



Cherokee County




FEMA

*Floodplain Mapping Project
Data Development Kickoff Meeting*

July 15, 2021

wood.

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



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



**THANK
YOU**



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

FEMA – Region VII

Andy Megrail
Regional Project Officer

Wood Environment & Infrastructure Solutions

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

Maria Neeland, PE, CFM
*Project Manager /
Engineer*





Today's Goals

Share details on the mapping project

Get initial feedback on modeling methods

Review future steps

Background

Background



- Lower Neosho Custom Watershed BLE Project
 - *Kick-off Meeting and BLE Review: November 19, 2019*
 - *Discovery Meeting: April 15, 2020*

Background



- Cherokee County Effective Mapping is dated November 2008
- Through Discovery and conversations with County stakeholders, it was determined that updated modeling and mapping would benefit Cherokee County.

Review of the Work Ahead and How We Propose Doing It

Definitions



Hydrology
How Much Water?

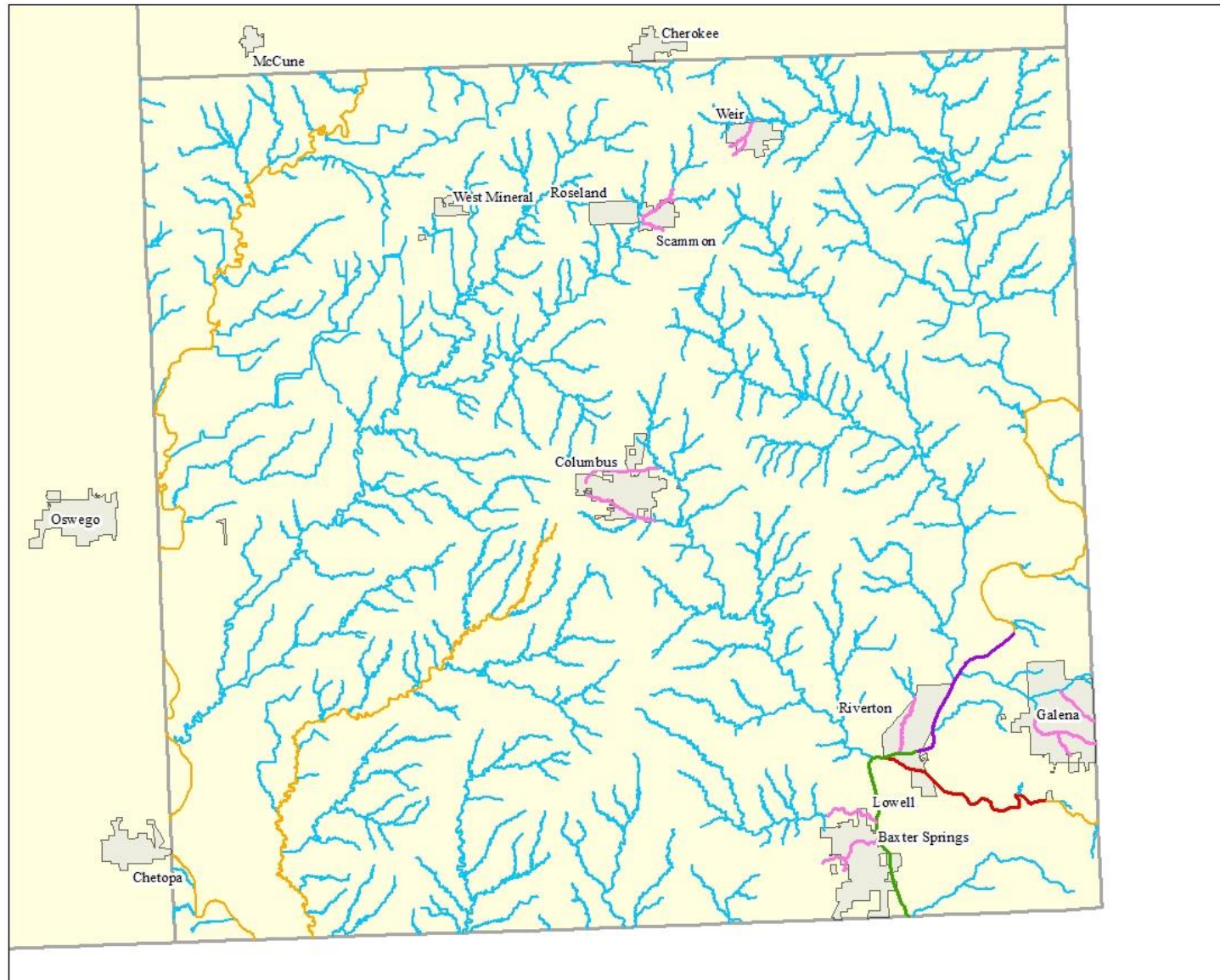


Hydraulics
How High Will Water Get?

Cherokee County 2021 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 - 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 Enhanced Zone A - Gage Analysis**
 New Enhanced 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. 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.
- **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 without 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 not be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.



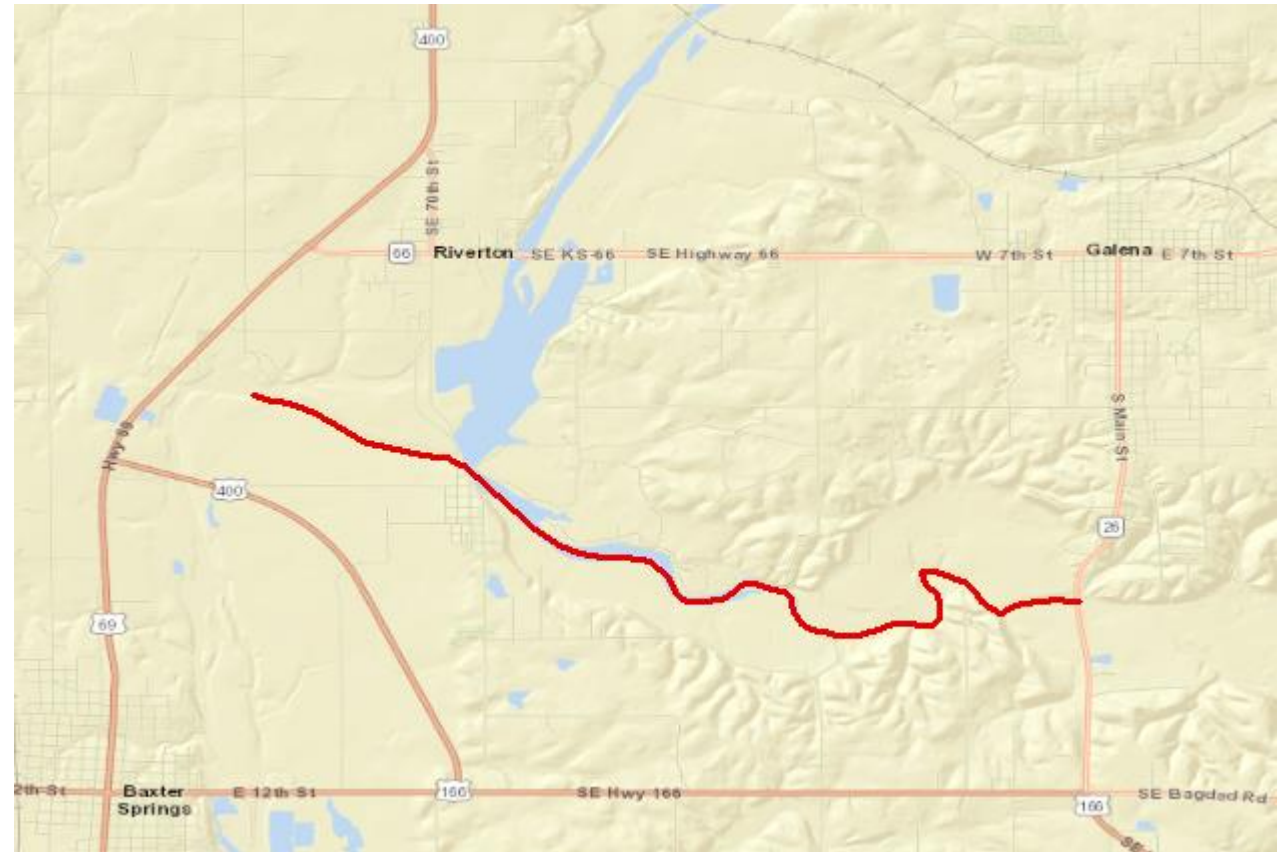
0 1.75 3.5 7 Miles





New Zone AE with Floodway

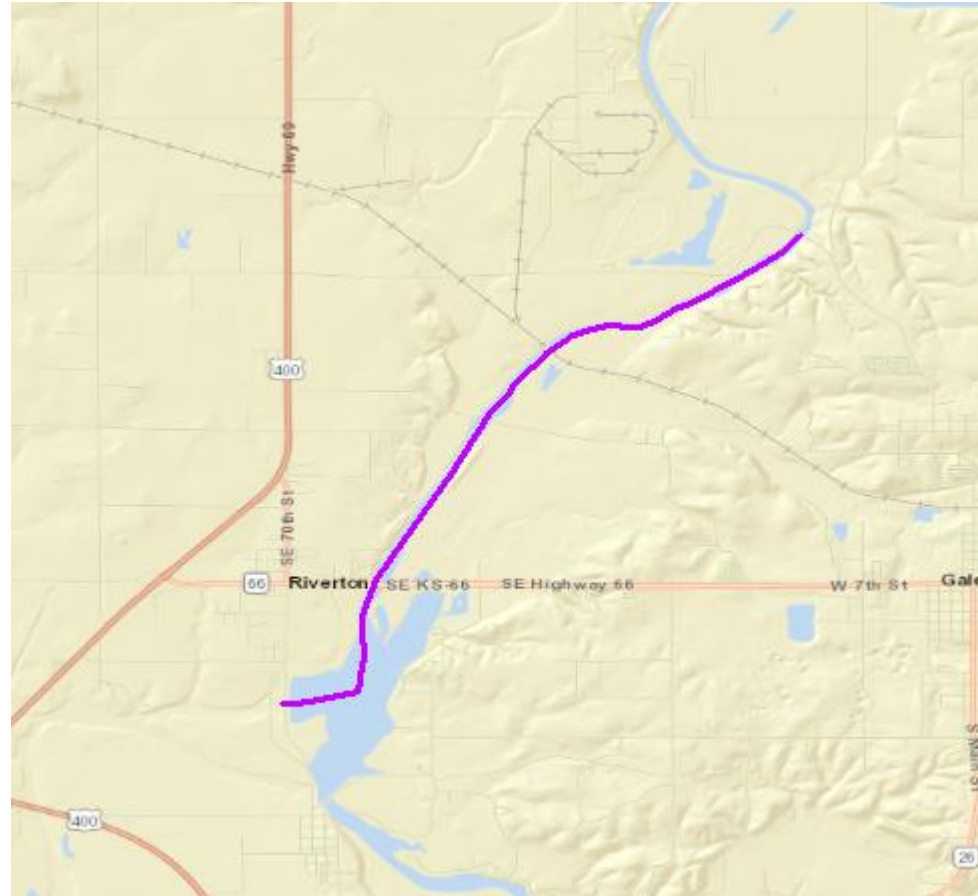
- Riverton:
 - Shoal Creek





New Zone AE without Floodway

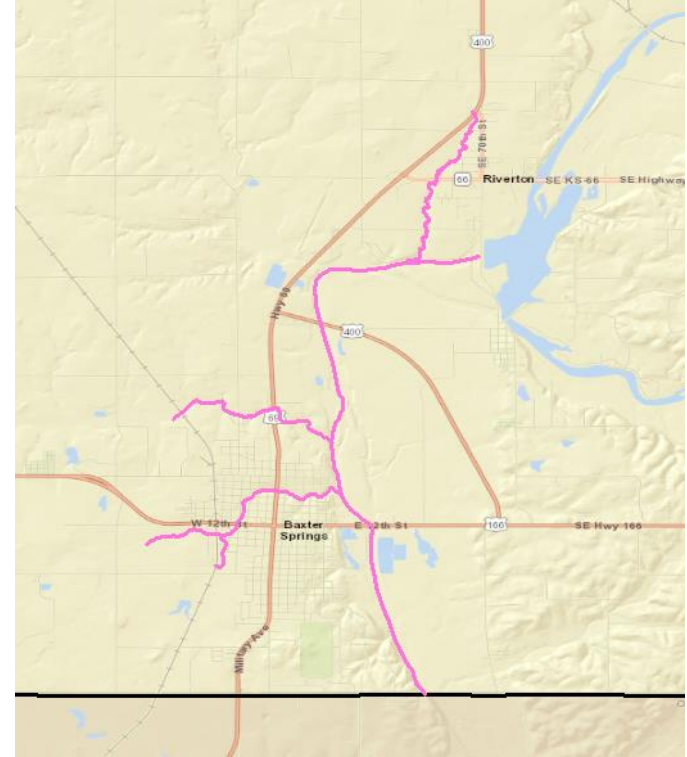
- Riverton:
 - Spring River





New Enhanced Zone A

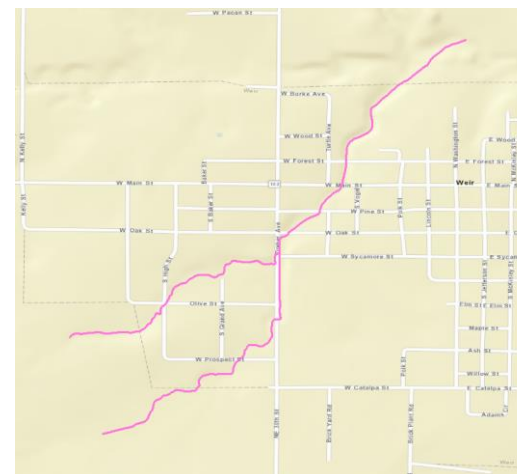
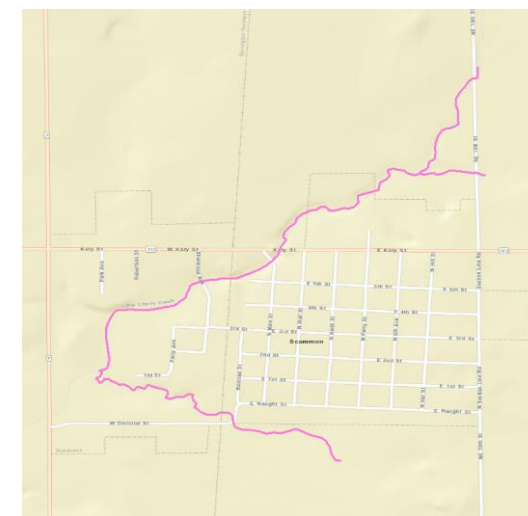
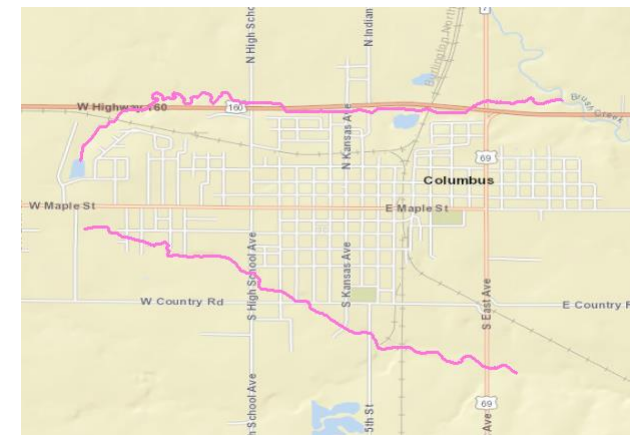
- Riverton:
 - Spring River and 1 Tributary
- Baxter Springs:
 - Spring River and 2 Tributaries
 - Willow Creek
- Galena:
 - 3 Tributaries to Short Creek





New Enhanced Zone A

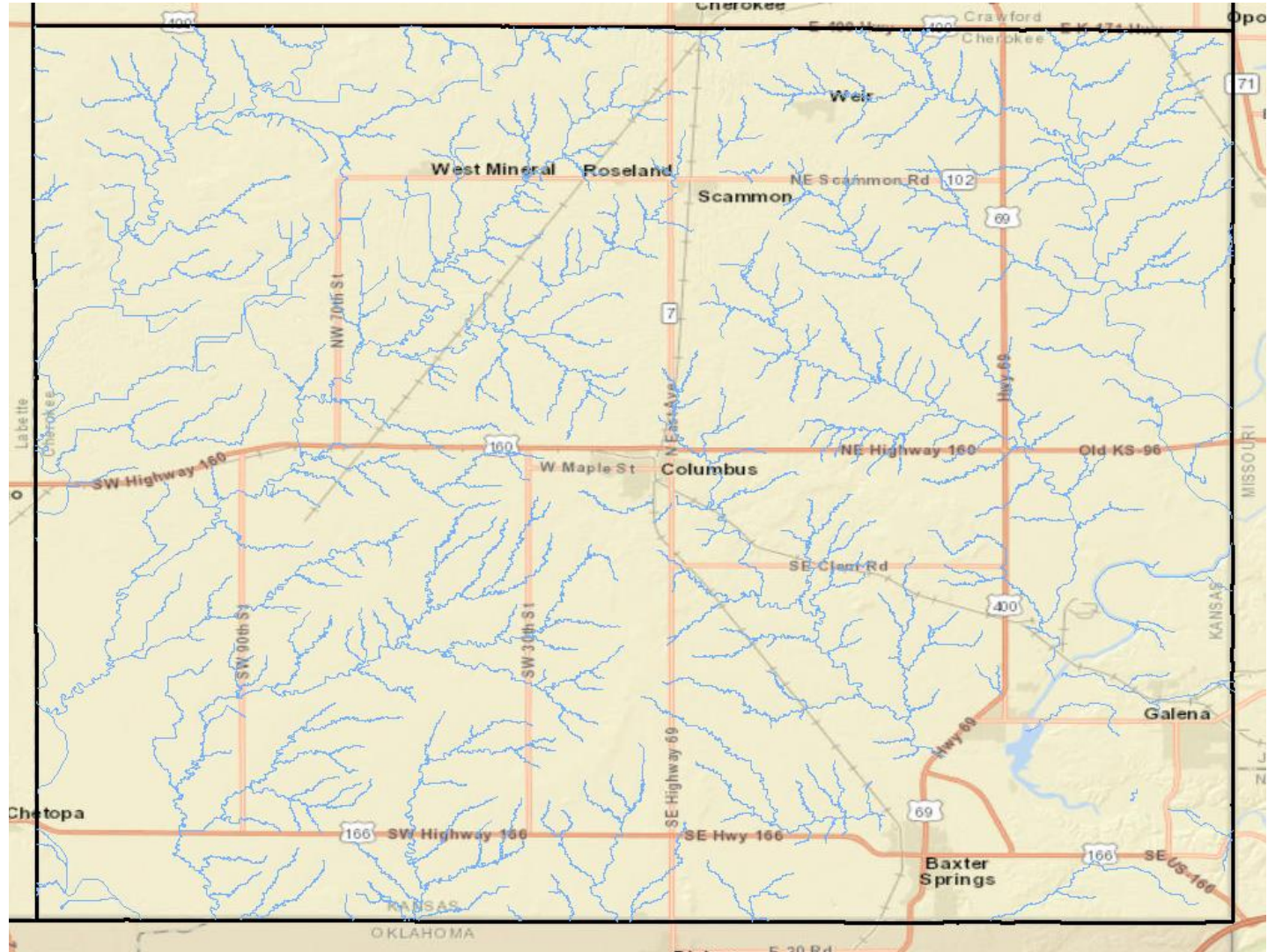
- Columbus:
 - 2 Tributaries to Brush Creek
- Scammon
 - Little Cherry Creek and 2 Tributaries
- Weir
 - 2 Tributaries to Brush Creek





New Zone A

- Remainder of Streams in the County





***2D Hydraulic
Modeling will be
used for the Zone
A and Zone AE
without Floodway
streams***

- Enhancements will be made to the BLE modeling that was performed for the Zone A and Zone AE without Floodway streams.
 - Comments made and additional information gathered during the Discovery phase will be used to enhance the modeling
 - Enhanced Zone A and Zone AE without Floodway streams will include field measured data for culverts and bridges
- The hydrology is built into the RAS modeling platform using excess rainfall-on-grid methodology.
 - This will be calibrated to gage analysis flows

1D or 2D Hydraulic Modeling can be performed for the Zone AE with Floodway streams



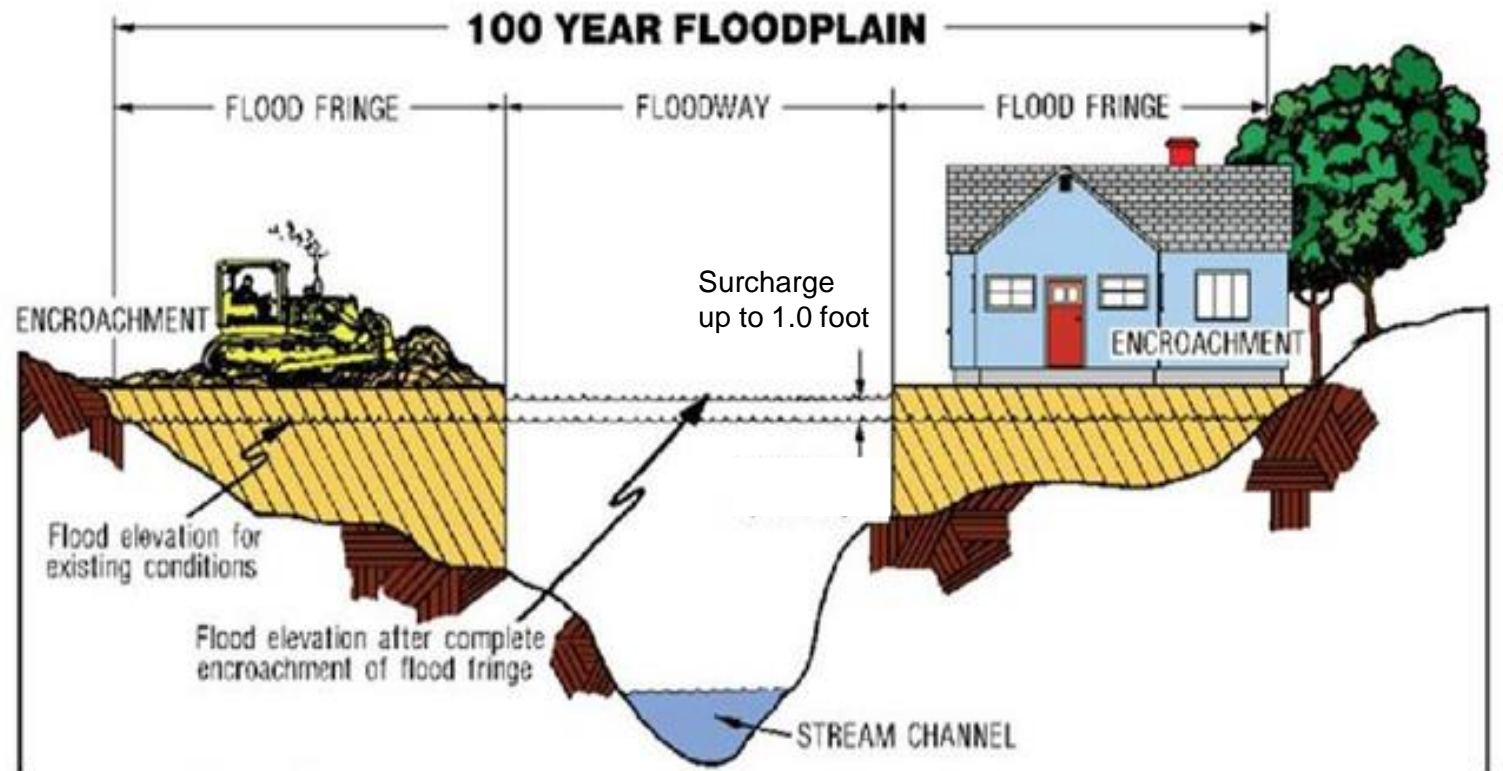
Zone AE with Floodway Hydrology

- Gage Analyses will be performed for Shoal Creek as it has USGS stream gages
 - Used as flows for 1D modeling or calibration information for 2D modeling

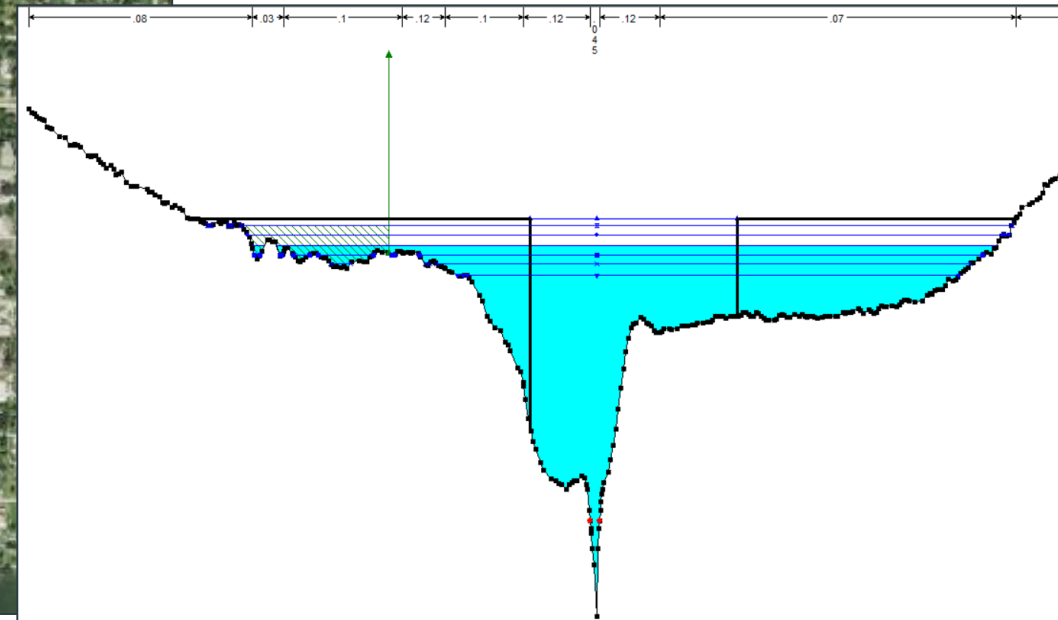
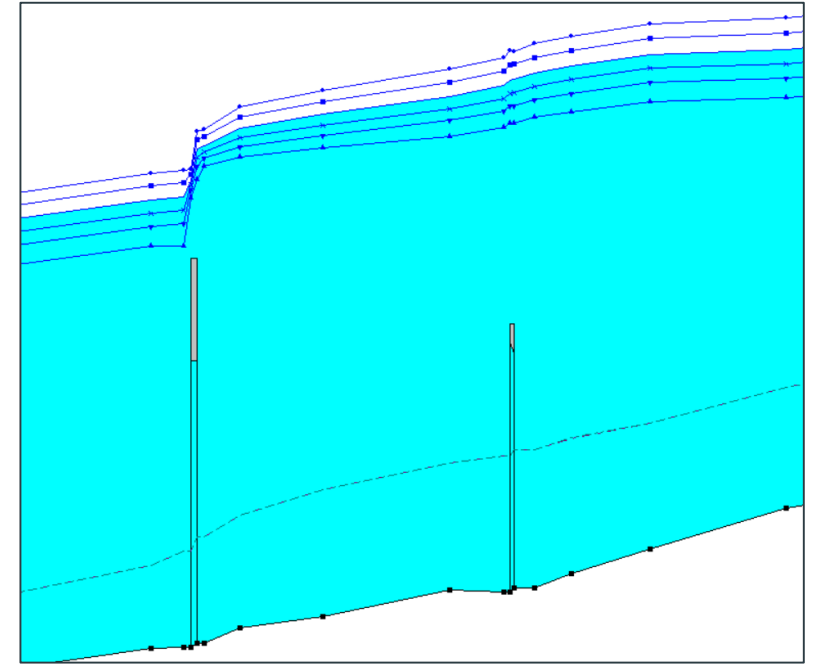
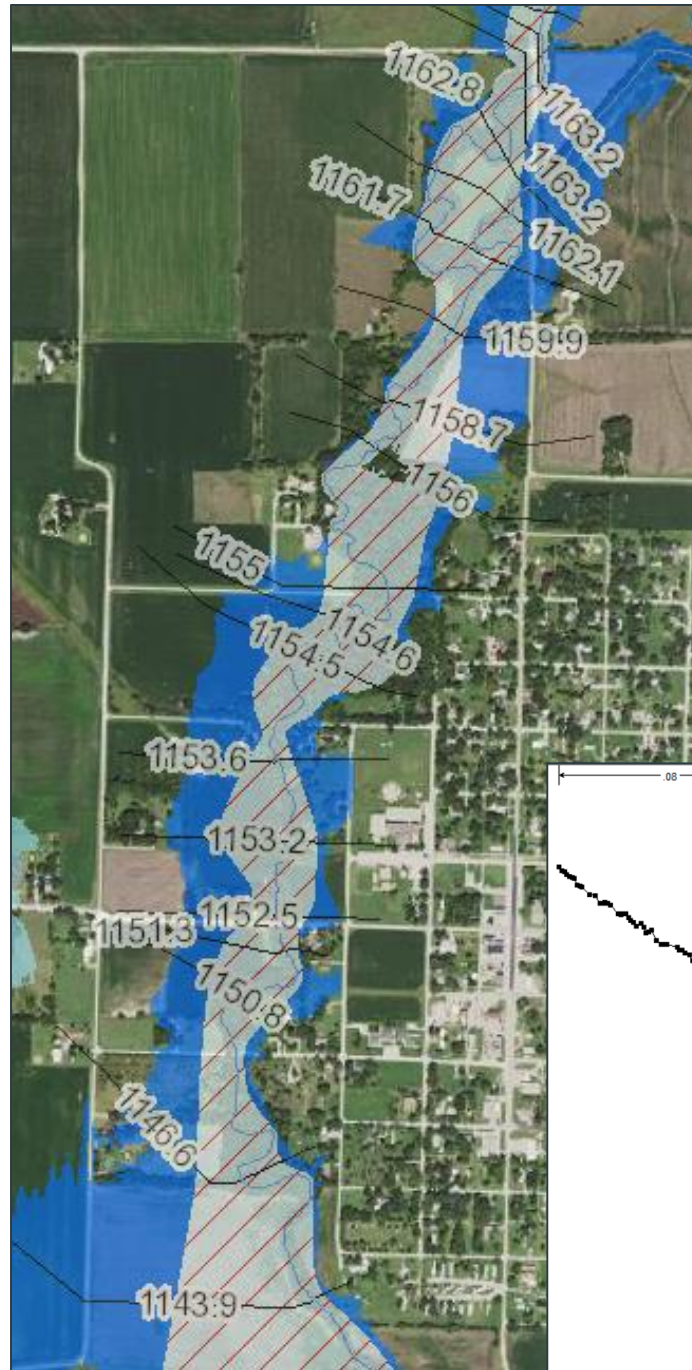


A portion of the Zone AE modeling includes the development of a floodway

A Floodway is the area within the floodplain that must be reserved in order to discharge the base flood without cumulatively increasing the WSE by more than 1.0 foot.

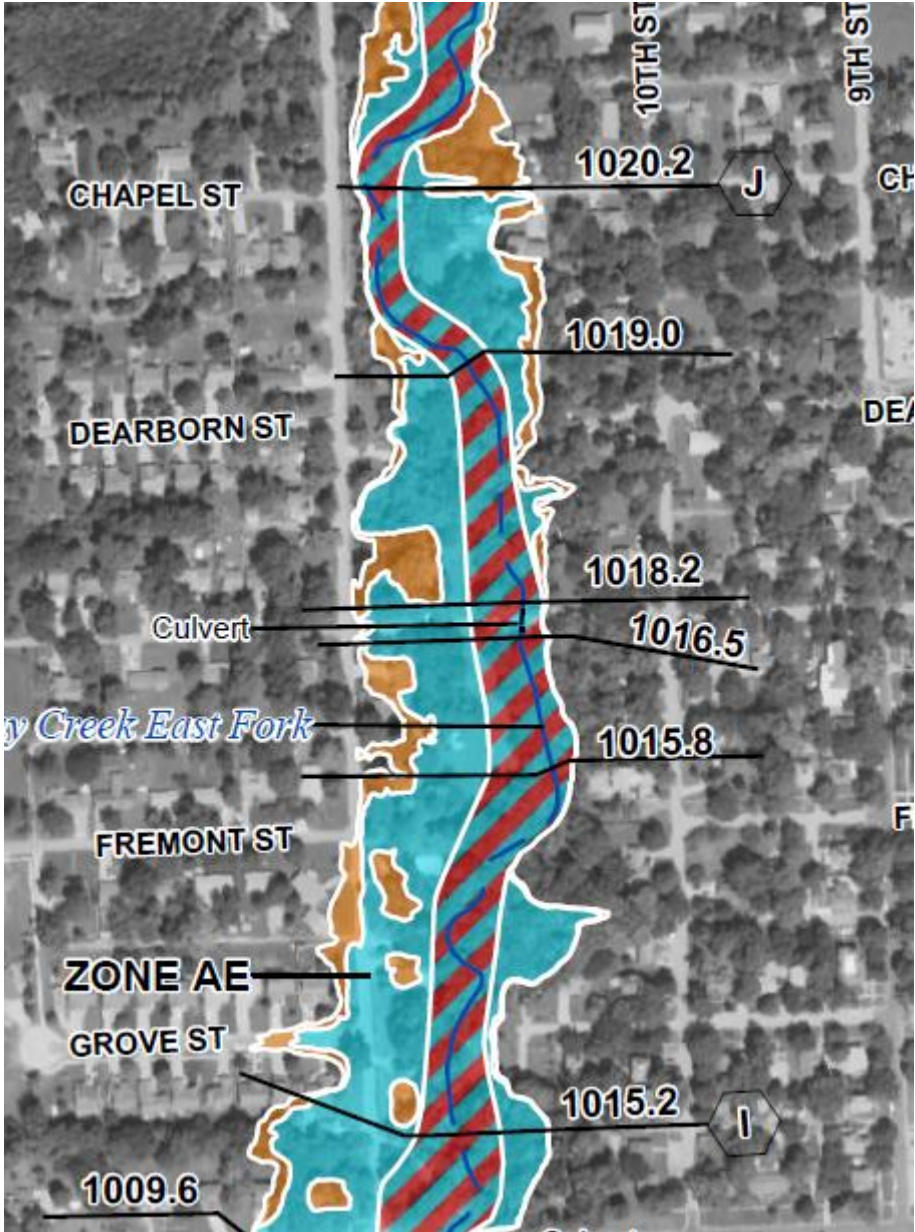
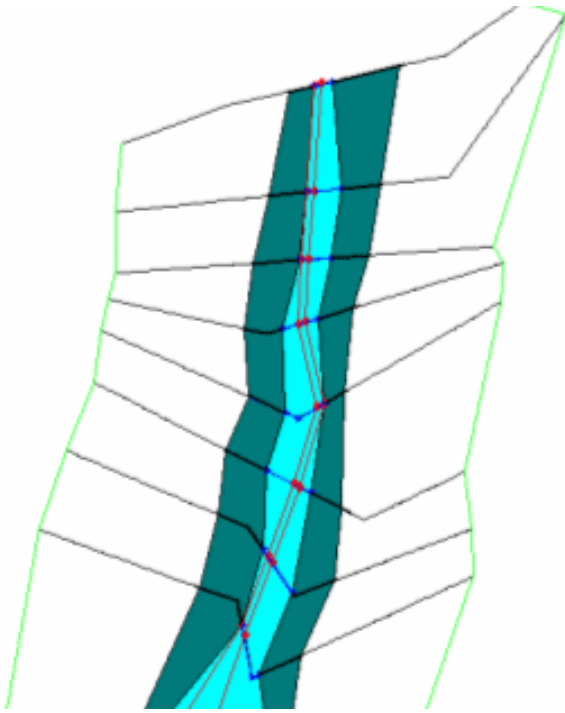


1D Modeling





1D Floodways

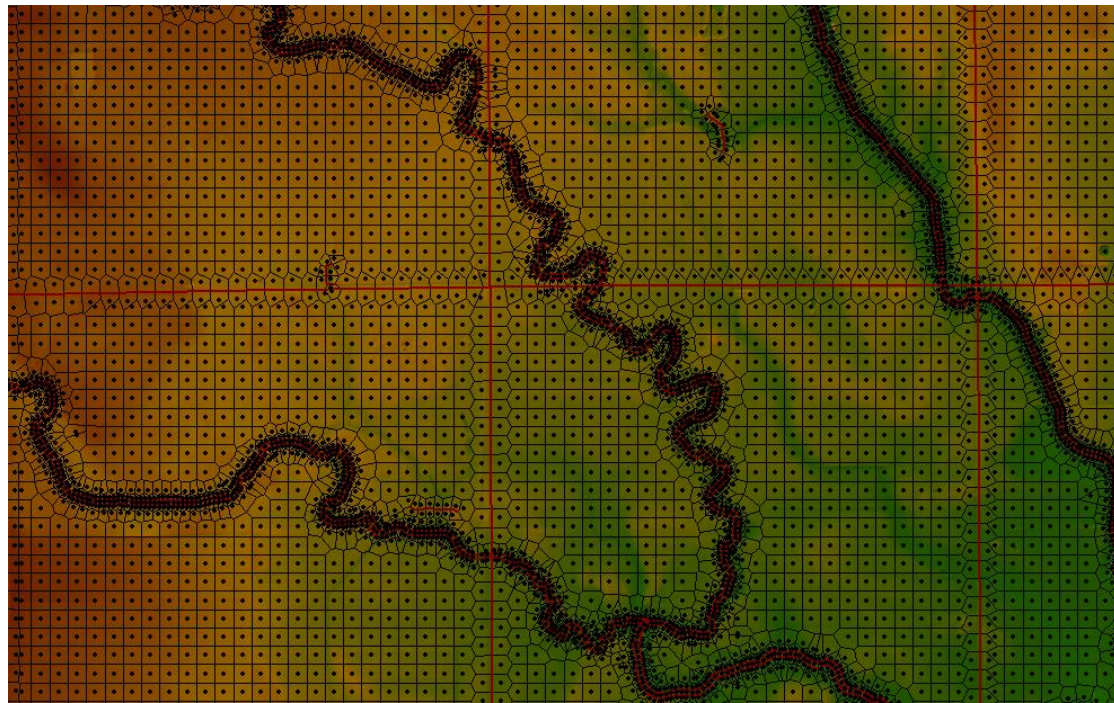




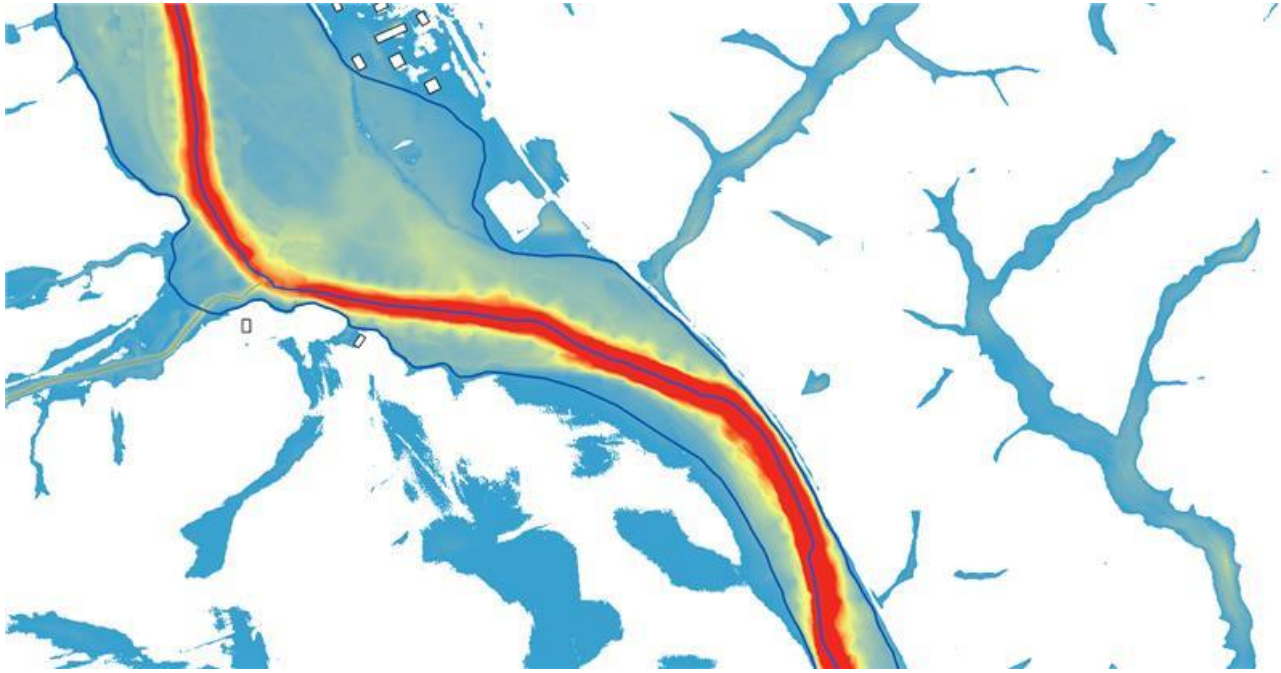
Benefits of 1D modeling for Zone AE streams

- The local consulting community has more experience with 1D modeling
 - Especially important when considering LOMR applications and future use of the modeling
- 1D Floodway Guidance is more established
- 1D modeling has similar accuracy to 2D modeling in areas with more relief (steeper terrain)
- The floodway will look more similar to the effective floodways
- The FEMA reviewers are more familiar with 1D floodways

2D Modeling

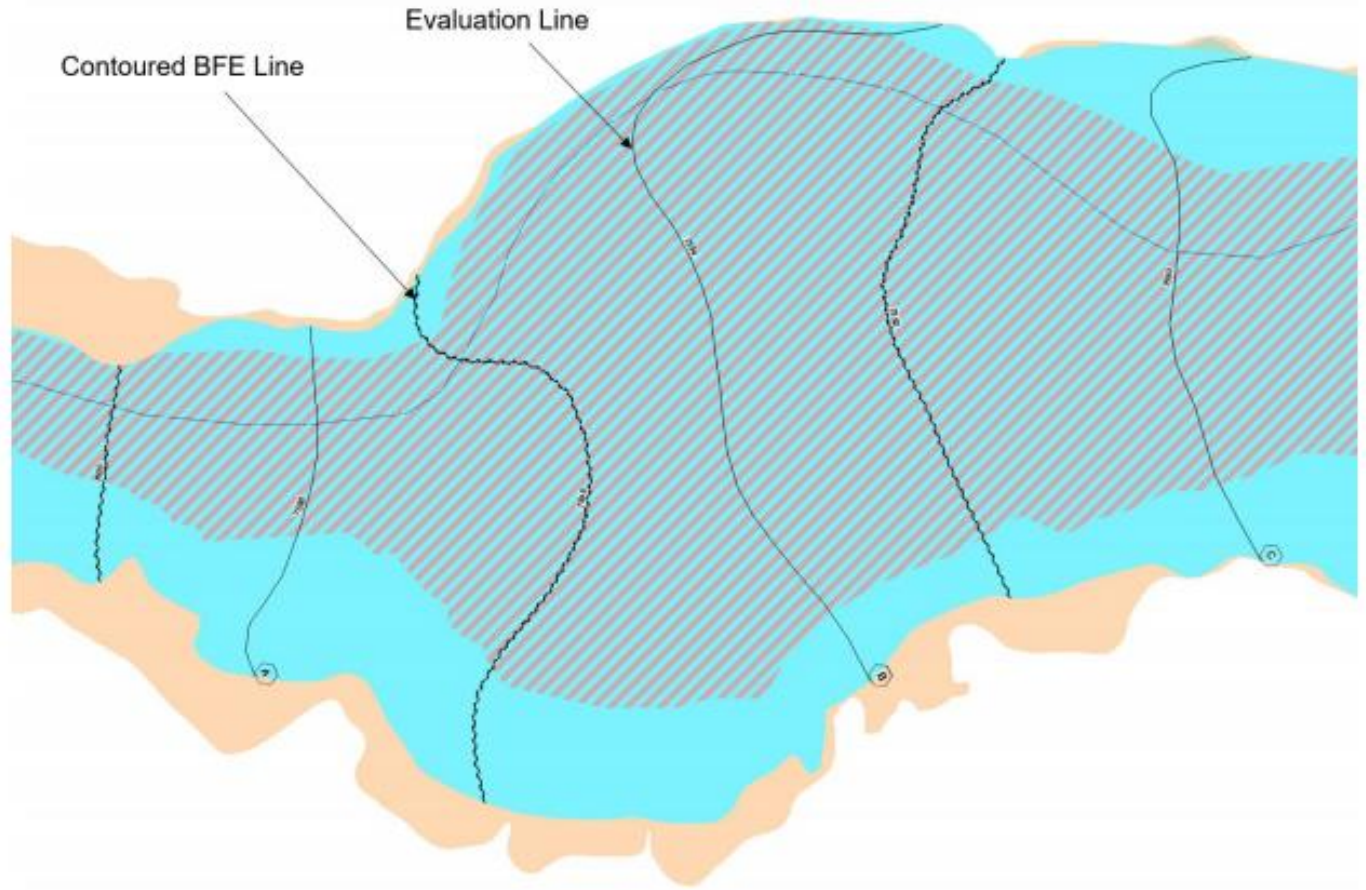


2D Floodways





2D Floodways





Benefits of 2D modeling for Zone AE streams

- 2D more accurately portrays flooding where water flows in multiple directions, such as flat areas and braided streams; as well as shallow flooding.
- 2D modeling is at the forefront of modern modeling practices
 - 2D will be used for the Zone A and Zone AE without Floodway streams as well
 - Note that 2D floodway guidance has been released, but has not been put into practice for long



Zone AE Recommendation and Discussion

At this time, it would be Wood's recommendation to pursue 1D modeling for the Zone AE with Floodway streams in this project given the terrain in the area and the limited experience of the local consulting community with 2D modeling, but we want to hear **your thoughts.**



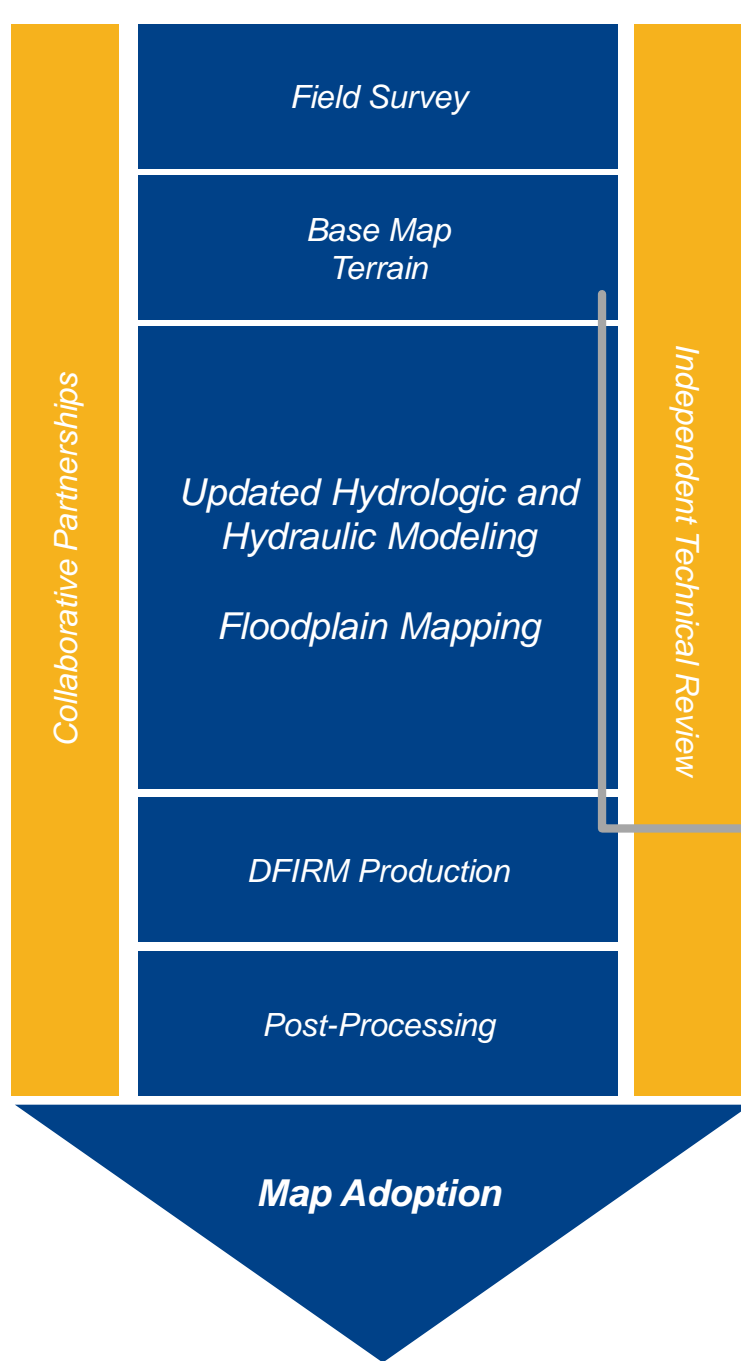
- There are 6 Non-Accredited Ag Levees in the County
- These levees are overtopped for the 1% annual chance storm and are considered hydraulically insignificant. They will be mapped as overtopping.

Non-Accredited Levees



Next Steps

Data Development



Project Tasks

1. Field Survey
2. Base Map and Topography Preparation
3. Hydrologic and Hydraulic Modeling
4. Floodplain Mapping
5. DFIRM and FIS Production
6. Post-Preliminary

We are about to begin the modeling task



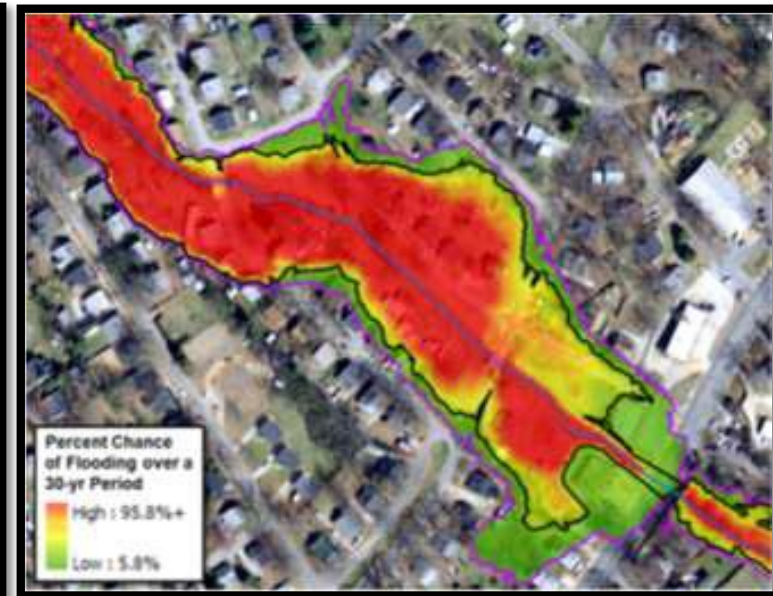
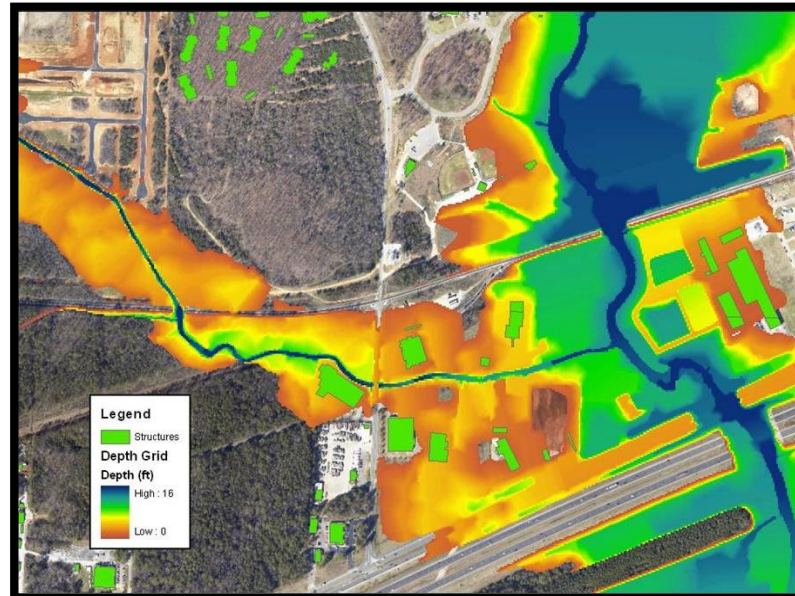
Our Next Steps:

- We will complete the engineering analysis previously described
- We will develop your draft regulatory floodplain maps.
 - Also known as your Flood Insurance Rate Map (FIRM)
- We will develop your draft Flood Insurance Study (FIS).
- We will have a community review period and a public review period



Our Next Steps:

- We will also be developing flood risk products for all of Cherokee County as part of this project.
 - Will use the latest data available for all streams



Project Timeline



Kick-off Meeting and Initial Community Feedback:
[TODAY!]

Data Development Work:
[Now until the end of 2021]

- *Base Map*
- *Topographic Data*
- *Field Survey*
- *Develop Hydrologic and Hydraulic Models*
- *Floodplain Mapping*

Flood Risk Review Meeting:

[~January 2022]

- *Your **review** and **feedback** on the draft maps*

Project Timeline, continued

Community
comments will
be **addressed**

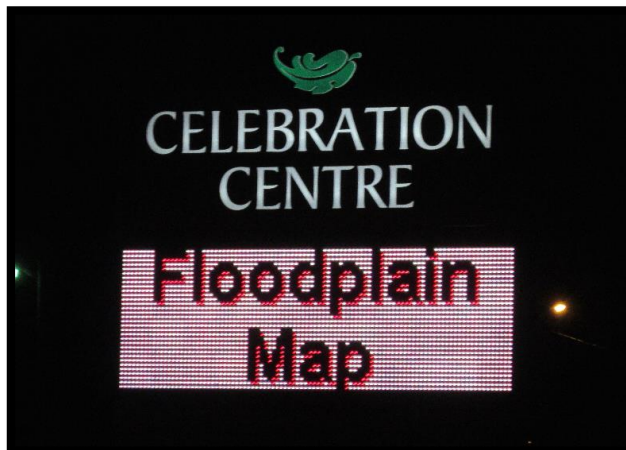
Public review of
the draft maps

- *Includes Public
Open House*

**Preliminary Map
Products**

- *Preliminary DFIRM
Community
Coordination Meeting*

**Post-
Preliminary
Processing**





Key Takeaways

Floodplain Mapping Projects take time

Your involvement in this process will result in better flood information for your community

***DON'T HESITATE TO CALL,
WE ARE HERE TO HELP***

Resources

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/>

Web Review Map

- Provide comments on areas impacted by past floods, community needs, etc.
- Review of floodplain data

Story Maps

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

Any Questions?
