Walnut Custom Watershed Discovery Meeting

March 4, 2020

Arkansas City, KS

Kansas Department of Agriculture
Division of Water Resources

wood.

Your engagement in this process is important to the success of this project, so thank you for taking the time to be here today!

Today's Goals

- Project Overview- Review Process and Project Timeline
  - This is the beginning, not the end!
  - Initial Base Level Engineering (BLE) Data will change with Data Development
- Discovery Process and Identification of Mitigation Actions
  - Technical Assistance Options
- Levee Discussion
- Group Discussion of Community Flood Risk

Why We're Here?

- The Walnut Custom Watershed was chosen for a Discovery/ Base Level Engineering project.
- Develop a complete, current picture of your flood hazards and risks to help you better:
  - Plan for the risk
  - Take action to protect your communities
  - Communicate the risk to your citizens
- Determine the next steps for future projects.

Why Have Floodplain Maps?

- Determine where flood insurance is needed and rate its cost.
  - Flood Insurance Rate Map (FIRM)
- To provide the basis for executing community floodplain management ordinances.
- Understand flood risk so communities can make informed planning decisions.

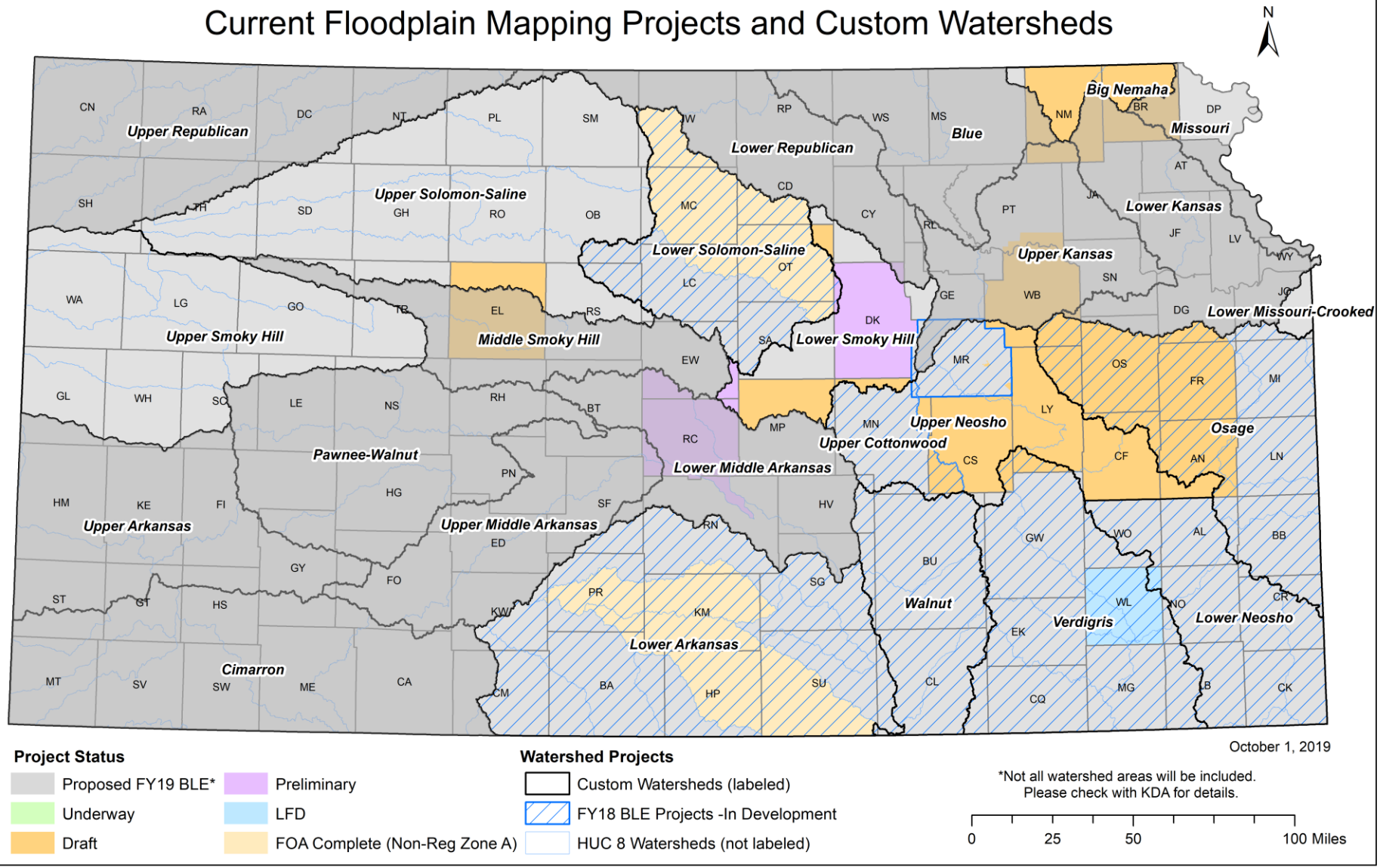
FEMA Floodplain Mapping Program

- Risk Mapping Assessment and Planning
- Supports the National Flood Insurance Program. Performed on a watershed basis.
- Consists of both Regulatory & Non-Regulatory Products.
- FEMA Program that provides communities with flood information and tools they can use to enhance their mitigation plans and take action to better protect their citizens.

RiskMAP

Increasing Resilience Together

Current Floodplain Mapping Projects and Custom Watersheds



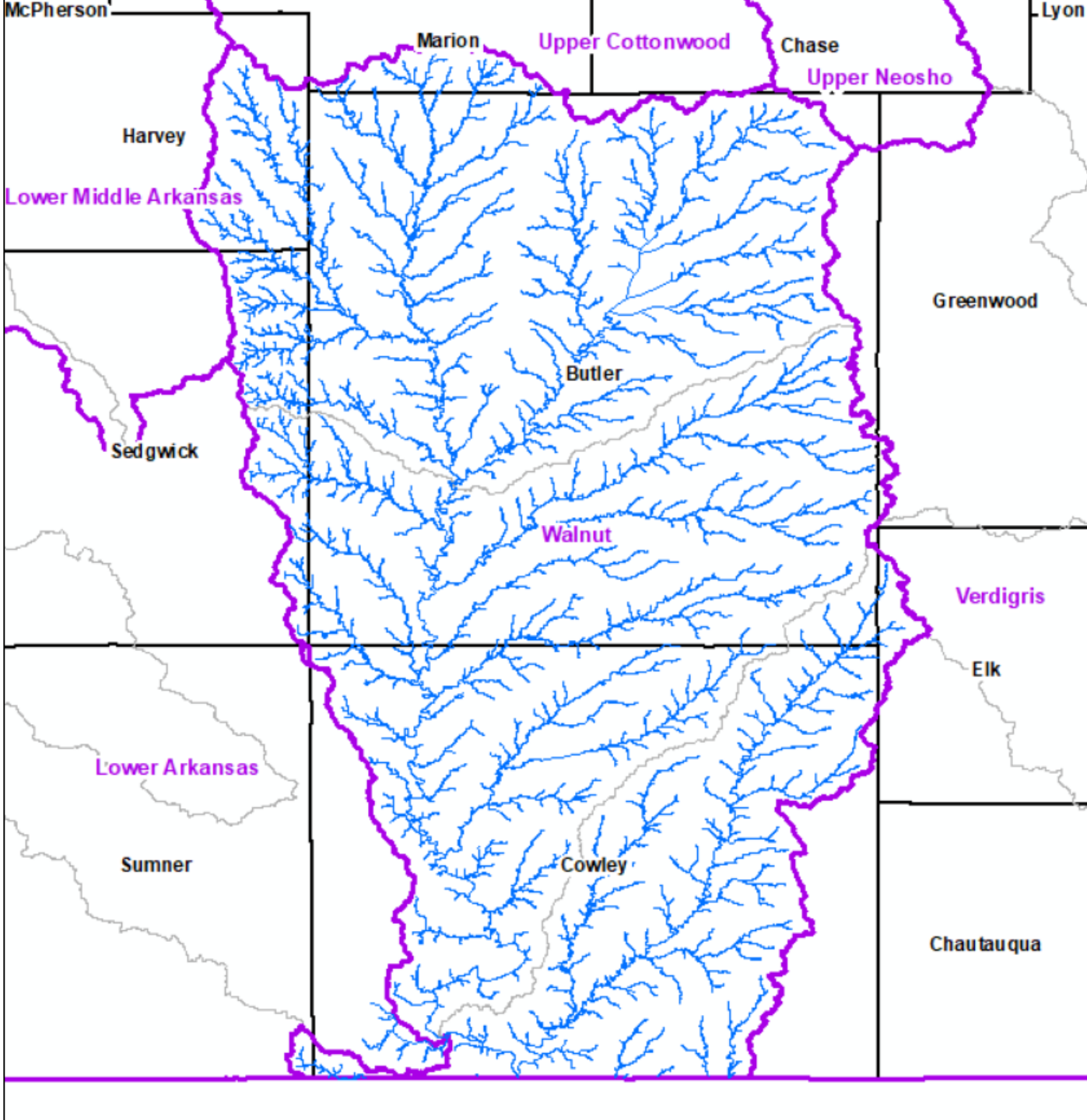
Project Timeline

- Project Kickoff & Initial Map Review
  - Meeting – December 12, 2019
  - Community Review of Base Level Engineering (BLE) data

BLE Study Area

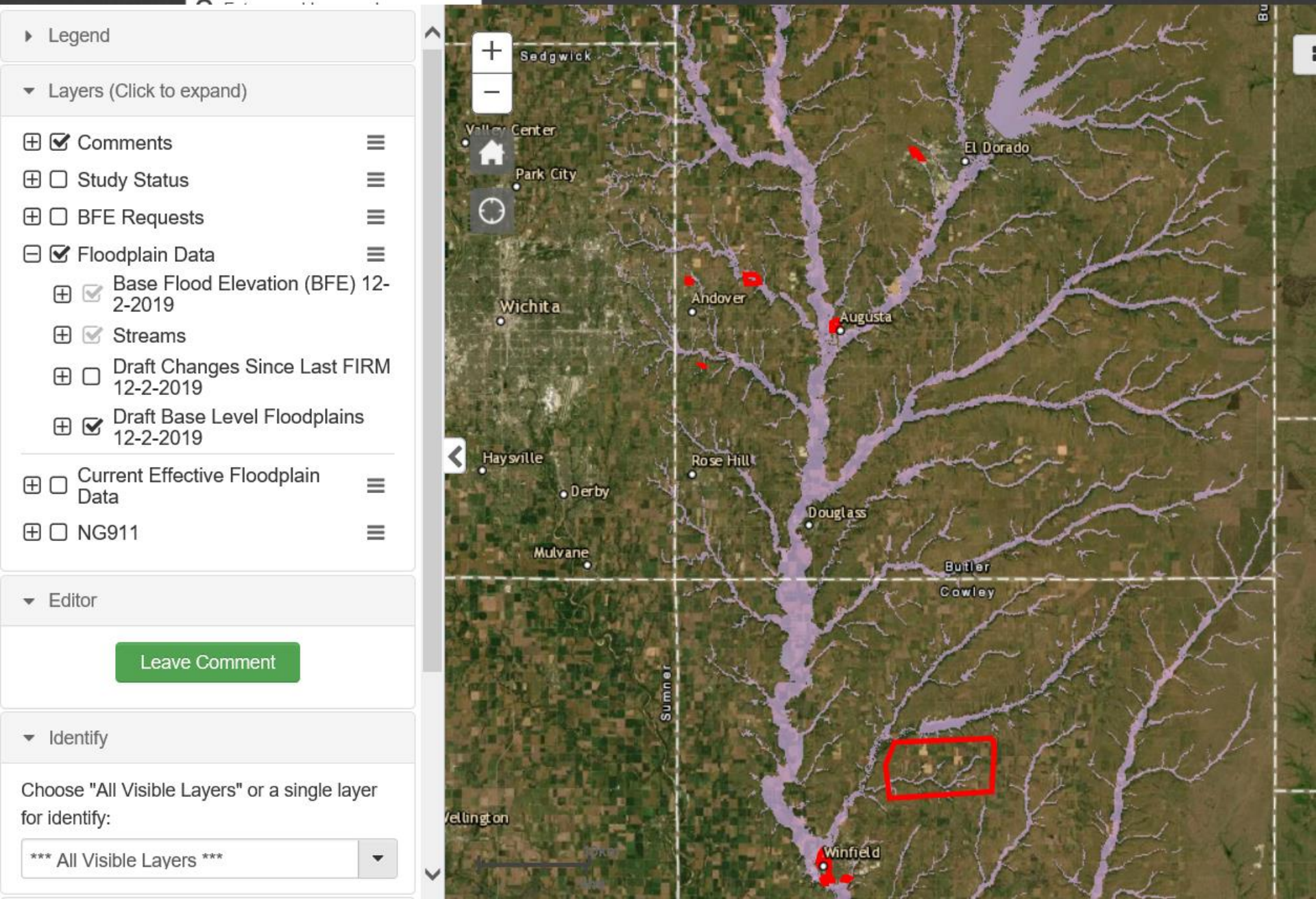
— Study Lines

*BLE Floodplains are Complete for this Study Area



Walnut Custom Watershed - Initial Base Level Engineering (BLE) Floodplain Data

Please note that this data is an early draft and is not to be considered best available in all locations. To request a Base Flood Elevation,



- Legend
- Layers (Click to expand)
  - [x] Comments
  - [ ] Study Status
  - [ ] BFE Requests
  - [x] Floodplain Data
    - [x] Base Flood Elevation (BFE) 12-2-2019
    - [x] Streams
    - [ ] Draft Changes Since Last FIRM 12-2-2019
    - [x] Draft Base Level Floodplains 12-2-2019
  - [ ] Current Effective Floodplain Data
  - [ ] NG911
- Editor

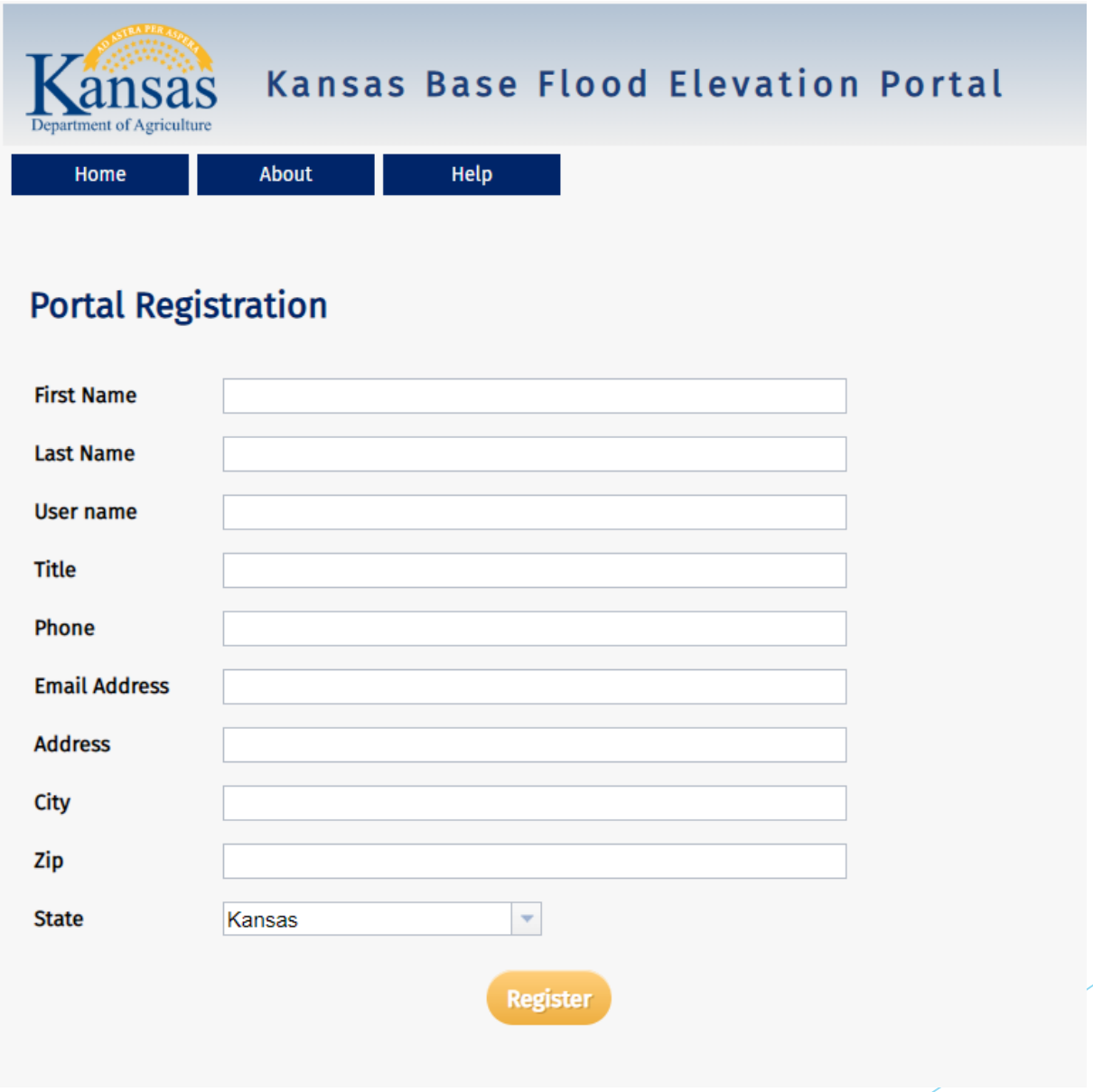
Leave Comment

- Identify

Choose "All Visible Layers" or a single layer for identify:

*** All Visible Layers ***

Base Flood Elevation Portal



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

Project Timeline

- Walnut Discovery
  - Meeting- March 4, 2020
  - Mitigation Discussion
  - Identification of Technical Assistance needs and options
  - Data Collection from Community

Discovery is the process of data mining, collection, and analysis with the goal of initiating a flood risk or mitigation project and discussing risk within the watershed

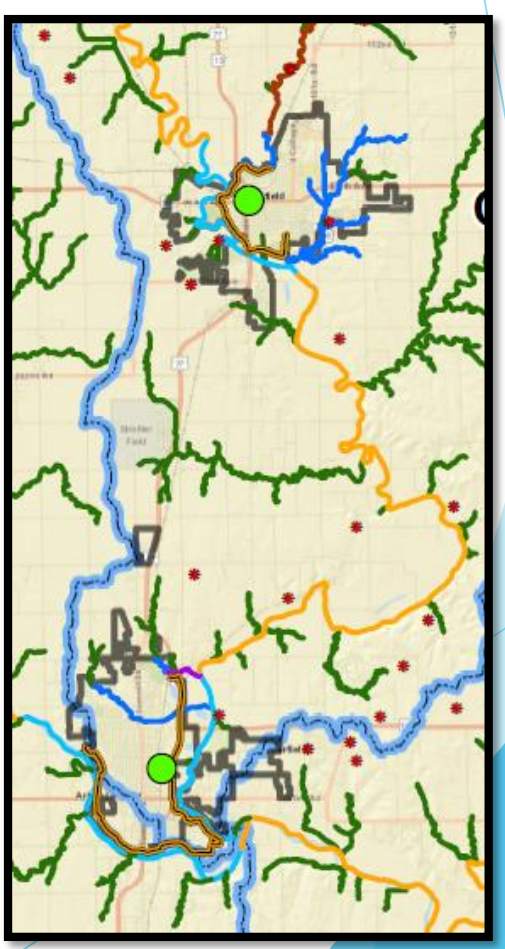
NFIP Participation Status

- Cowley County- yes *(32 Policies)*
- Cities
  - Atlanta- no
  - Arkansas City- yes *(31 Policies)*
  - Burden- no
  - Cambridge- yes (*1 Policy*)
  - Dexter- yes *(3 Policies)*
  - Geuda Springs- yes *(0 Policies)*
  - Parkerfield- yes *(0 Policies)*
  - Winfield- yes *(20 Policies)*
  - Udall- yes *(0 Policies)*

Repetitive Loss Structures

Insurable building for which 2 or more claims of more than $1,000 were paid by NFIP in 10-year period

- One cluster near Arkansas City
- One cluster near Winfield



Repetitive Loss Clusters

Why is Discovery Important?

- Required for new and updated:
  - Flood studies
  - Flood risk assessments
  - Data Development for Mitigation
- Includes an assessment of flood related concerns
- Identifies Leverage data available for use in data development
- Identifies Areas of Greatest Flood Risk
- Identifies Mitigation Options

What information do you have that can help us make better maps?

- Updated Imagery
  - Will typically use the latest NAIP Imagery
- Survey or As-Built Plan Information
  - Bridge or Culvert Openings
  - Channel Information
- LOMR's or LOMA's
- Historical Flooding Information/ High Water Marks

What information do you have that can help us make better maps?

- Let us know areas of development where the ground surface has likely changed since the date of the Lidar (2012 for this area)
  - Provide us with survey/as-builts/grading plans for recent development
  - We hope to have 2018 LiDAR soon
    - Will look for changes in the ground elevation and update if needed

Are there areas where Mitigation should be considered?

- Determine areas that would benefit from mitigation efforts
- Determine the amount of interest from local stakeholders
- Determine funding opportunities

Mitigation Technical Assistance

KDA Mitigation Technical Assistance

- Funding has been available in recent years from the KS CTP Grant
  - Predefined projects & pot of money to allocate when projects are identified
- Project Types:
  - Modeling infrastructure improvements to see flooding reductions in SFHA
  - Benefit-Cost Analysis (BCA)
  - Structure Based Risk Assessment
  - Community Outreach and Education – Story Maps, Virtual Reality (VR)

KDA Mitigation Technical Assistance

- Timeline: Ideally performed during Base Level Engineering (BLE), Discovery or Data Development Phase
- Cannot fund the improvement project itself
- Website for Technical Assistance Projects
- Includes project specific information
- Link to fillable request form
  - https://www.agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/technical-assistance

Kansas Floodplain Map Viewer
LOMC Search
Mapping Projects
Technical Assistance

Technical Assistance

Technical Assistance Projects

- Gypsum
- Hoisington
- Solomon
- South Hutchinson
- Topeka

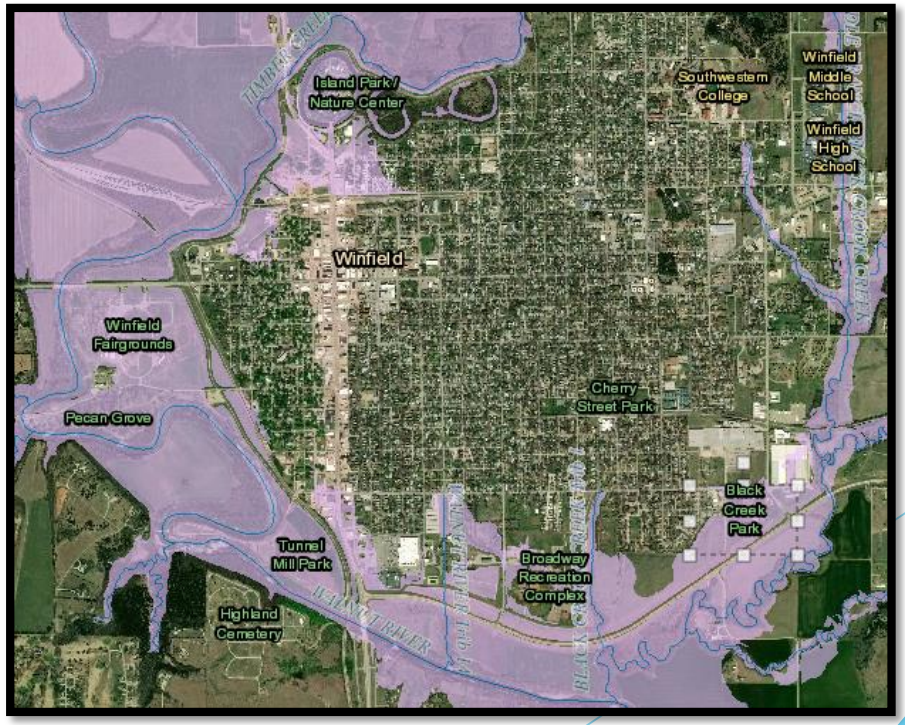
Technical Assistance Information

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

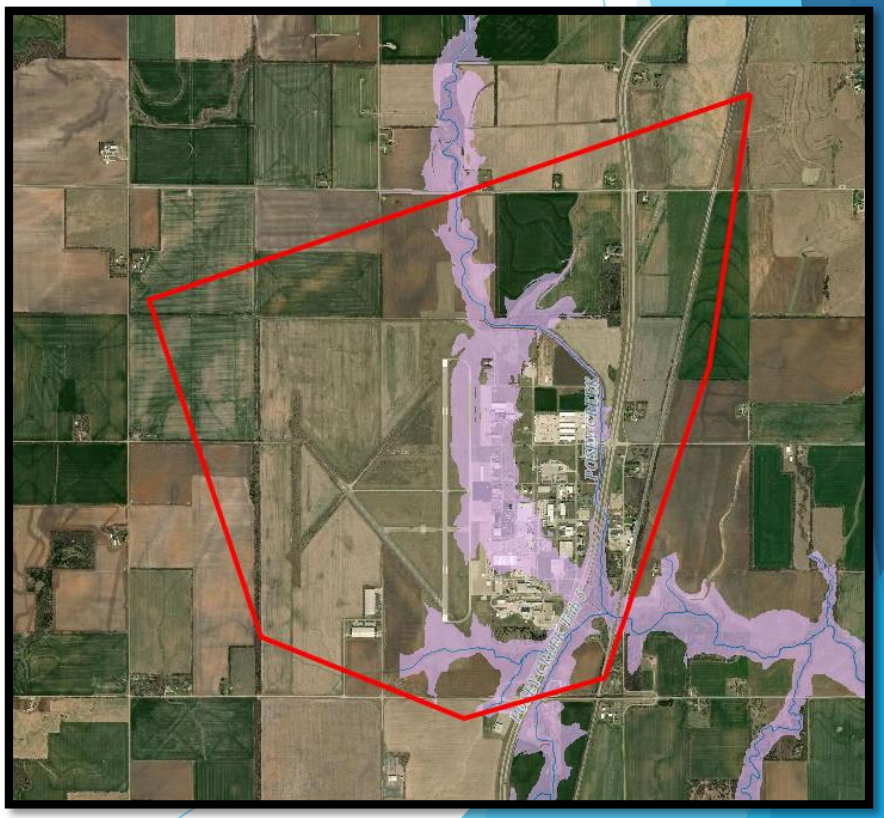
Potential Technical Assistance Ideas

- During December meeting, there was mention of a letter of intent sent by City of Winfield to KDEM for new pump for the levee system
  - Could evaluate pump options for the levee system



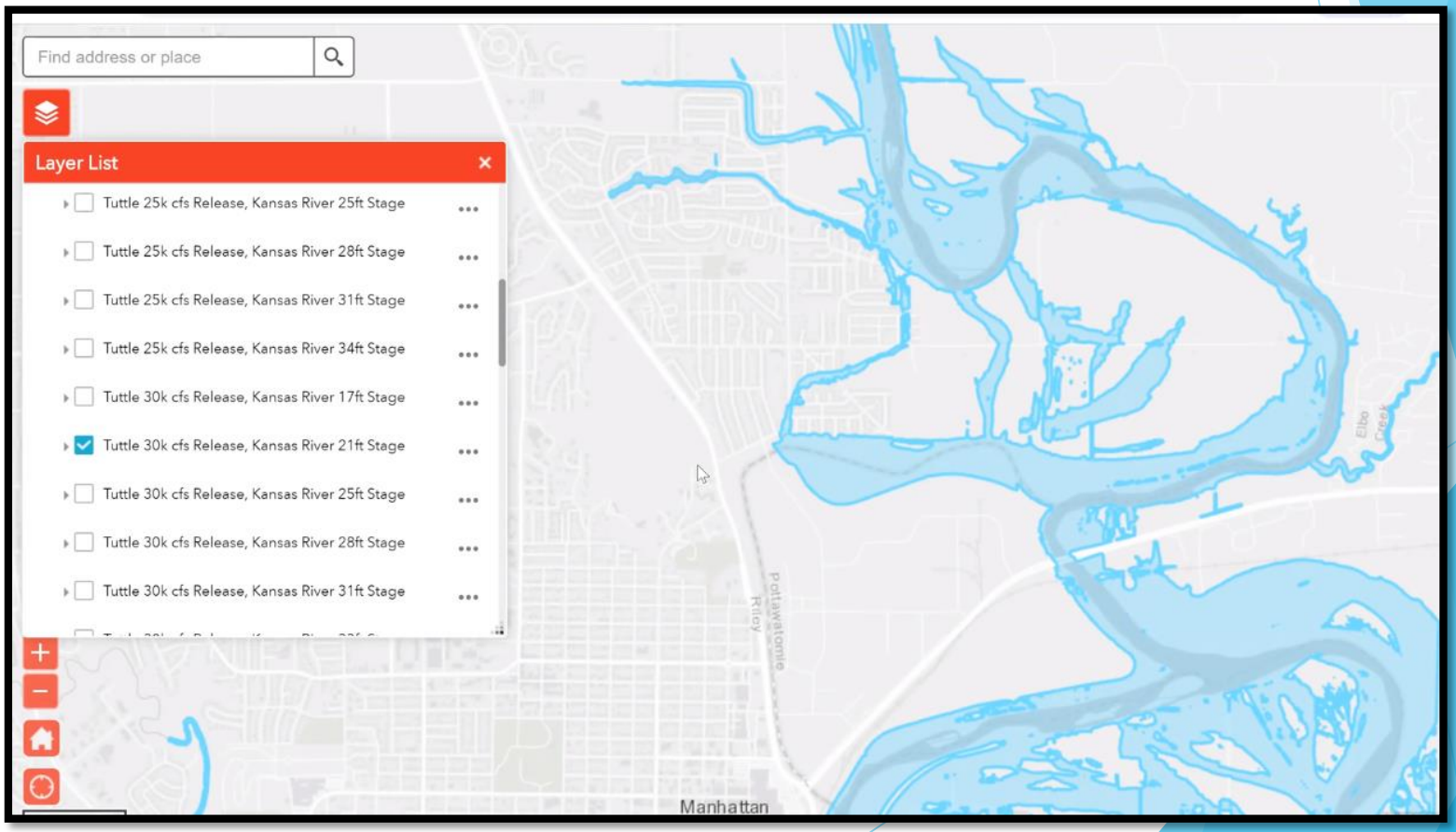
Potential Technical Assistance Ideas

- During December meeting, there was mention of flood concerns near the Strother Field Industrial Park area
  - Could evaluate possible alternatives for reducing the flood impact in this area



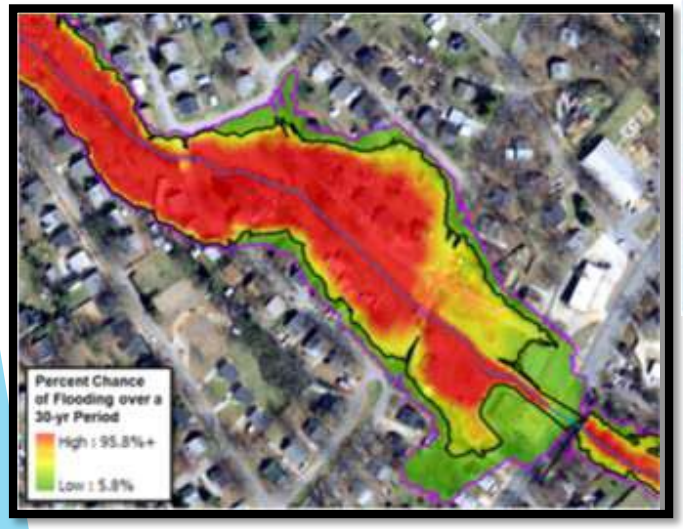
Potential Technical Assistance Ideas

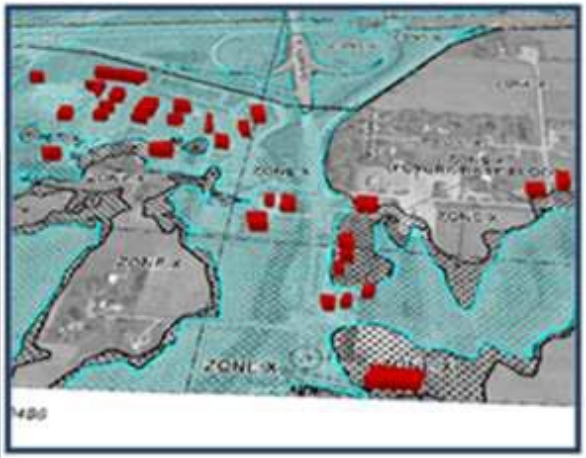
- Could model flood inundation scenarios for a variety of releases from El Dorado Lake for use in emergency planning and response

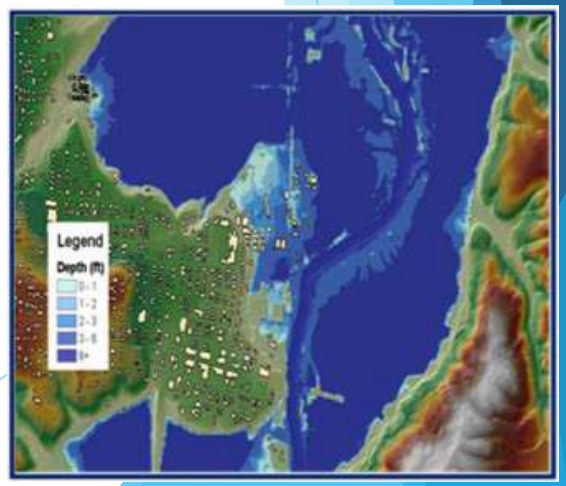


Potential Technical Assistance Ideas

- Trainings and Workshops
  - Could provide trainings or workshops for GIS staff on ways to effectively use the data that is generated as part of the modeling and mapping





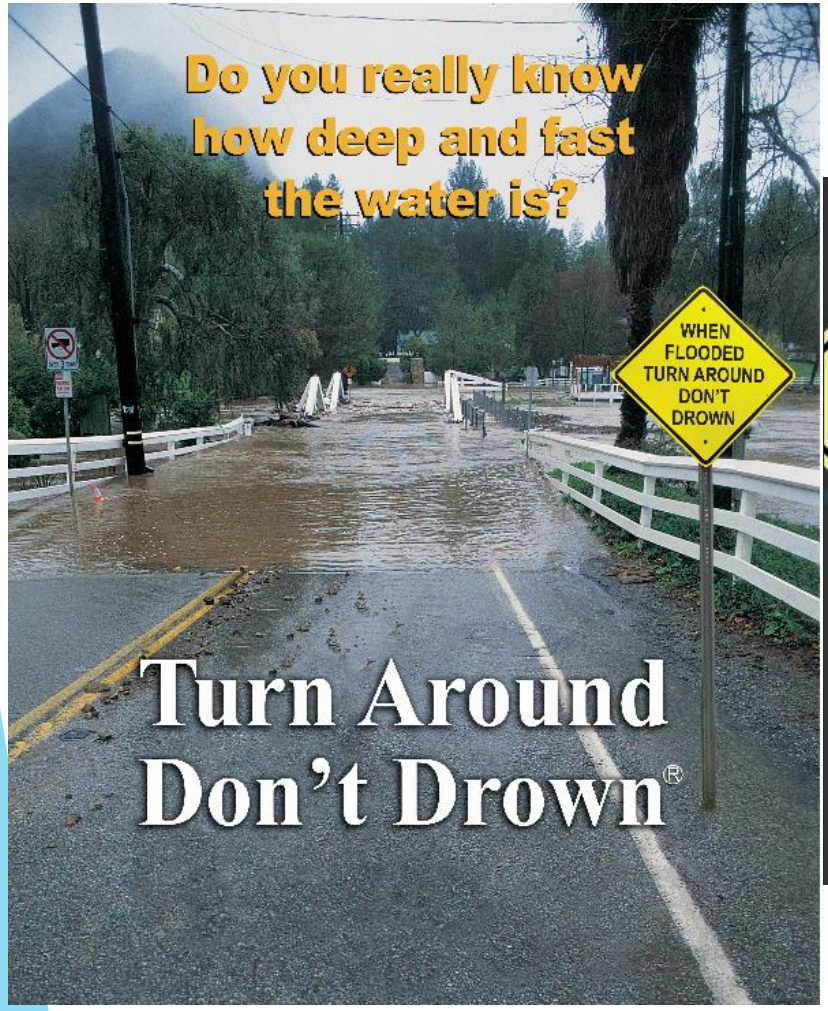


Potential Technical Assistance Ideas

- Assistance with Community Rating System (CRS) Participation
  - Under the CRS, flood insurance premium rates are discounted to reward community actions for exceeding the minimum NFIP standards.
  - Could assist communities with application, documentation of credit points, and program improvement.

Potential Technical Assistance Ideas

Education Outreach



Potential Technical Assistance Ideas

Education Outreach

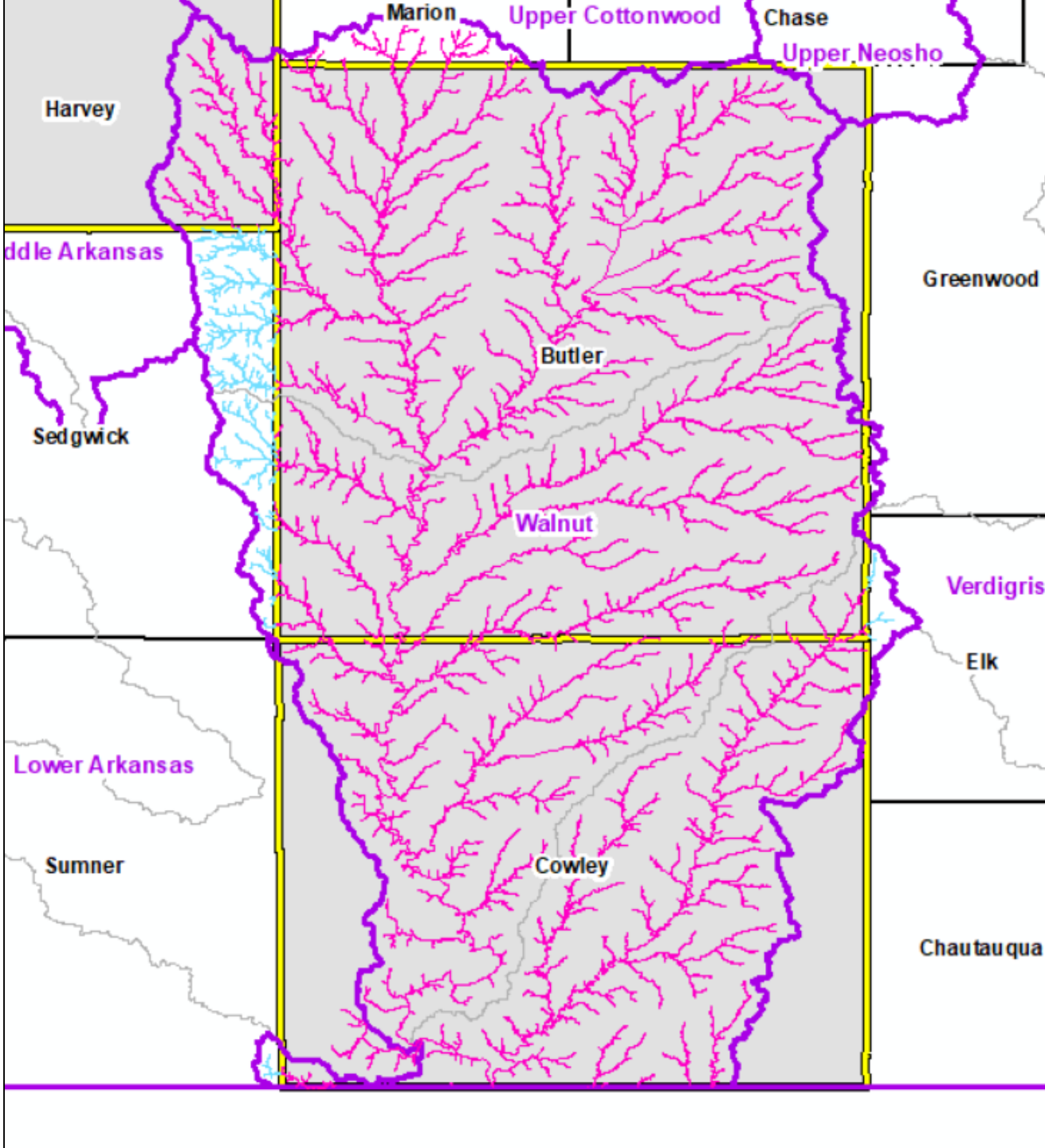
Potential Technical Assistance Ideas

Education Outreach

Planned Regulatory Updates

- Planned Update
- No Planned Update

*County-wide Update



Cowley County Proposed Mapping Updates

Scoped Studies

New Zone A - Gage Analysis
New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology calibrated to Gage Analysis Flows, and 2D Hec-Ras hydraulics.

New Zone A - Gage Analysis
New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.

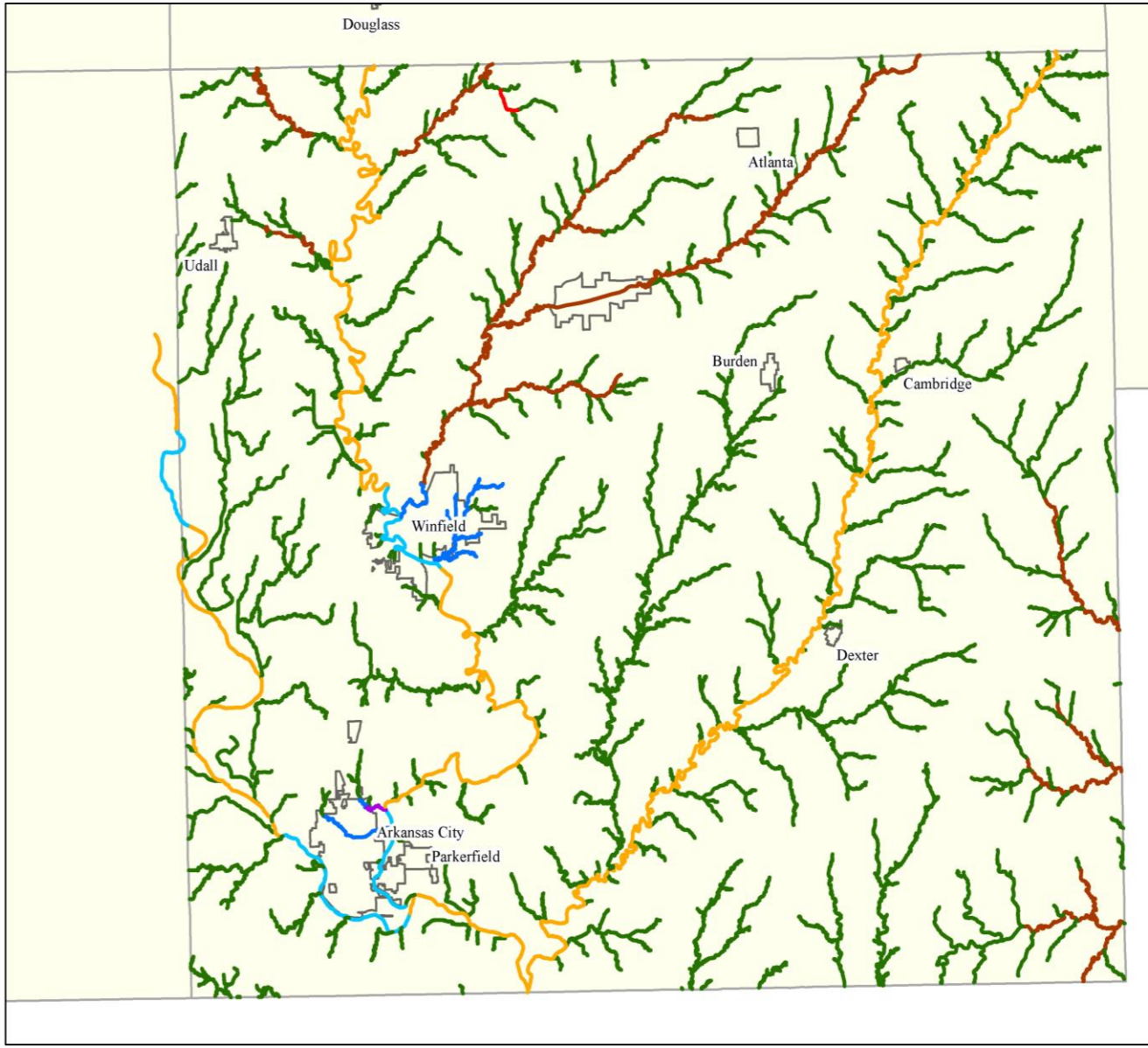
New Enhanced Zone A - Excess Rainfall on Grid
New Enhanced Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. Floodways will not be developed. Field measured structure data will be incorporated into the modeling.

New Zone AE with Floodway - Excess Rainfall on Grid
New Zone AE studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics. 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 2D "excess rainfall-on grid" hydrology calibrated to Gage Analysis Flows, and 2D Hec-Ras hydraulics. Floodways will be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.

New Zone AE - Excess Rainfall on Grid
New Zone AE 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. Floodways will not be developed. BFEs will be shown on the maps.

New Static Zone AE
New Static Zone AE studies will be developed for these streams using statistical frequency analysis.



0 2.5 5 10 Miles

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Project Timeline

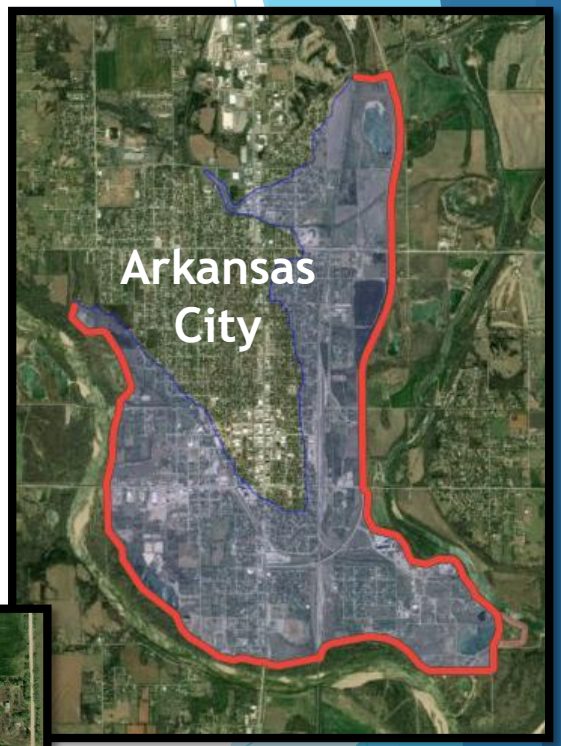
- Data Development Tasks (Butler and Cowley Counties)– Estimated for 2022
  - Base Map & Topography
    - Streets, PLSS, political boundaries, LiDAR
  - Perform Field Measurements on specific structures
  - Hydrology & Hydraulics (Modeling Enhancements)
  - Floodplain Mapping & FIRM Database Updates
  - Community and Public Review Periods
- Preliminary Map Products
- Post-Preliminary Processing

What is Data Development?

- Engineering Modeling & Mapping used for county-wide update.
- Considerations include:
  - Enhancements to BLE, including additional model calibration
  - Additional rainfall-runoff modeling for specific areas and calibration purposes
  - Consideration of historical flooding events and other local data
  - Field-measured survey of structures, where specified
  - Robust review internally and externally
  - Considers and addresses community review comments

Levee Discussion

- There are 4 Levee Systems in Butler County
  - Arkansas City System- FEMA Accredited
  - Winfield System- FEMA Accredited
  - Two Rural Levees- Non-Accredited



Levee Discussion

- Each Levee will be further evaluated during Data Development
  - Meetings will be scheduled to discuss the options for each Levee.
  - Arkansas City and Winfield Levees may be eligible for provisional accreditation, may require recertification, or may remain certified as is.
  - Mapping will be based on Certification Status of Levees.
  - Both Arkansas City and Winfield Levees will require updated Levee Certification, under 44 CFR 65.10, to maintain Accreditation Status.

Levee Options

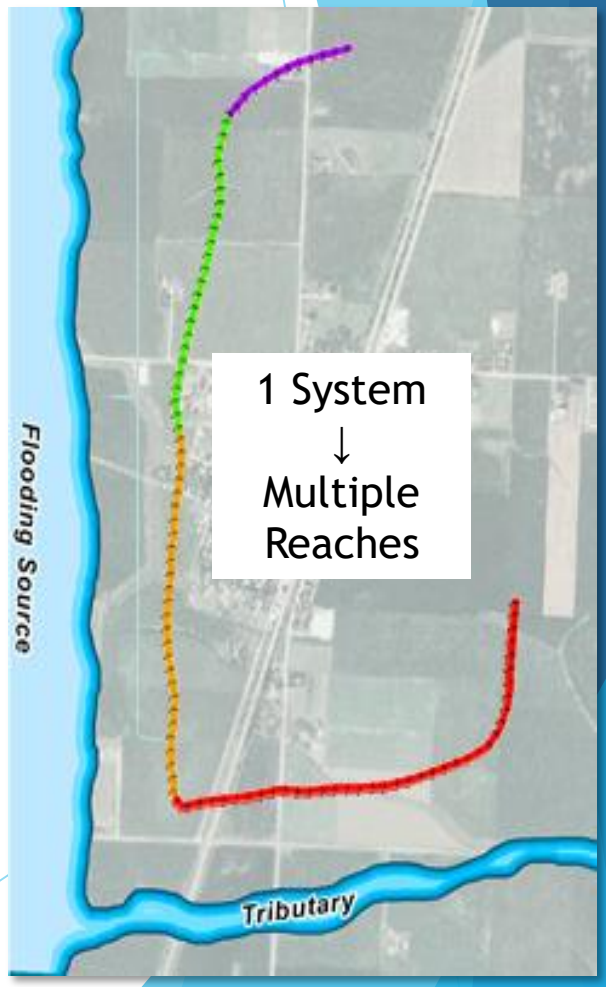
- PAL Agreement
  - Arkansas City and Winfield Levees are likely eligible for Provisional Accredited Levee (PAL) Agreement
  - PAL is agreement with levee sponsors, those who benefit from the levee impacts (city and county) and FEMA, allowing sponsor 2-yrs from signature to complete levee certification
  - PAL Agreement needs to be signed prior to maps going preliminary
- Complete Levee Recertification per 65.10 requirements
- Levee remains Certified per 65.10 requirements

Levee Options

- Natural Valley
  - Will put large portions of the communities in the floodplain
  - Insurance Impacts should be assessed
  - Might want to consider a cost benefit assessment
- Other Levee Mapping options
  - Not recommended unless certification is pursued, and major deficiency is identified

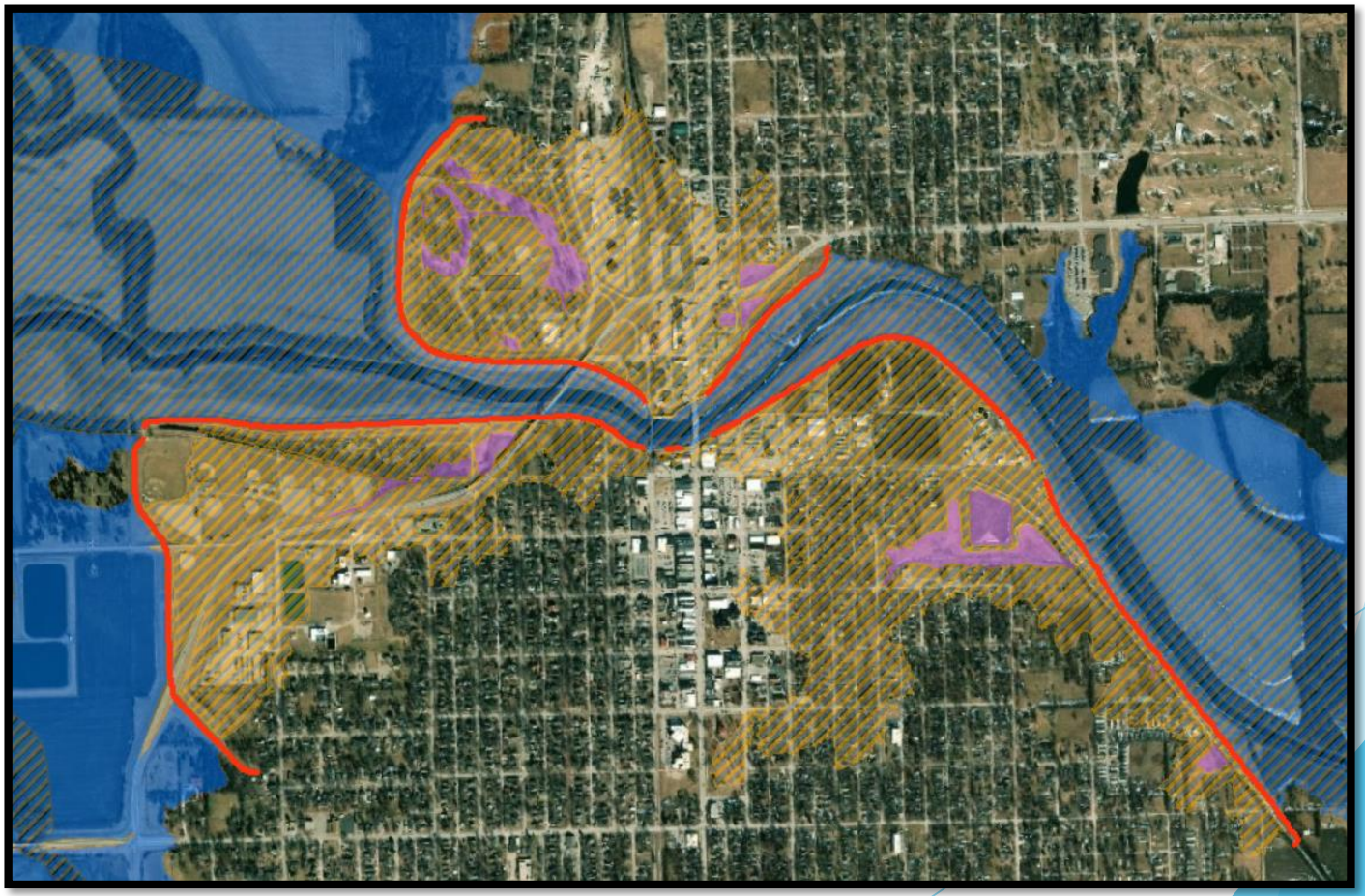
Review of LAMP Process

- There are five procedures that can be applied to a non-accredited levee:
  - Natural Valley
  - Sound Reach
  - Freeboard Deficient
  - Overtopping
  - Structural-Based Inundation
- A system can be broken up into multiple reaches in order to analyze the flood risk in its vicinity
- All of these options take some level of engineering assessment on levee



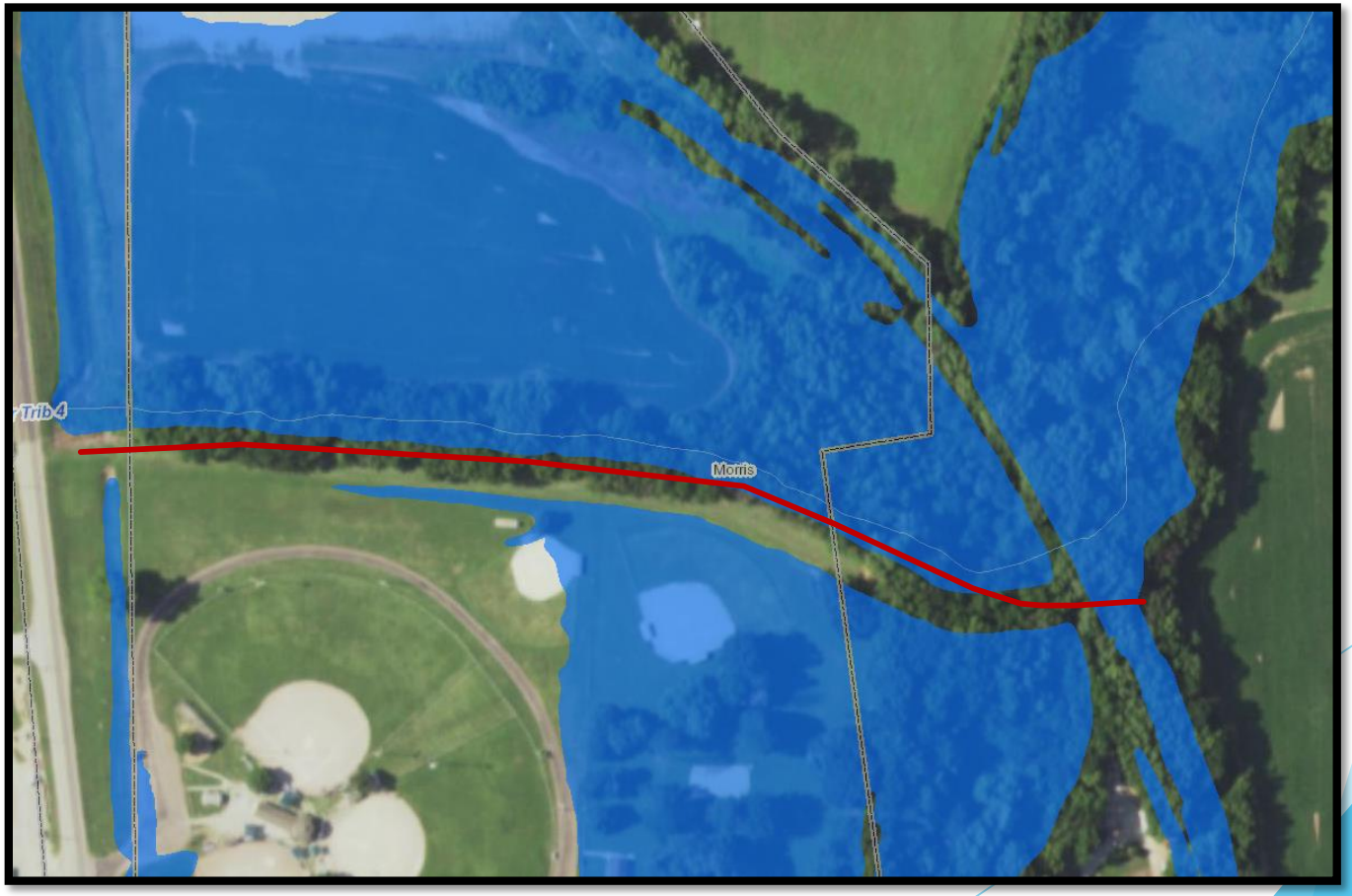
Modeling Accredited Levees

Accredited Levees will be mapped per 65.10 Guidance, which removes the Special Flood Hazard Area inside the levee, with the exception of ponding areas.



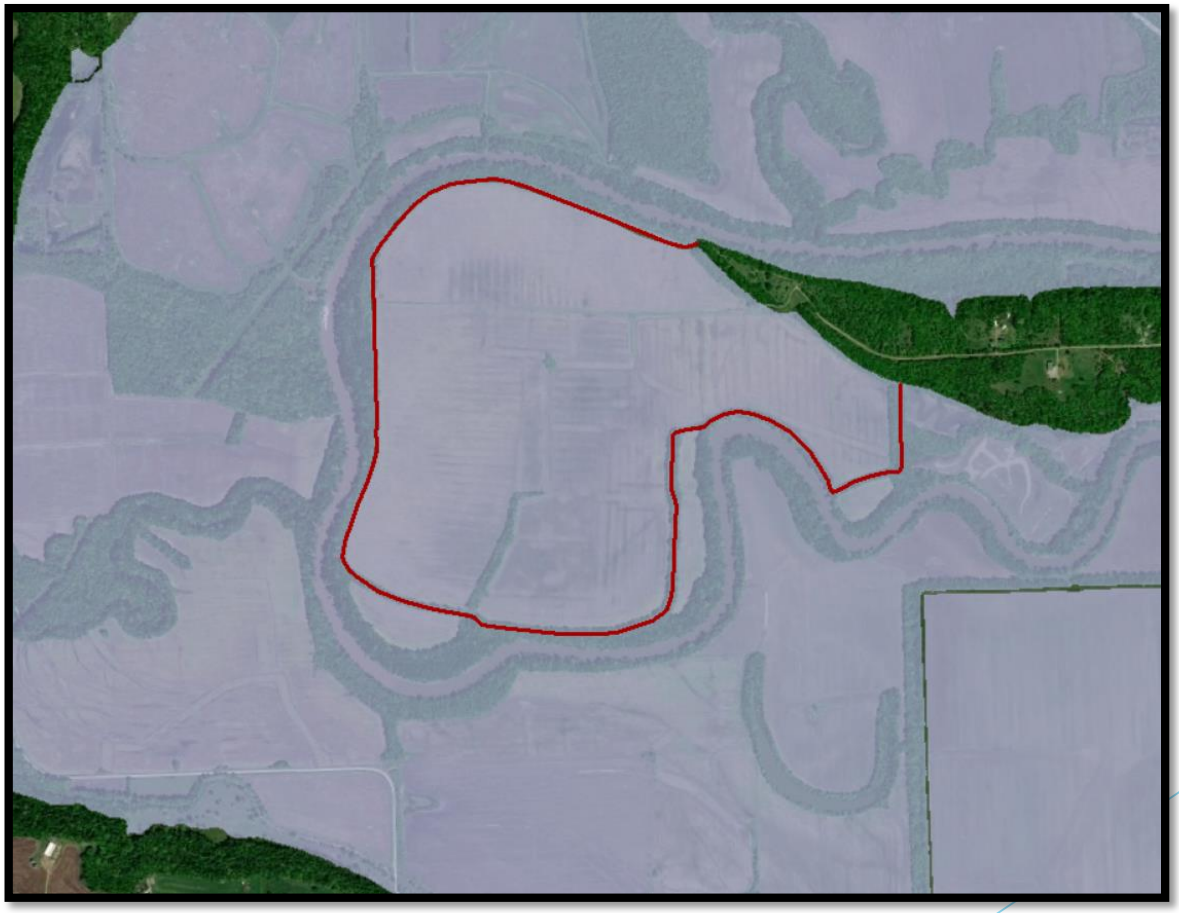
Modeling Non-Accredited Levees

Levees that are not overtopped for 1% annual chance storm are considered hydraulically significant and are mapped using with and without levee scenarios.



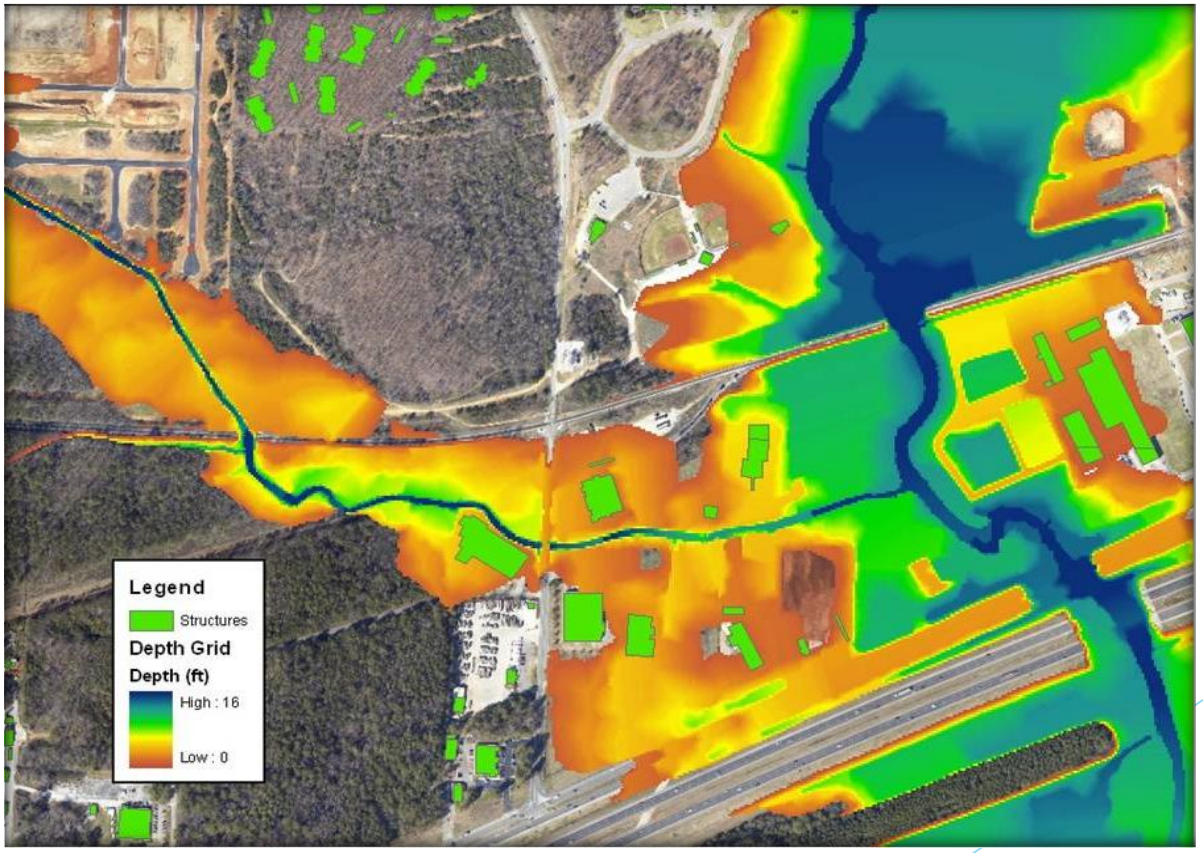
Modeling Non-Accredited Levees

Levees that are overtopped for 1% annual chance storm are considered hydraulically insignificant and are mapped as overtopping.



Development of Risk Map Products

- Water Surface Elevation Grids
- Depth Grids
- Probability of Flooding Grids



Ultimate Project Goals

- Update floodplains in the Walnut Custom Watershed with modern mapping (new regulatory mapping for Butler and Cowley Counties).
- Leave a map that communities BELIEVE.
- Help communities and residents better understand and prepare for their flood risk.
- Identify mitigation opportunities.

What Should You Do Next?

- **Provide Data**
  - Provide any existing data (Imagery, Surveys, Plans, LOMRs, High water marks etc.)
  - Provide information on drainage studies, stormwater plans, capital improvement plans, upcoming projects.

- **Consider Mitigation Projects**
  - Should a Technical Assistance Request be submitted?
  - Should other Mitigation Projects be initiated?

Key Takeaways

- The Process is going to take time
- The Community's Involvement will help us produce better maps!
  - Get out the word 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
  - 5 planned in-person meetings
    - Kickoff, Discovery Meeting, Flood Risk Review, Open House, Post-Preliminary CCO meeting
  - Others as needed

Online Project Information

- **Project Website**
  - Scoping Maps, Project Timeline, Meeting Presentations, Newsletters, Technical Reports, Web Review Map
  - https://www.agriculture.ks.gov/divisions-programs/dwr/floodplain/mapping/mapping-projects/lists/mapping-projects/walnut-custom-watershed
- **Web Review Map –**
  - Review of Base Level Engineering (BLE) data
  - Website available to stakeholders by request
- **Story Maps**
  - Project Info
  - “Floodplain Current”: Mapping Process ‘Nuts and Bolts’

Flood Risk and Mitigation Discussion

Q & A

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