



Neosho County




FEMA

*Floodplain Mapping Project
Data Development Kickoff Meeting*

July 14, 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*
- Verdigris Custom Watershed BLE Project
 - *Kick-off Meeting and BLE Review: January 28, 2020*
 - *Discovery Meeting: April 21, 2020*

Background



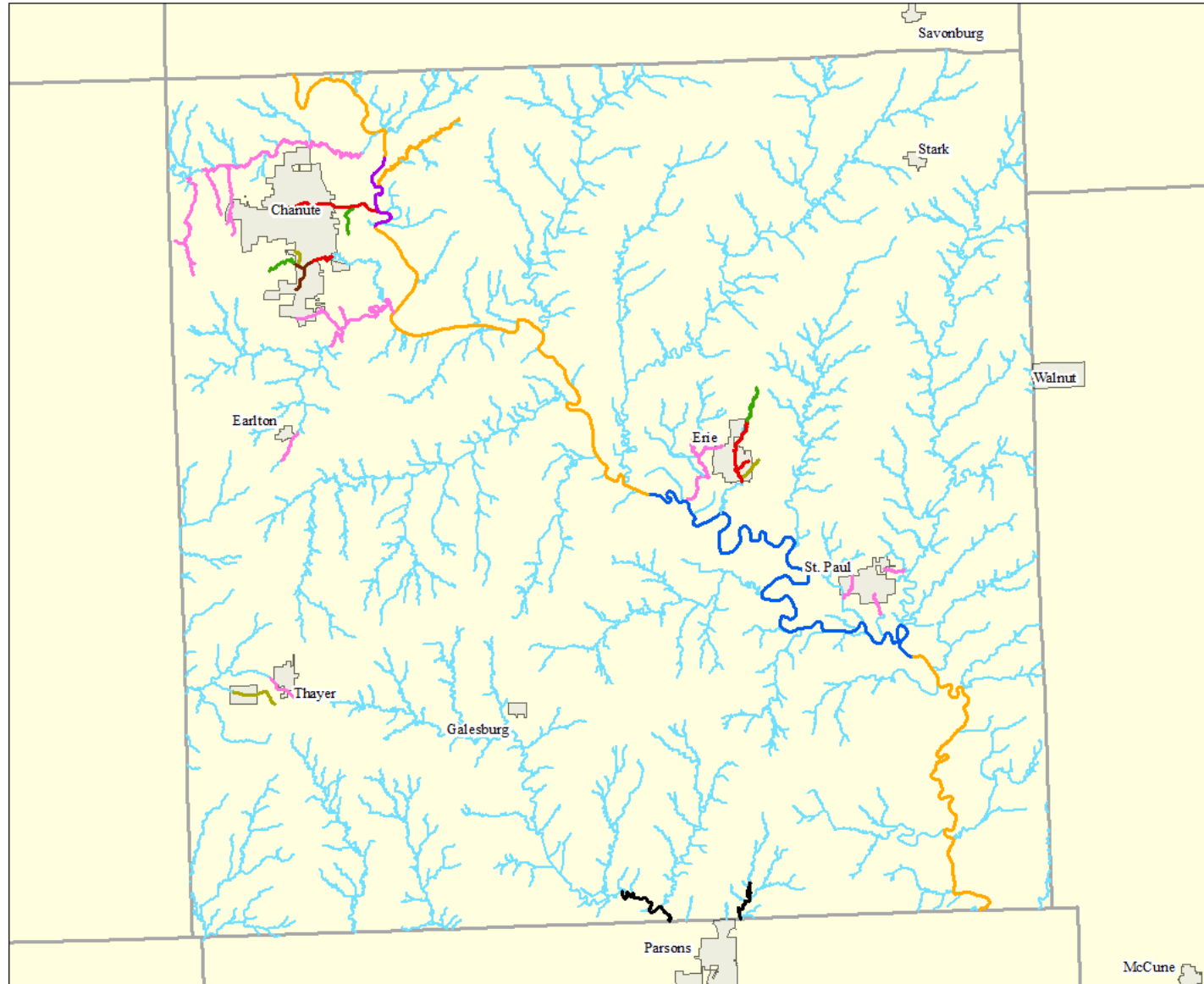
- Neosho County Effective Mapping is dated January 2010
- Through Discovery and conversations with County stakeholders, it was determined that updated modeling and mapping would benefit Neosho County.

Review of the Work Ahead and How We Propose Doing It

Neosho County 2021 Proposed Mapping Updates

Scoped Studies

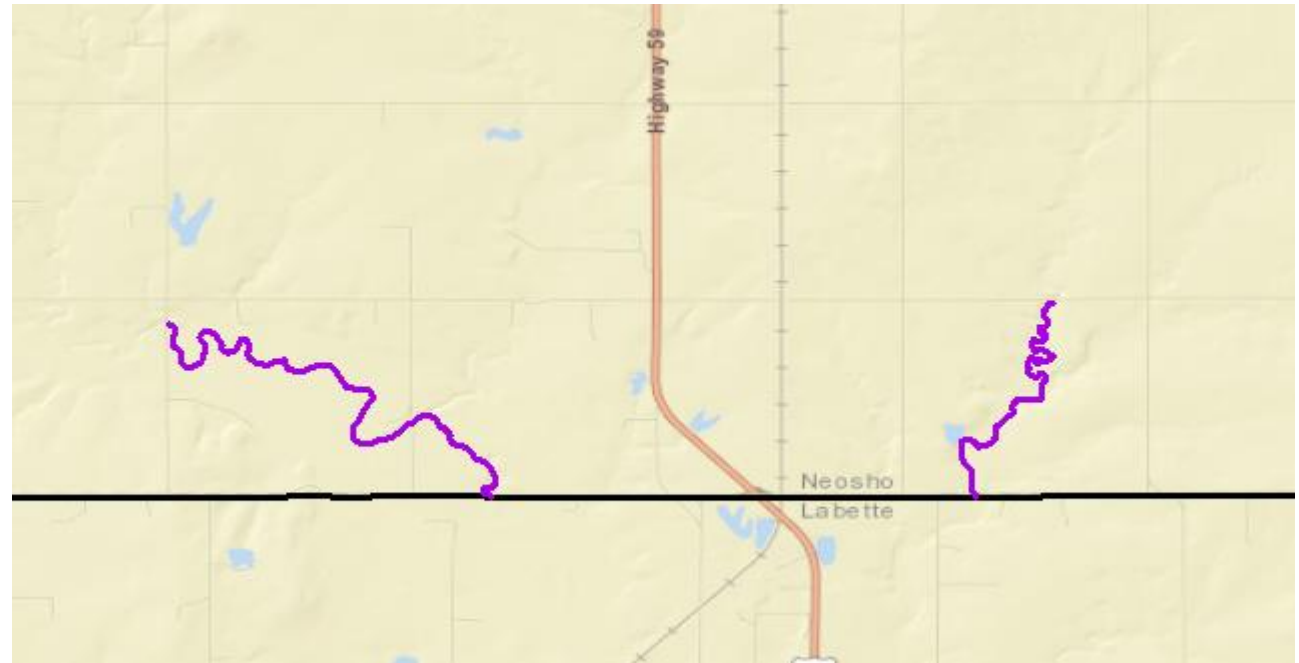
- **New Zone A - Gage Analysis**
 New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology calibrated to Gage Analysis Flows, and 2D Hec-Ras hydraulics.
- **New Zone A - Excess Rainfall on Grid**
 New Zone A studies will be developed for these streams using 2D "excess rainfall-on grid" hydrology and 2D Hec-Ras hydraulics.
- **New 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 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 Enhanced Zone A - HEC-HMS**
 New Enhanced Zone A studies will be developed for these streams using rainfall-runoff modeling. Field measured structure data will be incorporated into the modeling.
- **New Enhanced Zone 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 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 without 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 not be developed. Field measured structure data will be incorporated into the modeling. BFEs will be shown on the maps.
- **New Static Zone AE**
 New Static Zone AE studies will be developed for these streams using rainfall-runoff modeling. Field measured structure data will be incorporated into the modeling.





New Zone AE without Floodway

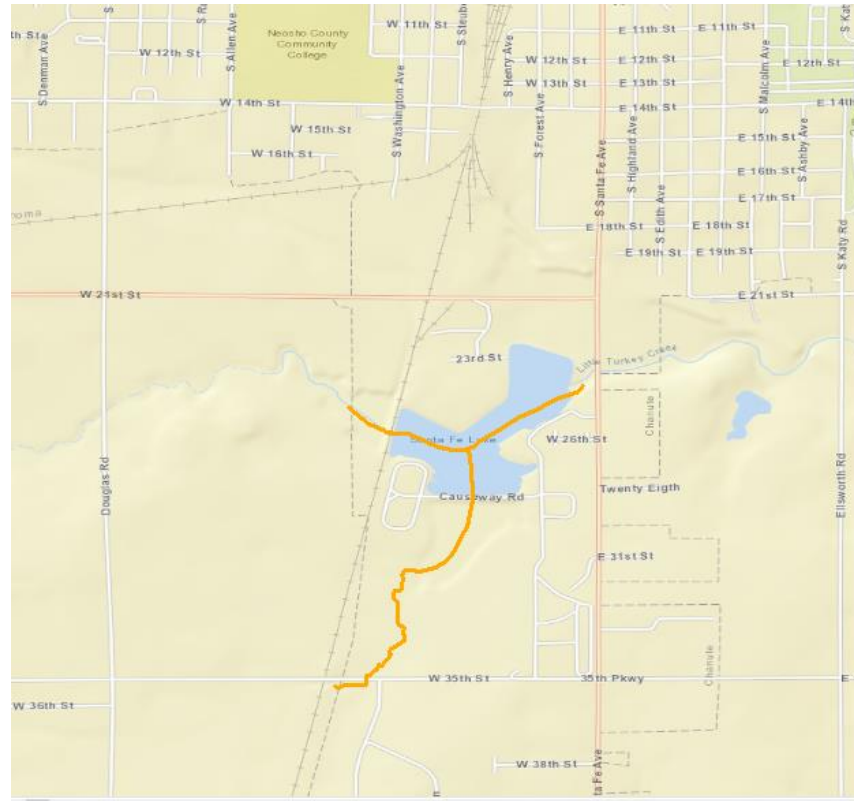
- North of Parsons:
 - Labette Creek
 - Tolen Creek





New Static AE

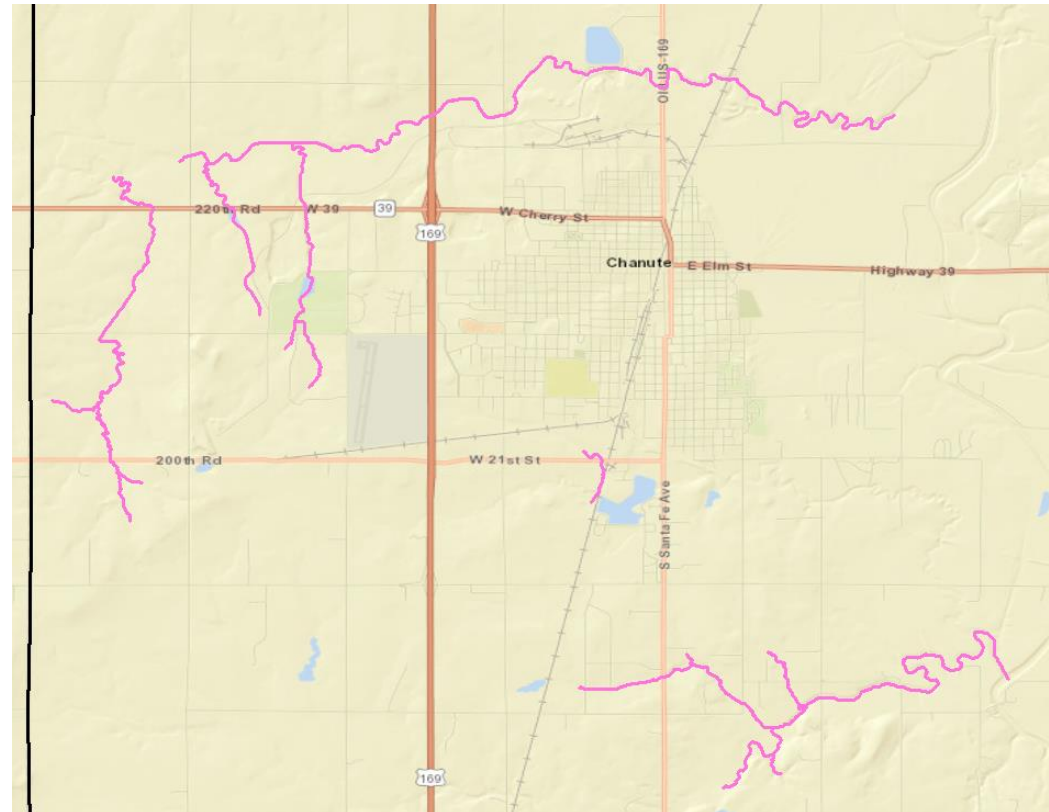
- Chanute:
 - Little Turkey Creek and 1 Tributary





New Enhanced Zone A

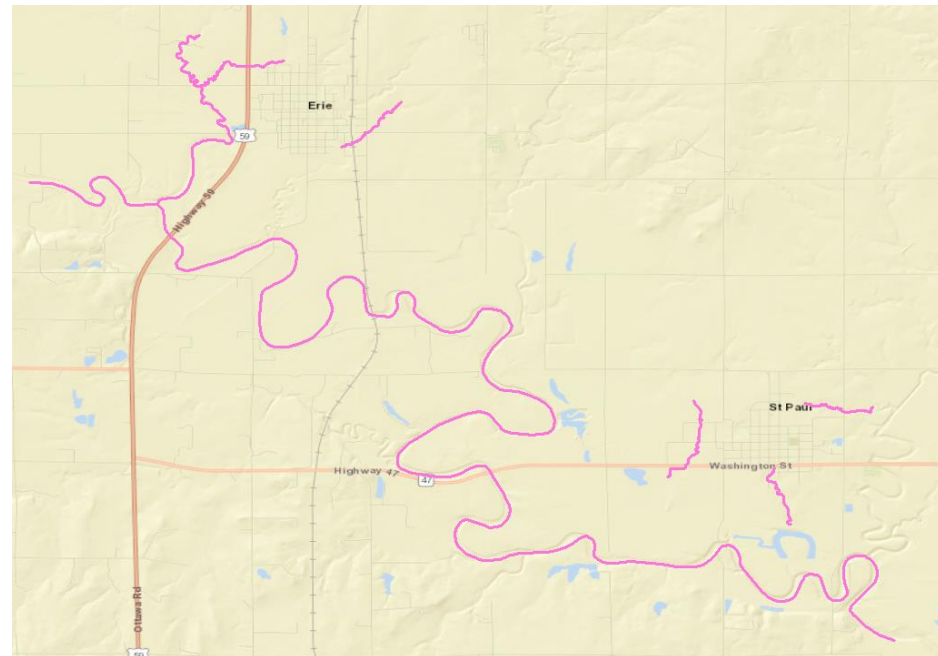
- Chanute:
 - Village Creek and 6 Tributaries
 - Turkey Creek and 4 Tributaries
 - 1 Tributary to Little Turkey Creek





New Enhanced Zone A

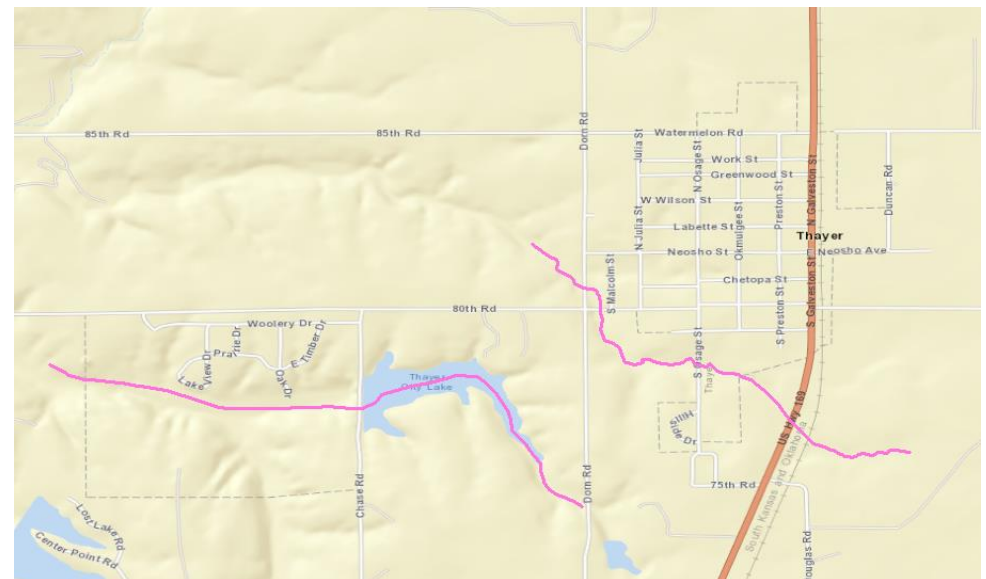
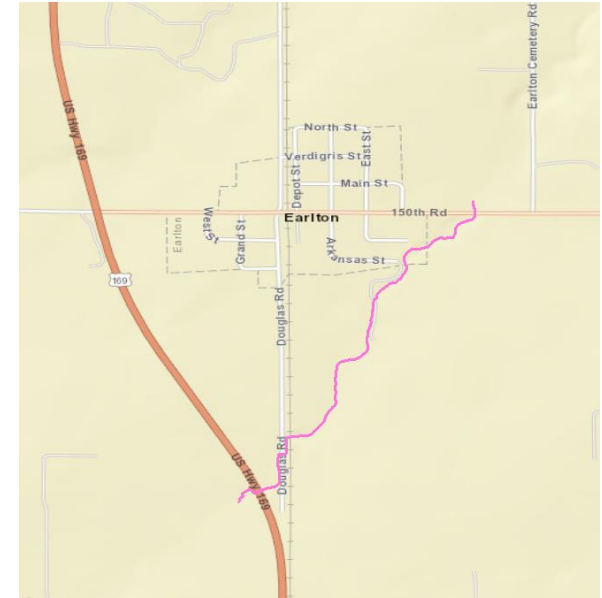
- Erie:
 - Neosho River and 2 Tributaries
 - 1 Tributary to Puckets Run Creek
- St. Paul
 - 2 Tributaries to the Neosho River
 - 1 Tributary to Walnut Creek





New Enhanced Zone A

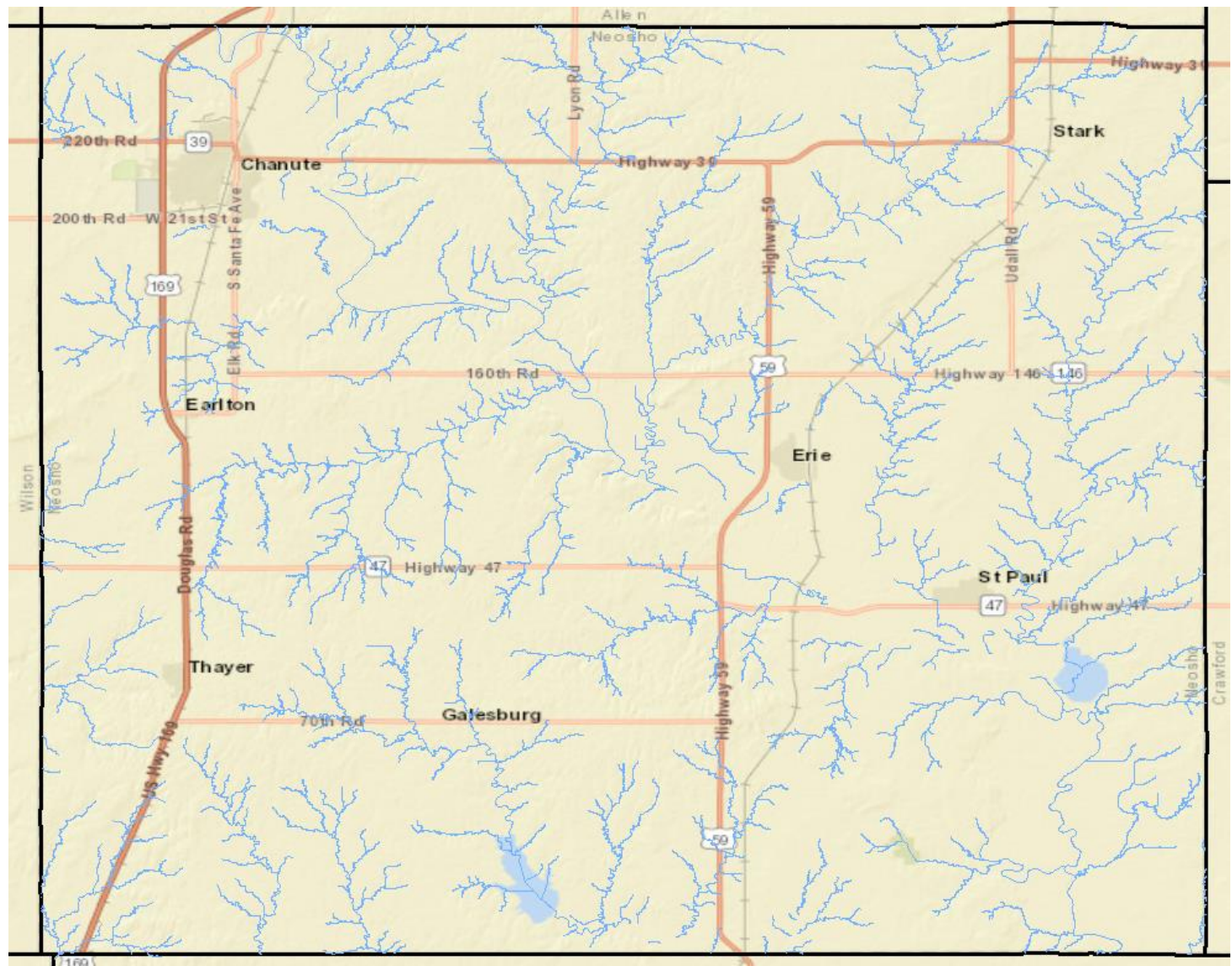
- Earlton:
 - 1 Tributary to Turkey Creek
- Thayer
 - 2 Tributaries to Chetopa Creek



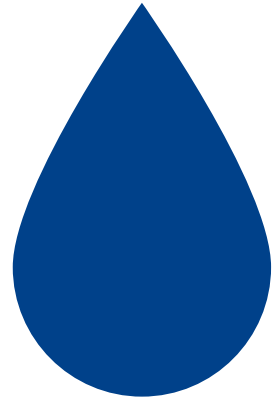


New Zone A

- Remainder of Streams in the County



Definitions



Hydrology
How Much Water?



Hydraulics
How High Will Water Get?



***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 and HEC-HMS model flows

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



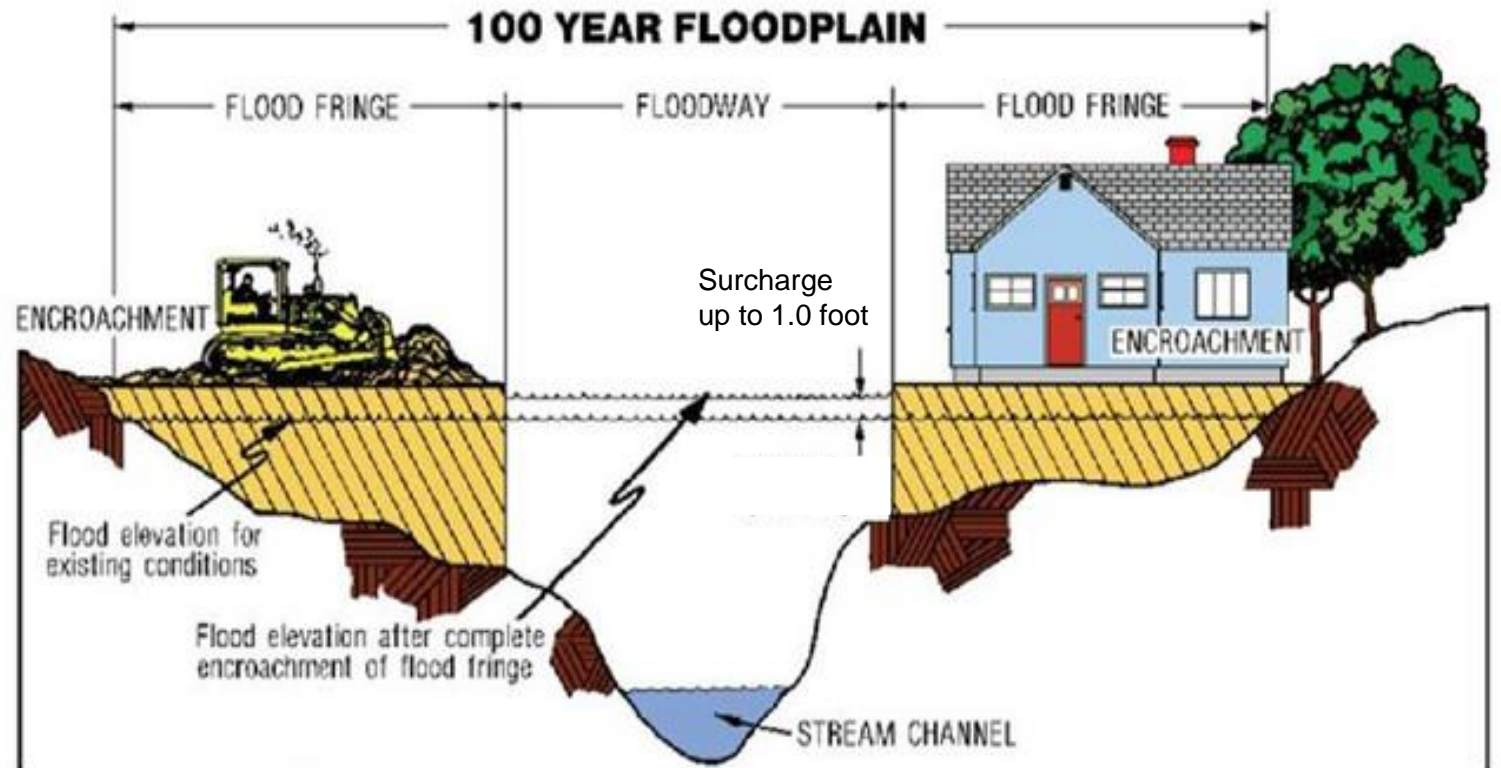
Zone AE with Floodway Hydrology

- Gage Analyses will be performed for the Neosho River as it has USGS stream gages
 - Used as flows for 1D modeling or calibration information for 2D modeling
- HEC-HMS (Rainfall-Runoff) Modeling will be performed for the other Zone AE with Floodway streams
 - Used as flows for 1D modeling or calibration information for 2D modeling

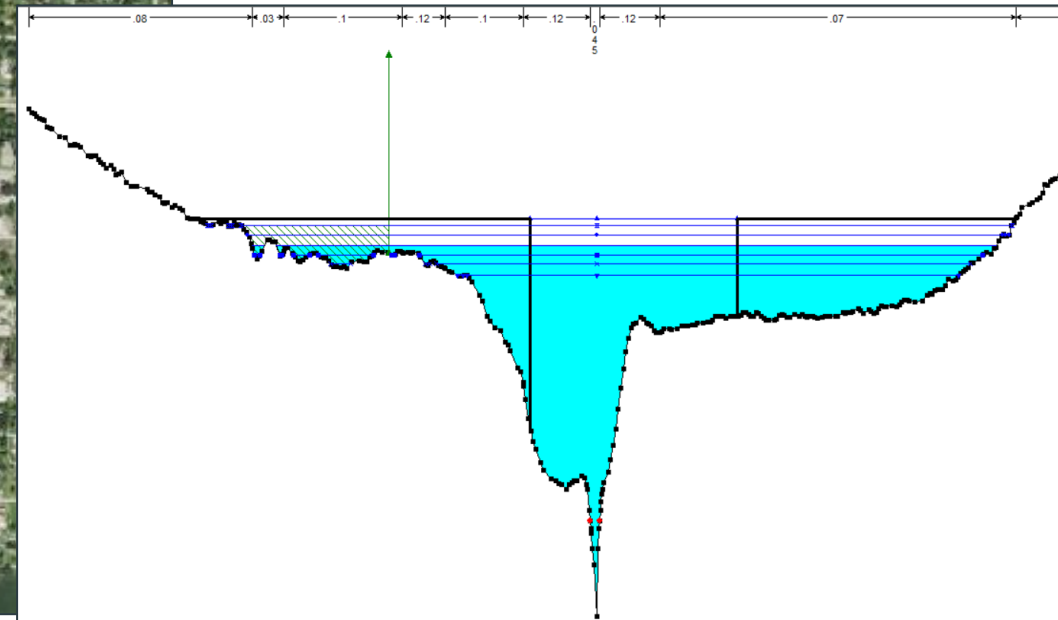
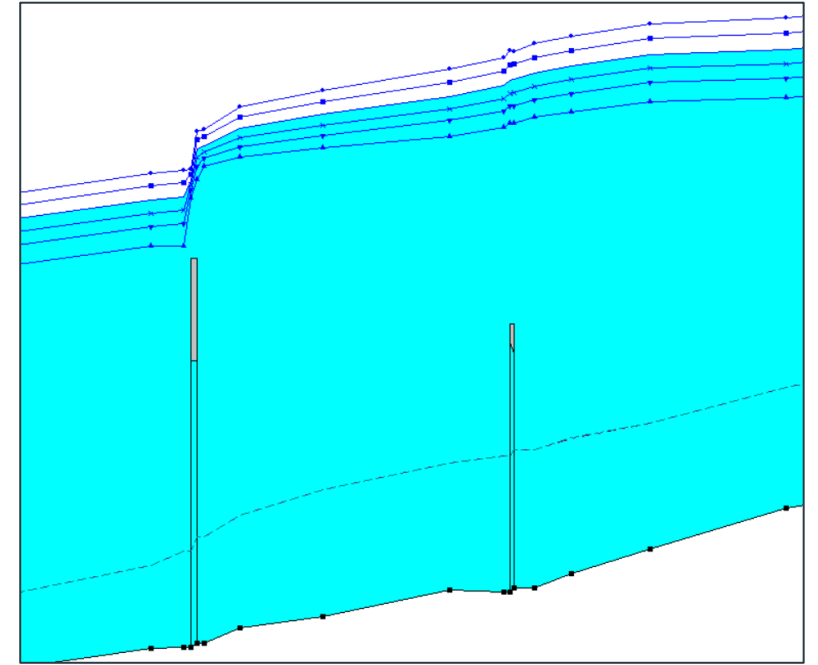
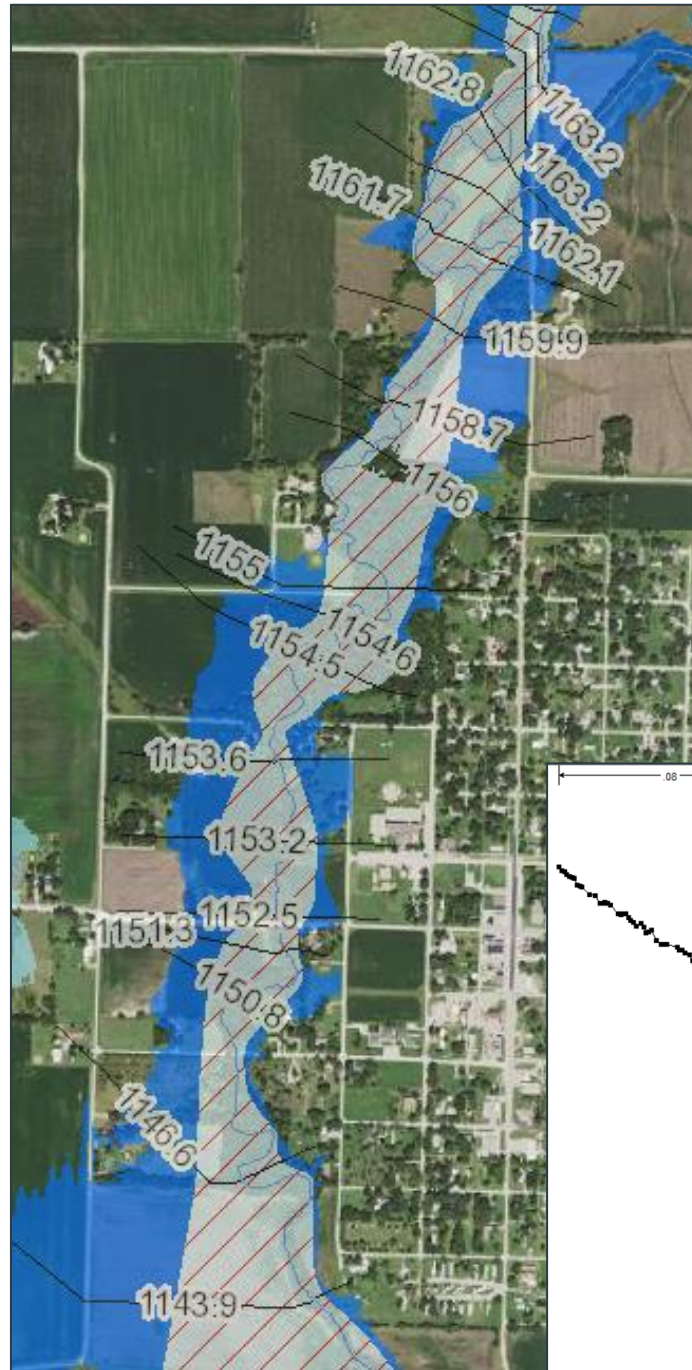


A portion of the Zone AE modeling includes the development of a floodway

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.

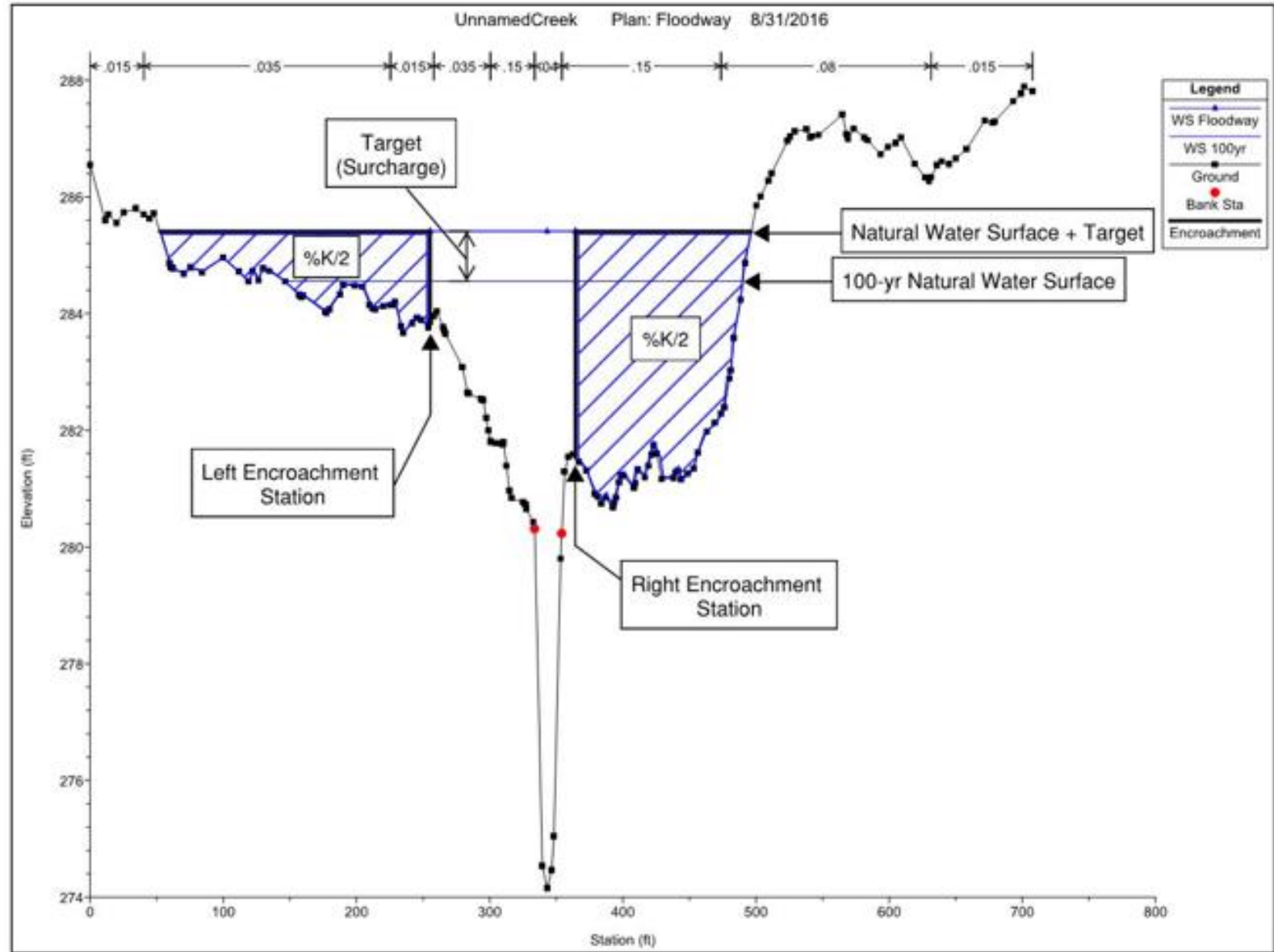


1D Modeling



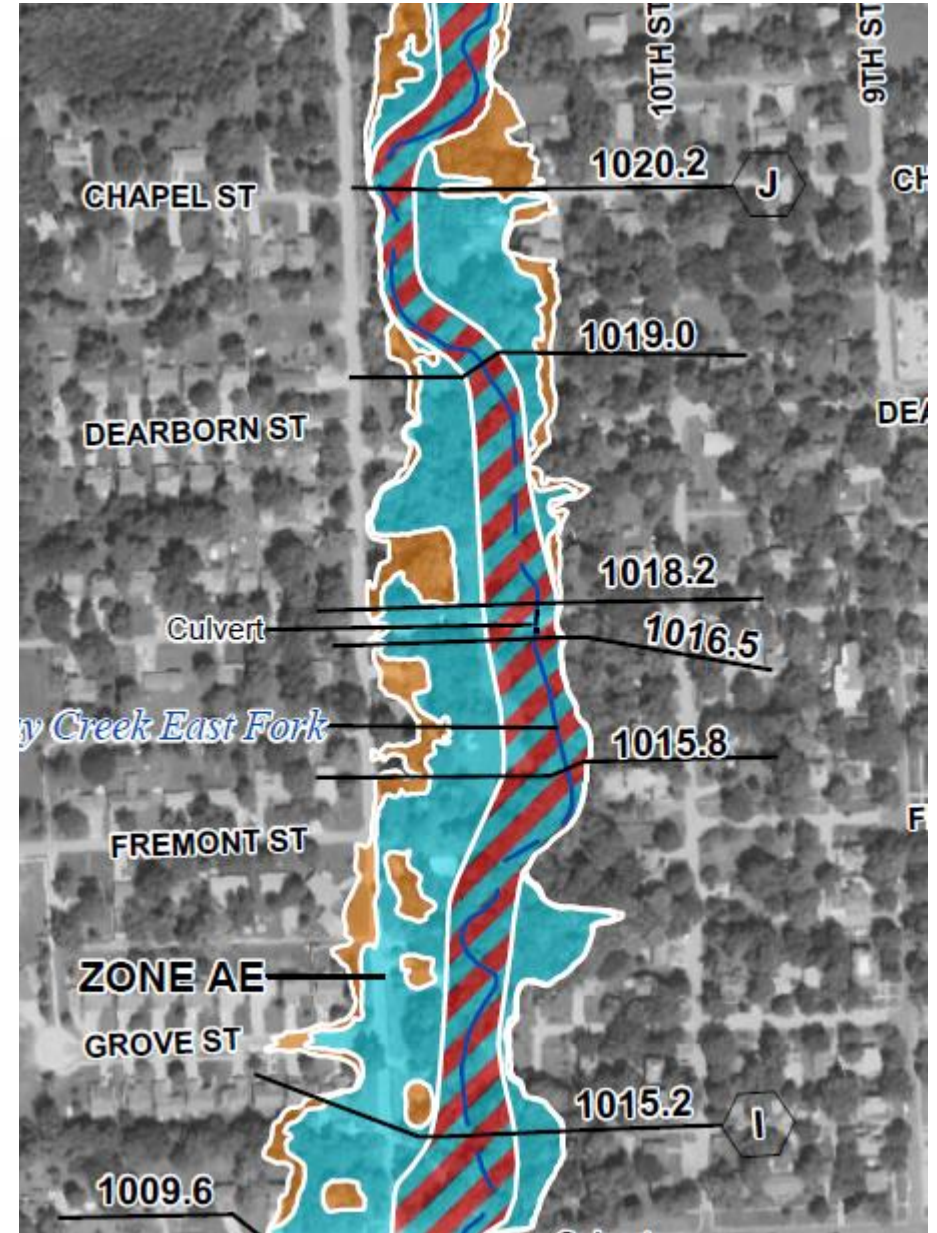
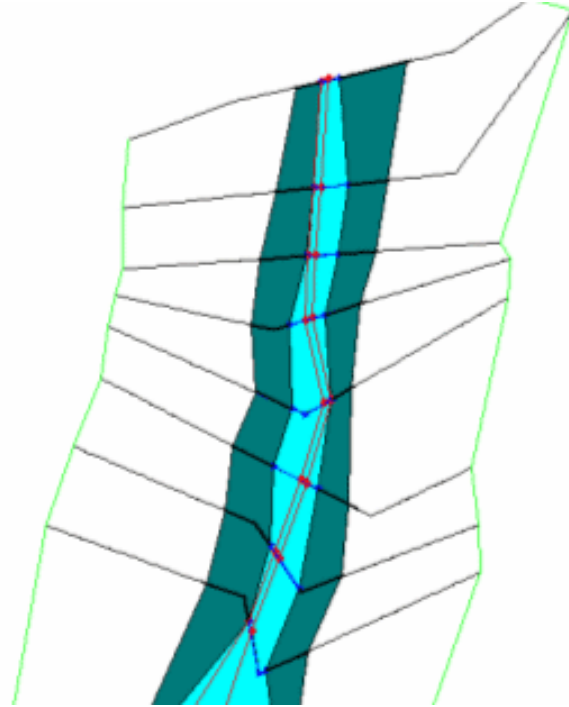


1D Floodways





1D Floodways

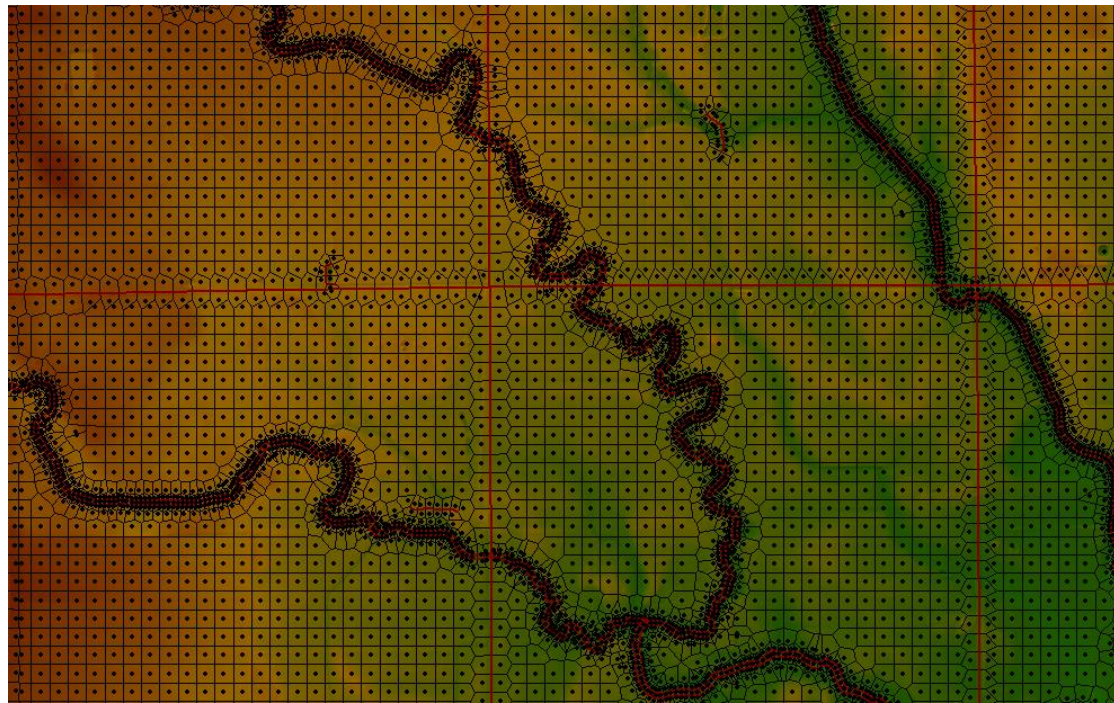




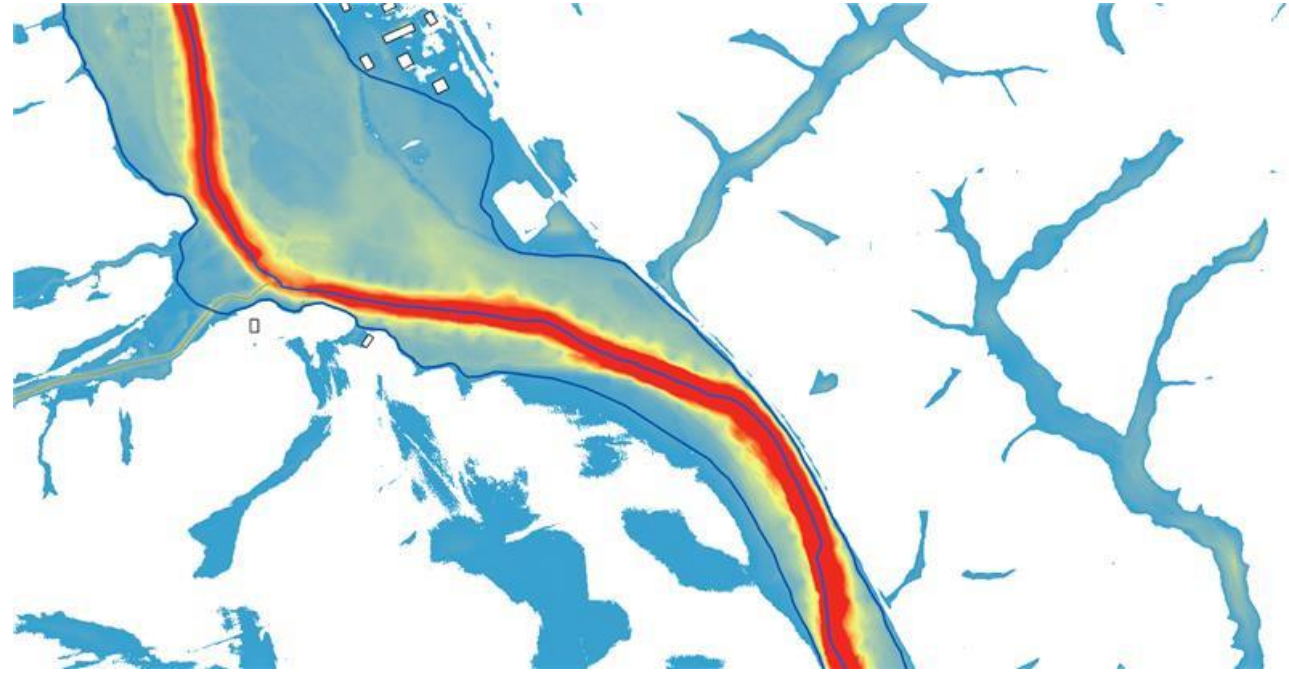
Benefits of 1D modeling for Zone AE streams

- 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

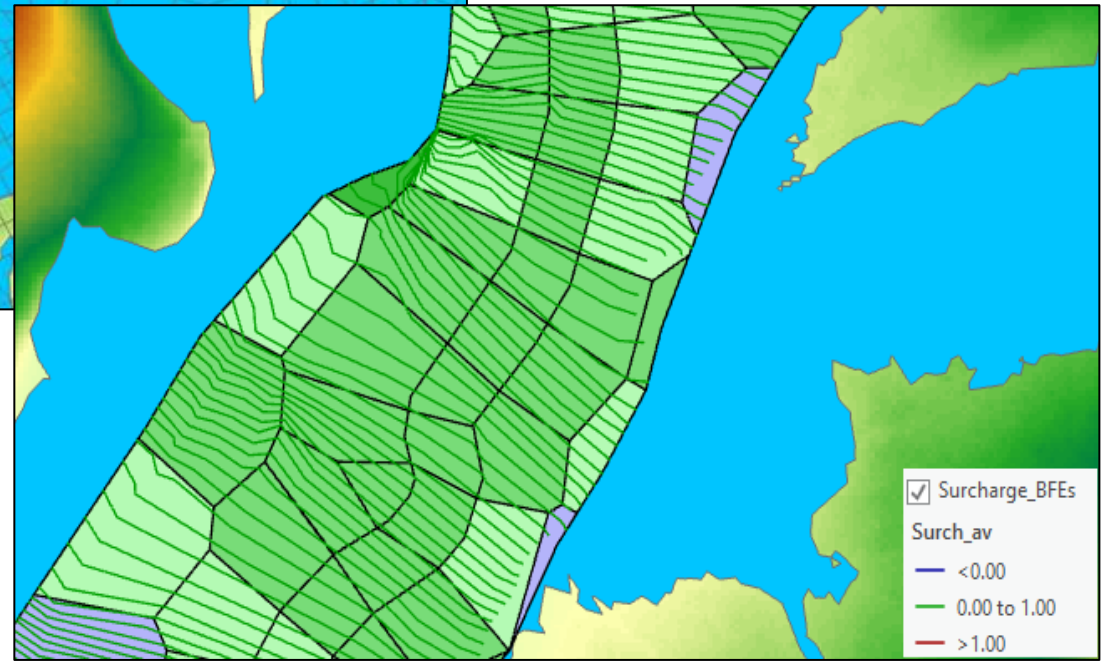
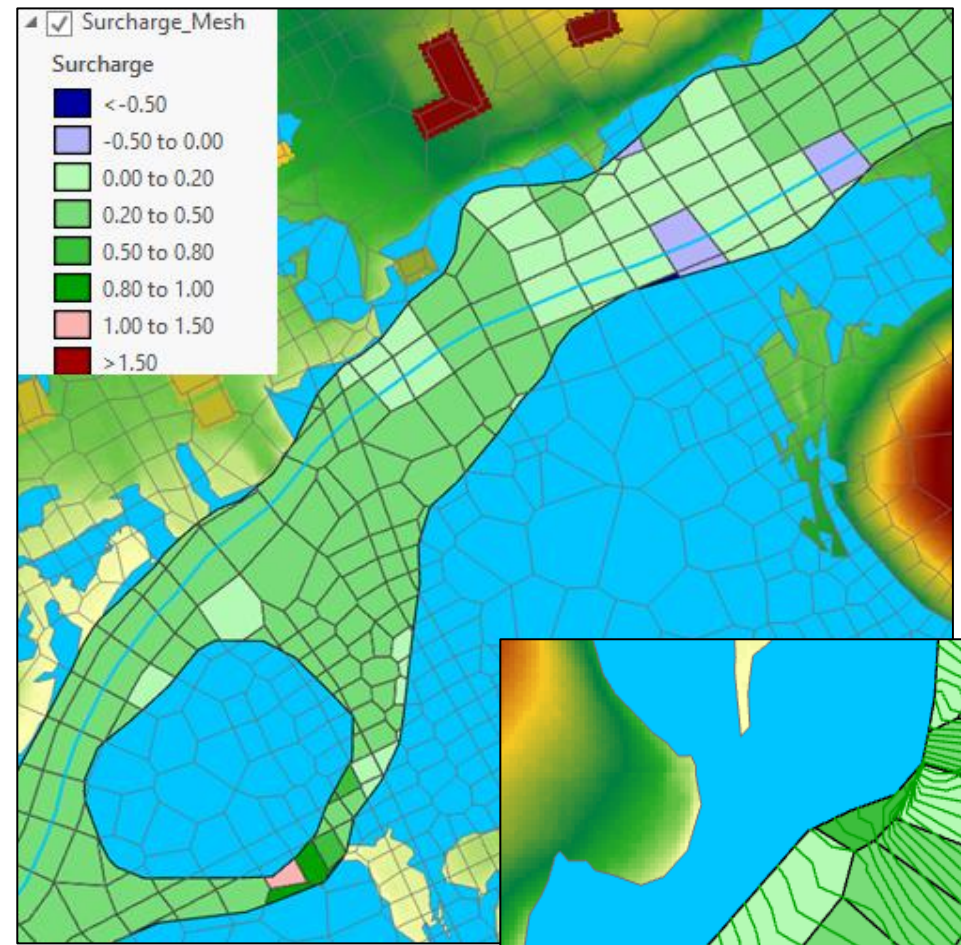


2D Floodways



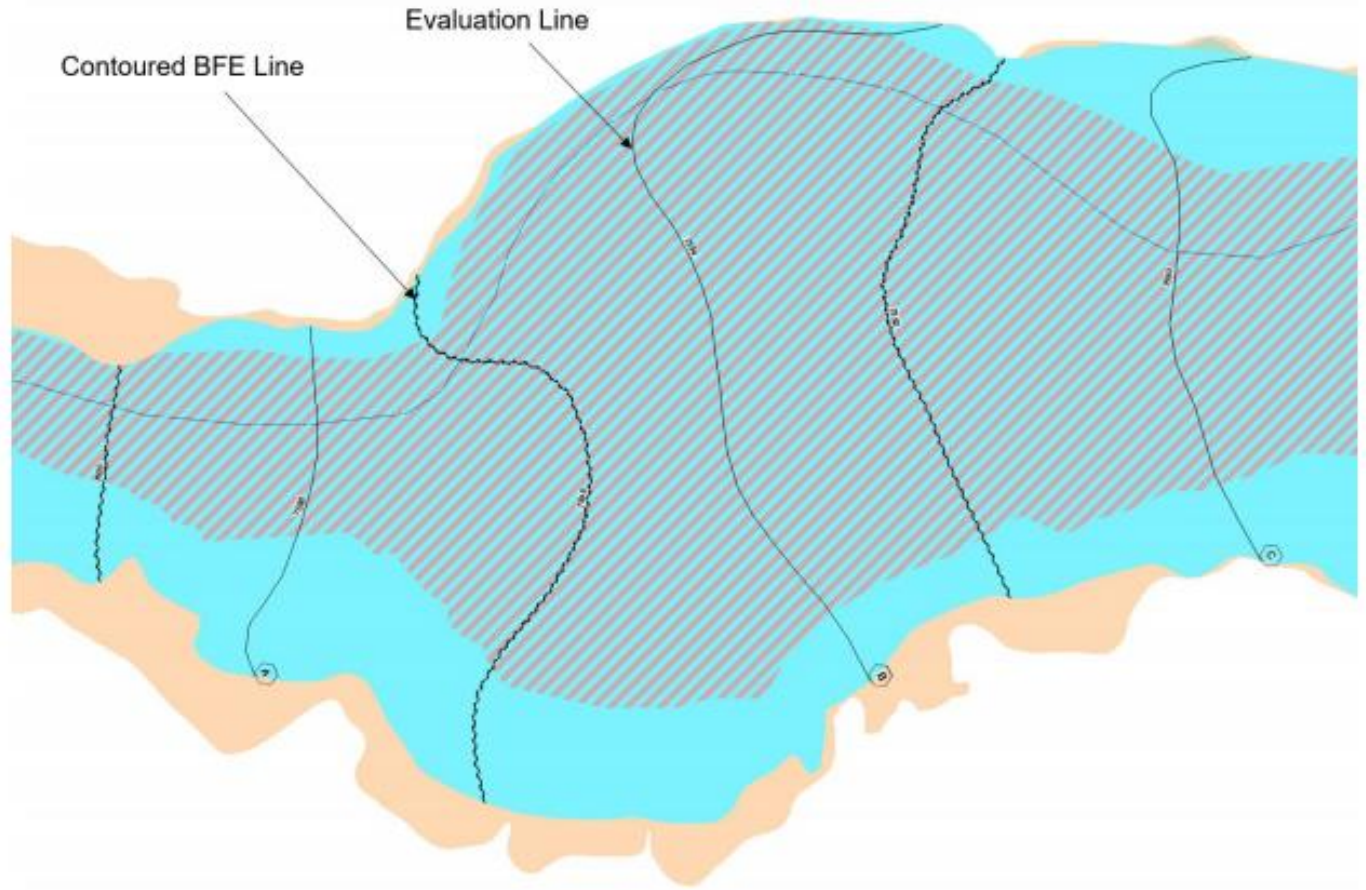


2D Floodways





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.**



Non-Accredited Levees

- There is 16 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.





- There are 4 non-accredited levee systems in/near Chanute (Chanute Levee, Chanute Levee A, Chanute Levee B, Neosho County Levee)

Non-Accredited Levees





Non-Accredited Levees

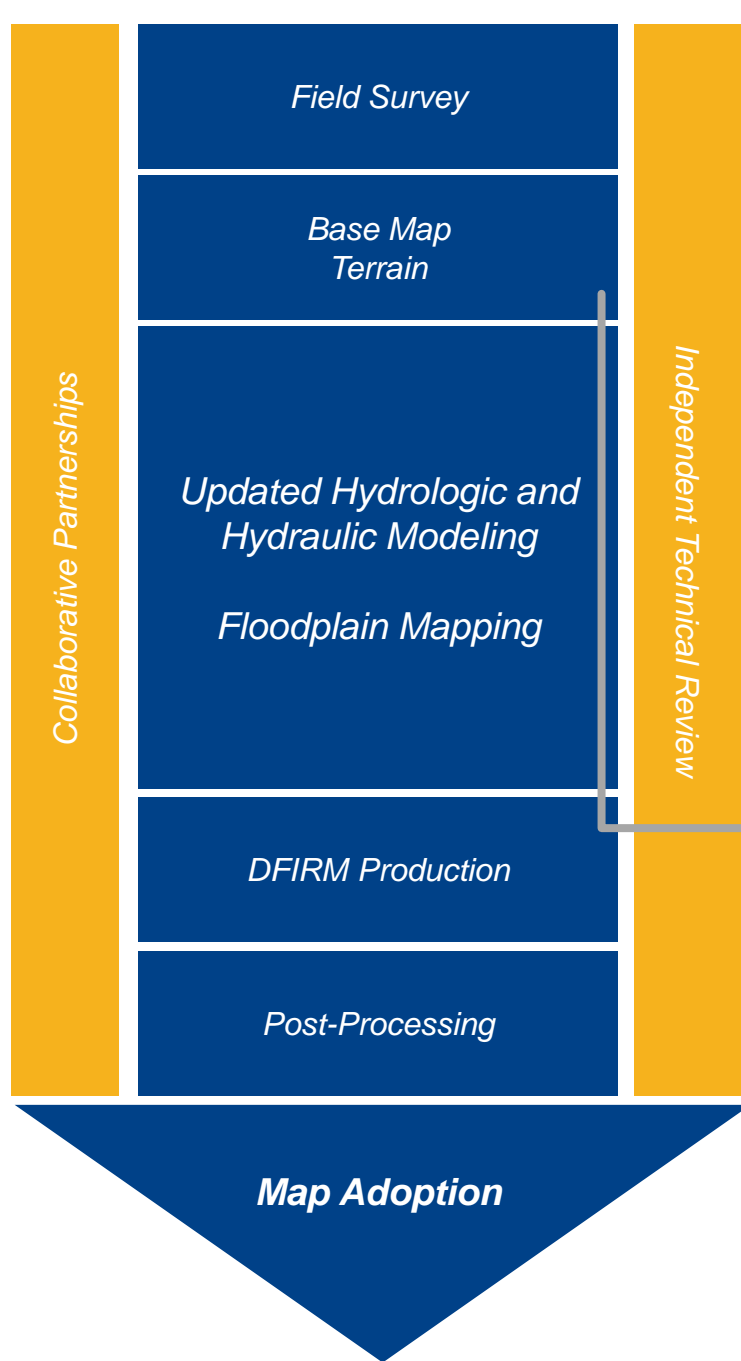
- Chanute Levee B is not overtopped for the 1% annual chance storm and is considered hydraulically significant. This will be mapped using a with and without levee scenario.



- The other three levees are overtopped for the 1% annual chance storm and are considered hydraulically insignificant. They will be mapped as overtopping.

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



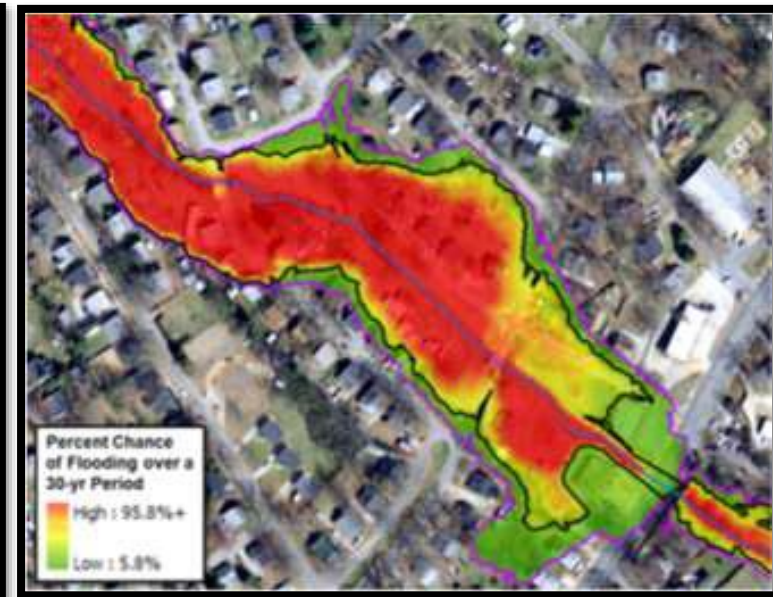
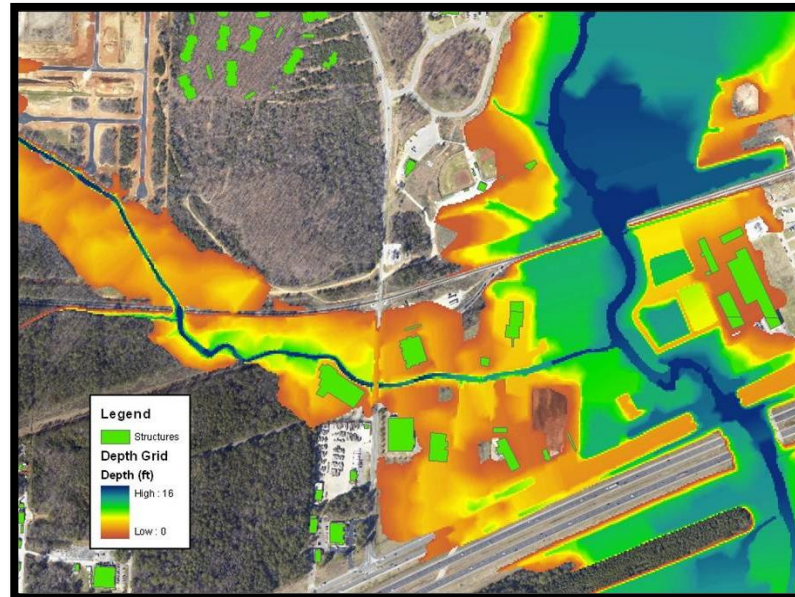
Our Next Steps:

- 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

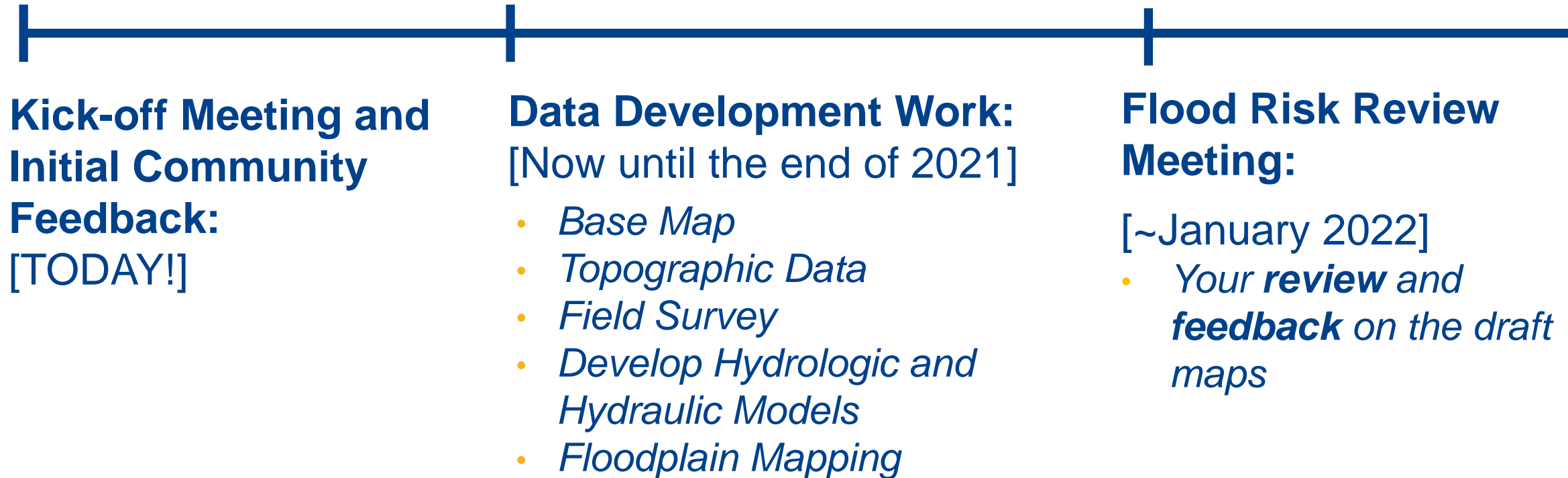


Our Next Steps:

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



Project Timeline



Project Timeline, continued

Community
comments will
be **addressed**

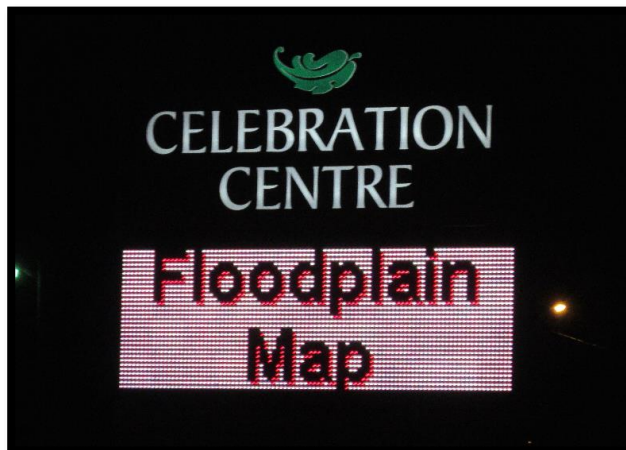
Public review of
the draft maps

- *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?
