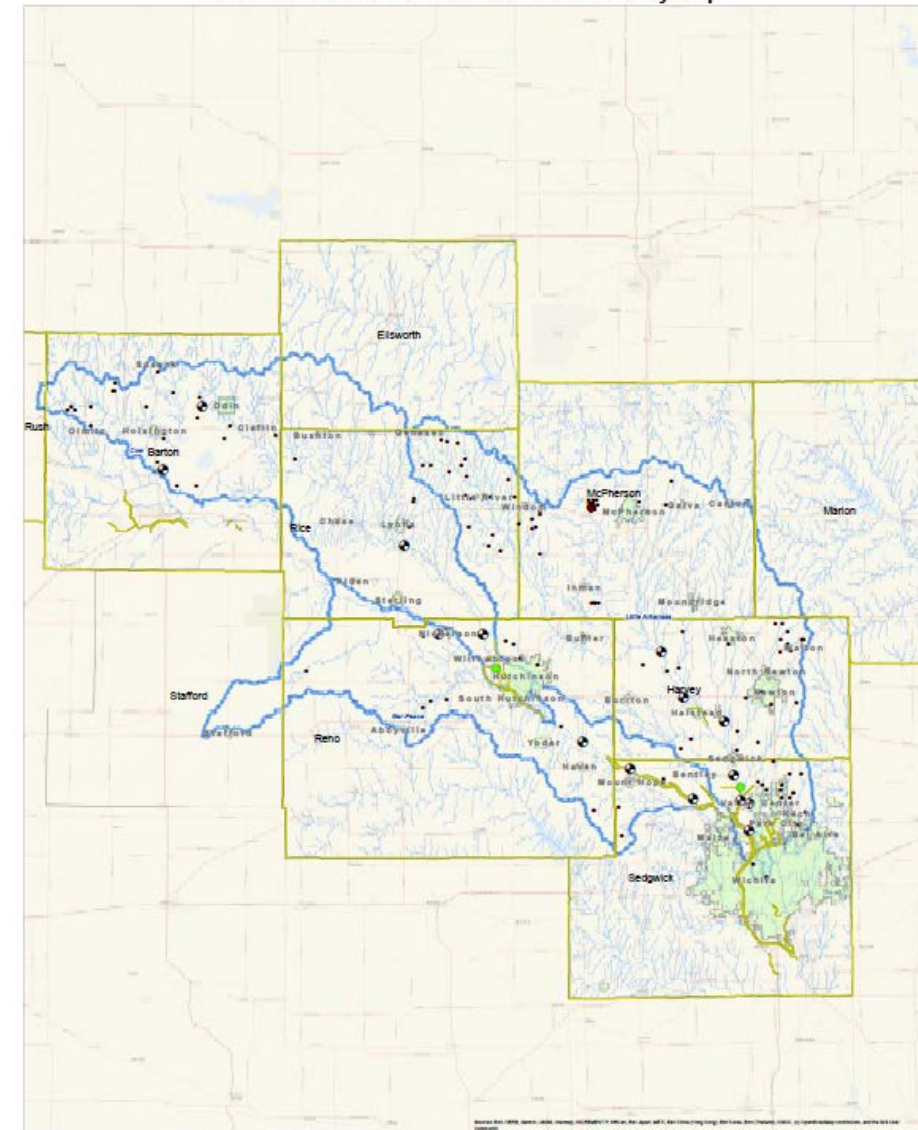
Barton, Ellsworth, Harvey, Marion, McPherson, Reno, Rice, Rush, Sedgwick, Stafford Counties

Report Number 01

DRAFT



Lower Middle Arkansas Watershed Discovery Map



MAP SYMBOLLOGY
RISK MAP DATA

- Gages
- Repetitive Loss Clusters
- Diems
- Leaves
- Counties Participating in the NFIP
- Lower Middle Arkansas BLE Stream Lines

- NFIP**
- NA
 - No
 - Yes

WATERSHED LOCATOR



Allen, Anderson, Bourbon, Cherokee, Coffey, Crawford, Greenwood, Labette, Lyon, Neosho, Wilson, Woodson Counties

NATIONAL FLOOD INSURANCE PROGRAM
Discovery FLOOD RISK MAP

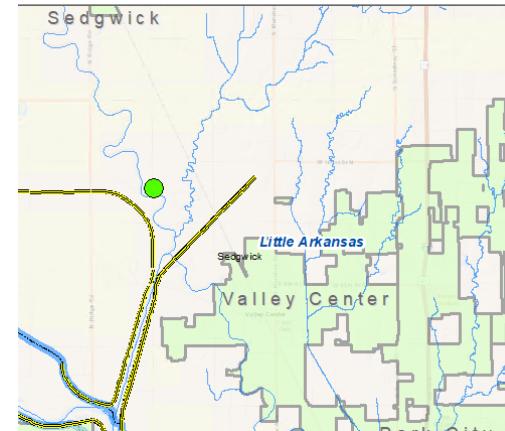


Repetitive Loss Structures

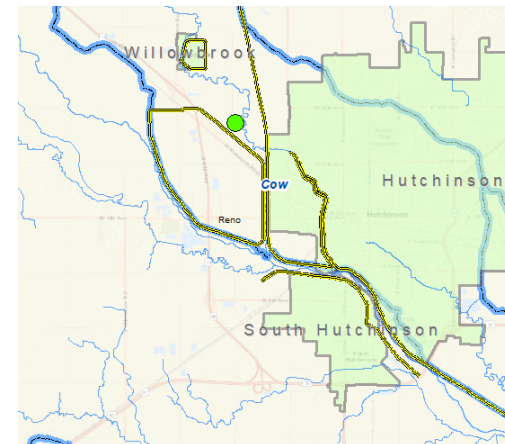
Insurable buildings for which the NFIP paid 2 or more claims of more than \$1,000 in a 10-year period. There are two clusters in this area.

- One cluster in Sedgwick County and one cluster in Reno county

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.



In Sedgwick County



In Reno County

● Repetitive Loss Clusters

Discovery: Information You Can Provide

- Information you have about past flooding, including high water marks.
- Updated aerial imagery
 - We typically use the latest imagery from the National Agriculture Imagery Program
- Survey or as-built plan information
 - Bridge or culvert openings
 - Channel information
- Any revisions approved for your previous map
 - Letters of Map Revision or Amendments (LOMRs/LOMAs)

Draft Floodplain Review

- As we review your BLE Data, we want to hear from you!
- Where are you experiencing flooding?
 - Intersections that often flood and stop traffic?
 - Drainage areas that cause problems?
 - Any parts of town where homes or businesses have flooded?
- Are there areas of recent construction/development? Or are there are plans to build?
- Any tricky areas to take a closer look at?
- Do you have projects underway, related to flooding, that we could help with?

Draft Floodplains & Changes Since Last Flood Insurance Rate Map (FIRM)

Newton BLE Floodplain compared to current effective



Yellow: Same

Red:
New SFHA

Green:
Removed SFHA

How We Can Help

“Mitigation Technical Assistance”



Example Projects:

- City of Hutchinson – Mitigation Funding Study
- City of South Hutchinson – Alternatives analysis (detention, conveyance improvements, levee pump stations)
- City of Hoisington – Alternatives Analysis (detention dams, conveyance improvements, buyouts, channelization, channel cleaning)



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.

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>

The screenshot shows the Kansas Department of Agriculture website. At the top left is the logo with the motto "AD ASTRA PER ASPERA" and the text "Kansas Department of Agriculture". To the right is the text "KANSAS DEPARTMENT OF AGRICULTURE" and "Serving the State's Largest Industry". A search bar and text size options are also visible. A navigation menu includes "Home", "About Us", "News & Events", "Divisions & Programs", "Services", "Public Information", "FAQs", and "Contact Us". A left sidebar contains links for "Kansas Floodplain Map Viewer", "LOMC Search", "Mapping Projects", and "Technical Assistance". The main content area shows a breadcrumb trail: "Home > Divisions & Programs > Division of Water Resources > Floodplain Management > Mapping > Technical Assistance". The page title is "Technical Assistance". Below this is a section for "TECHNICAL ASSISTANCE PROJECTS" with a bulleted list: "Gypsum", "Hoisington", "Solomon", "South Hutchinson", and "Topeka". A dark blue box contains the heading "TECHNICAL ASSISTANCE INFORMATION". The text below explains that FEMA funds for technical assistance projects are available through Cooperating Technical Partner (CTP) funding cycles, used for modeling mitigation scenarios, grant-related purposes, ordinance or code support, engineering and analysis, planning, outreach and education. It notes that communities can apply for Technical Assistance support through KDA, with priority given to active mapping projects. Contact information for Tara Lanzrath is provided: phone at 785-296-2513 or email.

Technical Assistance Request Fillable Form

Preview of the Planned Work

Which We Call Our Data
Development Scope










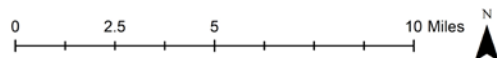
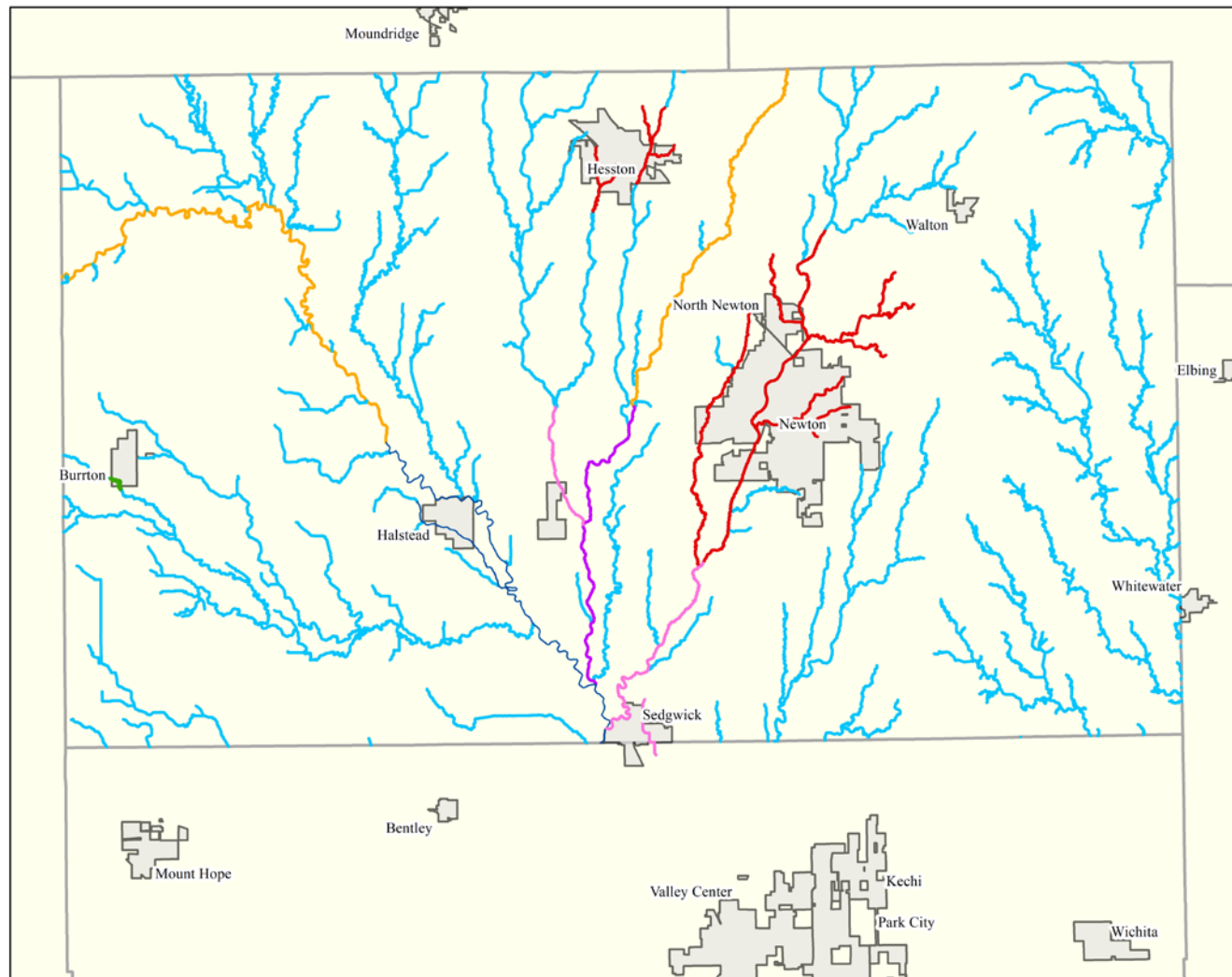
Where We Plan to Update Your Map

Preview of the Planned Work

Harvey 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 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 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 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.
-  **Incorporation of Existing Zone AE with Floodway Studies**







Where We Plan to Update Your Map

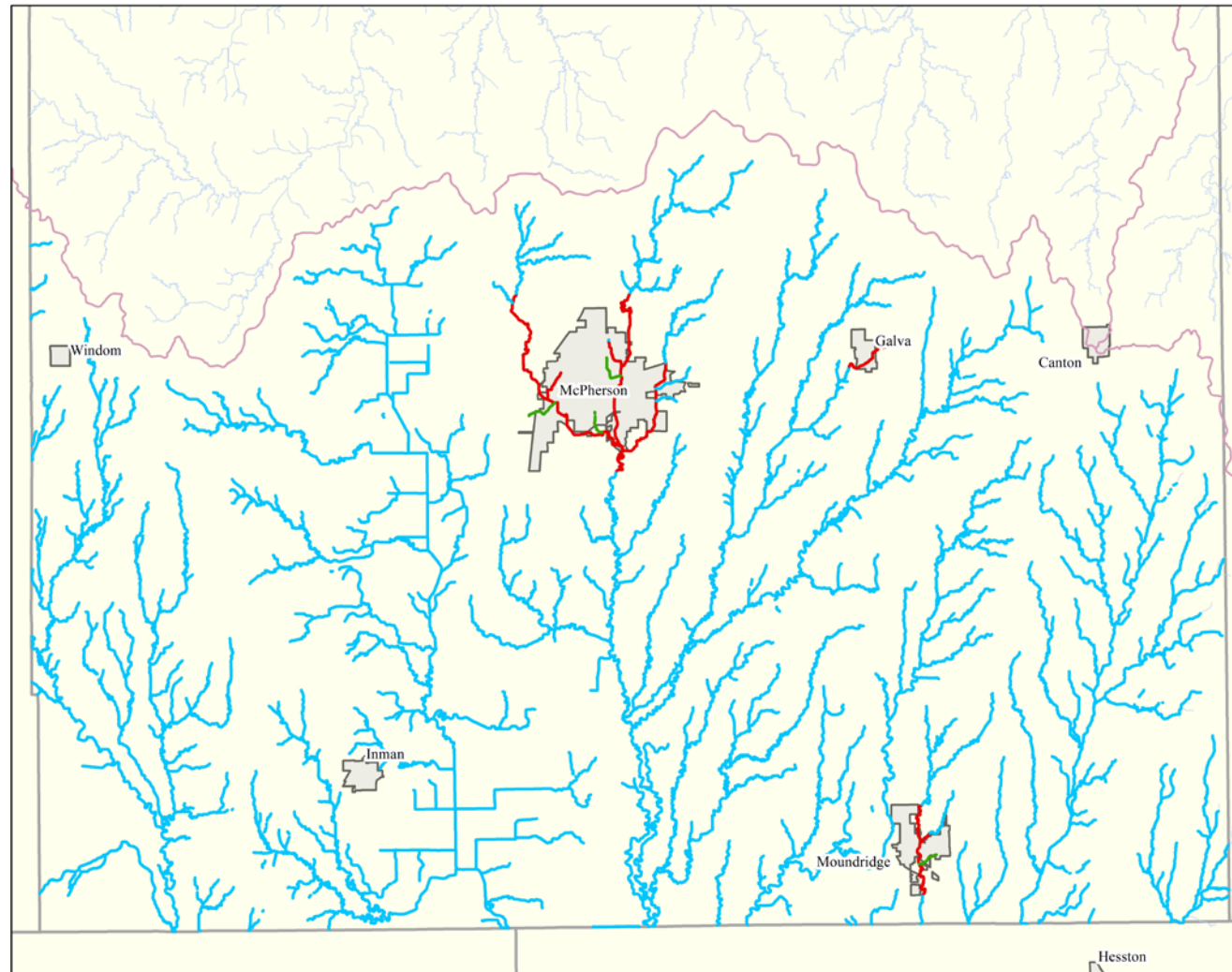
Preview of the Planned Work

McPherson 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 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.
-  **Incorporation of Lower Smoky Hill Watershed and Upper Cottonwood Watershed Studies.**

0 1.75 3.5 7 Miles






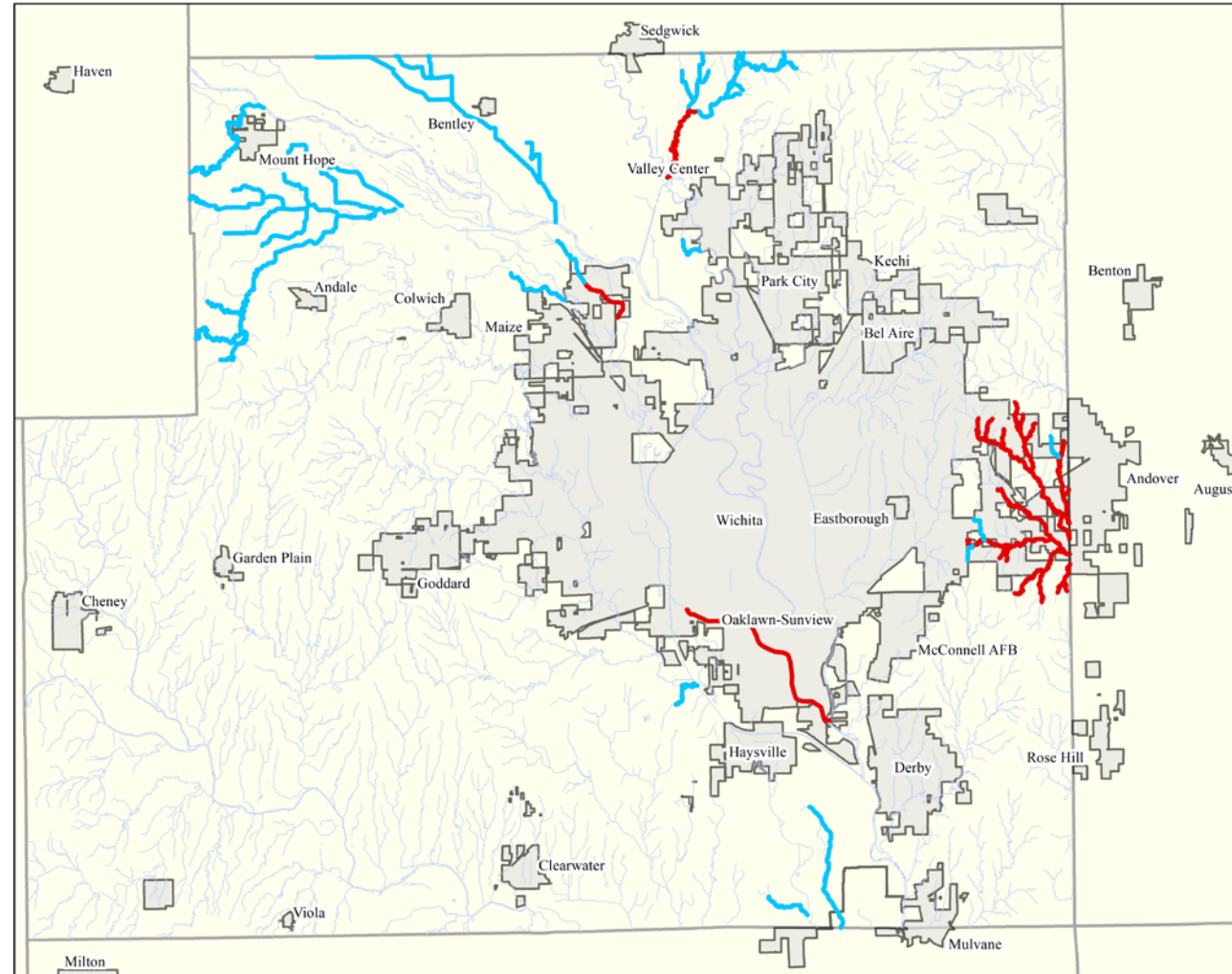
Where We Plan to Update Your Map

Preview of the Planned Work

Sedgwick 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.
-  **No New Studies will be performed for these streams.**



Data Development Scope

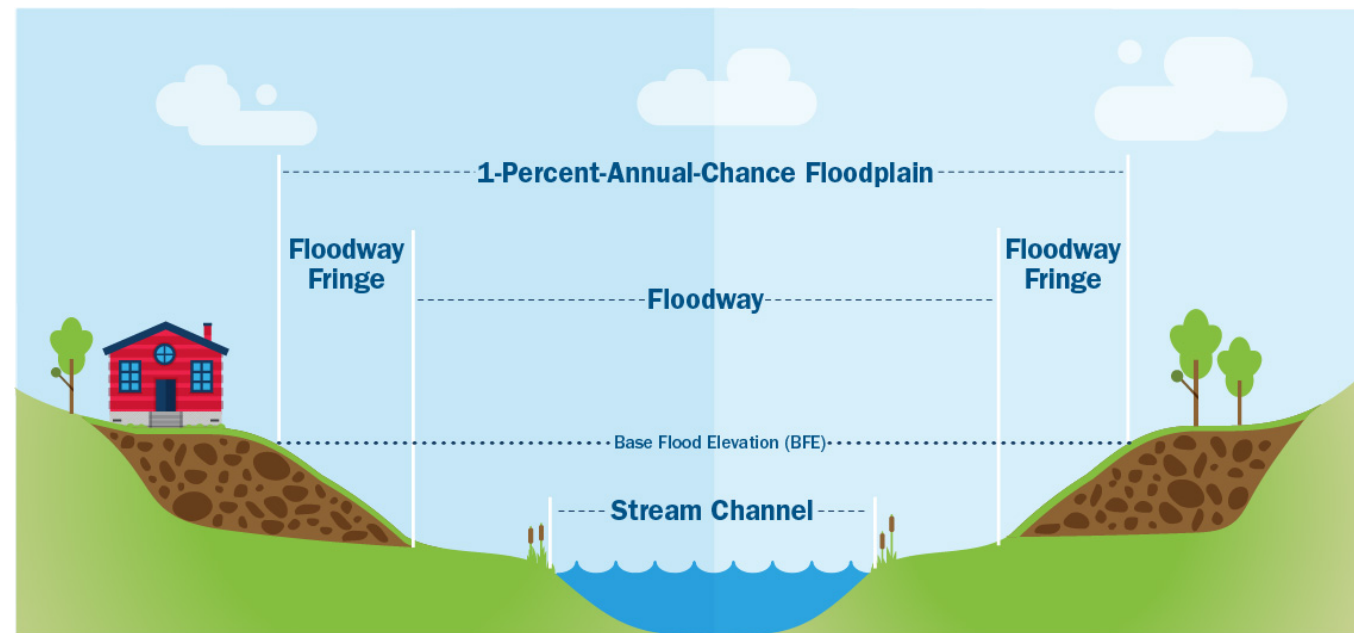
- Zone A
 - Additional Calibration to:
 - Gage Analysis for watershed
 - Rainfall-Runoff Modeling (HEC-HMS) in watershed
 - Historical Information
 - No Base Flood Elevations (BFEs) on the regulatory map, but available
 - Water Surface Elevation and Depth Grids generated
 - In most areas not a lot with 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
 - If there is a current floodway, it must have a floodway
 - If there is not a current floodway, a floodway is optional
- 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





Recap

Goals and Your Role in the Process

Future Project Information

- As we proceed with the planned regulatory updates, we will share the following:
 - Draft Discovery Report with all the data we gathered in preparation for this meeting
 - Next project phase of Data Development will be funded for certain counties. For Counties where Data Development is planned, this will enhance the initial floodplain, or BLE, data.
 - We will notify the Chief Executive Officers and Floodplain Managers in each jurisdiction of the modeling we will use in your community and provide a 30-day comment period (SID 620 notifications).
 - Scoping Maps are available on the project web page for your review.

Project Timeline

Discovery Meeting: 1/13/2021

- *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 2/12/2021*

Data Development Work McPherson, Harvey, Sedgwick (Partial) Counties:

Beginning in 2021

Barton (Partial), Reno (Partial) Counties:

Estimated for 2022

Stafford, Rice, Ellsworth Counties:

None planned unless requested

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.

How?

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

STEP TWO: Review Modeling

2. 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 2/12/2021 (More time can be provided if needed)
 - Comments can be received by:
 - Web Map
 - E-mail
 - Mail
 - We can provide hard copies if desired

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
 - Minimum of quarterly
 - When important milestones are reached
 - When action is necessary (reminders)
- Meetings
 - Five planned in-person meetings
 - Kickoff (**DONE**), Discovery Meeting (**Today!**), 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/lower-middle-arkansas-custom-watershed>
- **Web Review Map**
 - Review of BLE data
 - https://gis2.kda.ks.gov/gis/lower_middle_ark/
 - This link will not be public facing until the project has been through Data Development
- **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.

The screenshot shows the 'Portal Registration' form on the Kansas Base Flood Elevation Portal. The page header includes the Kansas Department of Agriculture logo and the text 'Kansas Base Flood Elevation Portal'. Navigation buttons for 'Home', 'About', and 'Help' are visible. The registration form contains the following fields:

- First Name
- Last Name
- User name
- Title
- Phone
- Email Address
- Address
- City
- Zip
- State (pre-filled with 'Kansas')

A yellow 'Register' button is located at the bottom right of the form.

KDA Contact Information

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NFIP Specialist

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Senior Associate / Program Manager

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Project Manager

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Regional Project Officer