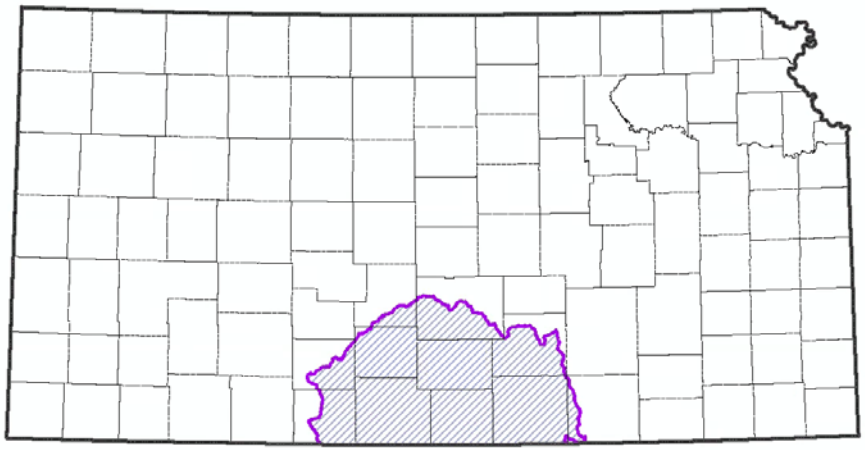
Lower Arkansas Watershed Discovery Meeting

February 26th - 27th, 2020



Kansas
Department of Agriculture
Division of Water Resources

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

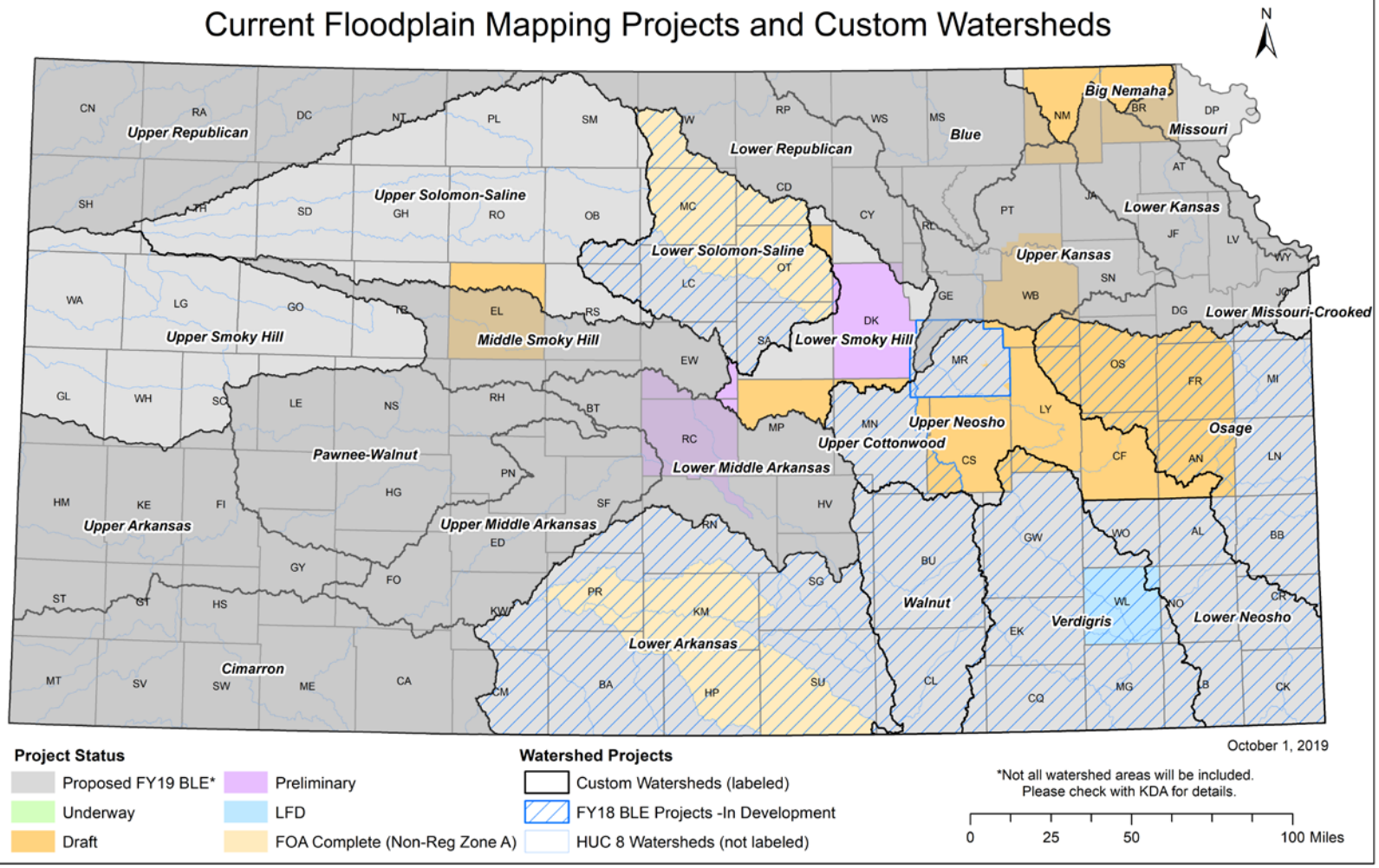
Today's Goals

- 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
- Group Discussion of Community Flood Risk

Why We're Here?

- To conduct a Discovery/ Base Level Engineering project to help identify flood risks.
- Two-way communication to develop a complete picture of your flood hazards and risks to help you.
  - Plan for the risk
  - Take action to protect your communities
  - Communicate the risk to your citizens
- Identify next steps for future needs.

Current Floodplain Mapping Projects and Custom Watersheds



Discovery Overview

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

Discovery Overview

RiskMAP

Increasing Resilience Together

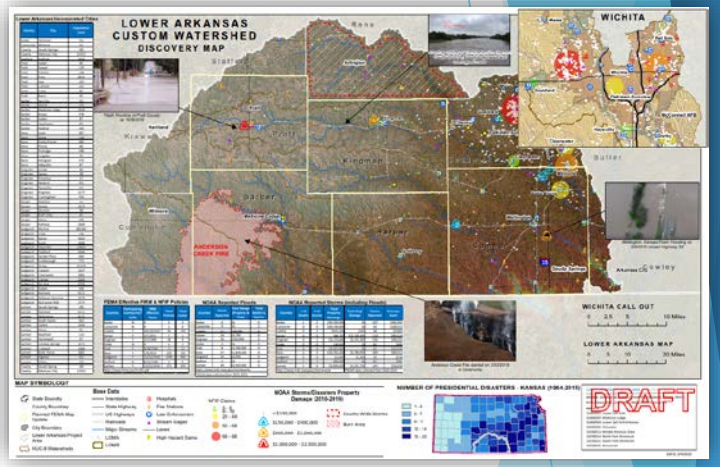
- **Mapping** – Identification of areas of natural hazard risk
- **Assessment –** Review and analysis of hazard areas
- **Planning –** Mitigation activities to reduce risk

Discovery Overview

- Two-way conversation between local officials and FEMA.
  - Local Flood Risks
  - Other Hazards
  - Mitigation Activities
  - Mitigation Plans
  - Flooding History
  - Development Plans
  - Floodplain Management Activities or Issues

Discovery Data Collection

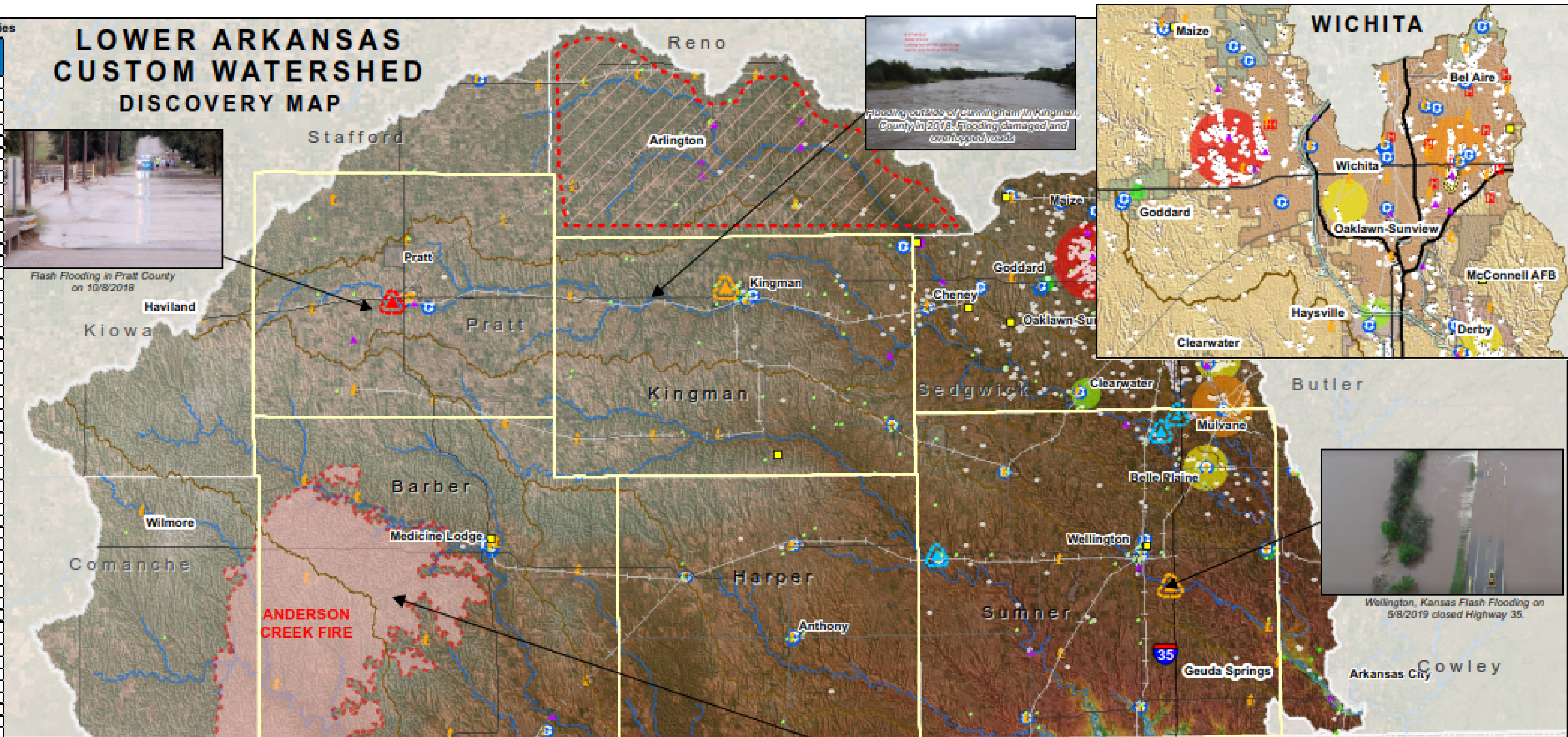
- Data collection began in Fall of 2019.
  - Population data
  - Effective FEMA FIS/FIRM data
  - Flood insurance policies
  - Flood insurance claims
  - NOAA storm event data
  - Presidential disasters
  - Base data mapping – topographic data, community boundaries, transportation lines, levees, dams, stream gages, essential facilities, etc.



Draft Discovery Map

Lower Arkansas Incorporated Cities

County	City	Population 2010
Kiowa	Haviland	701
Comanche	Wilmore	53
Cowley	Geuda Springs	185
Cowley	Arkansas City	12415
Stafford	Stafford	1042
Pratt	Isabel	90
Pratt	Sawyer	124
Pratt	Preston	158
Pratt	Pratt	6835
Pratt	Iuka	163
Pratt	Cullison	101
Pratt	Coats	83
Pratt	Byers	35
Barber	Sun City	53
Barber	Sharon	143
Barber	Medicine Lodge	1934
Barber	Kiowa	978
Barber	Isabel	87
Barber	Hazeltown	84
Barber	Hadtner	165
Reno	turon	387
Reno	Sylvia	218
Reno	Pretty Prairie	680
Reno	Plevna	98
Reno	Partridge	248
Reno	Langdon	42
Reno	Arlington	473
Reno	Abbyville	87
Kingman	Zenda	90
Kingman	Spivey	78
Kingman	Penalosa	17
Kingman	Norwich	491
Kingman	Nashville	64
Kingman	Kingman	3177
Kingman	Cunningham	454
Harper	Waldron	11
Harper	Harper	1473
Harper	Danville	38
Harper	Bluff Clity	65
Harper	Attica	626
Harper	Anthony	2269
Sedgwick	Wichita	382368
Sedgwick	Viloa	130
Sedgwick	Maize	3420
Sedgwick	Kechi	1909
Sedgwick	Haysville	10826
Sedgwick	Goddard	4344
Sedgwick	Gardon Plain	849
Sedgwick	Eastborough	773
Sedgwick	Derby	22158
Sedgwick	Colwich	1327
Sedgwick	Clearwater	2481
Sedgwick	Cheney	2094
Sedgwick	Bel Aire	6769
Sedgwick	Andale	928
Sedgwick	Mulvane	6111
Sedgwick	Oaklawn-Sunview	3276
Sedgwick	McConnell AFB	1777
Sumner	Geuda Springs	185
Sumner	Mulvane	6111
Sumner	Wellington	8172
Sumner	South Haven	363
Sumner	Oxford	1049
Sumner	Milan	82
Sumner	Mayfield	113
Sumner	Hunnewell	67
Sumner	Conway Springs	1272
Sumner	Caldwell	1068
Sumner	Belle Plaine	1681
Sumner	Argonia	501
Sumner	Milton	155
Cowley	Geuda Spring	185
Cowley	Arkansas City	12415



FEMA Effective FIRM & NFIP Policies

Counties	Participating Community? (Y/N)	FIRM Effective Dates	Total Policies	Total Losses
Barber	N	X	9	3
Comanche	N	X	1	0
Cowley	Y	10/19/2010	86	143
Harper	Y	2/1/2013	7	1
Kingman	Y	2/1/1990	48	9
Kiowa	N	X	3	1
Pratt	Y	9/30/1983	21	12
Reno	Y	1/6/2010	229	105
Sedgwick	Y	12/22/2016	1445	960
Stafford	N	8/26/1980	0	0
Sumner	Y	12/22/2016	171	203
https://www.fema.gov/cis/KS.pdf				

NOAA Reported Floods

Counties	Floods Reported	Total Damge (Property & Crop)	Total Deaths & Injuries
Barber	6	$0	0
Comanche	9	$0	0
Cowley	17	$38,600	0
Harper	14	$2,700	0
Kingman	16	$202,600	0
Kiowa	5	$0	0
Pratt	9	$2,500,000	0
Reno	27	$1,818,200	0
Sedgwick	14	$2,900	0
Stafford	2	$0	0
Sumner	34	$2,463,000	0
https://www.ncdc.noaa.gov/stormevents			
*NOAA data collected from 2010-2019			

NOAA Reported Storms (Including Floods)

Counties	# of Deaths	# of Injuries	Total Property Damange	Total Crop Damage	Events Reported	Price per Event
Barber	1	2	$30,200,000	$0	107	$282,243
Comanche	0	0	$30,190,000	$0	92	$328,152
Cowley	0	2	$201,100	$100	58	$3,469
Harper	0	0	$88,250	$10,100,400	119	$85,619
Kingman	0	1	$2,123,600	$4,151,500	156	$40,225
Kiowa	0	0	$28,000	$0	81	$346
Pratt	0	0	$3,023,000	$0	91	$33,220
Reno	3	4	$10,765,300	$4,785,050	184	$84,513
Sedgwick	0	0	$1,600	$1,300	25	$116
Stafford	2	1	$60,000	$0	81	$741
Sumner	1	0	$4,009,600	$4,201,700	145	$56,630
https://www.ncdc.noaa.gov/stormevents				*NOAA data collected from 2010-2019		

Anderson Creek Fire started on 3/22/2016 in Oklahoma.

WICHITA CALL OUT

0 2.5 5 10 Miles

LOWER ARKANSAS MAP

0 5 10 20 Miles

MAP SYMBOLOGY

- State Boundry
- County Boundary
- Planned FEMA Map Update
- City Boundary
- Lower Arkansas Project Area
- HUC-8 Watersheds

Base Data

- Interstates
- State Highway
- US Highways
- Railroads
- Major Streams
- LOMA
- LOMR
- Hospitals
- Fire Stations
- Law Enforcement
- Stream Gages
- Levee
- High Hazard Dams

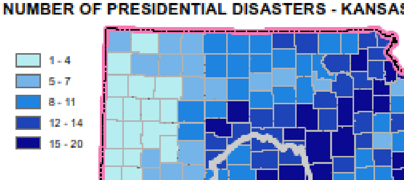
NFIP Claims

- 5 - 8
- 9 - 19
- 20 - 49
- 50 - 68
- 69 - 88

NOAA Storms/Disasters Property Damage (2010-2019)

- < $150,000
- $150,000 - $900,000
- $900,000 - $2,000,000
- $2,000,000 - $2,500,000
- County Wide Storms
- Burn Area

NUMBER OF PRESIDENTIAL DISASTERS - KANSAS (1964-2015)



LOWER ARKANSAS PROJECT AREA DISCOVERY MAP

DRAFT

BARBER, COMANCHE, COWLEY, HARPER, KINGMAN, KIOWA, PRATT, RENO, SEDGWICK, STAFFORD, AND SUMNER COUNTIES

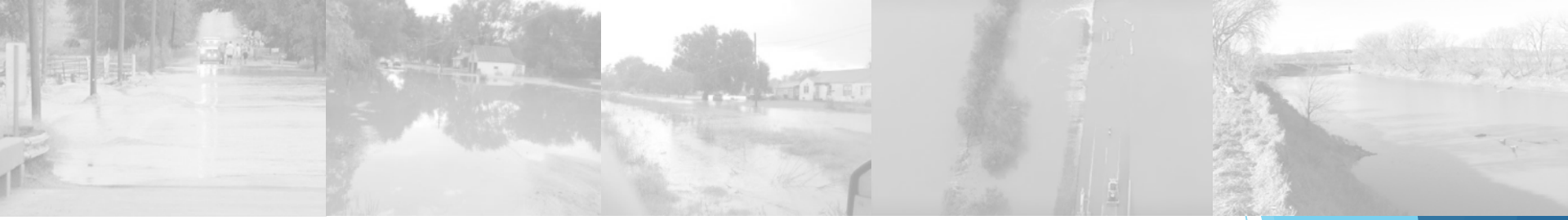
HUC-8's:

11060002- Upper Salt Fork
11060003- Medicine Lodge
11060004- Lower Salt Fork Arkansas
11060005- Chikaskia
11030013- Middle Arkansas-Slate
11030014- North Fork Ninnescah
11030015- South Fork Ninnescah
11030016- Ninnescah

DATE: 2/4/2020

Discovery Stakeholder Engagement

- Discovery Survey – December 2019
- Community Phone Calls – January 2020
  - Topics:
    - Past flood damages and concerns
    - Mitigation plans, actions, priorities
    - Outreach and communication tools
    - General NFIP and CRS information

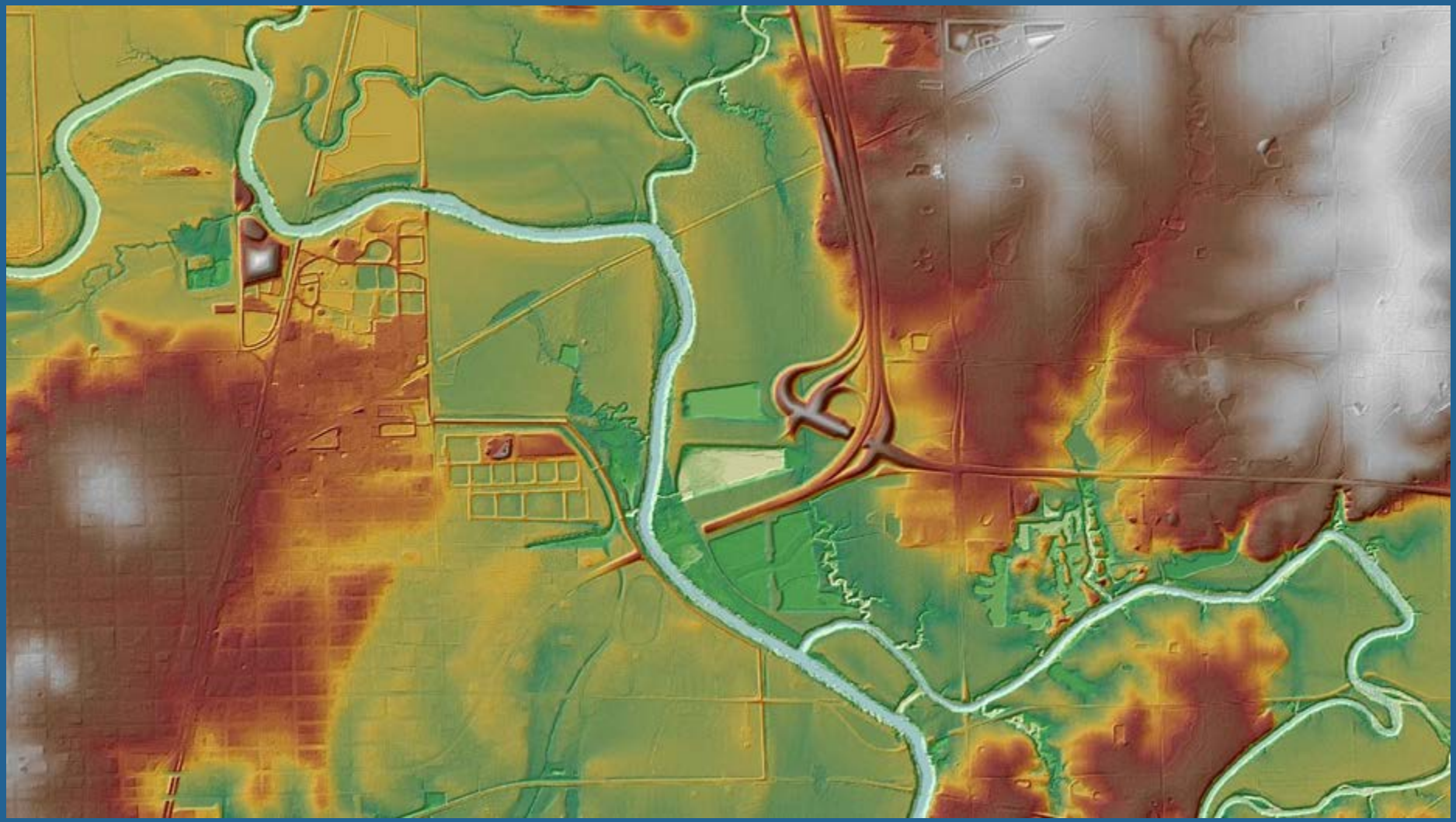


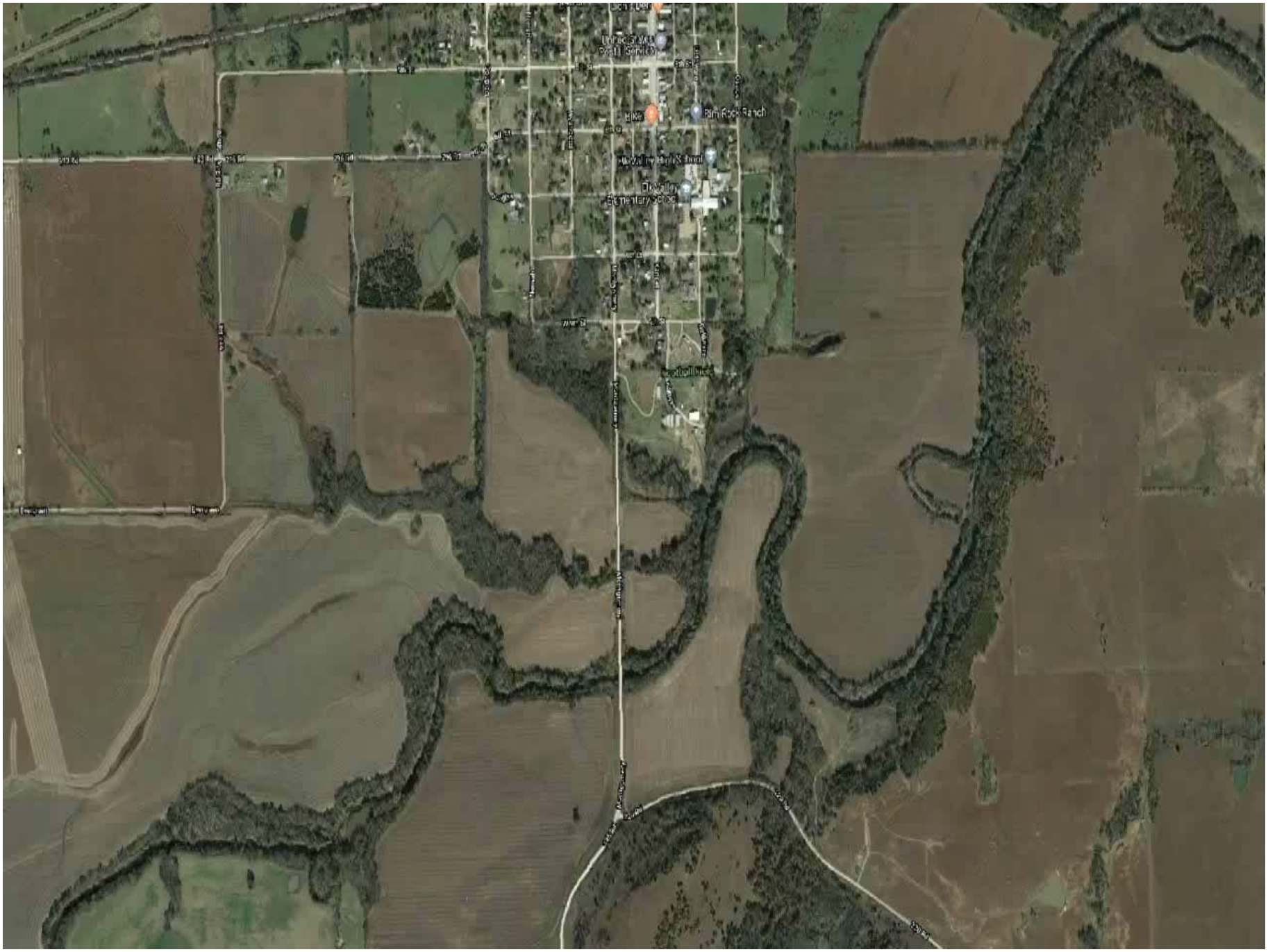
BLE Mapping Project Overview

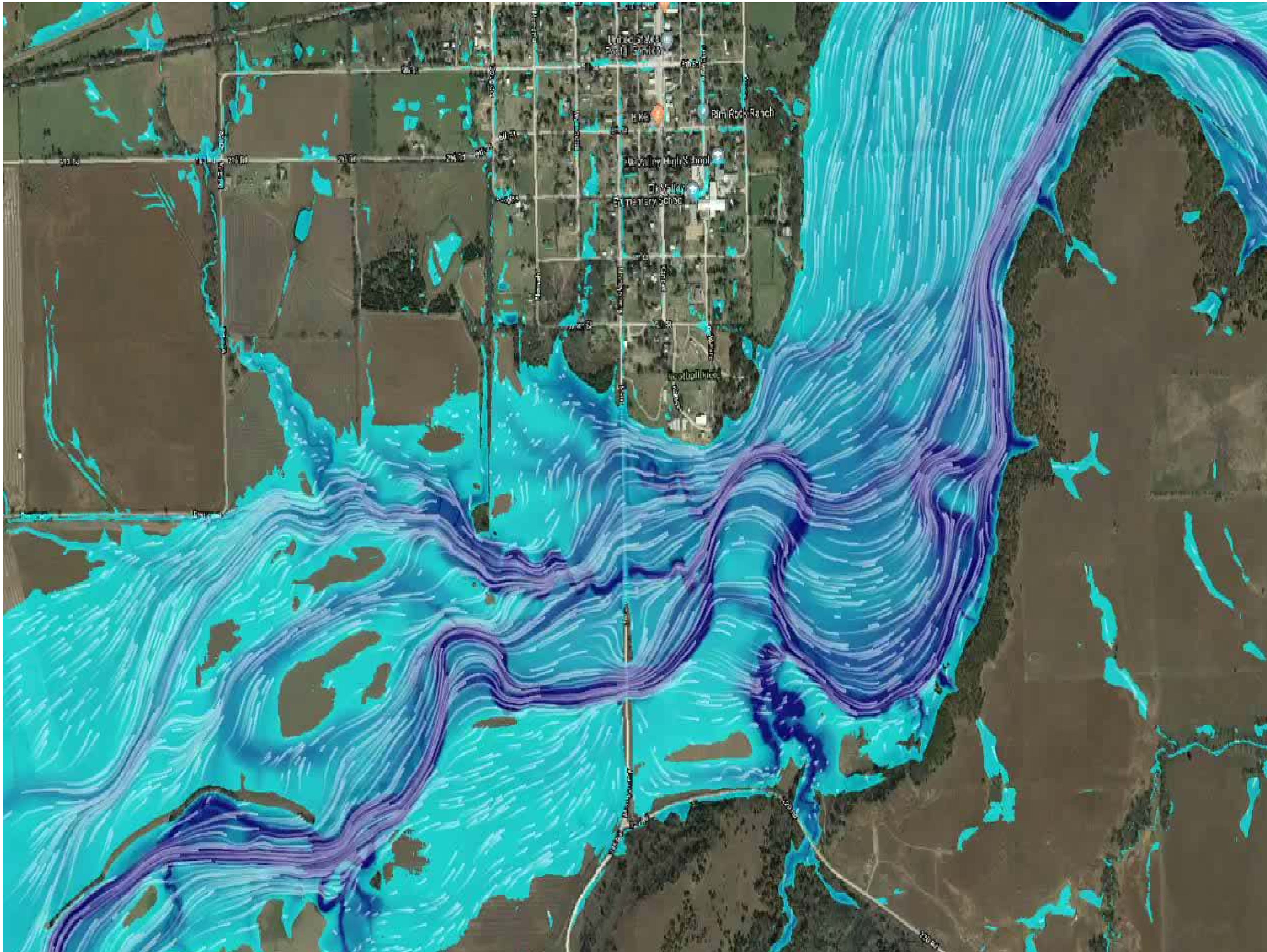
What is Base Level Engineering (BLE)?

- Development of initial draft floodplains
- Based on:
  - LiDAR Topography
  - National Weather Service (NWS) Rainfall Data
  - National Land Cover / Land Use Data
  - NRCS Soil Information
  - USGS Gage Data Calibration

BLE Uses High-Resolution LiDAR Terrain



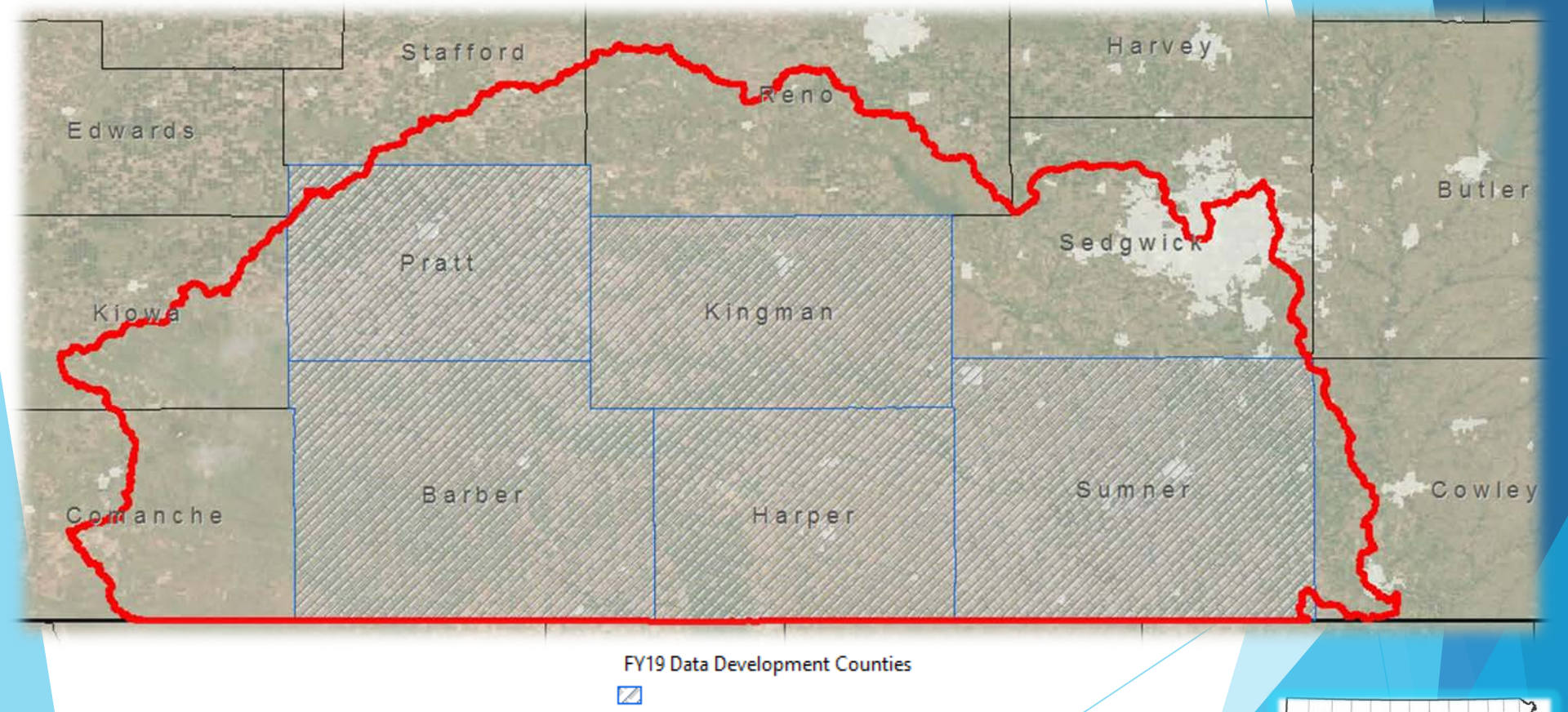

Palm Rock Ranch
Elementary School


Rim Rock Ranch

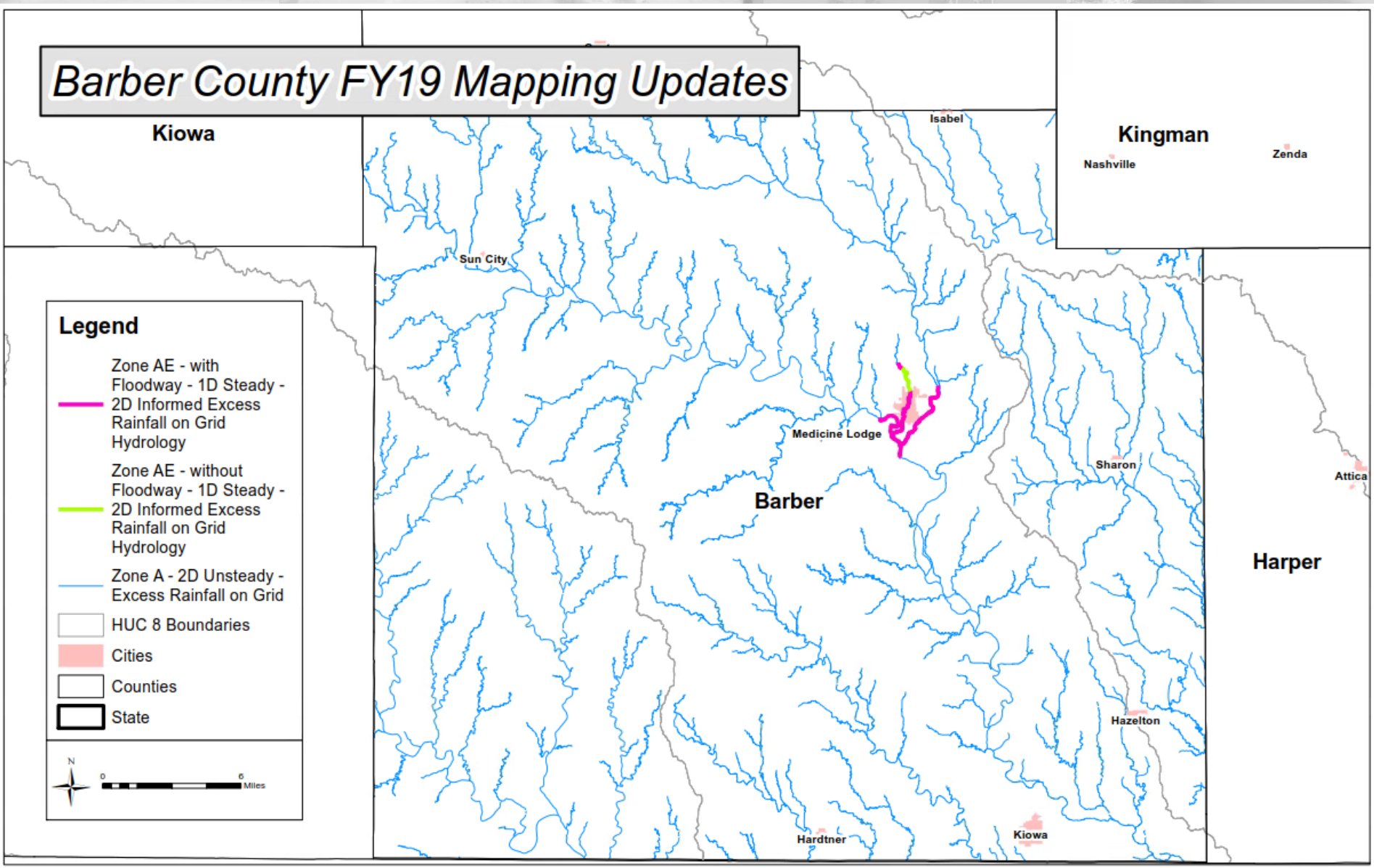
What is Data Development?

- 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
  - Historical flooding events and other local data
  - Field-measured survey of structures, where specified
  - Robust review internally and externally
  - Comments from community review

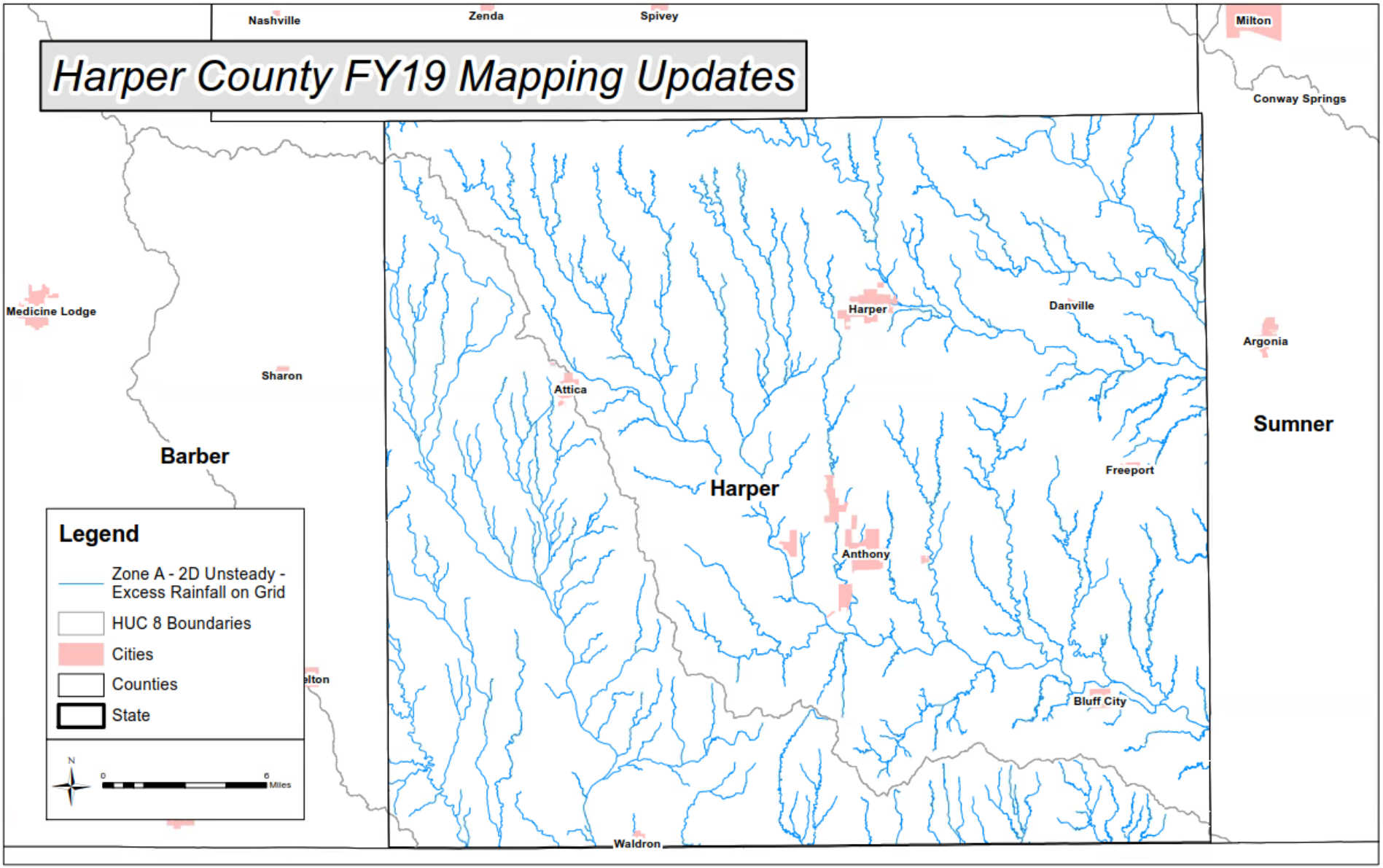
Planned Regulatory Updates



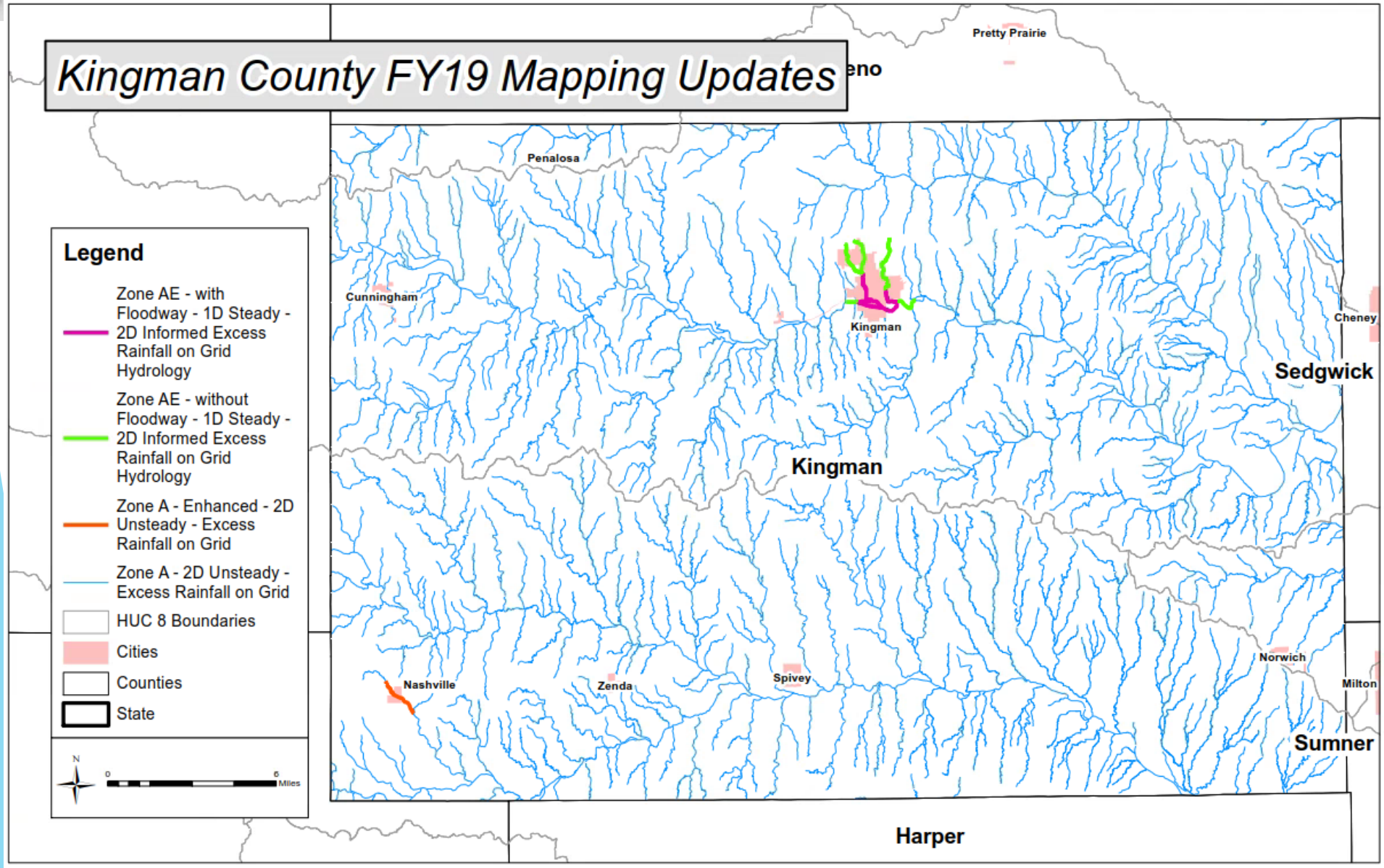
Data Development - Barber County



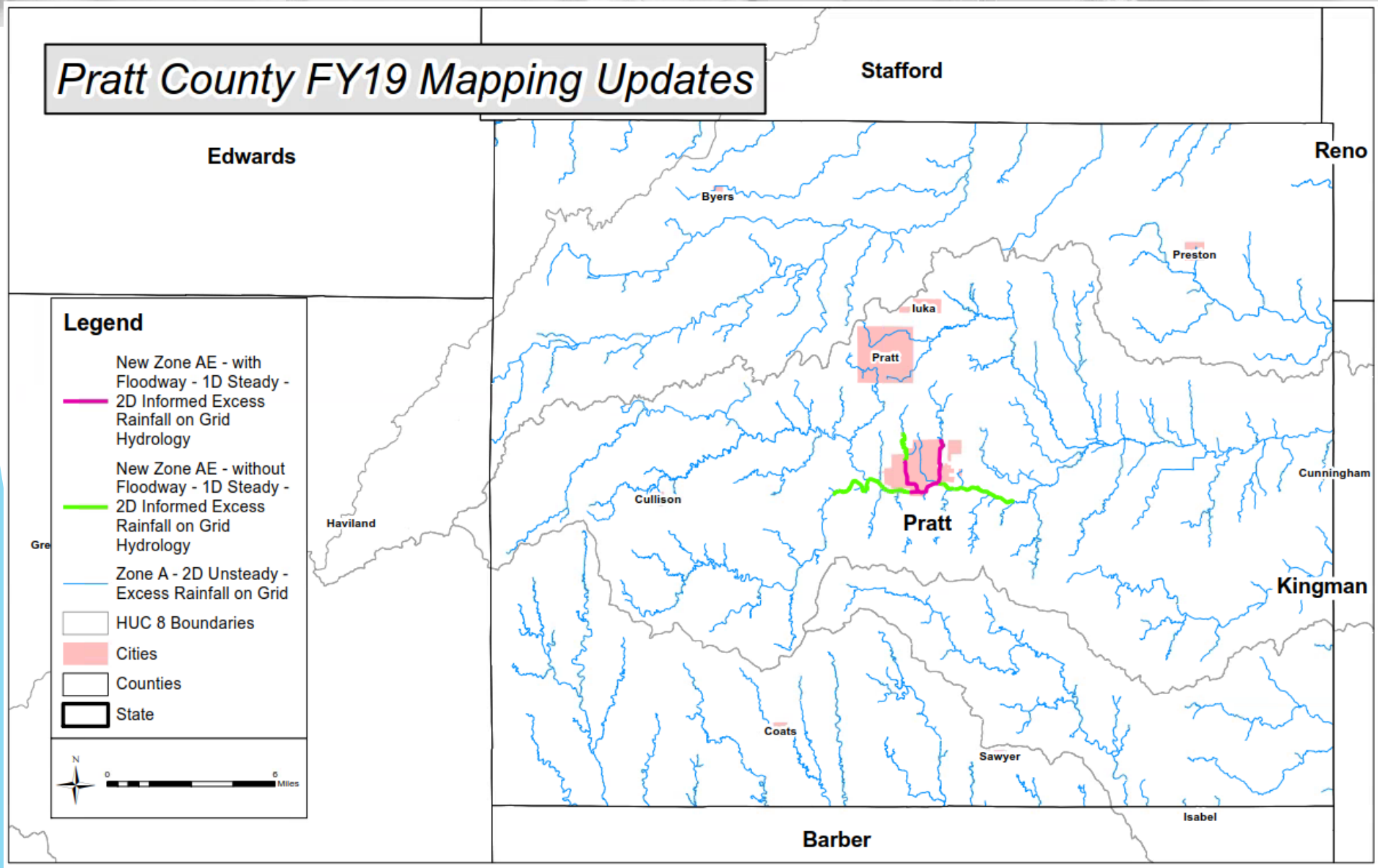
Data Development - Harper County



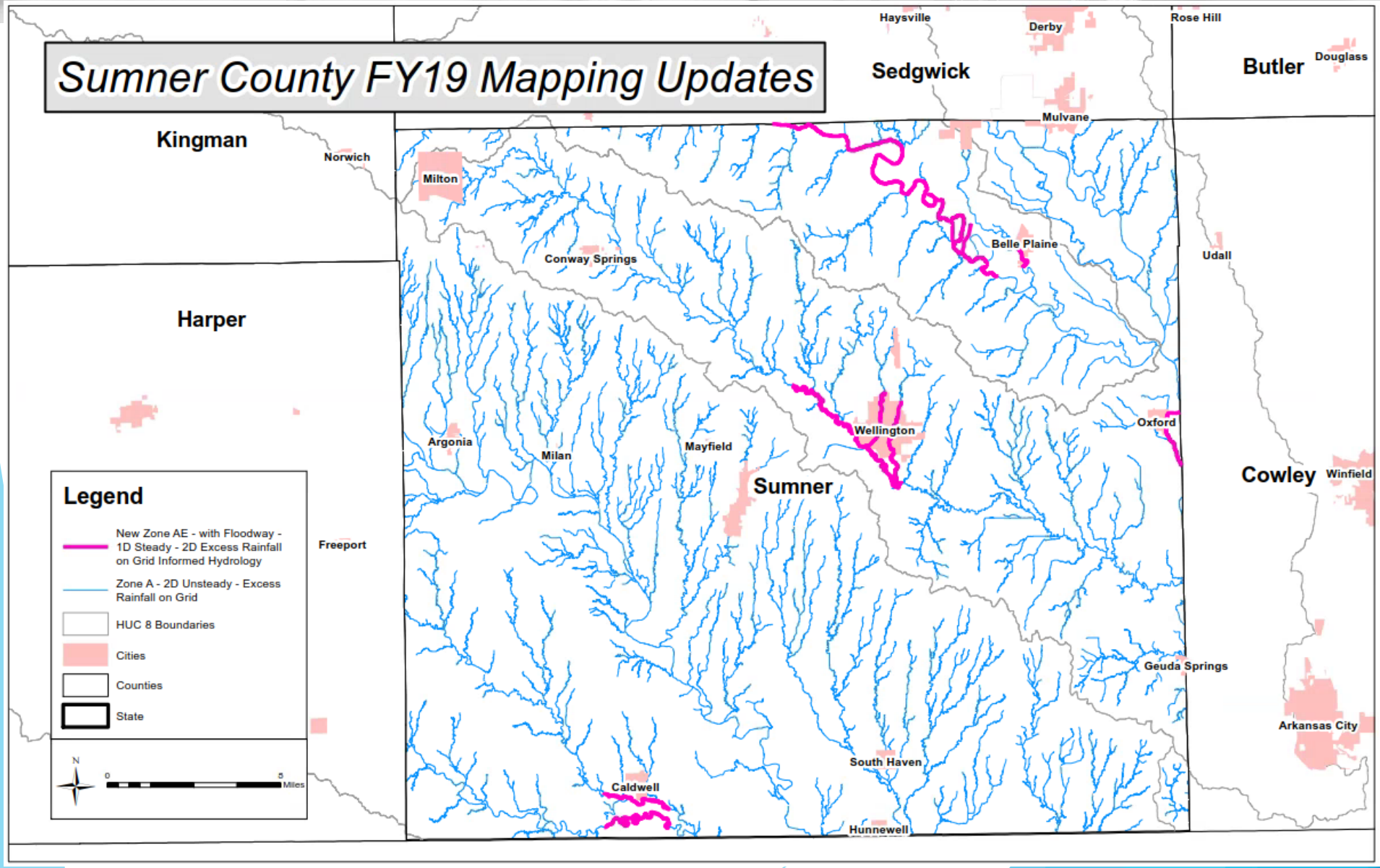
Data Development - Kingman County



Data Development - Pratt County



Data Development - Sumner County



Ultimate Project Goals

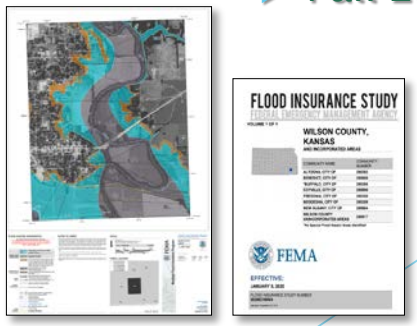
- Communicate flood hazard risk for the Lower Arkansas custom watershed.
- Update countywide floodplains for Barber, Harper, Kingman, Pratt, and Sumner Counties.
- Leave a map that communities BELIEVE.
- Help communities and residents better understand and prepare for their flood risk.
- Identify mitigation opportunities.

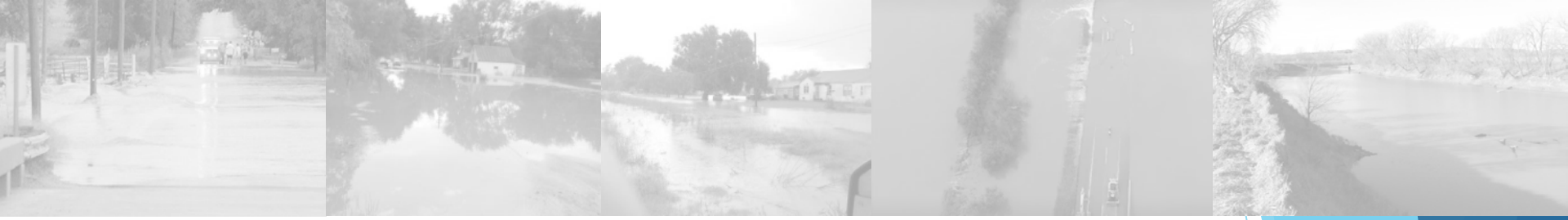
Project Timeline

- **Discovery and Initial Map Review**
  - Community Engagement Kickoff Meetings
    - March 5-6, 2019
  - Discovery and Map Review Meetings
    - **February 2020**
  - Data Collection
    - Spring 2020
  - Identify Community Needs
    - Spring 2020

- **Paper Inventory Reduction (PIR) (Barber, Harper, Kingman, Pratt)**
  - Regulatory Data Development
    - Spring 2020 – Spring 2021
  - Preliminary Map Products
    - Winter 2021
  - Post Preliminary Processing
    - 2022
  - Effective Regulatory Products
    - 2023

- **Sumner County (Currently Only Funded for DD)**
  - Regulatory Data Development
    - Spring 2020 – Summer 2021
  - Draft Regulatory Map Products
    - Fall 2021





Initial Map Review of BLE Floodplains

Floodplain Map Review

- AECOM Review
  - AECOM internal peer review
- Independent Technical Review (ITR)
  - 3rd party review of engineering by Wood E&IS
- KDA Review
  - Visual review
  - “eye test”
  - Identify impact of the map
- FEMA Review
  - Formal quality review process of regulatory products

Community Map Review

- A web map has been created to submit comments:

  Web map link can be provided to stakeholders

  Comments are public facing (FYI)

- 30-day Review Period (More if needed)
- Conduct as the Working Group / Community sees fit

Draft BLE SFHA - Wellington

NATIONAL FLOOD INSURANCE PROGRAM

DISCOVERY 2D BLE WORKMAP

Wellington, Kansas
Sumner County

FEMA

Kansas Department of Agriculture
Division of Water Resources

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

- 2D BLE ZONE A

OTHER FEATURES

- 100 — Zone A Base Flood Elevation
- Stream lines
- Effective Zone AE
- Municipal Boundary
- County Boundary

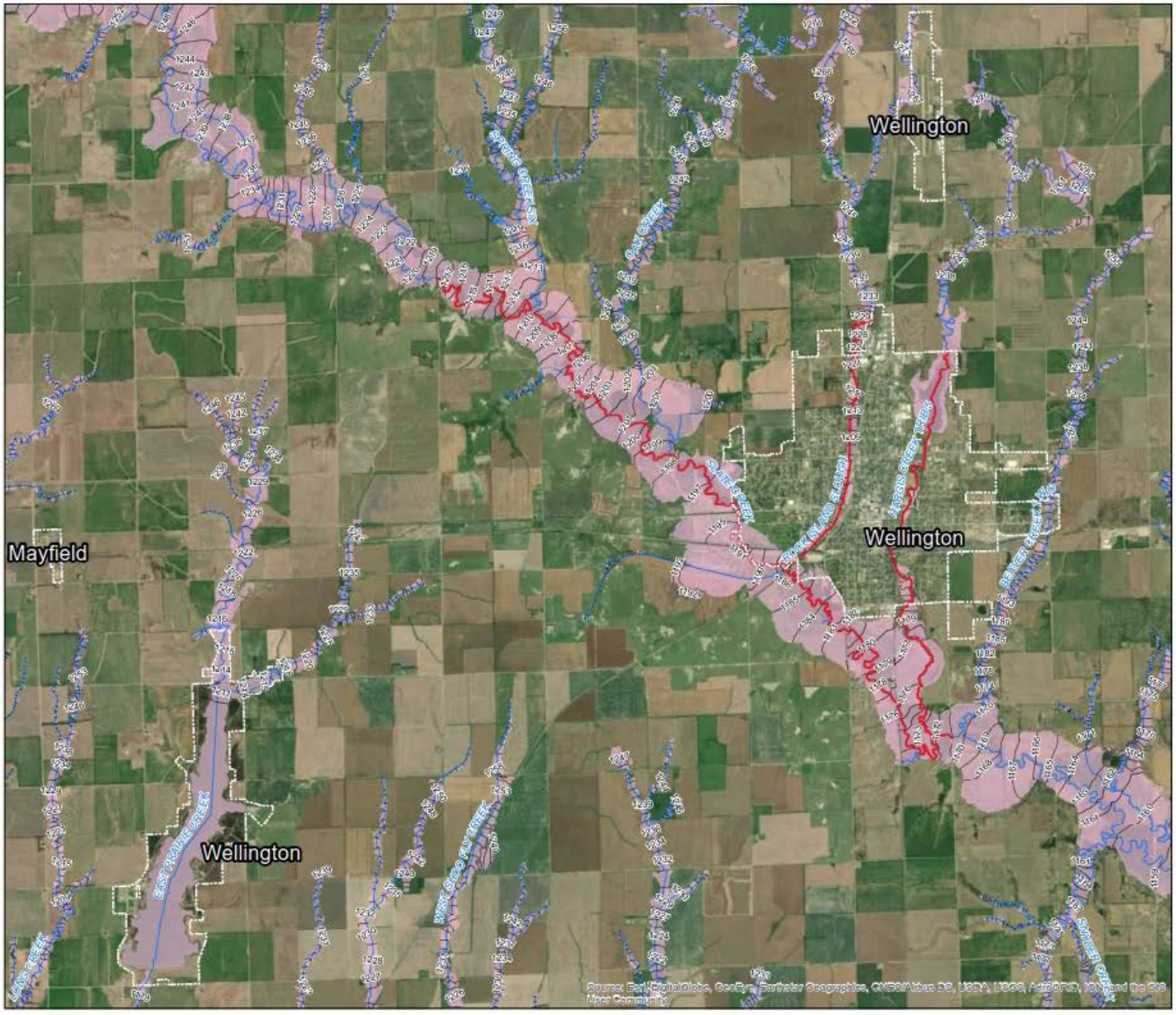
NAD 1983 StatePlane Kansas South FIPS 1502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,312,333.3333
False Northing: 1,312,333.3333
Central Meridian: -98.5000
Standard Parallel 1: 37.2667
Standard Parallel 2: 38.5667
Latitude Of Origin: 36.6667
Units: Foot US

N

1 inch = 5,000 feet

0 2,800 5,600 11,200 16,800 Feet

0 750 1,500 3,000 4,500 Meters



Draft BLE CSLF - Wellington

NATIONAL FLOOD INSURANCE PROGRAM

DISCOVERY 2D BLE CSLF WORKMAP

Wellington, Kansas
Sumner County

FEMA

Kansas Department of Agriculture
Division of Water Resources

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

- DECREASE
- INCREASE
- NO CHANGE

OTHER FEATURES

- Stream lines
- Effective Zone AE
- Municipal Boundary
- County Boundary

NAD 1983 StatePlane Kansas South FIPS 1502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,312,333.3333
False Northing: 1,312,333.3333
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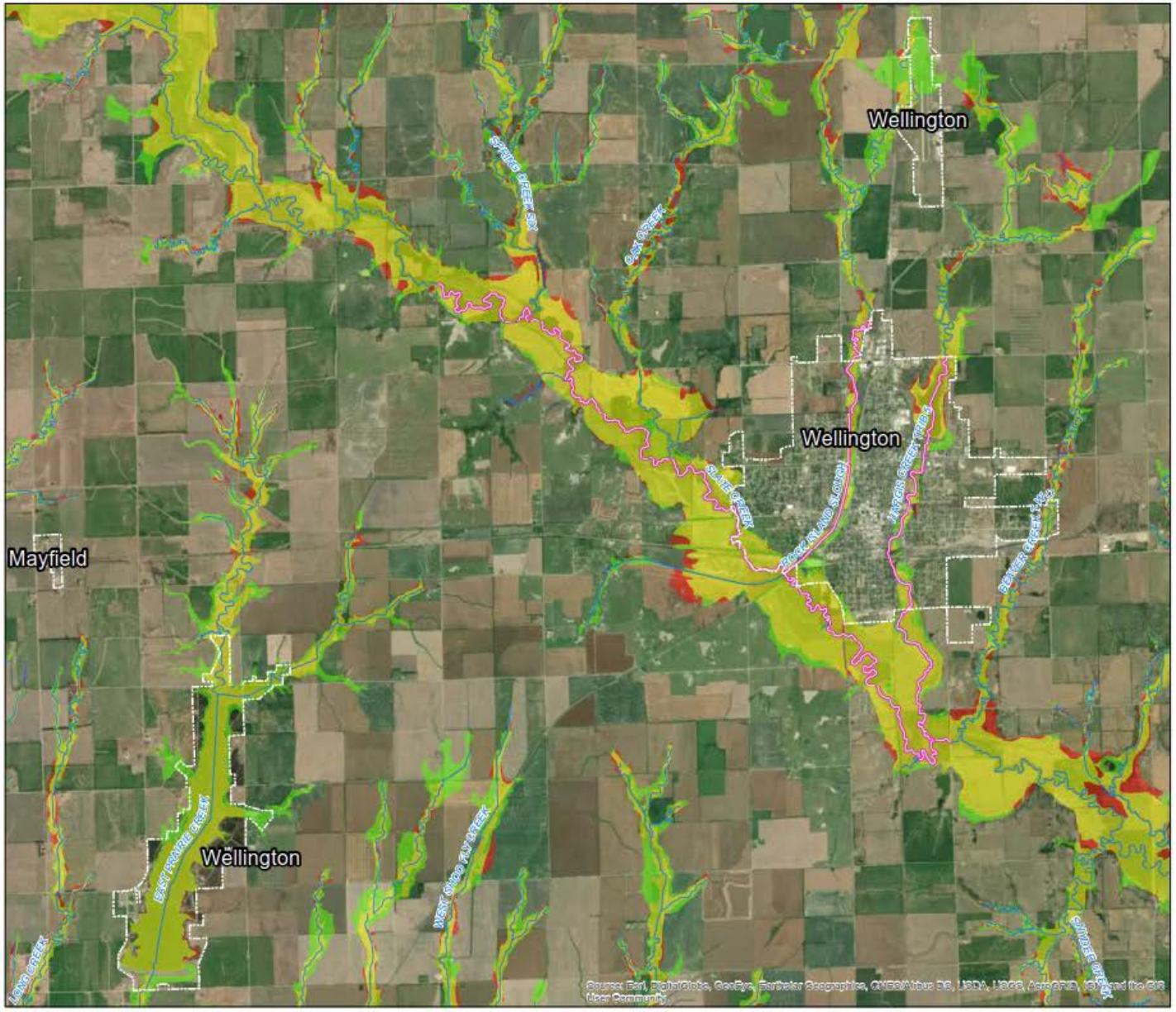
Units: Foot US

N

1 inch = 5,000 feet

0 2,800 5,600 11,200 16,800 Feet

0 750 1,500 3,000 4,500 Meters



Draft BLE SFHA - Medicine Lodge

NATIONAL FLOOD INSURANCE PROGRAM

DISCOVERY 2D BLE WORKMAP

Medicine Lodge, Kansas
Barber County

FEMA

Kansas Department of Agriculture
Division of Water Resources

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

- 2D BLE ZONE A

OTHER FEATURES

- 100 — Zone A Base Flood Elevation
- Stream lines
- Effective Zone AE
- Municipal Boundary
- County Boundary

NAD 1983 StatePlane Kansas South FIPS 1502 Feet
Projection: Lambert Conformal Conic
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False Northing: 1,312,333.3333
Central Meridian: -98.5000
Standard Parallel 1: 37.2667
Standard Parallel 2: 38.5667
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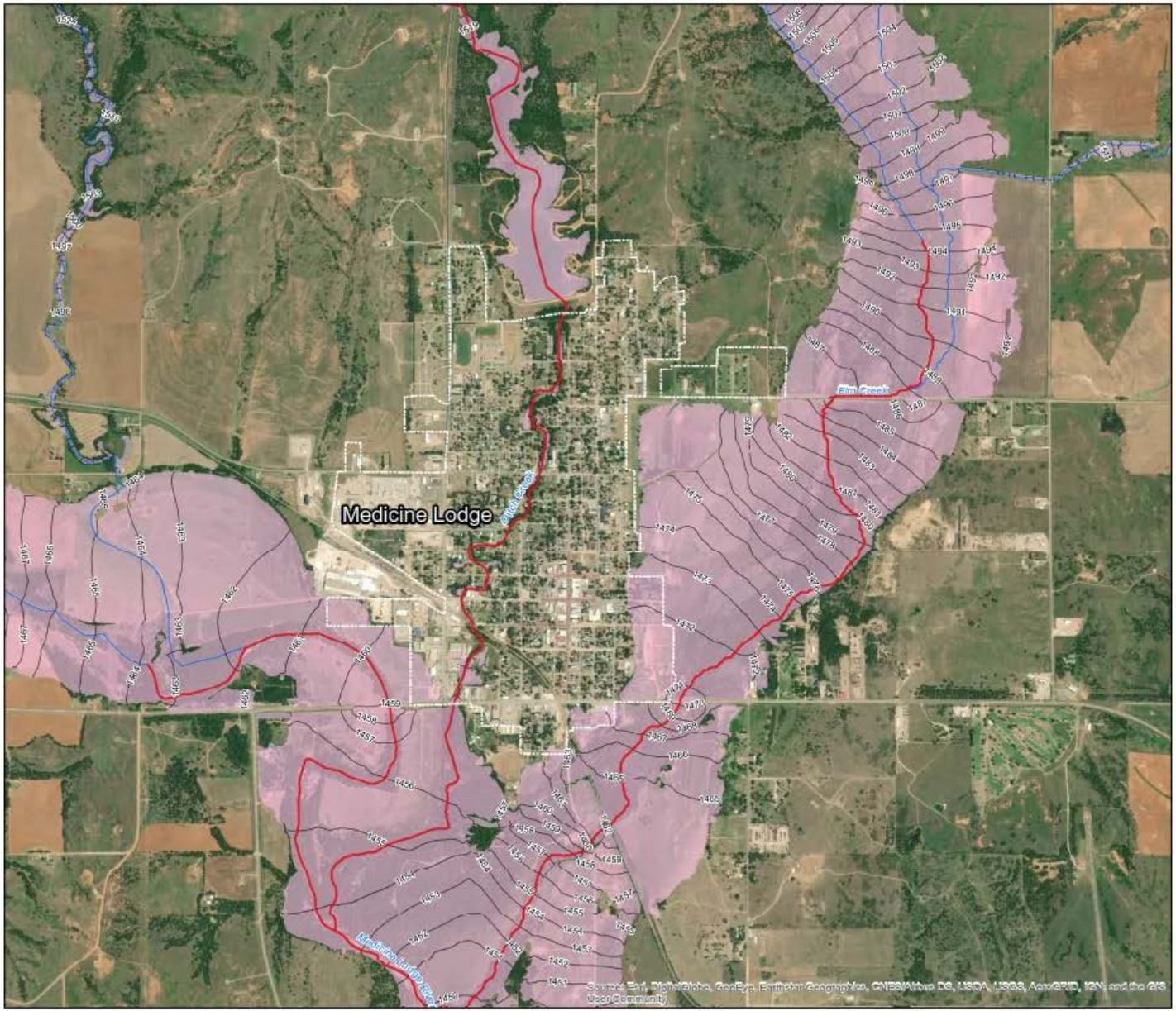
Units: Foot US

N

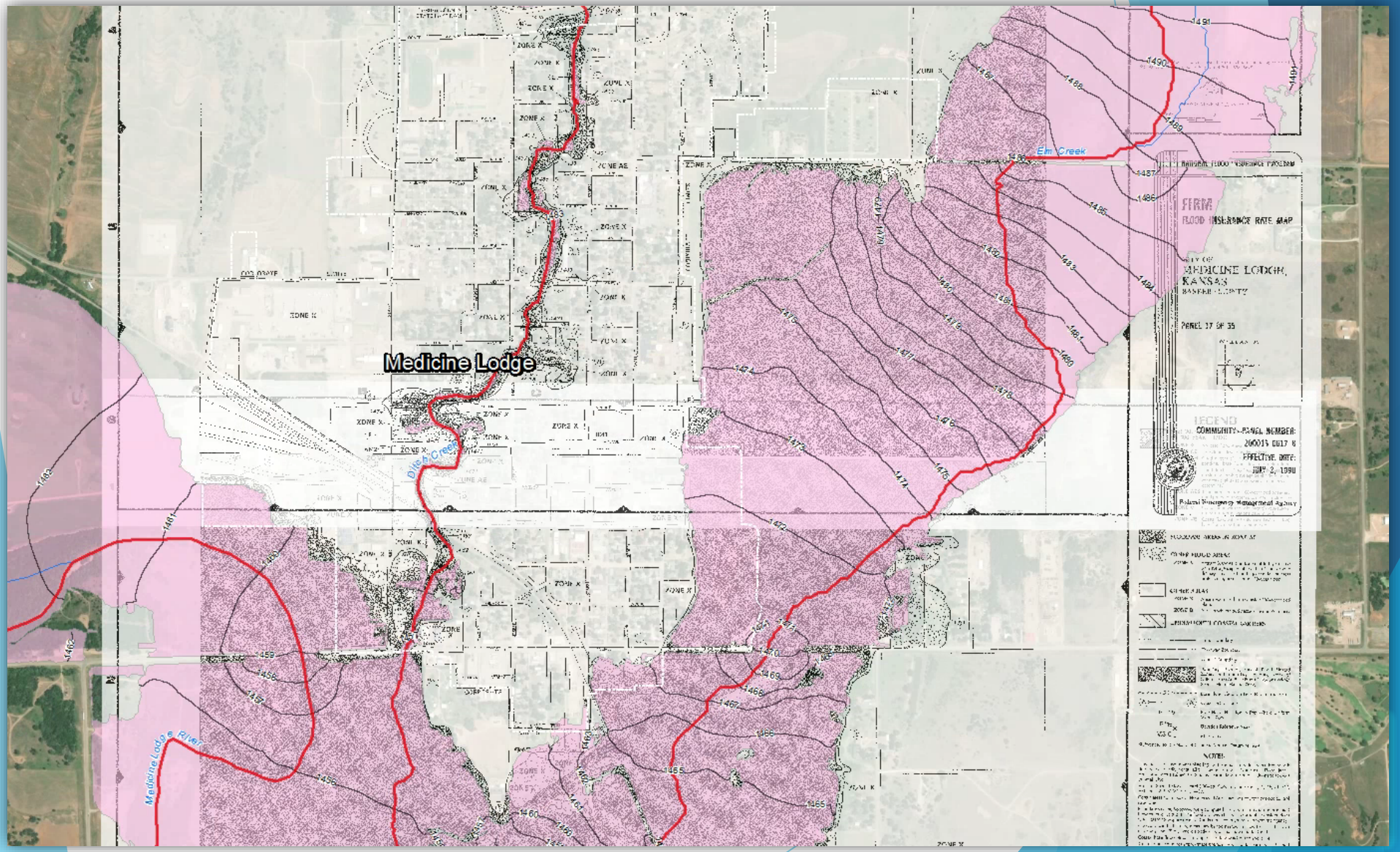
1 inch = 1,655 feet

0 900 1,800 3,600 5,400 Feet

0 260 520 1,040 1,560 Meters



Draft BLE CSLF - Medicine Lodge



Draft BLE SFHA - Pratt

NATIONAL FLOOD INSURANCE PROGRAM

DISCOVERY 2D BLE WORKMAP

Pratt, Kansas
Pratt County

FEMA

Kansas Department of Agriculture
Division of Water Resources

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

- 2D BLE ZONE A

OTHER FEATURES

- 100 — Zone A Base Flood Elevation
- Stream lines
- Effective Zone AE
- Municipal Boundary
- County Boundary

NAD 1983 StatePlane Kansas South FIPS 1502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
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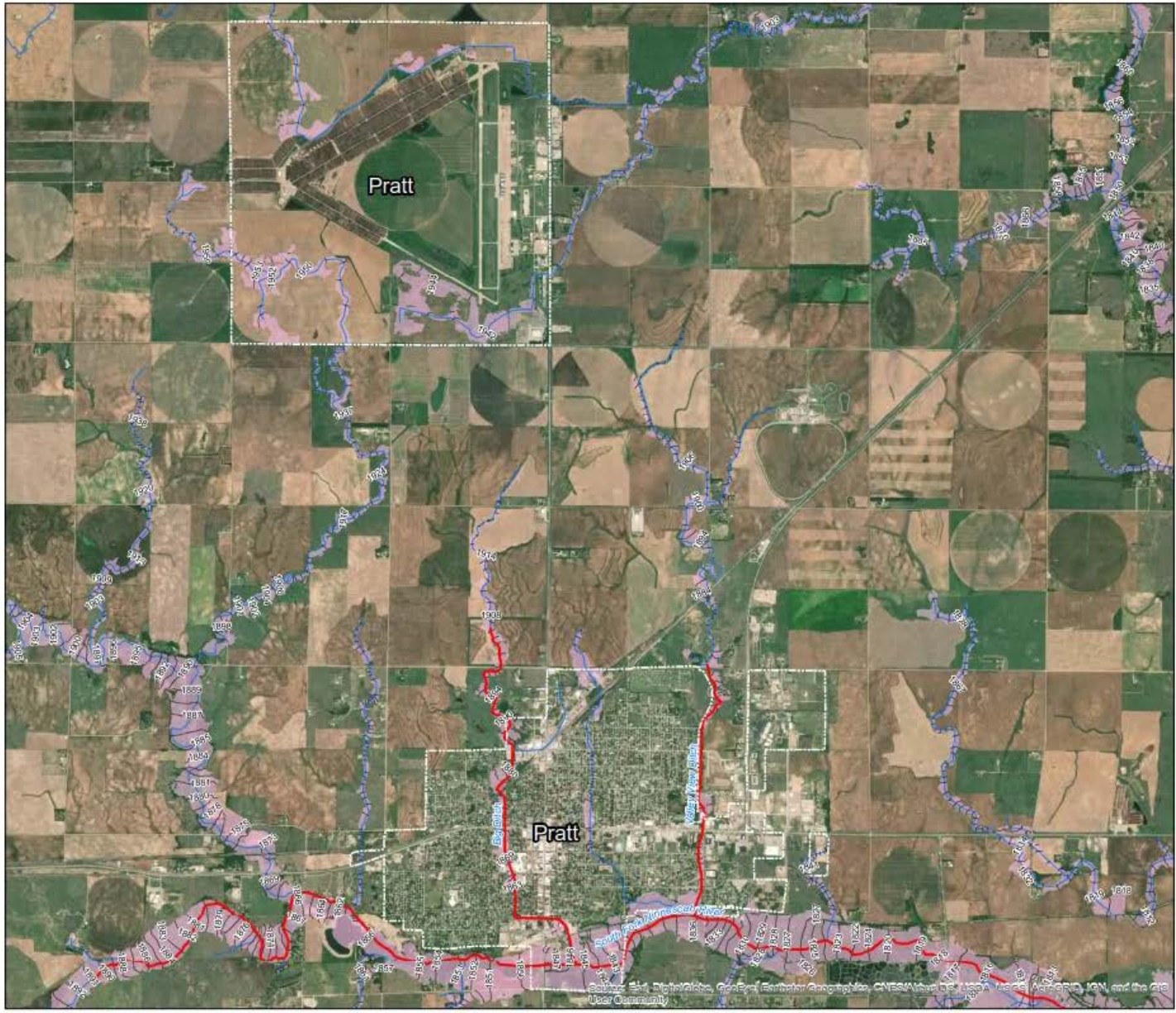
False Northing: 1,312,333.3333
Central Meridian: -98.5000
Standard Parallel 1: 37.2667
Standard Parallel 2: 38.5667
Latitude Of Origin: 36.6667
Units: Foot US

N

1 inch = 3,168 feet

0 1,750 3,500 7,000 10,500 Feet

0 500 1,000 2,000 3,000 Meters



Draft BLE SFHA – Kingman

NATIONAL FLOOD INSURANCE PROGRAM

DISCOVERY 2D BLE WORKMAP

Kingman, Kansas
Kingman County

FEMA

Kansas Department of Agriculture
Division of Water Resources

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

- 2D BLE ZONE A

OTHER FEATURES

- 100 — Zone A Base Flood Elevation
- Stream lines
- Effective Zone AE
- Municipal Boundary
- County Boundary

NAD 1983 StatePlane Kansas South FIPS 1502 Feet
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Datum: North American 1983
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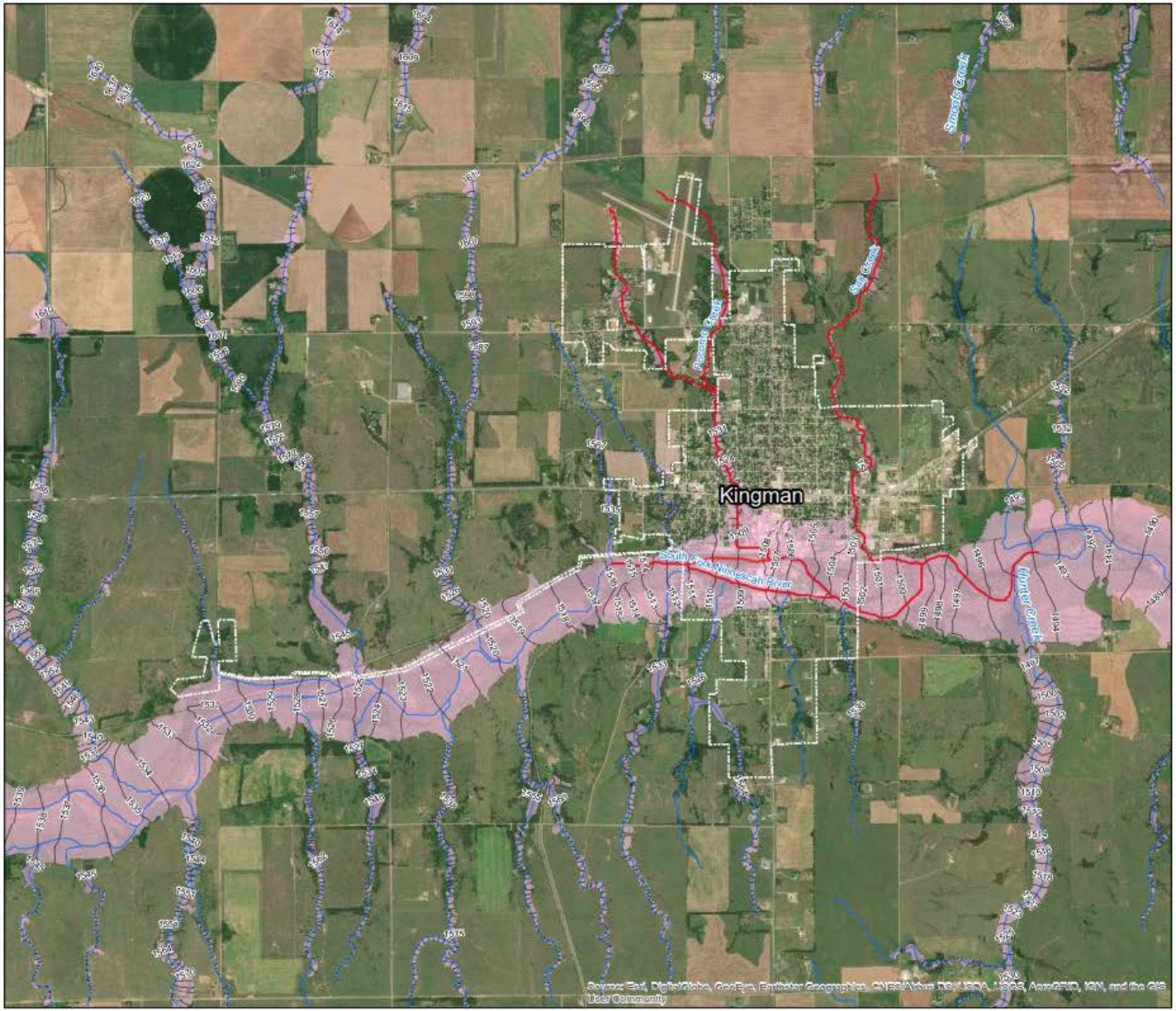
Central Meridian: -98.5000
Standard Parallel 1: 37.2667
Standard Parallel 2: 38.5667
Latitude Of Origin: 36.6667
Units: Foot US

N

1 inch = 2,972 feet

0 1,650 3,300 6,600 9,900 Feet

0 470 940 1,880 2,820 Meters

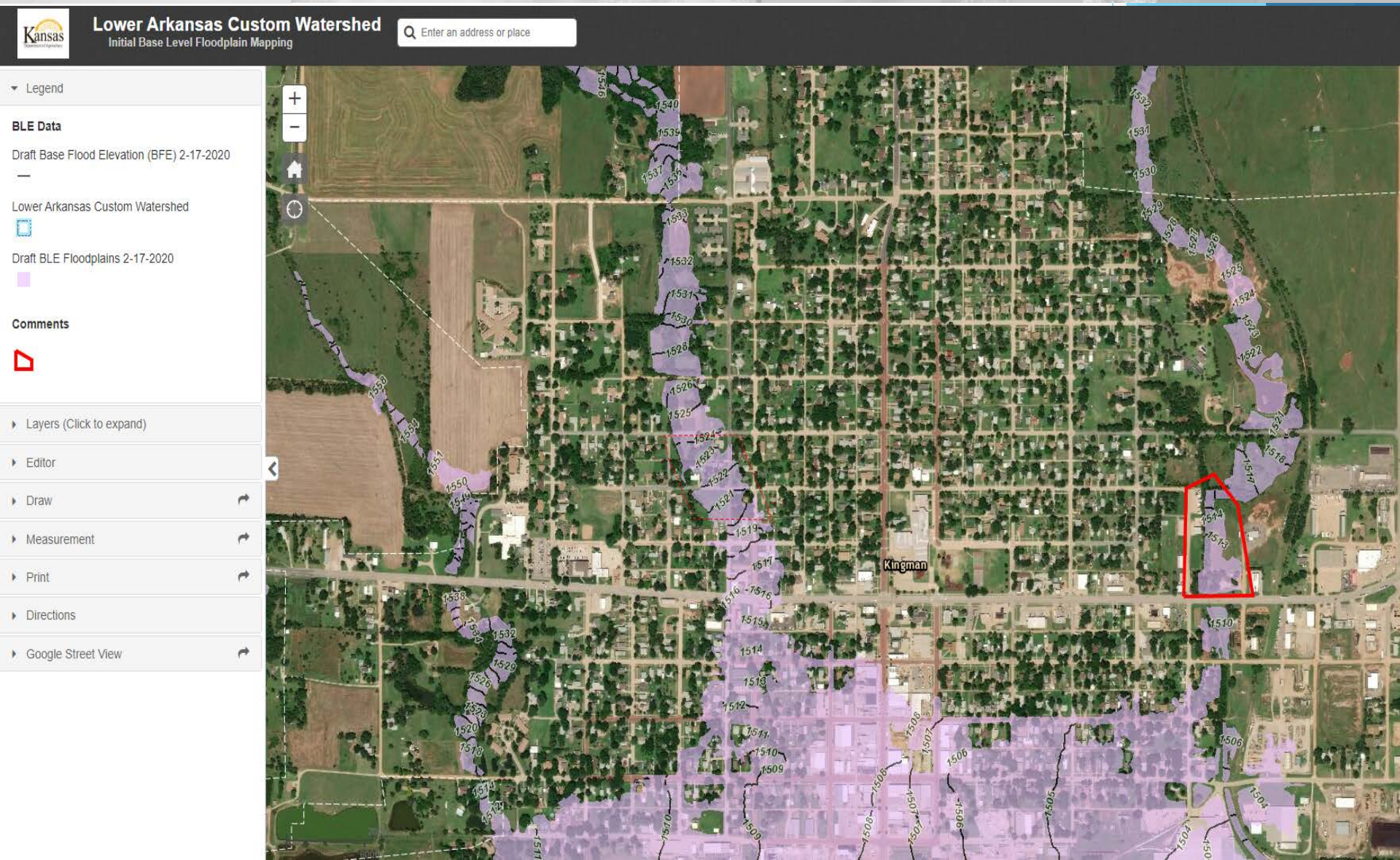


Community Map Review

- Review the Base Level Zone A data to let us know if the floodplains are making sense and are scoped appropriately

- Keep in mind this early BLE floodplain data is subject to change and we are at the very early stages of developing the data
  - Another round of Community Review will Occur after Data Development at the **Flood Risk Review (FRR) Meeting in the Fall of 2020**

Web Map Review



Base Flood Elevation Portal

Kansas Department of Agriculture

Kansas Base Flood Elevation Portal

Home | About | Help

Portal Registration

First Name	
Last Name	
User name	
Title	
Phone	
Email Address	
Address	
City	
Zip	
State	Kansas

Register

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

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

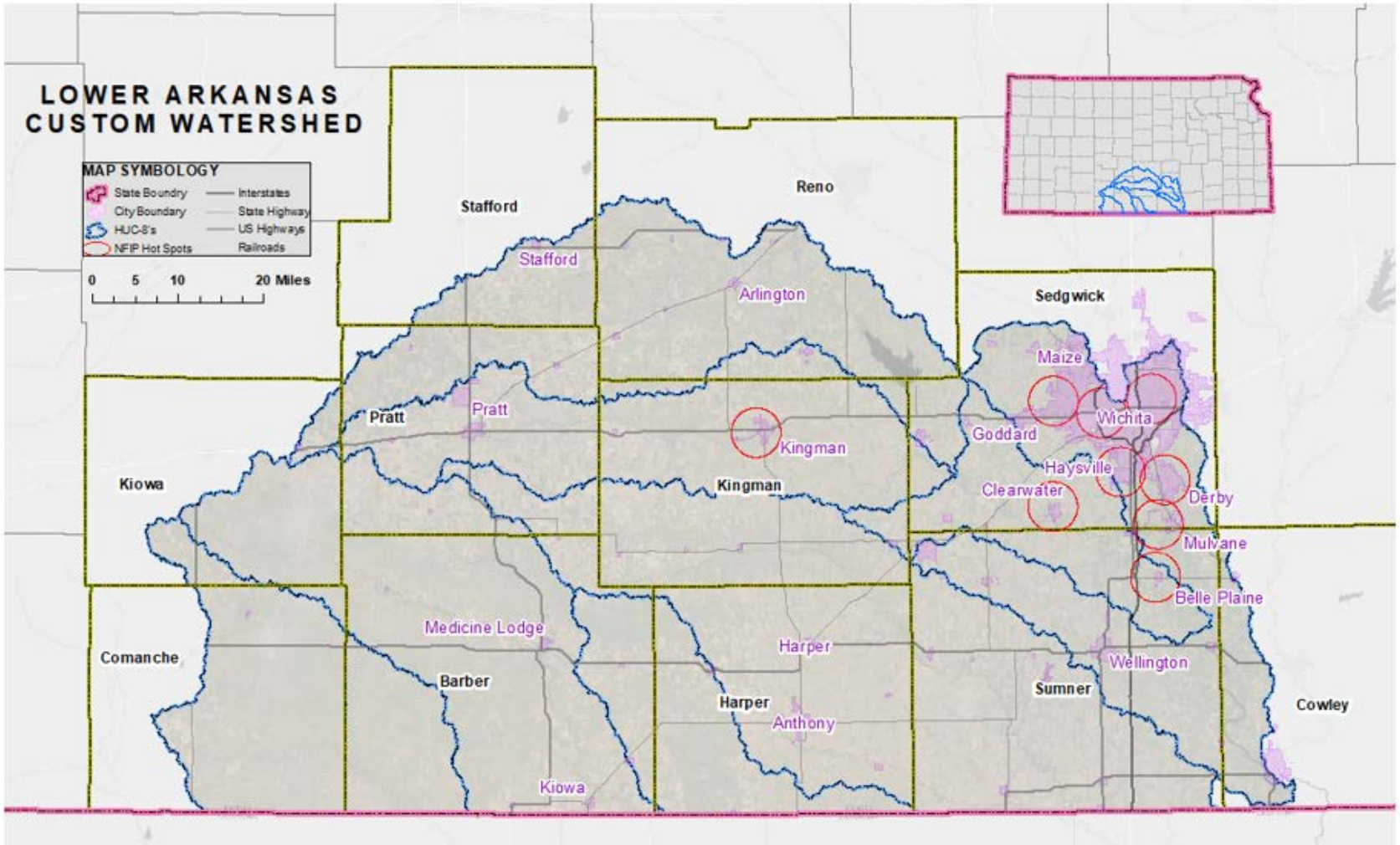
- Updated Imagery
  - Will typically use the latest NAIP Imagery
- Survey or As-Built Plan Information
  - Bridge or Culvert Openings
  - Channel Information
- LOMR's or LOMA's
- Levee Information

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 (2011 for most of watershed)
  - Provide us with survey/as-builts/grading plans for recent development

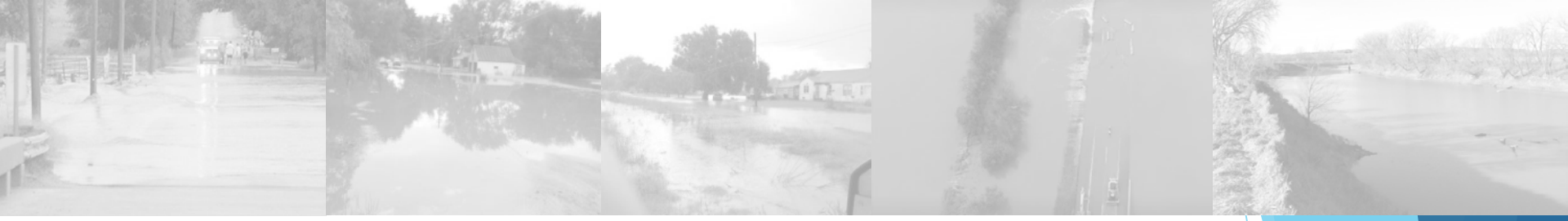
Are there areas where Mitigation should be considered?

A repetitive loss property is any insurable building for which two or more claims of more than $1,000 were paid by the NFIP in any rolling 10-year period. When clusters of repetitive loss properties occur in a community, it may indicate an area of mitigation interest.



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

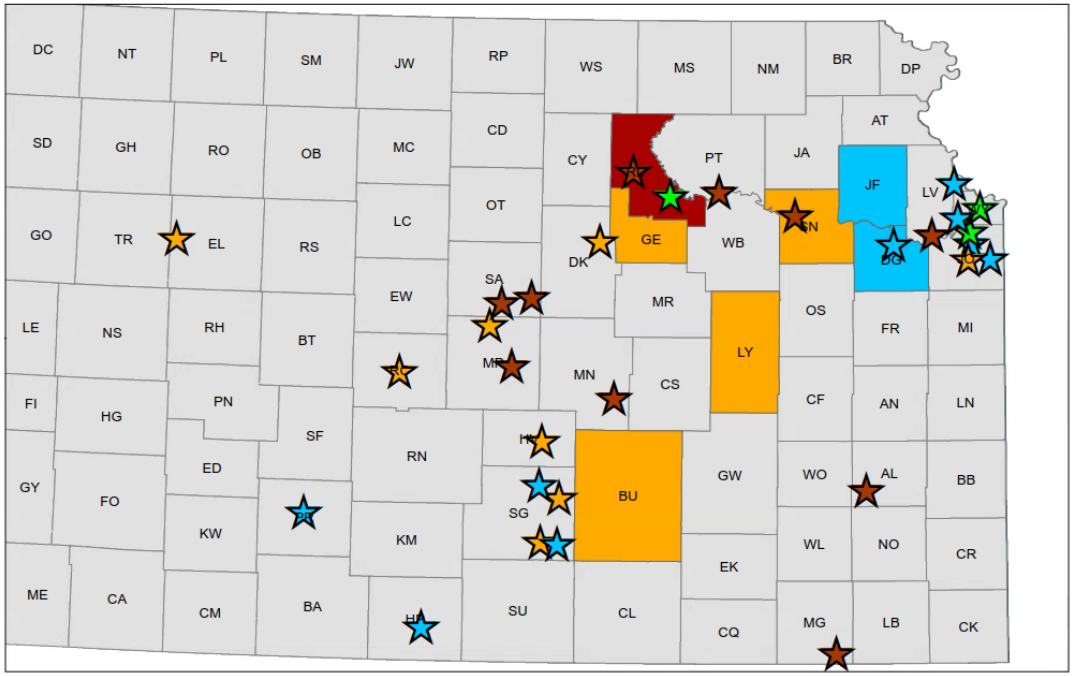
- Funding has been available in recent years from the KS CTP Grant
  - Predefined projects & pot of money to allocate when projects are identified
- Project Types:
  - Modeling infrastructure improvements to see flooding reductions in SFHA
  - Benefit-Cost Analysis (BCA)
  - Structure Based Risk Assessment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

KDA Mitigation Technical Assistance

- CRS is a voluntary program in the NFIP that rewards pro-active communities with discounted flood insurance premium rates.
- CRS Communities in Lower Arkansas Watershed:
  - City of Anthony
  - City of Bel Aire
  - City of Derby
  - City of Haysville
  - City of Pratt

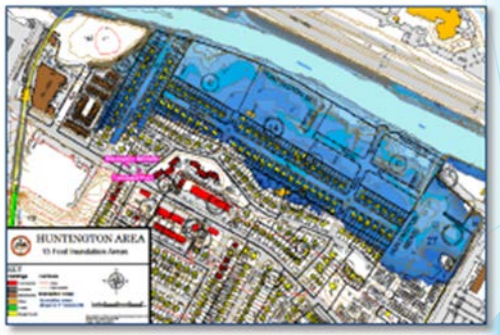


KDA Mitigation Technical Assistance

NFIP/CRS

- Activity 610 (Flood Warning and Response) is based on the principle that an ample warning combined with a flood response plan can prevent loss of life and damage to property.

- CRS Activity 610 (Flood Warning and Response)
  - Maximum Credit: 395 points
  - Community Must Have:
    - Flood warning and response program and flood threat recognition system
    - Flood inundation maps
    - Adopted flood warning response plan



A flood inundation map for a riverine area

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

What Should You Do Next?

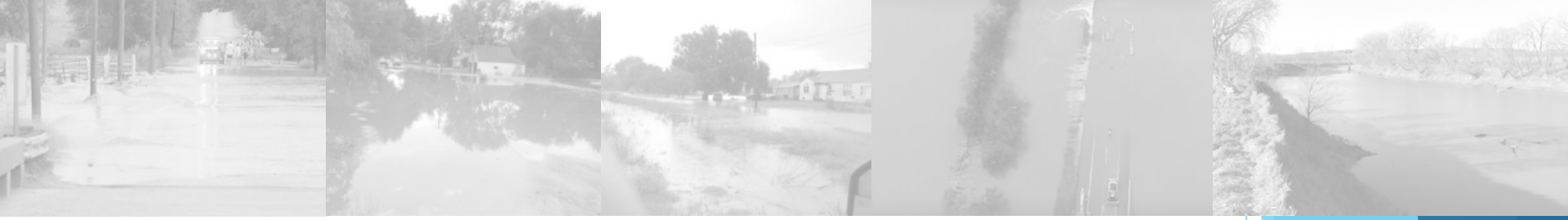
- **Initial Map Review**
  - Review scope for data development projects
  - Review BLE floodplains and comment within 30 days (more if needed).
  - Review stream extents. Are we missing anything?
- **Provide Data**
  - Provide any existing data (Imagery, Surveys, Plans, LOMRs, etc.)
  - Provide information 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

Stay Informed

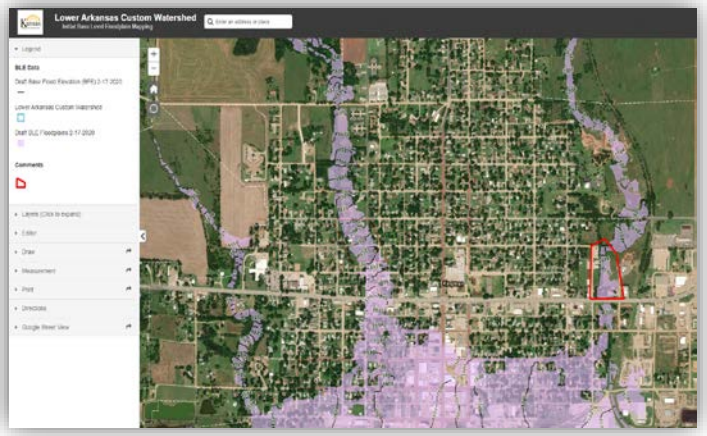
- Email List
  - Get me names, addresses, and titles
  - Will be main source of project updates
- Project Updates
  - Minimum of quarterly
  - When important milestones are reached
  - When action is necessary (reminders)
- Meetings
  - 5 planned in-person meetings
    - Kickoff, Discovery Meeting, Flood Risk Review, Open House, Post-Preliminary CCO meeting
  - Others as needed
- **DON'T HESITATE TO CALL, WE ARE AVAILABLE**

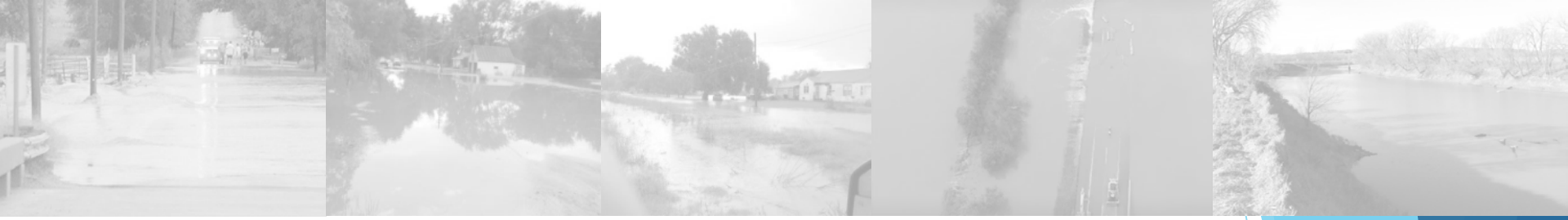
Online Project Information

- **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/lower-arkansas
- **Web Review Map –**
  - Initial Map Review
  - Web map link can be provided to stakeholders
- **Story Maps**
  - Project Info
  - "Floodplain Current": Mapping Process 'Nuts and Bolts'



Web Map Review and Discussion






Questions
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Answers
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