



# Chautauqua County




**FEMA**

*Floodplain Mapping Project  
Data Development Kickoff Meeting*

*April 11, 2024*



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**  
*NFIP Coordinator*

**Joanna Rohlf, CFM,  
GISP**  
*Floodplain Mapping  
Coordinator*

**William Pace, CFM**  
*Floodplain Mapping  
Specialist*

## **AtkinsRéalis**

**Mike Schlesener, GISP**  
*Project Manager*

**Cheyenne Sun Eagle,  
CFM**  
*NFIP Specialist*

**Keegan Schultz**  
*Floodplain Outreach  
Coordinator*

## **FEMA – Region VII**

**Dawn Livingston**  
*Regional Project Officer*

**Brandon Gonzalez, PE**  
*Engineer*



## *Today's Goals*

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*Share details on the mapping project*

*Get initial feedback on modeling methods*

*Review future steps*

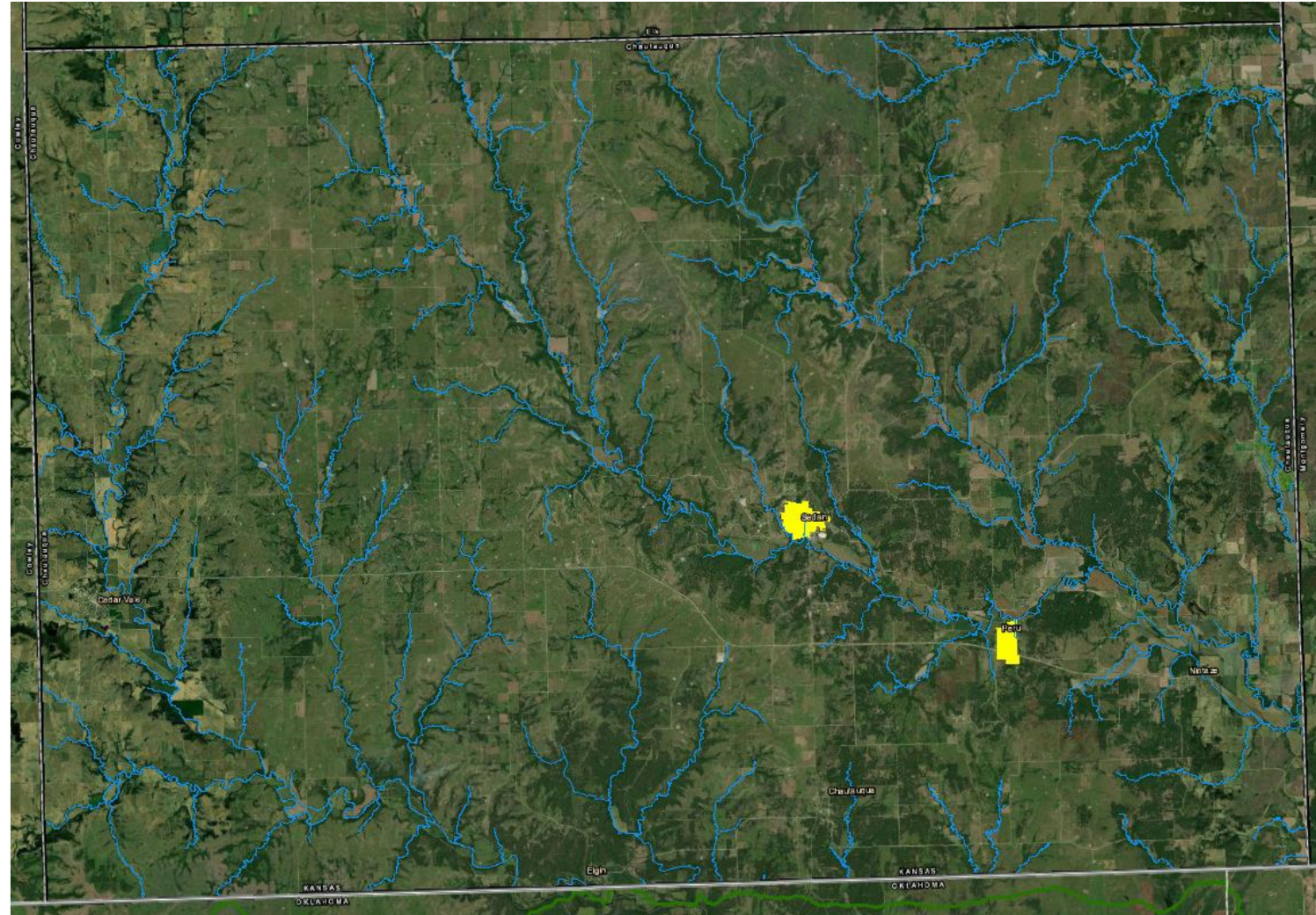
# *Background*

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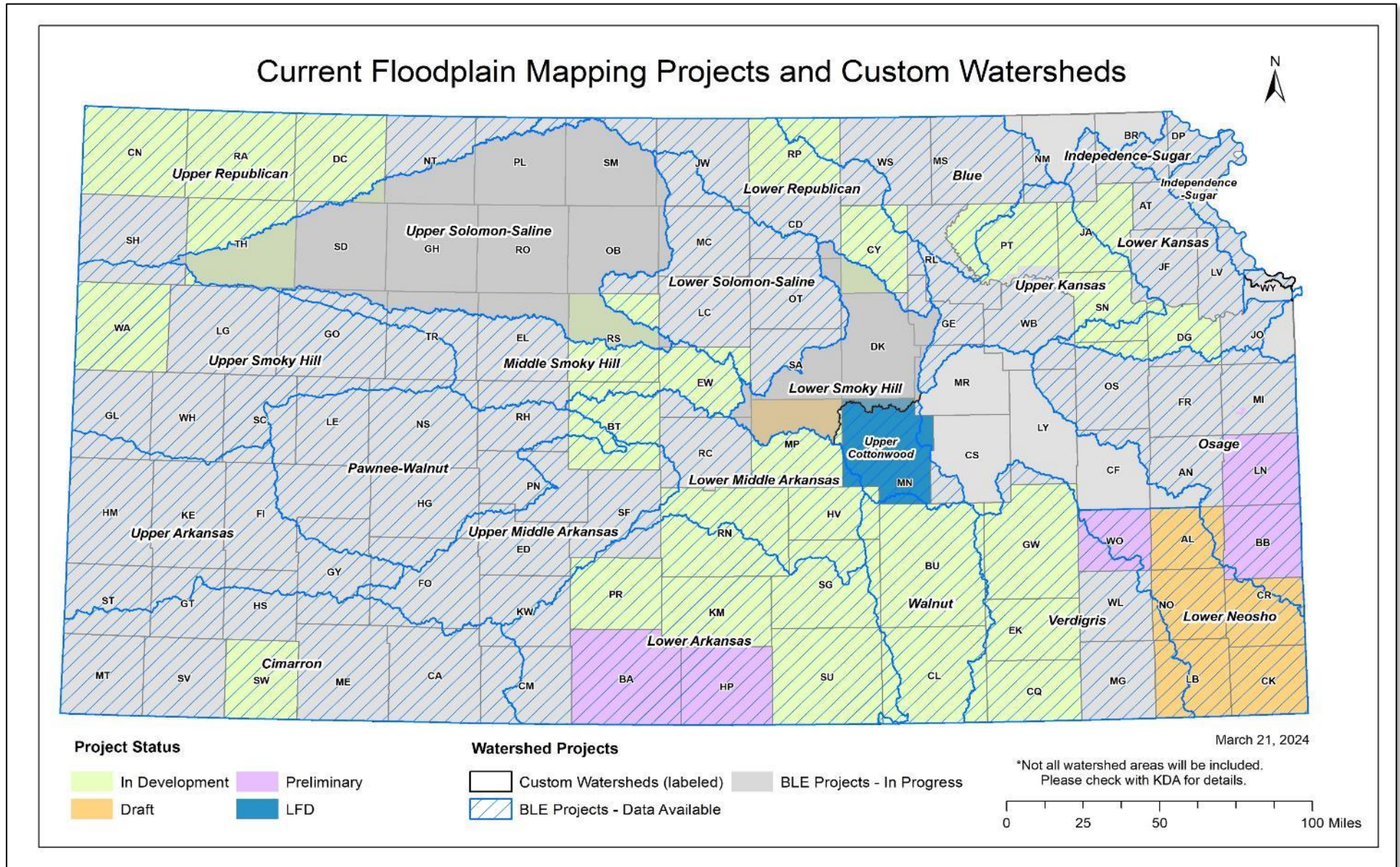


# Background

- First-time Countywide
- Effective:
  - Peru – 1975 ■
  - Sedan – 1988 ■
- Data Development Kickoff Meeting was held virtually June 21, 2022.
  - Technical issues led to re-scoping and selecting AtkinsRéalis as contractor.
- Re-kick off meeting - April 2024



# We are doing similar work across Kansas...



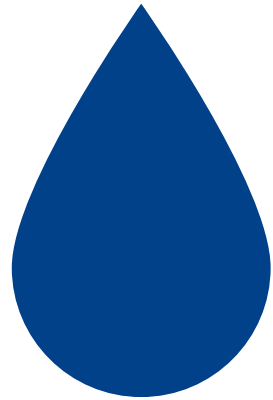


# *Review of the Work Ahead and How We Propose Doing It*

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# Definitions

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**Hydrology**  
*How Much Water?*

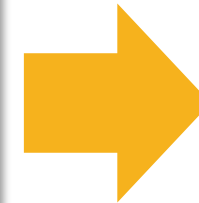


**Hydraulics**  
*How High Will Water Get?*

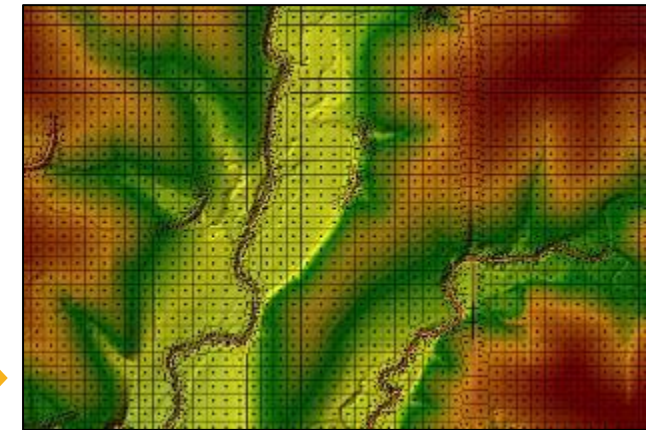


**We Use 2D  
Hydraulic  
Modeling in our  
Base Level  
Engineering**

The current maps are done with one-dimensional (1D) modeling. Two-dimensional (2D) modeling will be used for the new modeling.



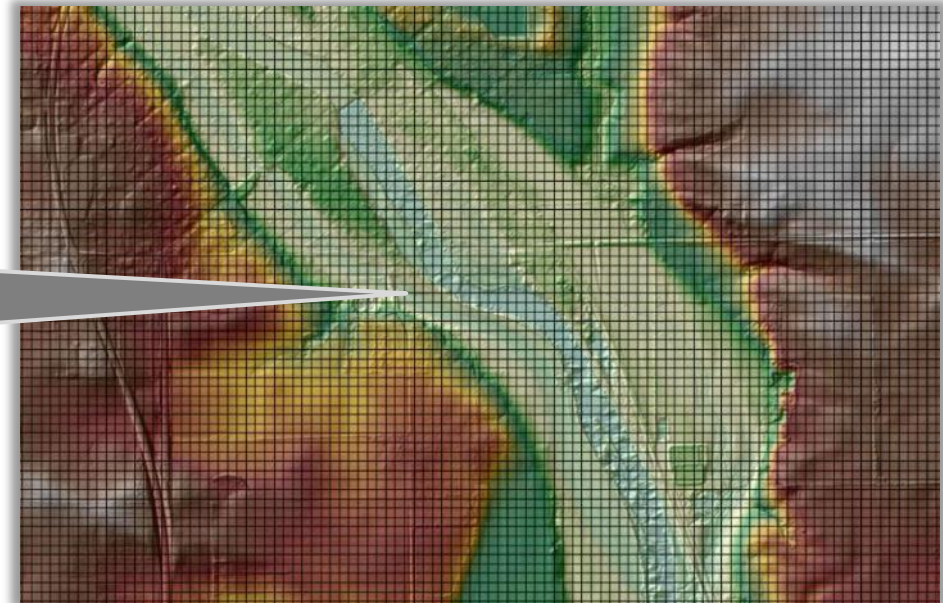
1-D 2-D





# Differences between traditional 1D studies and 'new' 2D studies

In a 2D model, elevations are in every cell eliminating interpolation

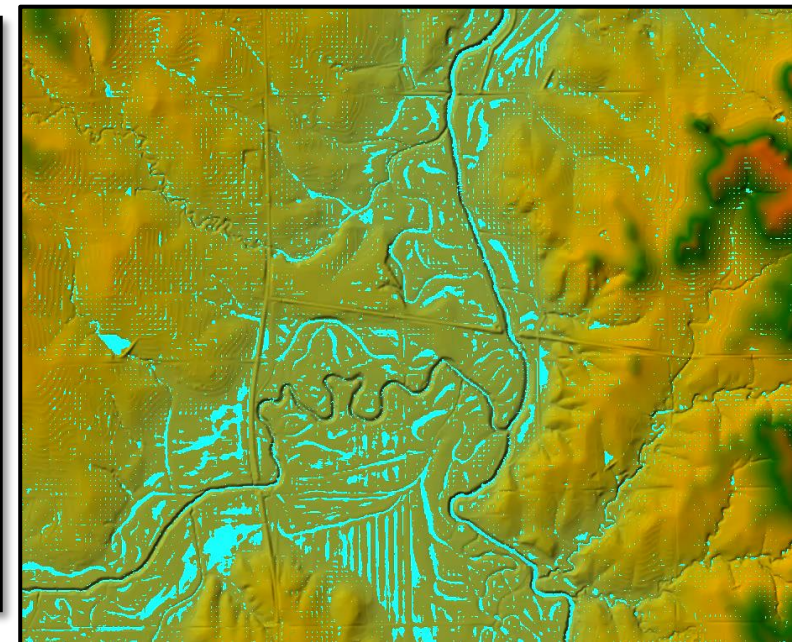
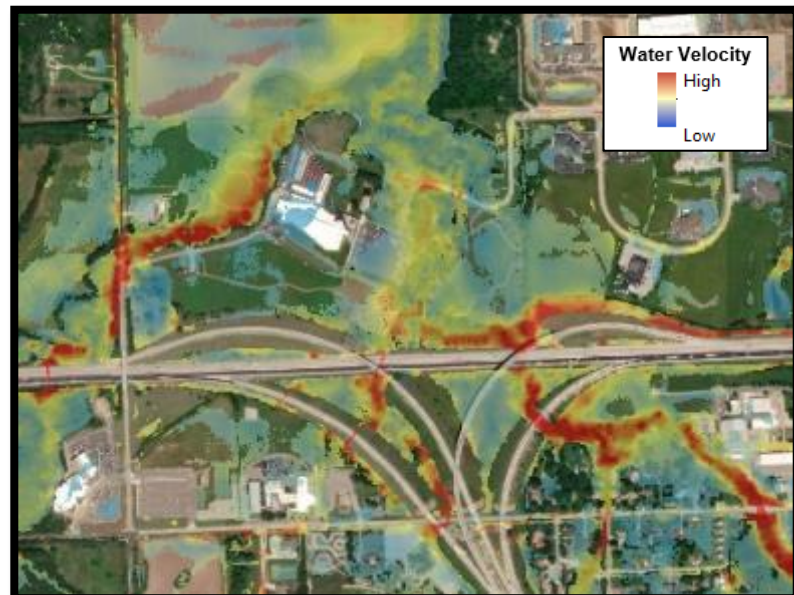
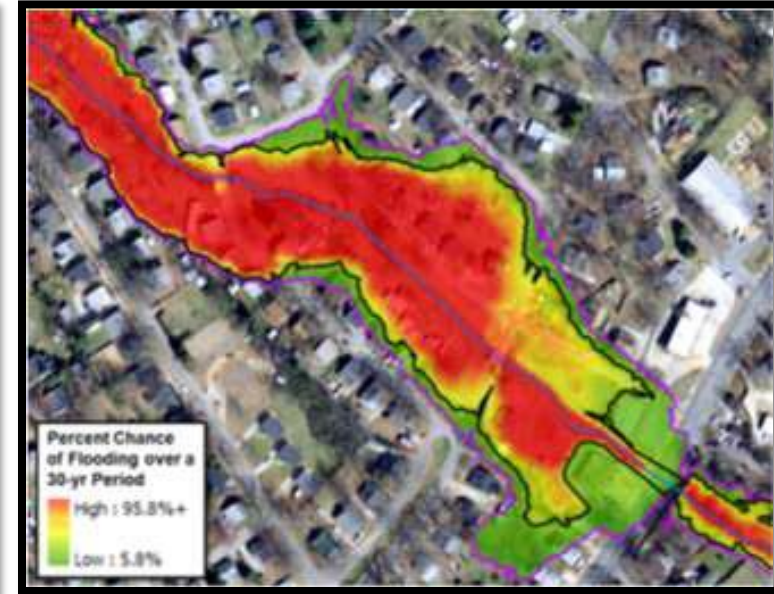
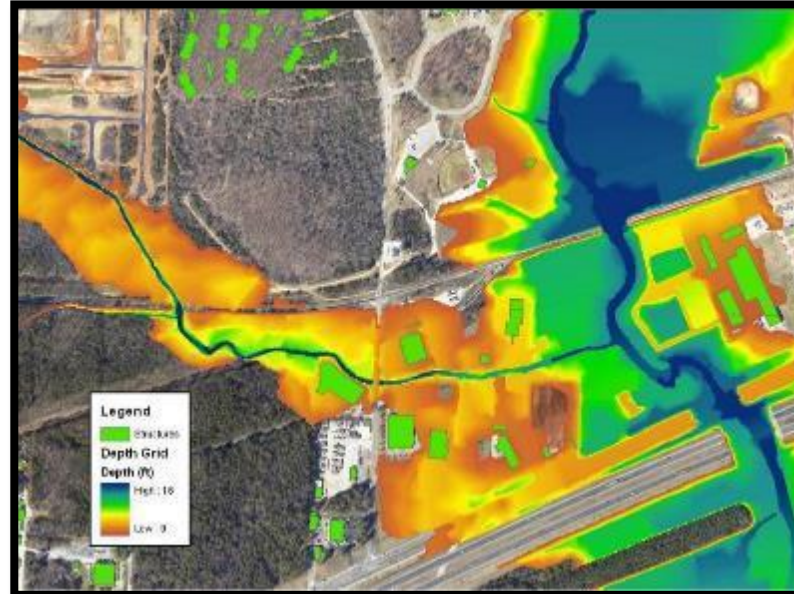


- 2D Studies evaluate flood risk beyond the channel banks
- More refined model in complex areas on a cell-by-cell basis



*More precise data  
and modeling  
methods gives  
you more  
information about  
flood risk*

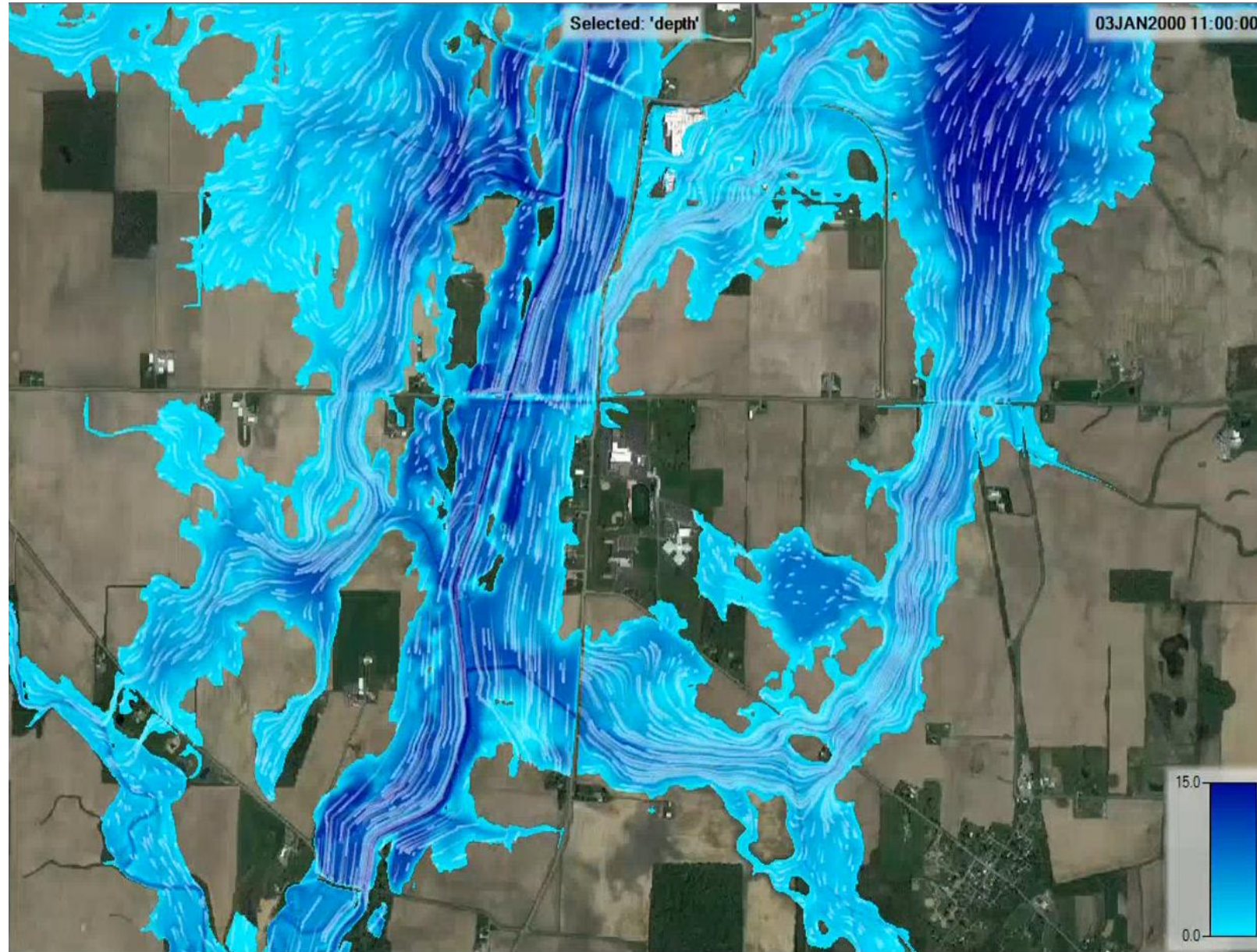
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***More precise data  
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## ***Model Enhancements***

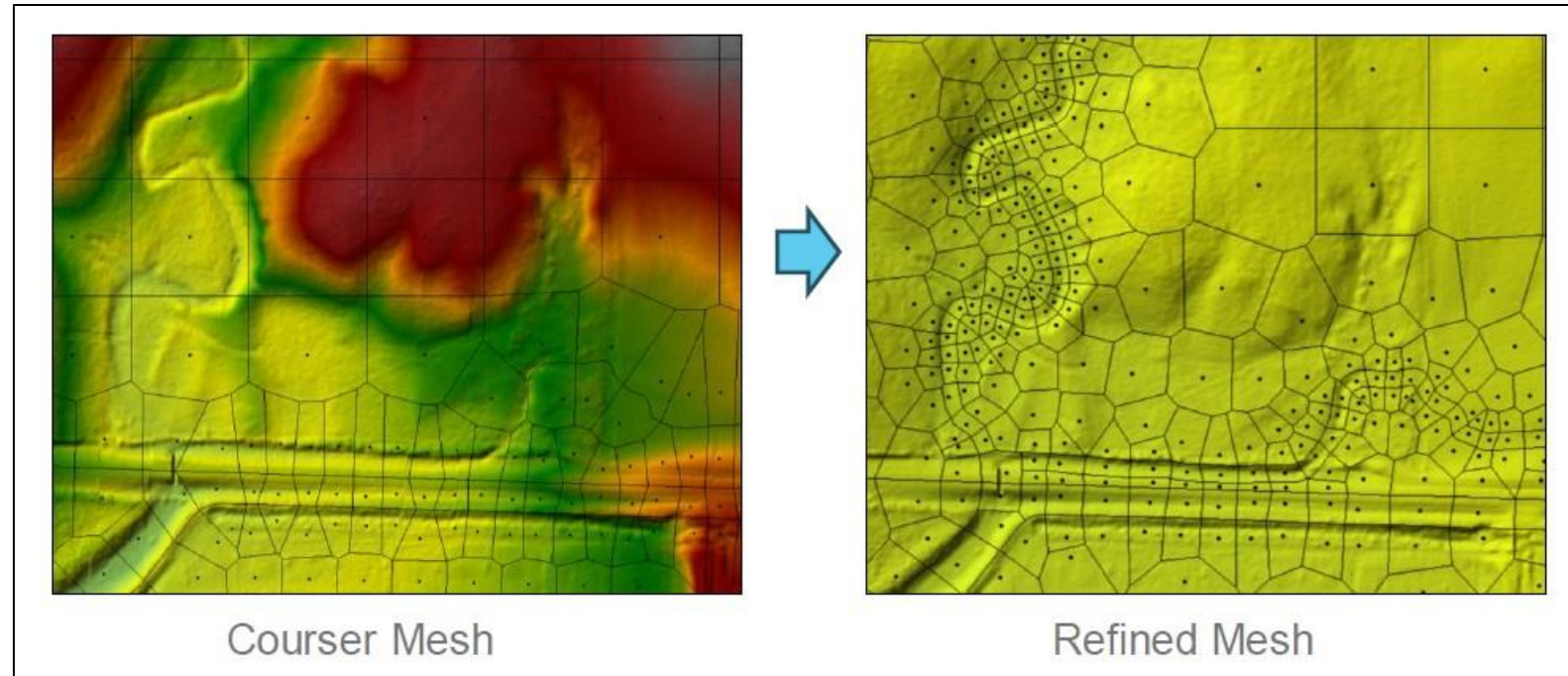
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- Enhancements will be made to the BLE modeling that was performed.
  - Updated to newest version of HEC-RAS
  - Refined model meshes in cities with additional detail including:
    - Ground and channel Manning's roughness
    - Land use refinement
    - Re-verify gage analysis against refined results
    - Detailed structure modeling
      - Where data is available
      - Field collected structure data, if necessary



- Refined Mesh
  - Will allow for greater accuracy in flood modeling due to increased cell density

## Model Enhancements

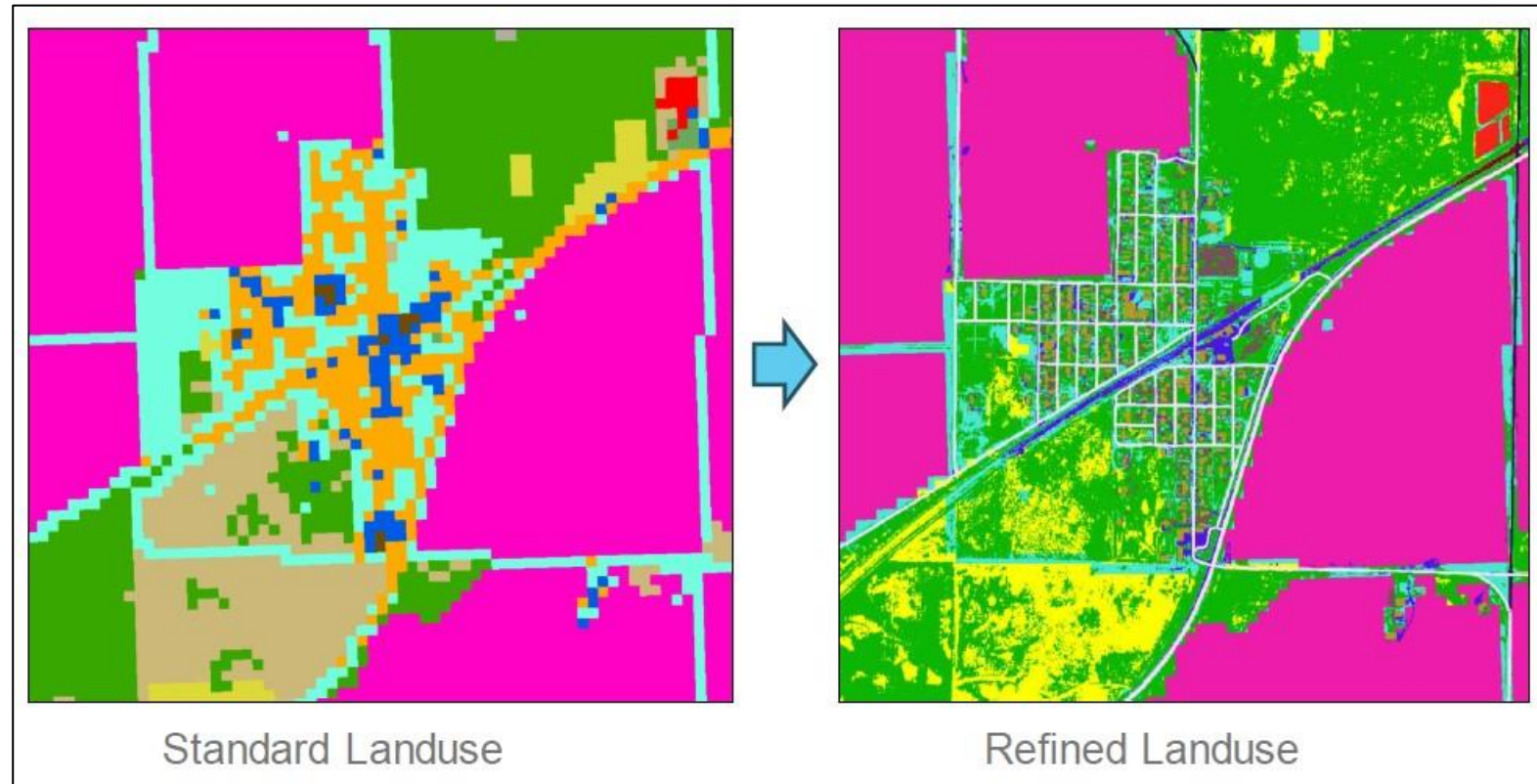






- Refined Land Use
  - Will allow for greater accuracy in surface modeling due to more detailed land use

## Model Enhancements



Standard Landuse

Refined Landuse



- Gages will be re-verified in refined model

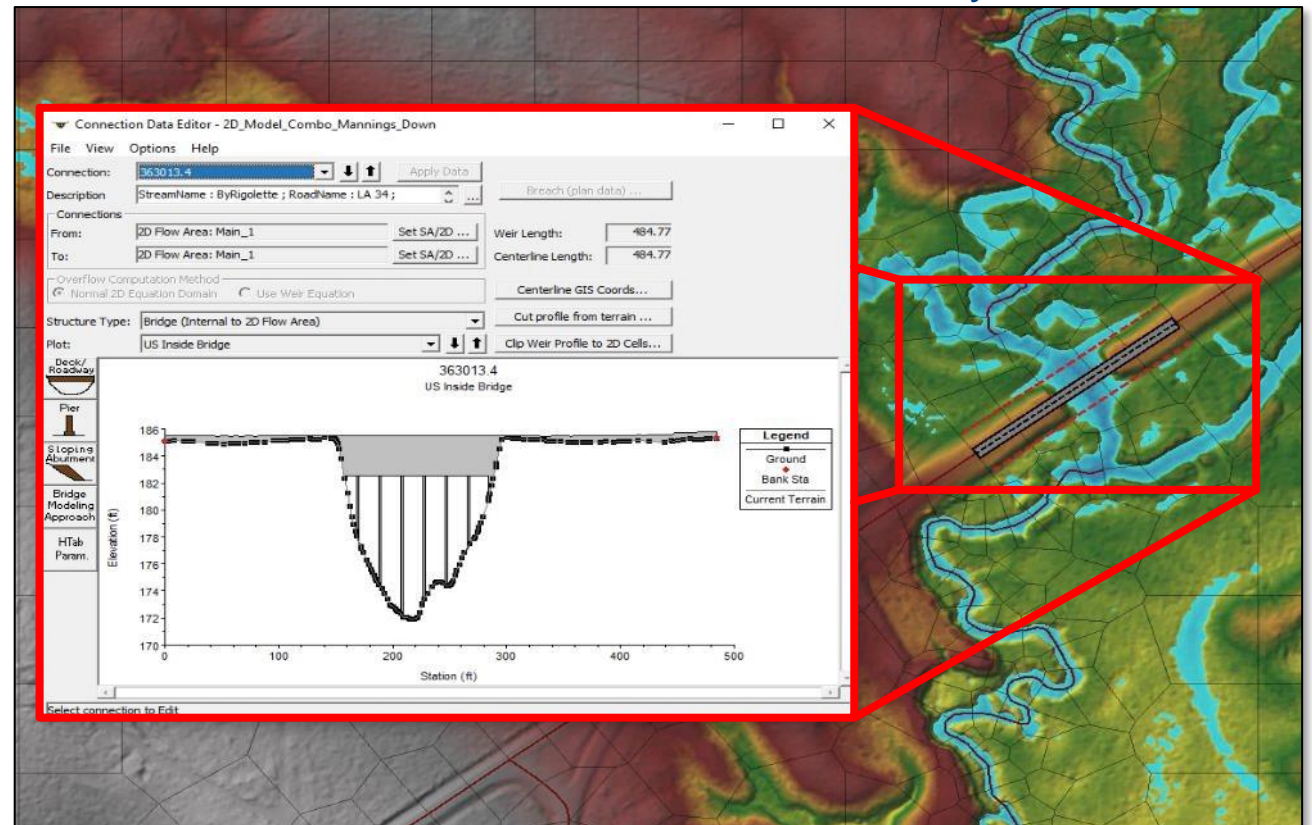
# Model Enhancements





# Model Enhancements

- Detailed structure modeling incorporated into Refined models, where data is available
- Do you have any recent structure improvements, or planned improvements, that has data that can be shared?
- Field collected structure data, if necessary





## ***Model Enhancements***

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- Enhancements can be made to the BLE modeling that was performed.
  - New Lidar, flown in 2018, will be incorporated.
  - Comments made and additional information gathered during the Discovery and Data Development phase can be used to enhance the modeling.
  - With your feedback additional review/refinement of mesh can be done to improve accuracy of modeling.



## ***Model Enhancements***


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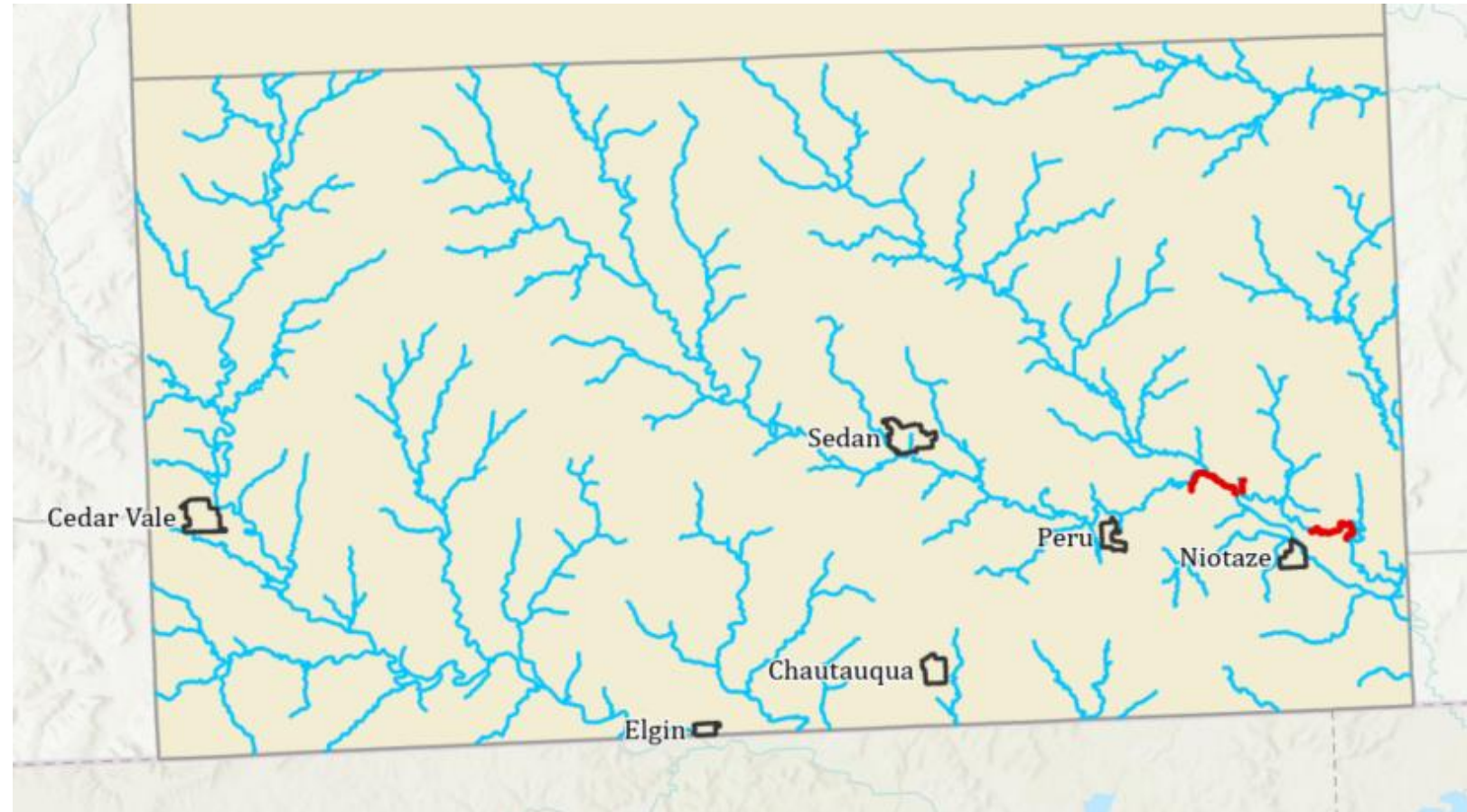
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# *Data Development Scope*

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# Data Development Scope

- All Zone A 2D BLE (645 mi.)
- 34 FIRM Panels
- Non-Accredited levee (Little Caney River, north and east Niotaze) 



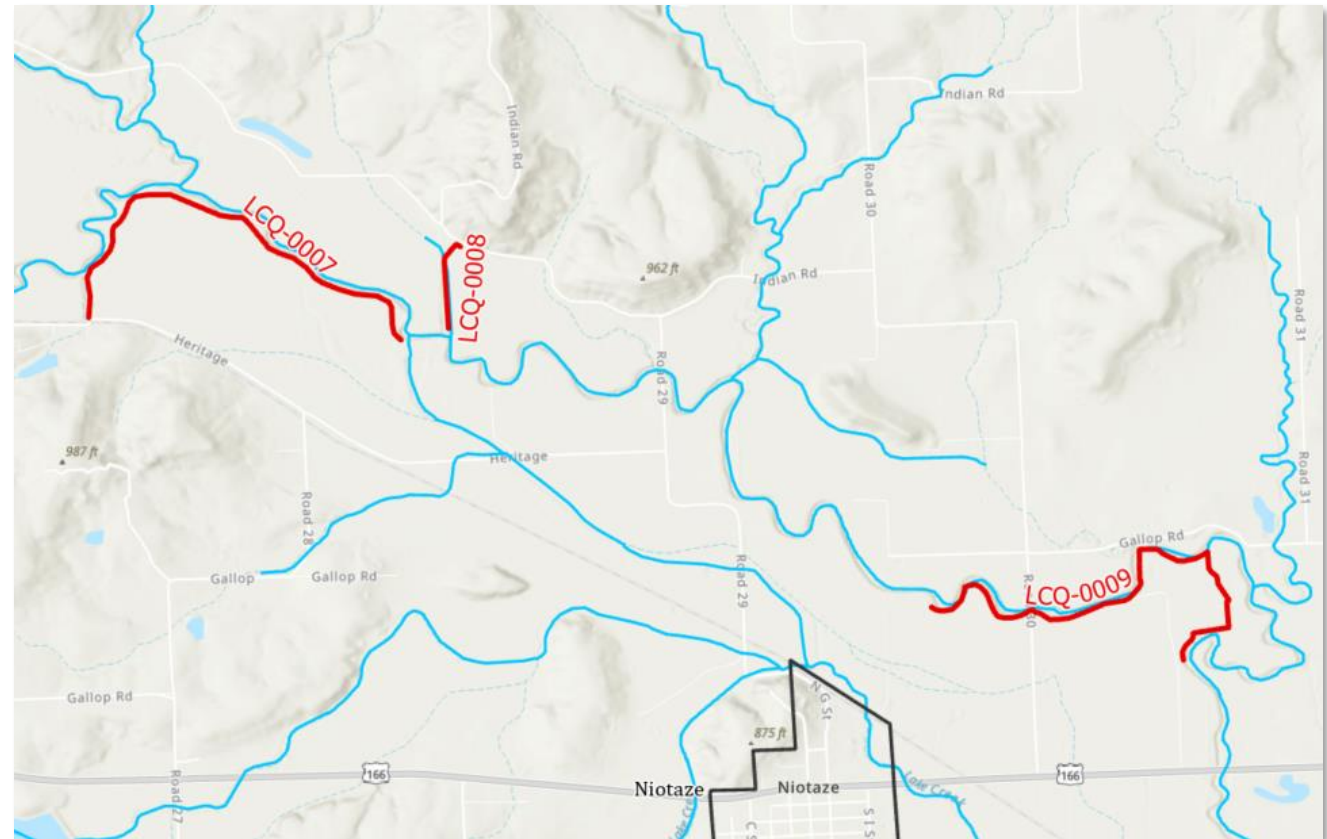
## Current Effectives:

- Peru – 1975
- Sedan – 1988



There are 3 non-accredited levees in the project area. The levee will be considered hydraulically insignificant.

- Non-Accredited levee (Little Caney River, north and east Niotaze)



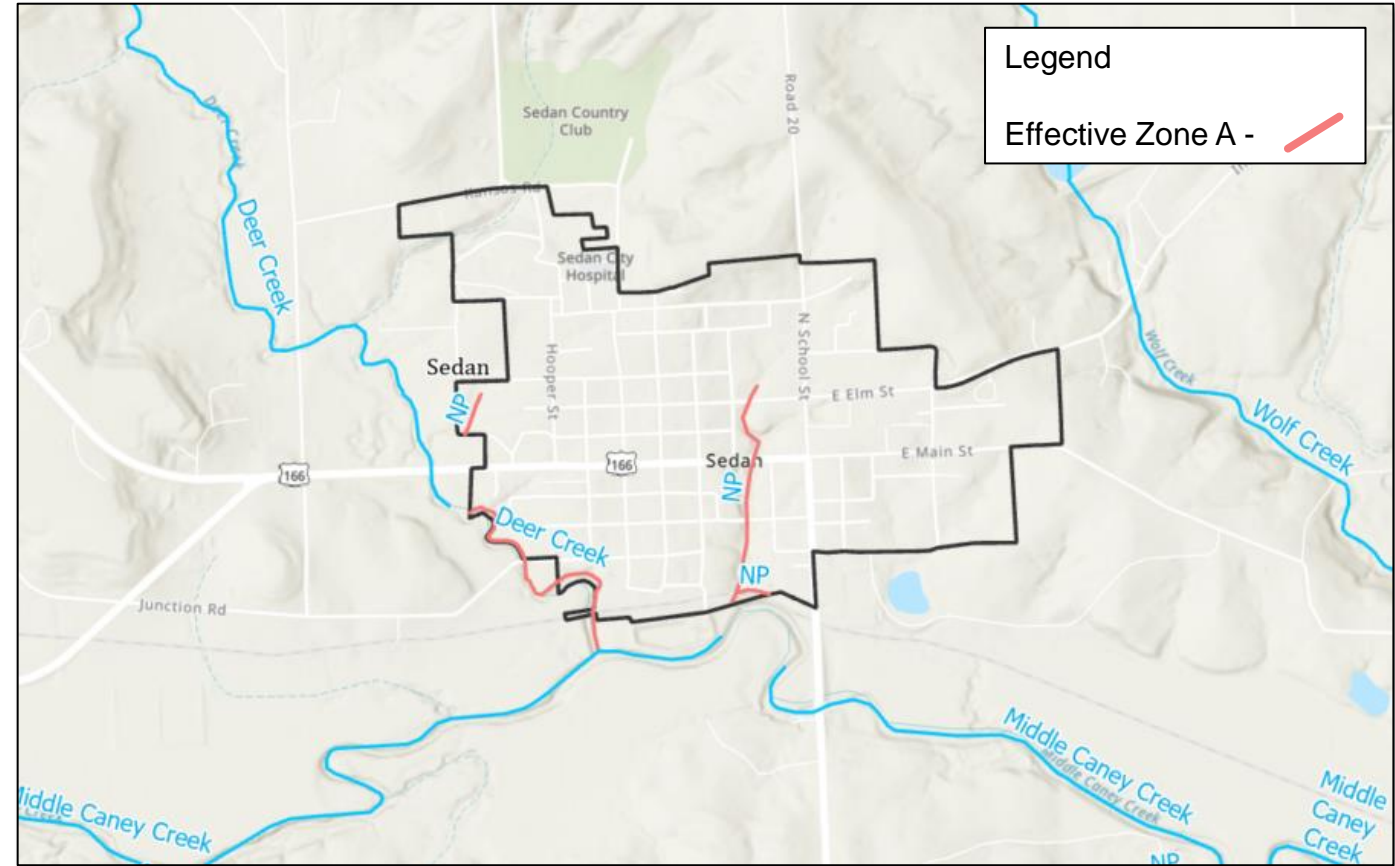
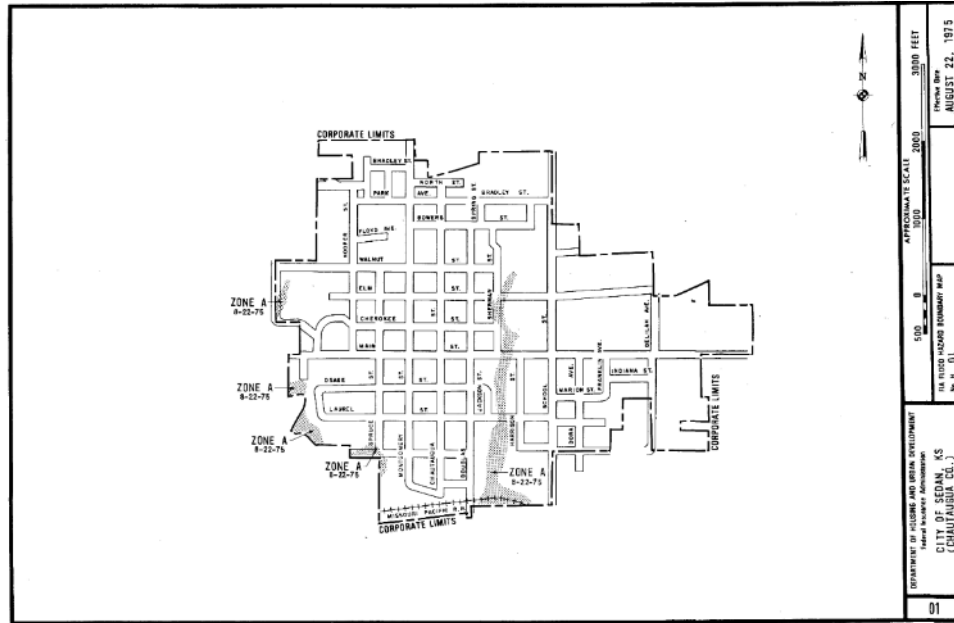
# Levees



# Data Development Scope

City of Sedan

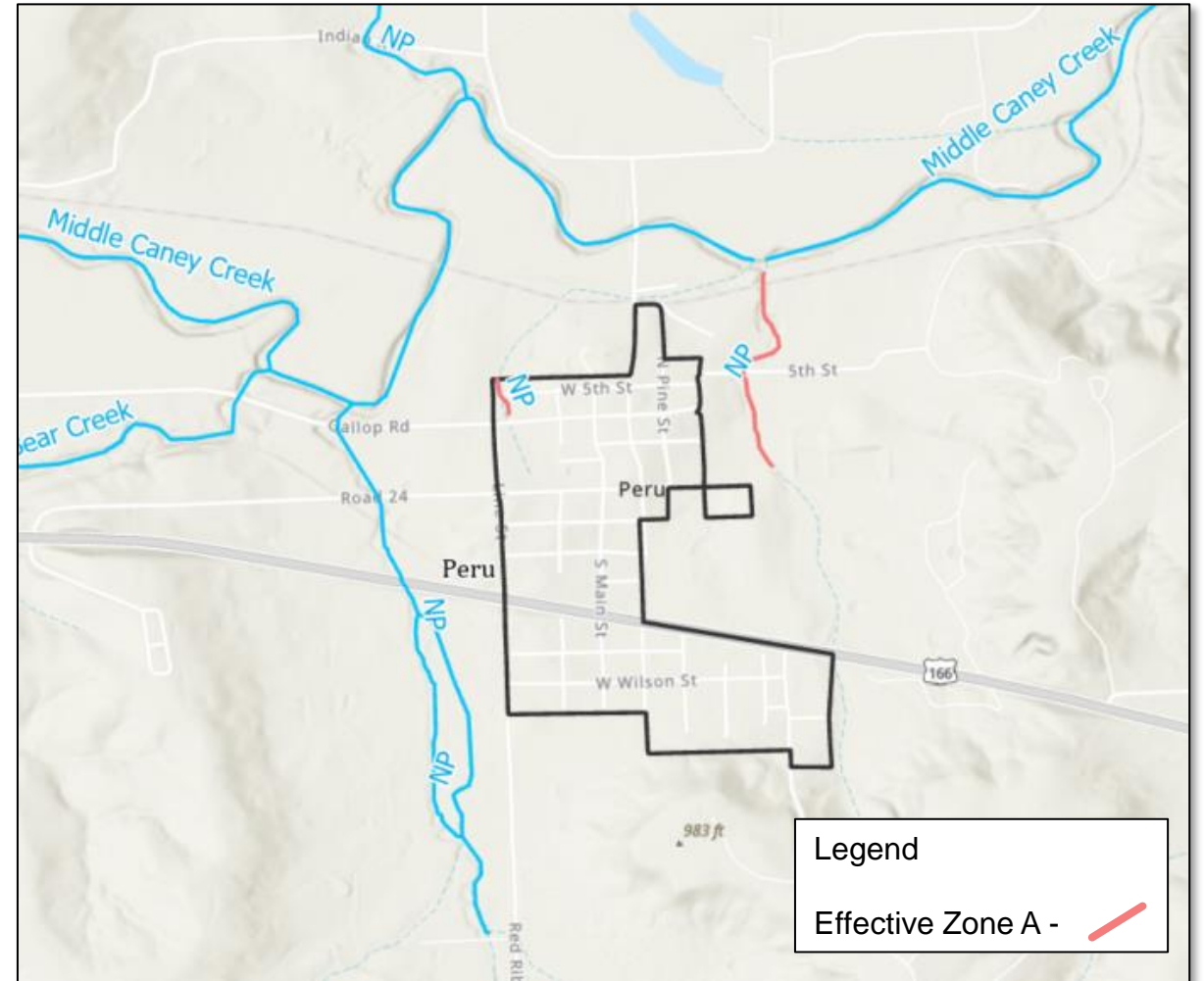
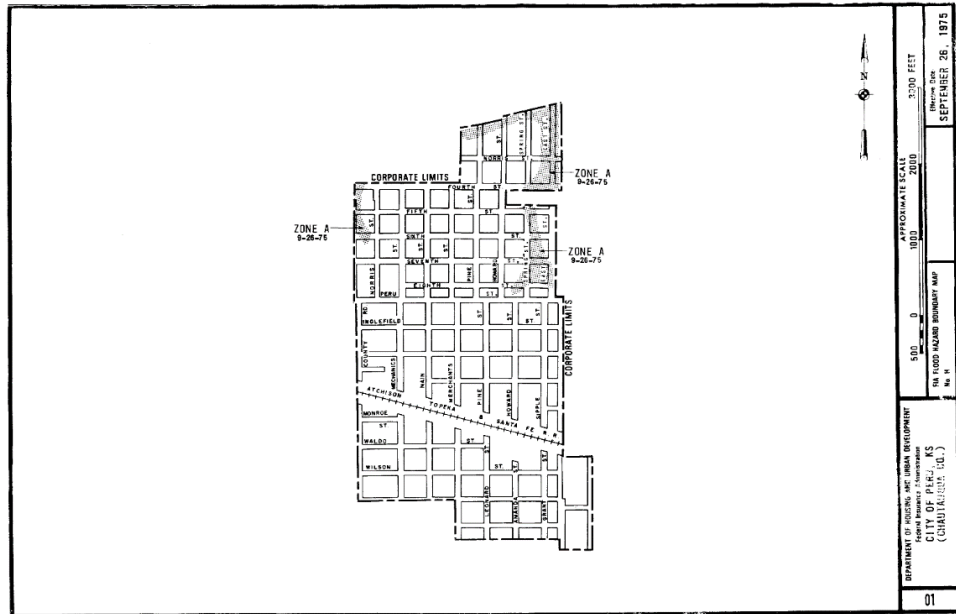
Effective Zone A – 1.41 miles



# Data Development Scope

City of Peru

Effective Zone A – 0.59 miles



# Data Development Scope

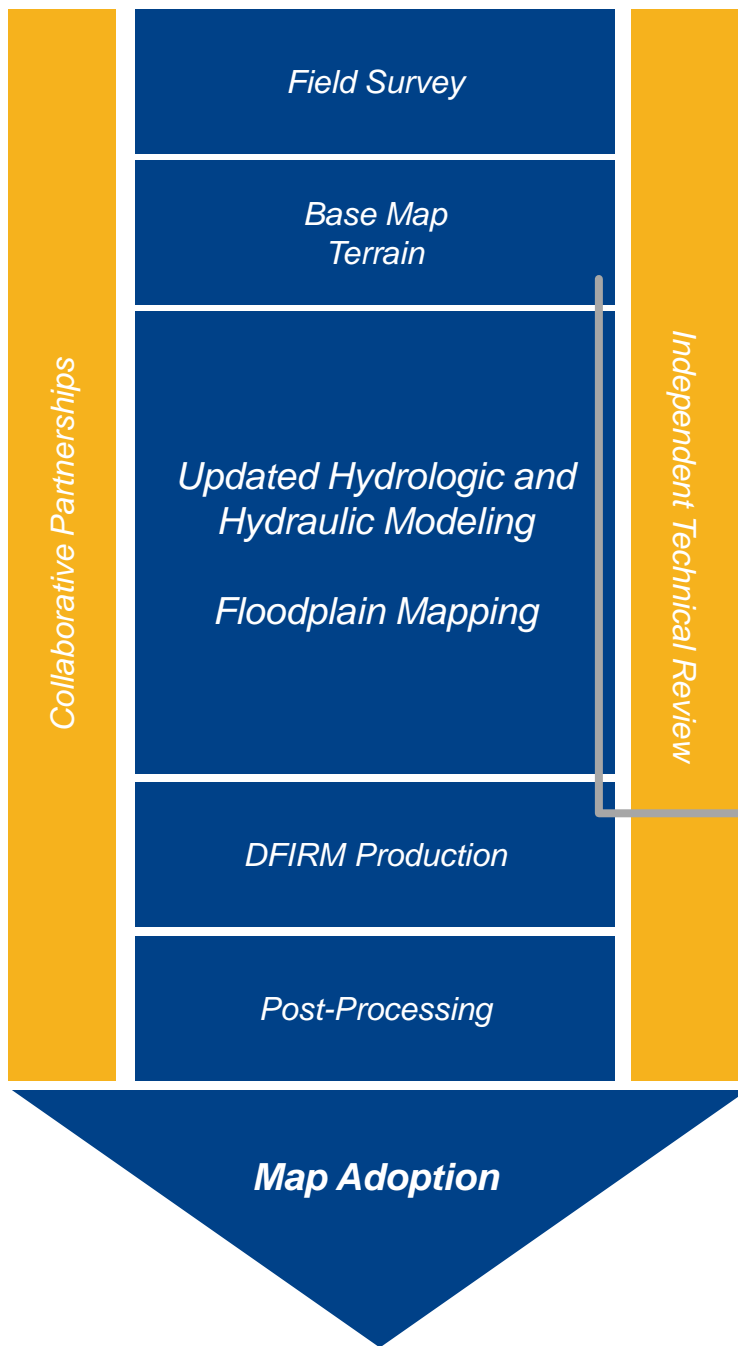
- Cities with Zone A
  - Cedar Vale
  - Elgin
  - Chautauqua
  - Niotaze



# *Next Steps*

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Data Development



## Project Tasks

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

We are about to begin the modeling task



## ***Our Next Steps:***

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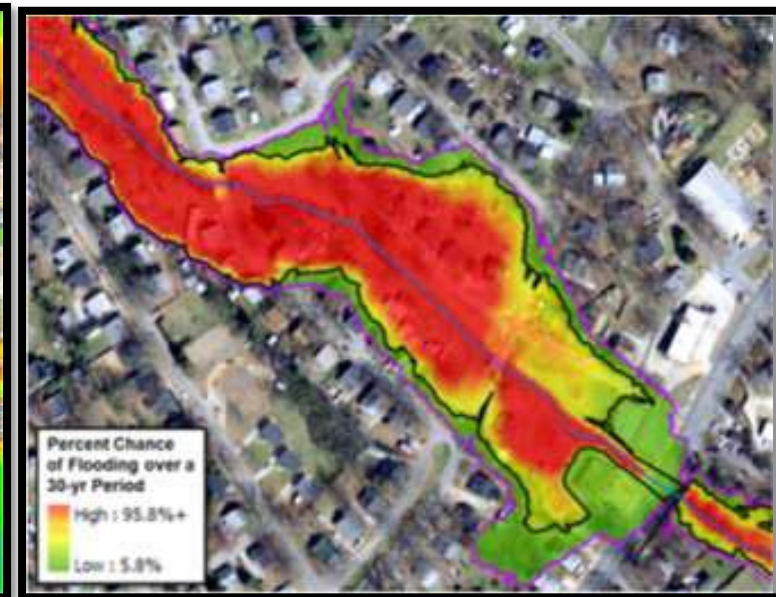
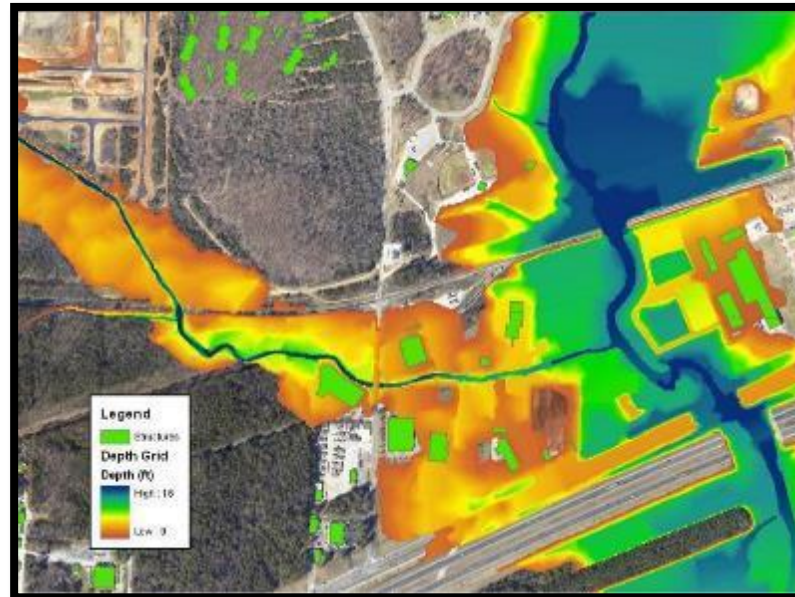
- We will complete the engineering analysis previously described.
- Several rounds of reviews will be completed.
- We will develop your draft regulatory floodplain maps.
  - Also known as your Flood Insurance Rate Map (FIRM)
- We will develop your draft Flood Insurance Study (FIS).
- We will have a community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



- We will also be developing flood risk products for Chautauqua County as part of this project.
  - Water Surface Elevation (WSE) Grids
  - Depth Grids
  - Percent Annual Chance & 30yr Chance Grids
  - Velocity Grids
  - Changes Since Last Firm (CSLF)

## Our Next Steps:

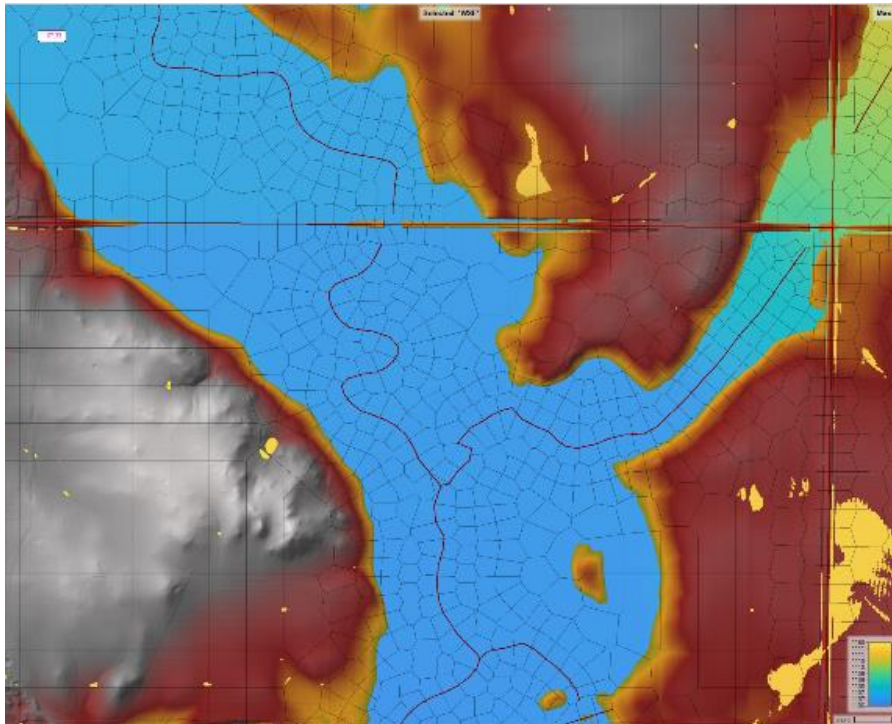
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# Flood Risk Products

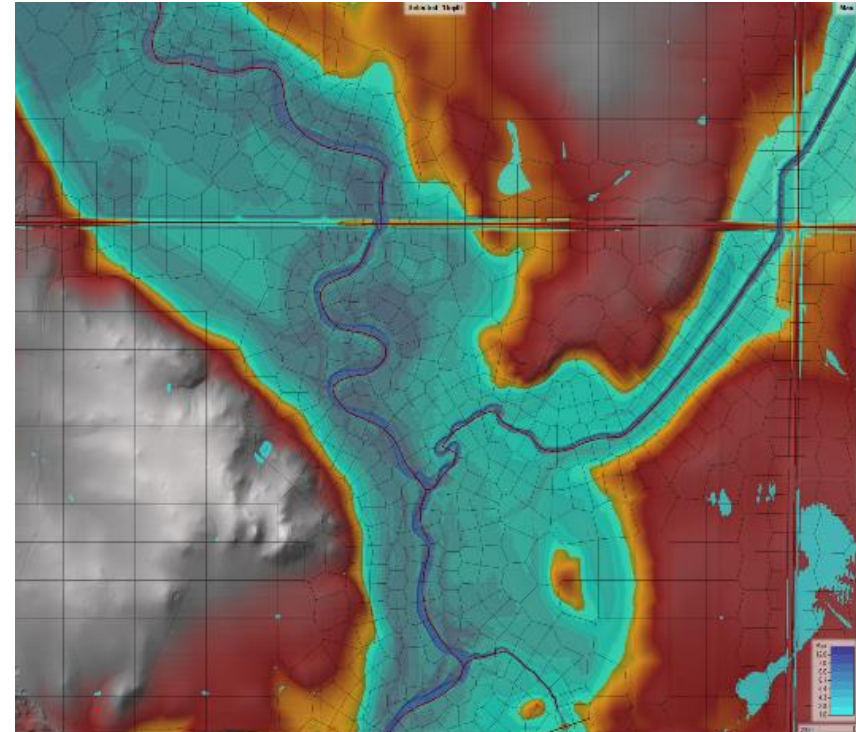
## Water Surface Elevation Grids

- Raster output from model that displays varying water surface elevations within derived floodplain extents
- Used to find base flood elevation throughout the floodplain rather than just at the extent lines.



## Flood Depth Grids

- Raster output from model that displays varying depths of flooding within derived floodplain extents
- Used to find depth of flooding at any location, like residential structures, based on a subtraction of ground elevations from water surface elevation.

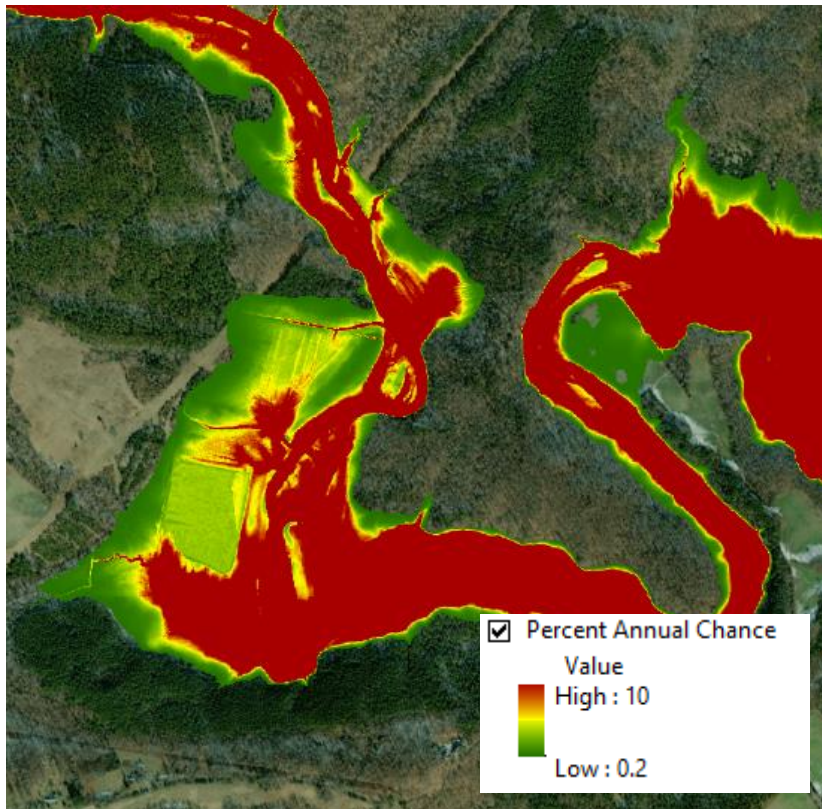




# Flood Risk Products

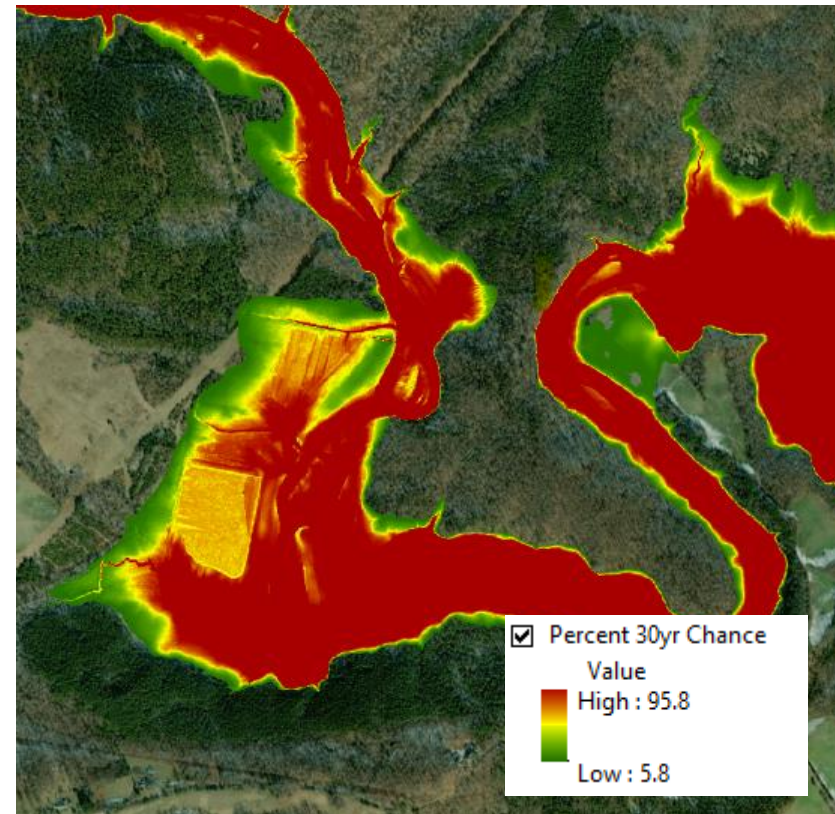
- Percent Annual Chance Grids

- Raster output from model that displays varying likelihood, in percentage, of chance that any given cell within the raster has of flooding within a single year.



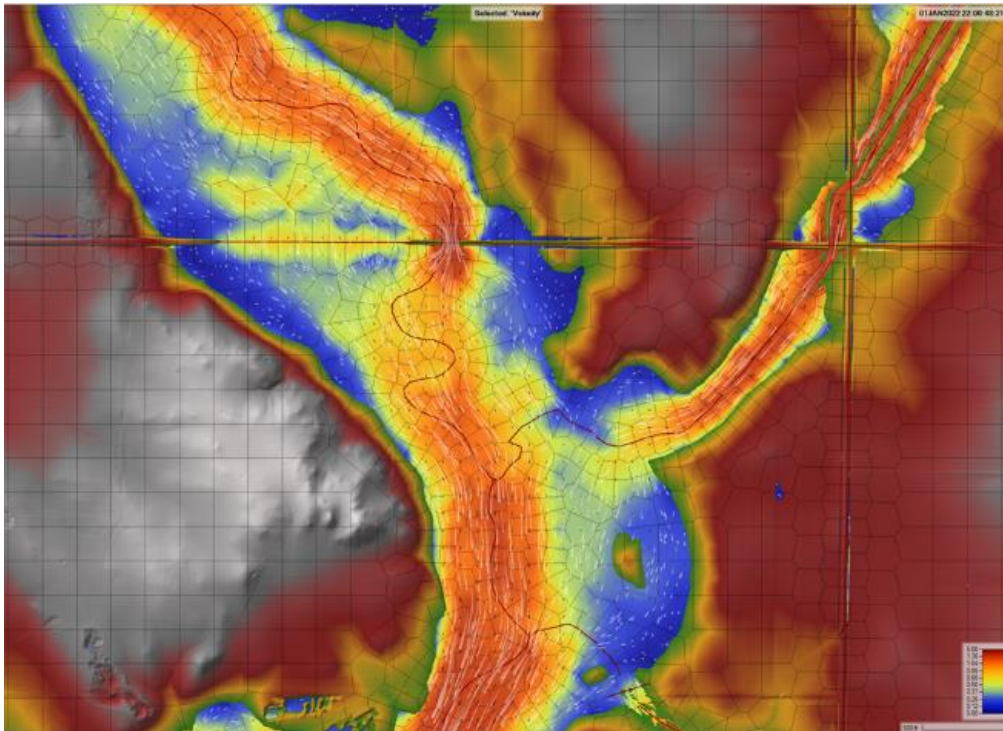
- Percent 30-yr Chance Grid

- Raster output from model that displays varying likelihood, in percentage, of chance that any given cell within the raster has of flooding within a 30 year period.



# Flood Risk Products

- Velocity Grids
  - Raster output from model that displays varying velocities within the floodplain extents.
  - Can be used to help visualize areas within the floodplain with the highest velocities.



# Project Timeline



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

**Data Development Work:**  
[Spring '24 – Spring '25]

- *Topographic Data*
- *Develop Hydrologic and Hydraulic Models*
- *Floodplain Mapping*

**Flood Risk Review Meeting:**

[~ Spring '25]

- *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*

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*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*

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# 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/>

## Web Review Map: <https://gis2.kda.ks.gov/gis/verdigris/>

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

## Story Maps

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

***Any Questions?***

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# Contact Information



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