FEMA

WDNR

Kickapoo Watershed Flood Risk Review Meeting

Crawford, Richland, and Vernon counties

January 11, 2024

RiskMAP

Increasing Resilience Together

Zoom Meeting Housekeeping

- **Please enter the organization you belong to in the group chat so that we have a record of all stakeholders who attended**
- **If you were not on the original invite and would like to keep updated, please also include your e-mail with your organization in the chat**
- **You are muted and video turned off upon entry**
- **If you wish to ask a question, raise your hand or type it in chat**

Introductions

- **Risk MAP Project Team, Wisconsin Department of Natural Resources (WDNR)**
  - Ben Sanborn - GIS Project Lead
  - Chris Olds - State Floodplain Engineer
  - Emily Szajna - Floodplain Mapping Program Manager
  - Marc Budsberg - Project Engineer
- **NFIP Coordinator**
  - Sarah Rafajko
- **Regional Engineers**
  - Andrea Stern - Crawford
  - Michelle Hase - Richland and Vernon
- **Wisconsin Emergency Management (WEM)**
  - Heather Thole – State Hazard Mitigation Officer
  - Katie Sommers – Director, Bureau of Policy and Grants
  - Chad Atkinson – Hazard Mitigation Section Supervisor

Introductions

- **Federal Emergency Management Agency (FEMA)**
  - Munib Ahmad – Region V Engineer
  - Gabriel Jackson – Region V Senior NFIP Specialist
  - Meghan Cuneo – Community Planner
  - Troy Christensen – Public Affairs Specialist & Regional Tribal Liaison

Agenda

- **Flood Risk Review**
  - **Project Overview**
  - **Riverine Flood Risk Study and Mapping**
  - **Upcoming Mapping Schedule**
- **Resilience**
  - **Overview of Non-Regulatory Flood Risk Products and Datasets**
  - **Hazard Mitigation**
- **Wrap-up**
  - **Questions**
  - **View Maps**

Meeting Goals

Community input throughout the FEMA map revision process is essential to flood risk management. You are getting the first possible look at the analyses and DRAFT results so that you can provide your feedback early on.

- Provide an overview of the hydrologic and hydraulic analysis
- Present the DRAFT results
- Answer questions about the analysis
- Collect your concerns/feedback/technical data

Other Meeting Objectives

- We are here to assist you in:
  - Using flood map products to develop new strategies to reduce your risk
  - Understanding the resources available to help you implement those strategies
  - The importance of and opportunities for communicating flood risk to your constituents

Risk MAP

- **What is Risk MAP?**
  - Risk **M**apping, **A**ssessment, and **P**lanning
  - Supports community resilience by providing data, building partnerships, and supporting long-term hazard mitigation planning.
  - Offers a way to understand the hard realities of hazards before they happen and how to take actions now that help keep your community safe.
  - Builds off previous FEMA map revision projects

The mapping process is designed to help individuals and communities understand their flood risk and make smart decisions.	• Your community is working with FEMA to help design a map that can protect your community and the families, homes, and business within it. • The mapping process has many phases so it may be many years before you see the updated flood map. • The MAP acronym encompasses Mapping, Assessment, and Planning. In other words, helping identify and assess the risks in your area and then working together to support the kind of long-term planning that makes your community stronger and safer.

Risk MAP Project Status

- **Current effective mapping**
  - Crawford: 2010, 2015
  - Richland: 2016
  - Vernon: 2012
  - *Monroe will have a meeting at a future date*
- **Where have we been?**
  - Discovery Meeting – March 26, 2018
    - Learning about flood risk and mitigation needs
    - Data collection and analysis to aid in determining the need for a new Risk MAP project
  - Kickoff Meeting – January 13, 2022
    - Overview of Risk MAP process, basic NFIP information, Kickapoo Watershed project timeline, areas to be studied and hazard mitigation planning status

Engineering Methods

- The methods used in flood risk studies are
  - scientifically and technically appropriate
  - meet professional standards
  - explained in the ‘620’ letter sent to communities in December 2021

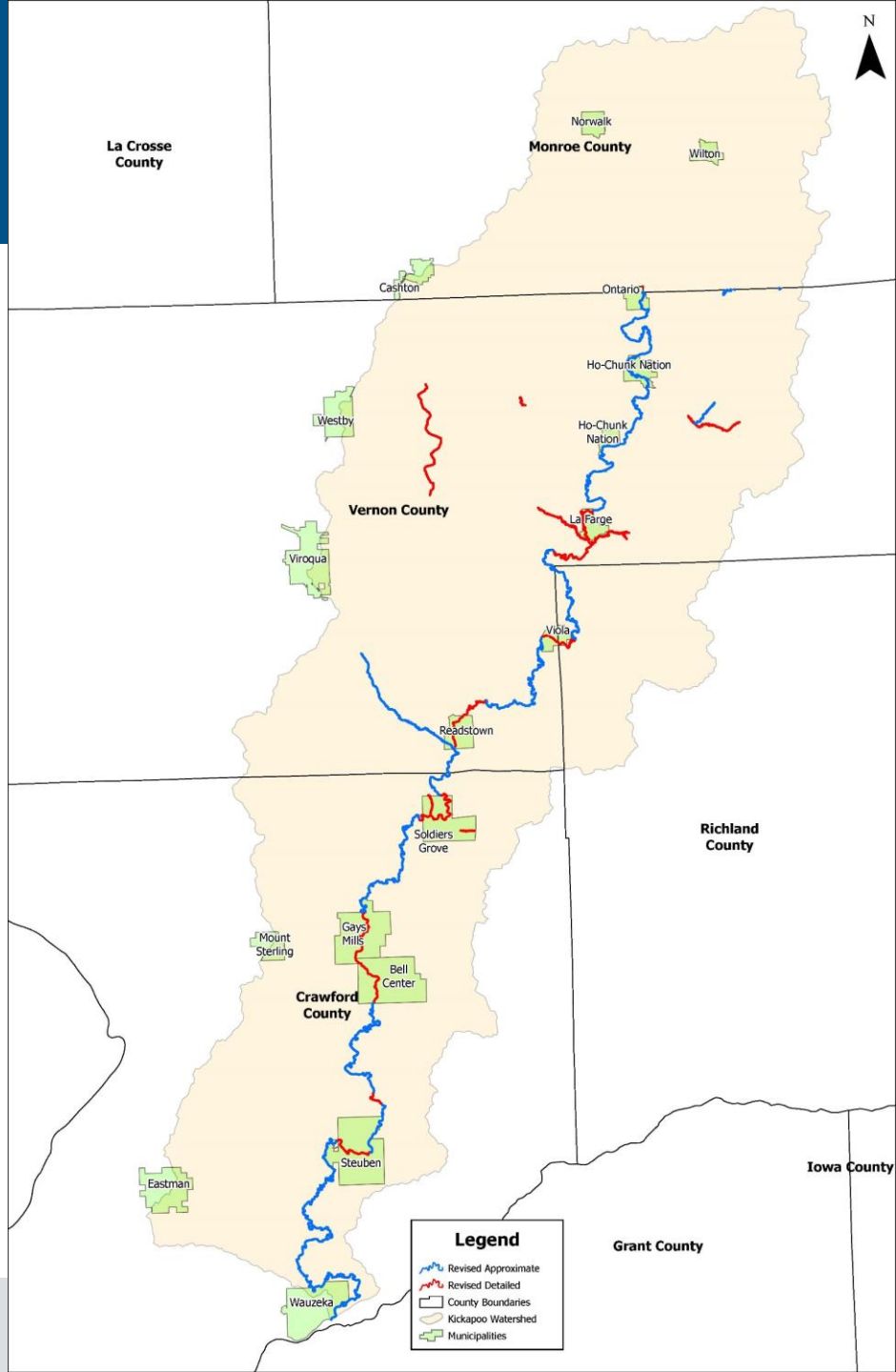
- Hydrologic and hydraulic studies determine
  - the potential depth of floodwaters
  - width of floodplains
  - amount of water that will be carried during flood events
  - also takes into consideration certain obstructions to water flow

Revised Study Reaches

Crawford
- Revised Detailed: 14.7mi
- Revised Approximate: 44.7mi

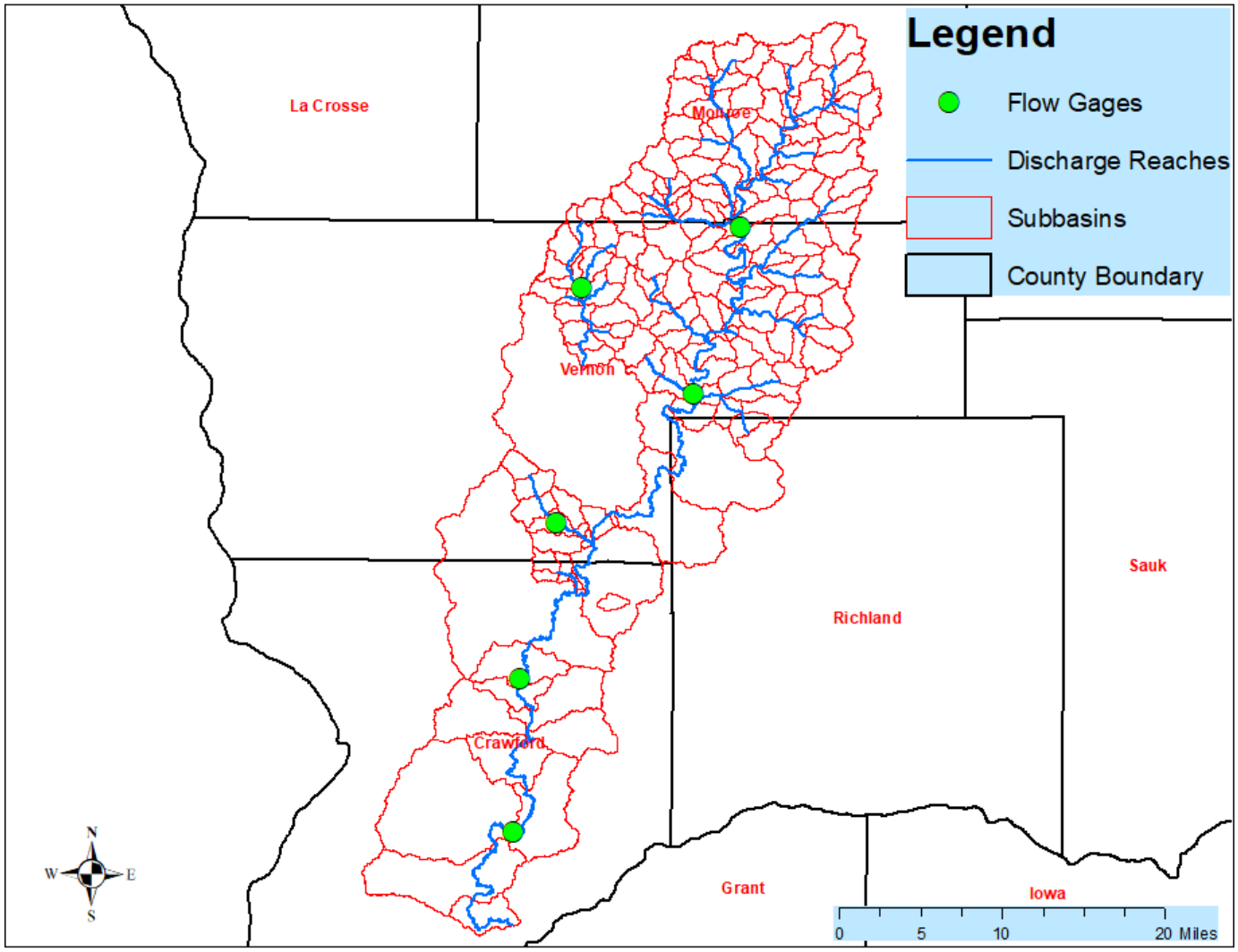
Richland
- Revised Detailed: 1.4mi
- Revised Approximate: 5.7mi

Vernon
- Revised Detailed: 28.6mi
- Revised Approximate: 44.4mi



Hydrology

- HEC-HMS v. 4.8
- HEC-SSP 2.2



Detailed Study Hydraulics

- **HEC-RAS v. 6.2**
- **Structures & Channel Bathymetry:**
  - Surveyed in 2022
- **Channel overbank geometry extracted using HEC-GeoRAS and LiDAR**
- **NAVD88 vertical datum**
- **Interpolated cross sections where necessary for model stabilization**
- **Ineffective flow used to model floodways in non-conveyance areas**
- **Manning's N values estimated from aerial photography**
- **Boundary conditions:**
  - Receiving stream corresponding event elevation when peaks coincide
  - Normal depth when stream downstream of last cross section is unstudied or when receiving stream peak does not coincide

Approximate Study Hydraulics

- **HEC-RAS v. 6.3**
- **Structures:**
  - Entered as bridges/culverts where DOT plans available
  - Entered as inline structures with a notch width estimated from aerial photos
- **All geometry extracted using HEC-GeoRAS and latest available LiDAR**
- **NAVD88 vertical datum**
- **Interpolated cross sections where necessary for model stabilization**
- **Ineffective flow used to model floodways in non-conveyance areas**
- **Manning's N values estimated from aerial photography**
- **Boundary conditions:**
  - Receiving stream corresponding event elevation when peaks coincide
  - Receiving stream 10-year event when receiving stream peaks after studied stream
  - Normal depth when stream downstream of last cross section is unstudied

About Flood Maps (FIRMS)

Ultimately, your flood maps belong to you and the other people who live and work in your community. They are created through a partnership between your community and FEMA.

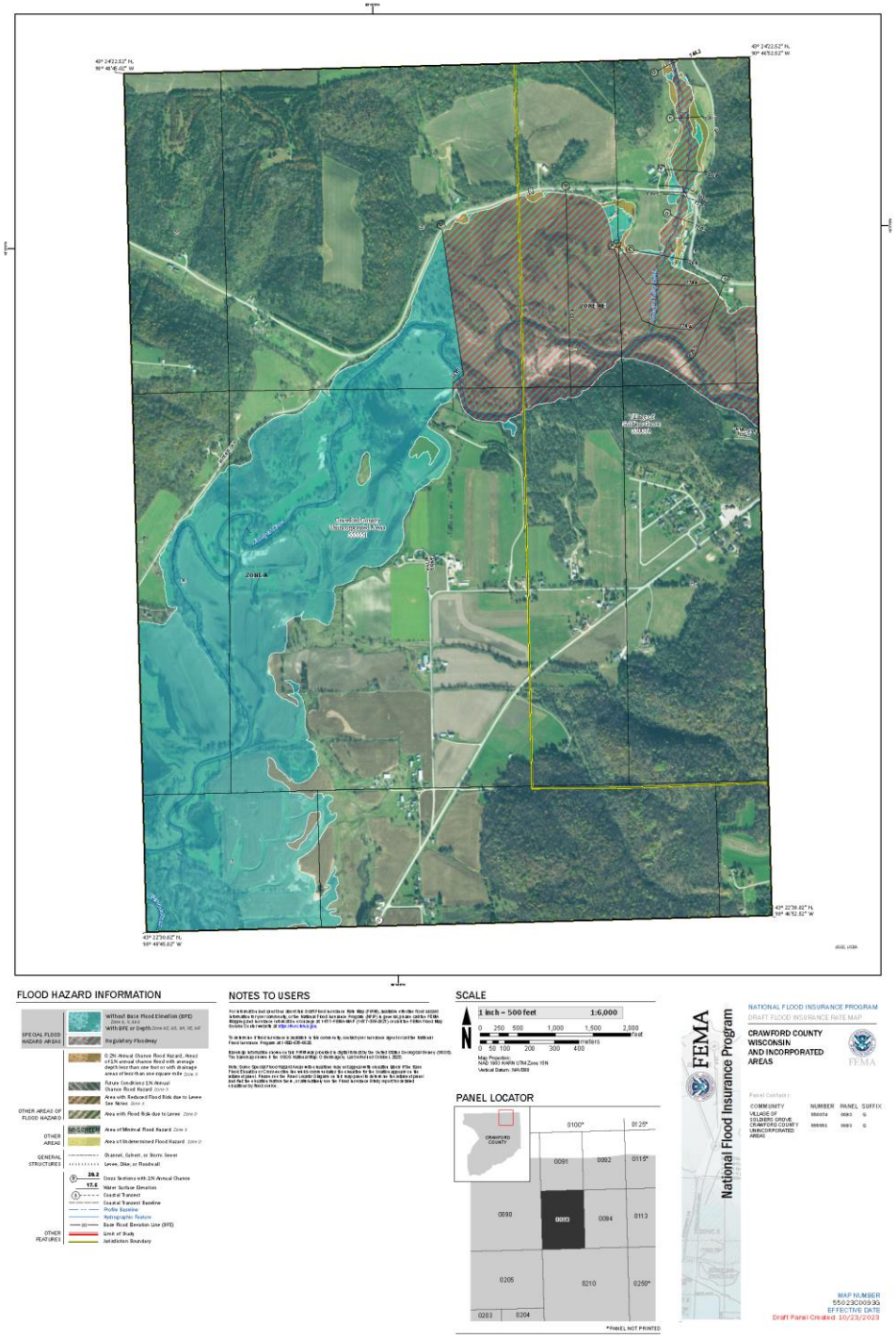
- Updates to flood maps are a collaboration between your community and FEMA. It's a lengthy process; FEMA provides the technology and relies on your community's leaders to share local knowledge and plans to make the maps as accurate as possible.
- Before the maps are adopted, you have 90 days to submit technical data to support a request to revise the FIRM though the appeals process.
- Once your maps are adopted, you can still submit data to amend or revise the flood map as part of the Letter of Map Change (LOMC) process.

- FIRMs are not predictions of where it will flood or only show where it's flooded before.
  - They provide a snapshot in time of risk.

FEMA uses the best data available to help communities understand their risk. This data is a combination of the information your community provides and FEMA's own scientific research and analysis.

- The methods employed in flood risk studies are scientifically and technically appropriate and the engineering practices meet professional standards. The results are accurately represented on FIRMs and associated products.
- FEMA's flood hazard analysis and mapping standards and associated guidance are vetted, peer reviewed, and updated regularly to ensure they align with current best practices.

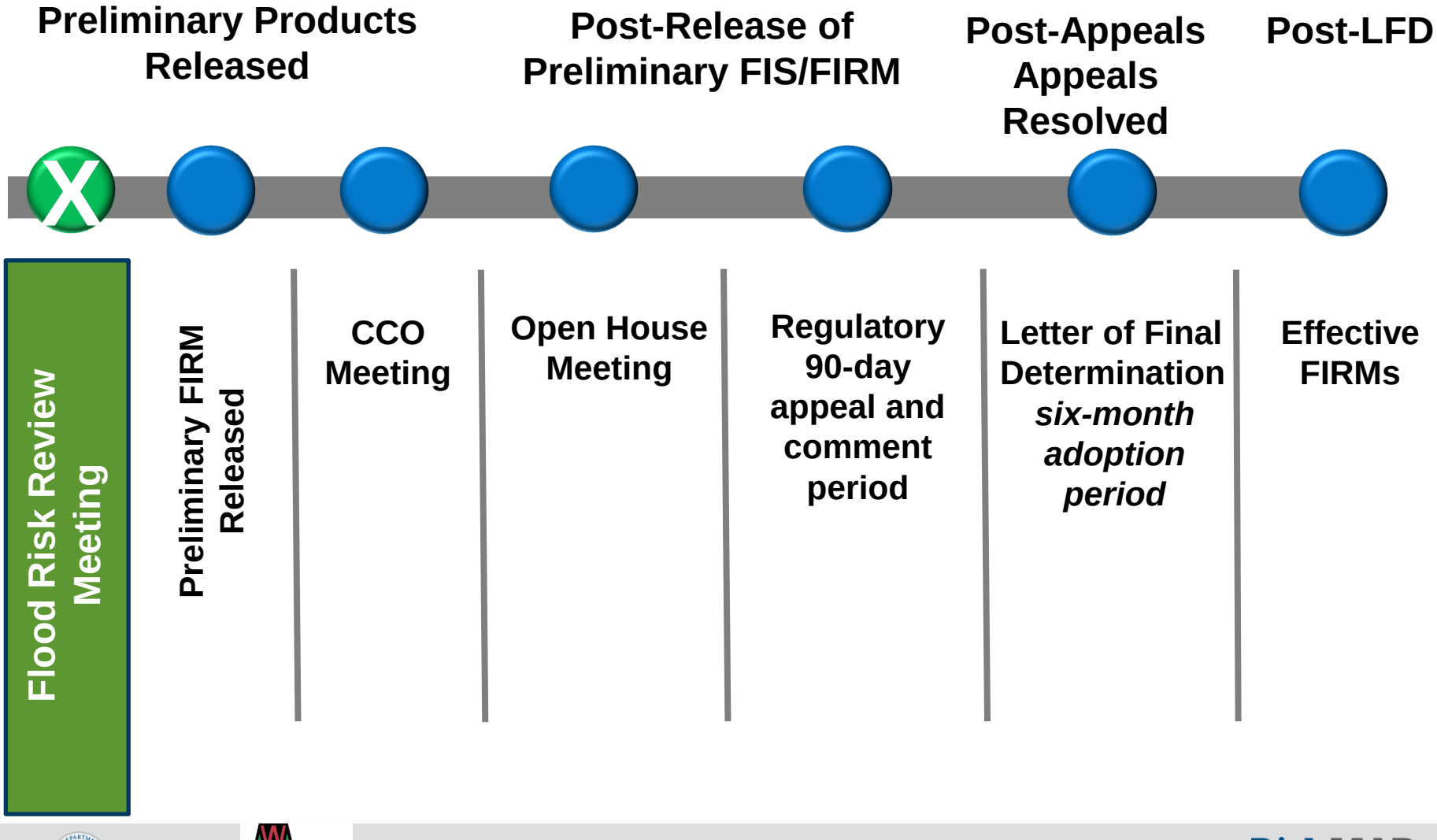
DRAFT Workmaps



FEMA

RiskMAP
Increasing Resilience Together

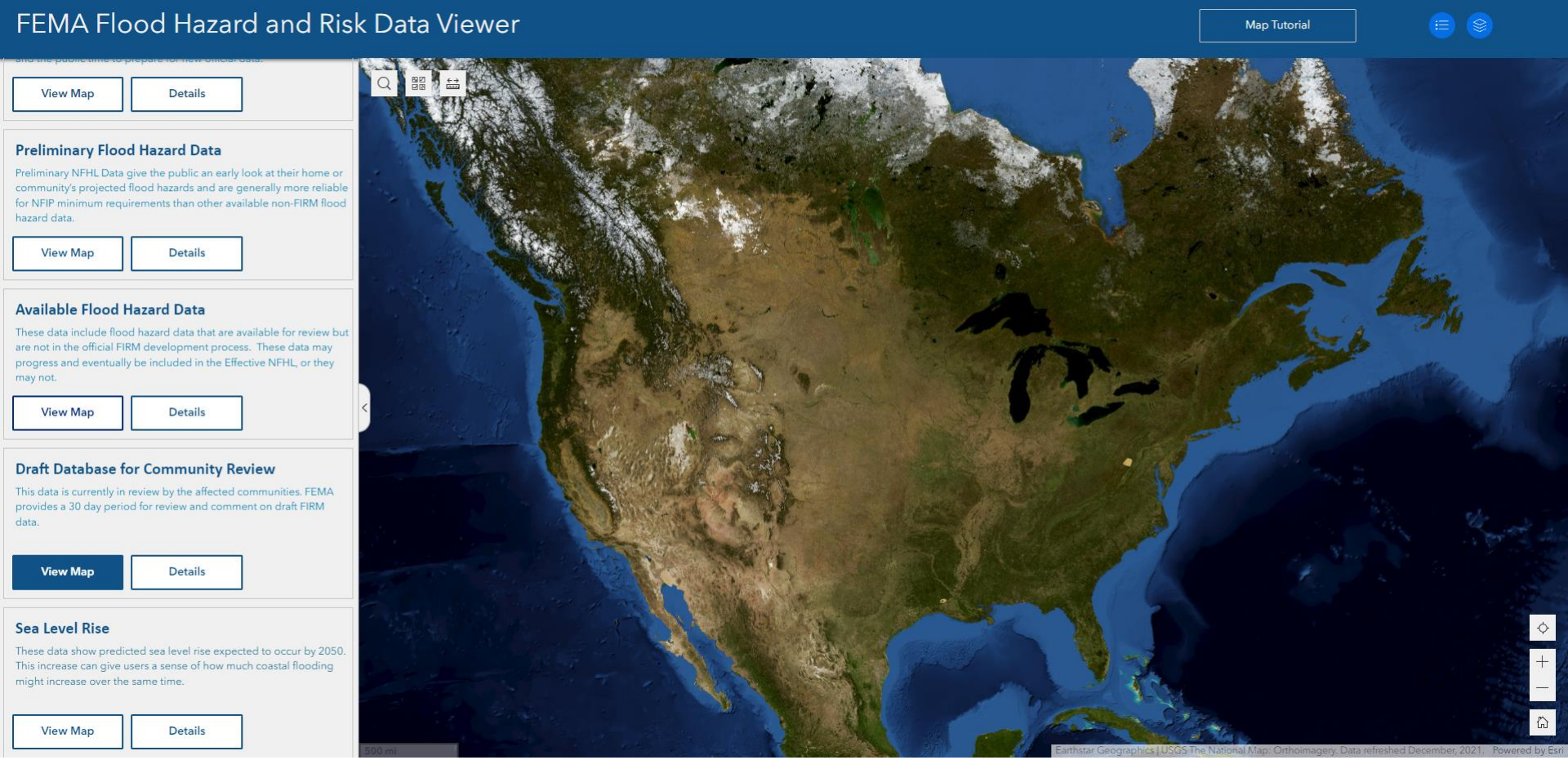
Timeline for Kickapoo Watershed Study



What's Next?

- **Review maps/models**
- **Work on preliminary map products**
- **A follow-up email with resources and links will be sent if necessary**

Viewing DRAFT data online



https://msc.fema.gov/draft

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RiskMAP

Increasing Resilience Together

Resilience

- What is resilience in this context?
- Mitigation action plays an integral role in your community's resilience.
- Along with updated flood maps, you are receiving other Flood Risk Products to help you make decisions about how to keep your residents safe.

Non-Regulatory Flood Risk Products and Datasets

- **Flood Risk Products**
  - Flood Risk Database
- **Flood Risk Datasets**
  - Changes Since Last FIRM (CSLF)
  - Areas of Mitigation Interest (AOMI)
- **Flood Risk Rasters**
  - Depth Grids
  - WSE Grids
  - Percent Annual Chance of Flooding
  - Percent Chance of Flooding over 30-Year Period

Changes Since Last FIRM

- **Highlights areas where floodplain/floodway has increased or decreased**

Floodway Change
- Floodway Increase
- Floodway Decrease

Special Flood Hazard Area Change
- Special Flood Hazard Area Increase
- Special Flood Hazard Area Decrease

Non-Special Flood Hazard Area Change
- Non-Special Flood Hazard Area Increase
- Non-Special Flood Hazard Area Decrease

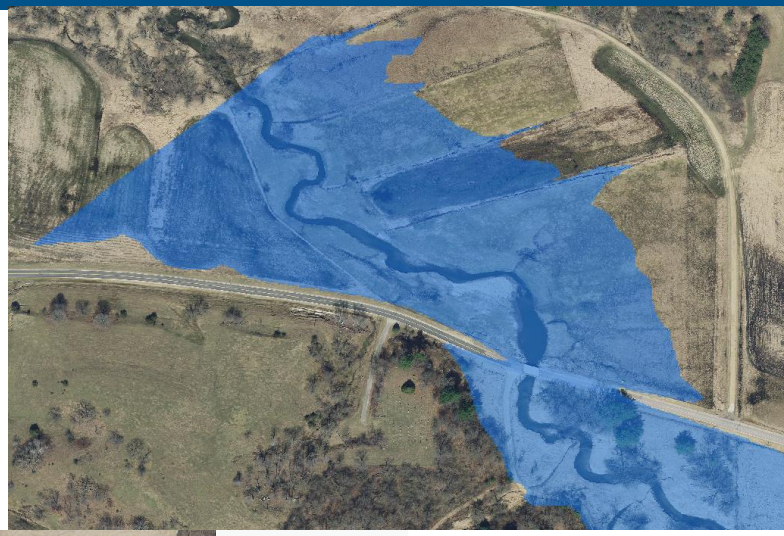
Areas of Mitigation Interest (AOMI)

Locations of features of interest from a potential mitigation standpoint

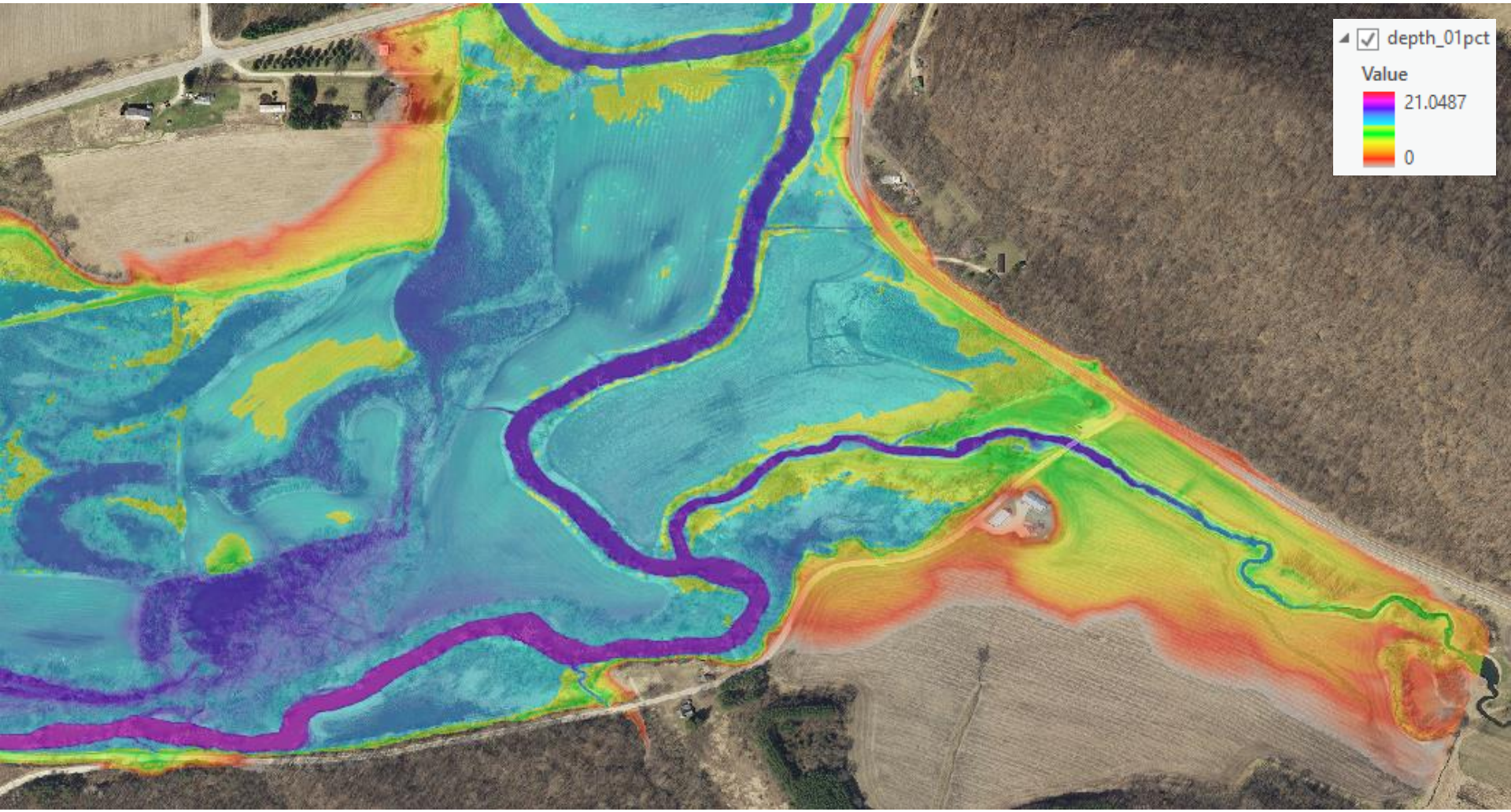
Examples:

- **Wauzeka Wastewater Treatment Facility**
- **Gays Mills Dam**

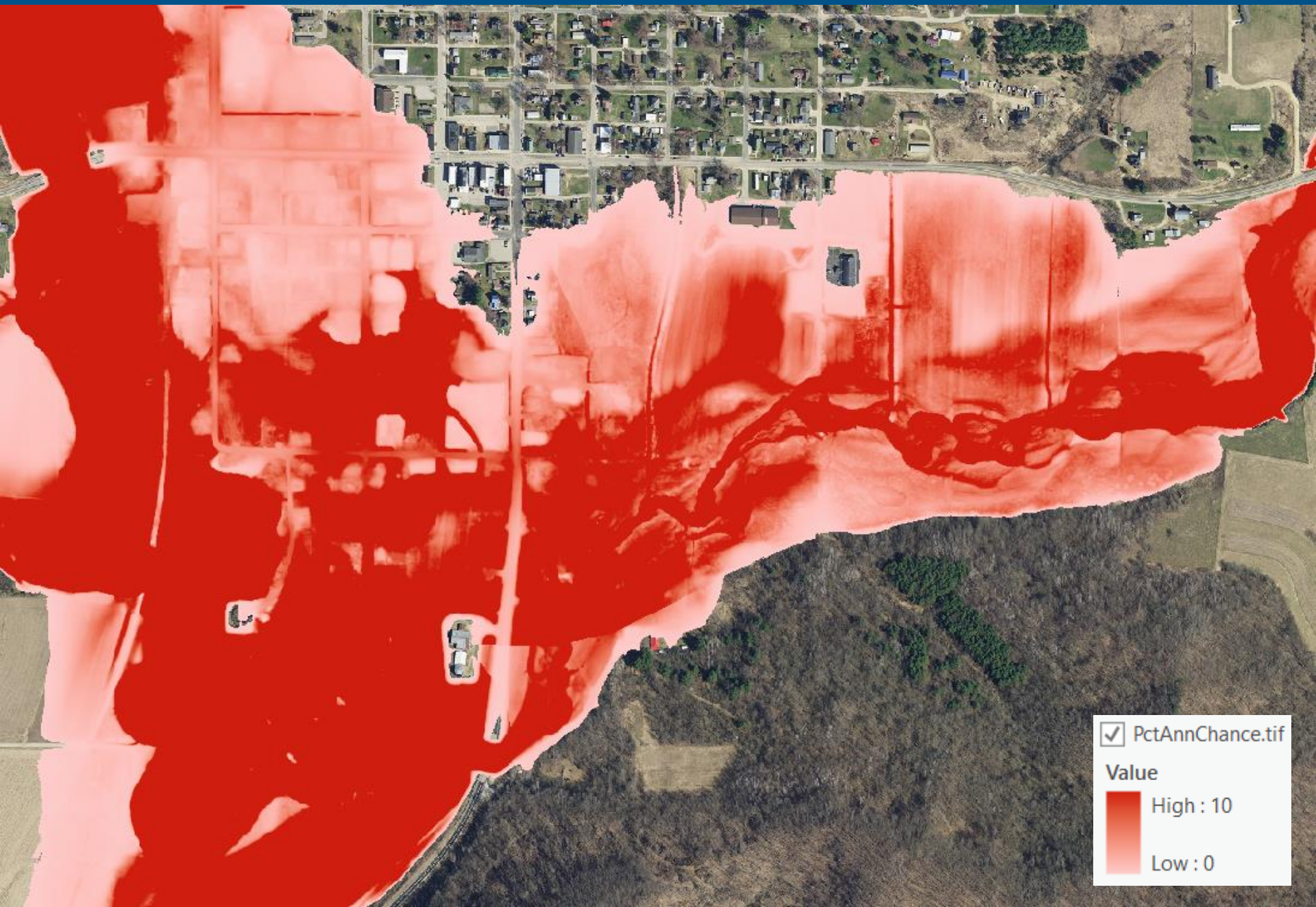
Water Surface Elevation Grids



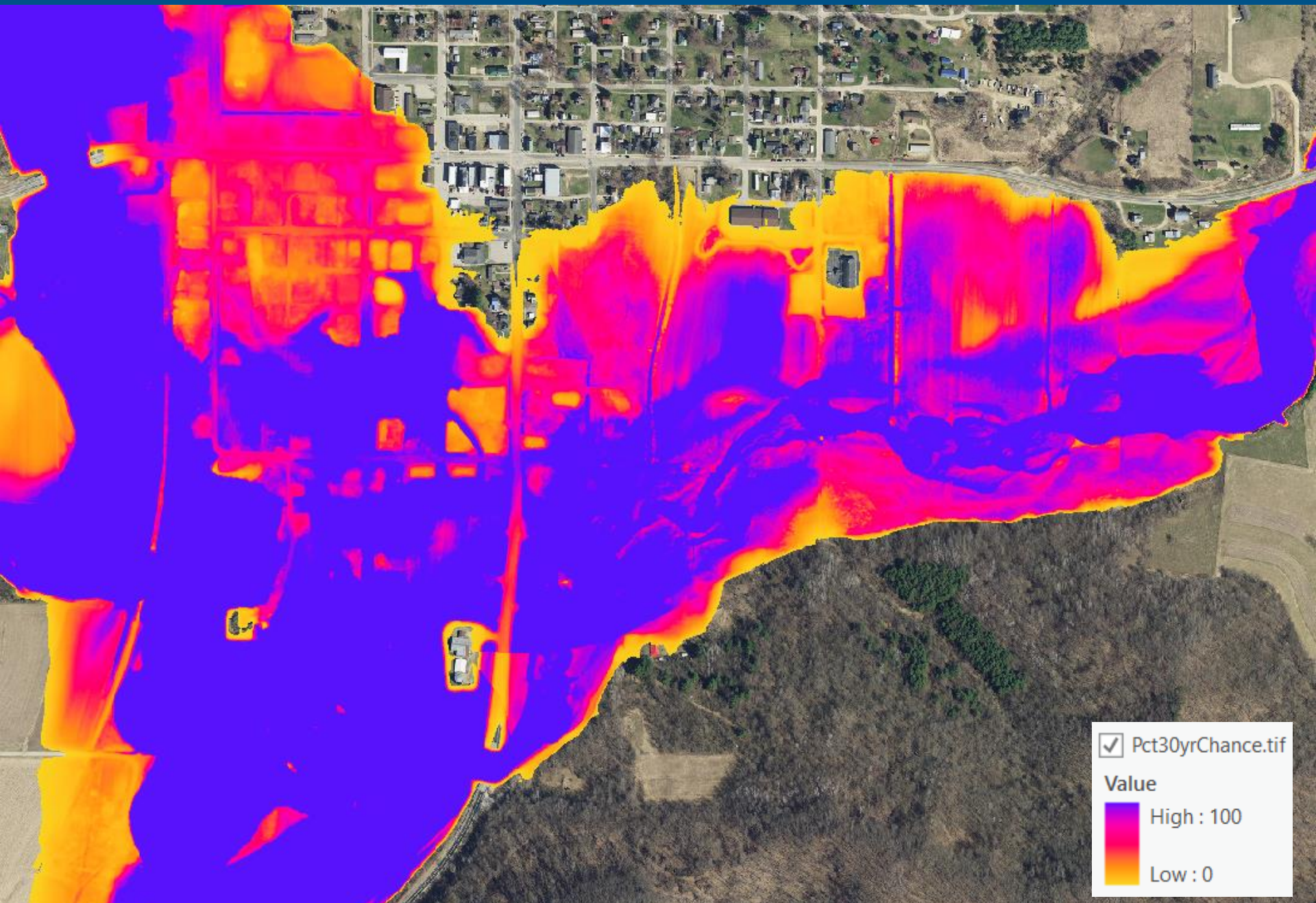
Depth Grids



Percent annual chance of flooding



Percent chance of flooding over a 30-yr period



Applications of Non-Regulatory Products

- **Contributes to a better understanding of current and possible future flood risk in your community**
- **Leads to more informed decisions in higher risk areas**
- **Floodplain managers could use this data for advising the local elected officials (ex. adopting more freeboard)**
- **Provides a new perspective for property owners to view their flood risk**
- **Used to help develop mitigation strategies**

Understanding your Flood Risk

You can think about flood risk the same way you think about accidents. No one is safe from the occasional accident. They are unpredictable and can be minor or have terrible consequences. Similarly, floods can impact anybody anywhere with catastrophic results.

- For anyone living in a high-risk area, or anyplace with a 1-percent or higher risk of experiencing a flood each year, there is at least a 1 in 4 chance of flooding during a 30-year mortgage.
- There is no such thing as a no-risk zone, but some areas are designated as low or moderate risk.
- Understanding flood risk may seem complicated, but it doesn't have to be. There are resources to help you get up to speed. FloodSmart.gov is a great place to learn general flood info and your community officials can help you understand flood risk in your area.

- Hazard is NOT the same as risk.
  - Hazards are things that cause harm. i.e. floods, fires
  - Risk is the chance that a hazard will actually cause harm

Understanding your Flood Risk

- Even in moderate- to low-risk areas, the risk of being flooded is not completely removed only reduced.

Remember….

Anywhere it can rain, it can flood and everyone should consider taking steps to reduce their risk!

Strategies to Reduce your Flood Risk

There are many strategies you can take to reduce your flood risk

- **Prevention**
  - Affects future development
  - Includes ordinances and building codes
- **Property protection**
  - Affects existing development
  - Includes elevation and acquisition
- **Public education and awareness**
  - Informs people about risk
  - Includes outreach activities
- **Natural resource protection**
  - Protects water quality
  - Protects Habitats
  - Restores resources
- **Emergency services protection**
  - Protects critical facilities
- **Structural projects**
  - Involves construction
  - Includes berms
  - Includes altering stream routes

Communicate About Your Risk

- **Flood risk awareness:**
  - Leads to action
  - Increases overall community resilience
  - Builds support for implementing the mitigation plan
- **Your constituents:**
  - Expect to hear about flood risk from officials, lenders, insurance agents, surveyors, and real estate agents
  - Will talk about flood risk impacts with neighbors, friends and family

Communicate About Your Risk

- **Risk MAP makes it easier to share flood risk information with your constituents:**
  - Draft letters to citizens
  - Draft media materials
  - Use the Risk MAP products to communicate risk
    - Changes Since Last FIRM
    - Areas of Mitigation Interest (AOMI)
    - Depth and Analysis Grids
  - Local community meetings, workshops, neighborhood outreach
  - Have a Flood Risk section in your local library

Hazard Mitigation Actions

- **FIRMs and Non-Regulatory Products help identify flood risk in your community.**
- **Communities should use this information to identify mitigation actions.**

There are many ways you can protect your community. Mitigation is the broad term for the wide range of steps that individuals and the local government can take to reduce the impact of floods or other risks.	• There is a wide range of mitigation action options. Communities frequently focus on planning and zoning, floodplain protection, property acquisition and relocation, or public outreach projects. • Individual property owners can also take steps to mitigate flood damage to their homes and businesses. Some are larger in scope and require professional help, like elevating their home's lowest floor. However, smaller tasks like purchasing flood insurance or using flood-resistant materials, like tile instead of carpet, are more cost-effective and still prevent water from doing major damage.

- **Long-term hazard mitigation planning and projects enable communities to break the cycle of disaster damage, reconstruction, and repeated loss.**

Hazard Mitigation

Risk MAP Kickapoo River Watershed
January 2024

What is Mitigation?

According to the Federal Emergency Management Agency (FEMA):

"Mitigation is any sustained action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards."


Photo from Kenosha County


Photo from Soldiers Grove, WI

Value of Mitigation

For every $1 spent on flood mitigation,
$6 is saved in future damages;
$7 for riverine flooding.

National Institute of Building Sciences
Natural Hazard Mitigation Saves: 2019 Report

Examples of Mitigation

Acquisition/Demolition

Communities acquire land, demolish structures, and deed restrict the land to open space in perpetuity.

Images from Darlington, WI

Elevation

Elevation raises a structure out of the floodplain.

Images from Soldiers Grove, WI

Floodwall

Floodwalls can prevent water from inundating structures that cannot be elevated, relocated, or demolished.

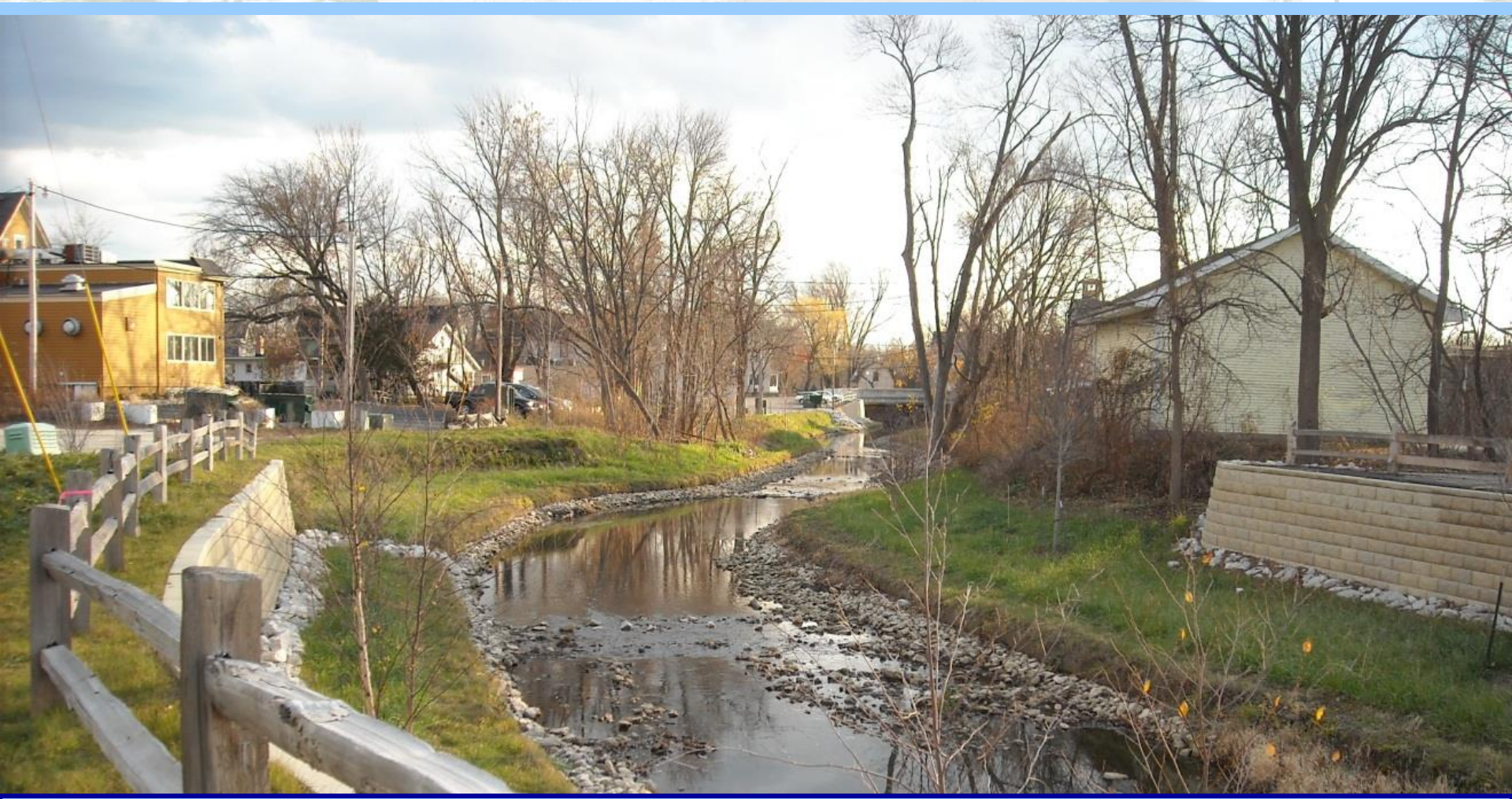
Image from Darlington, WI

Stormwater Retention/Detention

Detention/retention ponds can store storm water runoff, decreasing flash flooding in urban areas.

Image from Oshkosh, WI

Stormwater

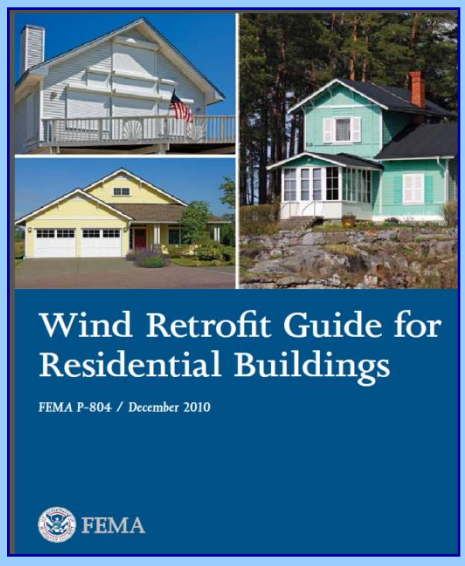


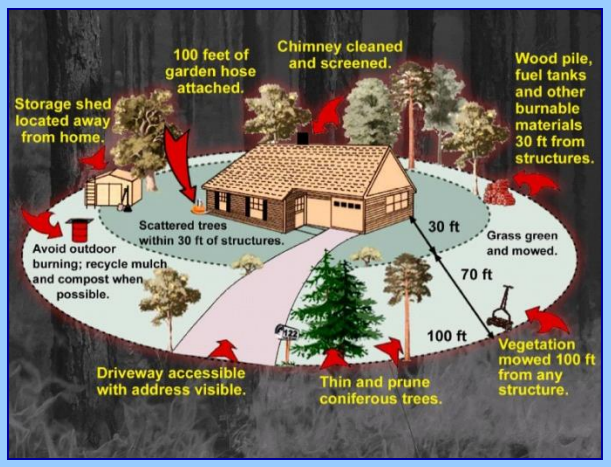
Stream restoration allows watersheds to better manage flooding.

Image from Theinsville, WI

Other Ideas

Mobile Home Tie-Downs





Proper Landscaping

- Tornado safe room
- Utility protection
- Raise appliances and utilities
- Install back-flow valves
- Retrofit for wind resistance
- Education and public awareness
- Insurance (flood and sewer backup)
- Land-use planning

Mitigation Assistance Grant Funding

FEMA Hazard Mitigation Assistance

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- Congressionally Directed Spending (LPDM)

Hazard Mitigation Grant Program

HMGP

- All-hazards, post-disaster program
- Available statewide with priority in impacted area
- 20% of funds allocated for Public and Individual Assistance
  - Wisconsin has an "Enhanced" State Hazard Mitigation Plan (normally 15%)

Building Resilient Infrastructure and Communities

BRIC

- Annual, national competition for all-hazards
- FFY23: $1 billion
- State allocation:
  - $2 million for highest priority projects
    - $1.5 million for planning, project scoping, studies
    - $400,000 for CDRZs (discussed later)
  - $2 million for building code projects
- Tribal allocation: $50 million

Flood Mitigation Assistance

FMA

- Annual, national competition
- FFY23: $800million
- Flood mitigation only
- Mitigation to NFIP insured structures
- Priority for repetitive loss and severe repetitive loss structures

Congressionally Directed Spending

LPDM (Legislative Pre-Disaster Mitigation)

- **Annual(?), congressional appropriation**
- **All hazards pre-disaster mitigation program**
- **FFY23: $233,043,782 directed to 100 congressionally selected projects**

Eligible Sub-Applicants

Entity	Program Name			
	HMGP (HAZARD MITIGATION GRANT PROGRAM)	BRIC	FMA (FLOOD MITIGATION ASSISTANCE)	LPDM
State Agencies	√	√	√	√
Tribal Governments	√	√	√	√
Local Governments	√	√	√	√
Private Non-Profit Organizations (PNPs)	√			

Cost Share

Programs	Mitigation Project Grant (Percent of Federal/Non-Federal Share)	Management Costs	
		Recipient (10%)	Subrecipient (5%)
HMGP	75/25	100/0	100/0
BRIC	75/25	100/0	100/0
BRIC – Subrecipient or tribal recipient is an economically disadvantaged rural community or CDRZ	90/10	100/0	100/0
FMA	75/25	75/25	75/25
FMA – repetitive loss property	90/10	90/10	90/10
FMA – severe repetitive loss property	100/0	100/0	100/0
LPDM	75/25	100/0	100/0
LPDM – Sub-grantee is a small impoverished community	90/10	100/0	100/0

The state contributes half of the non-federal share for HMGP!

Local Match

Can be provided by any source except federal funds or match for other federal funds

- ICC (Increased Cost of Compliance) funds
- Property owners
- Volunteer and in-kind
- State programs (CDBG, DNR Municipal Flood Control)
  - CDBG is pass-through money and loses federal identity

Requirements

- Participating in the NFIP and in good standing
- Considered other alternatives
- Environmentally-sound
- Cost-effective
- Solves the problem
- Plan requirement

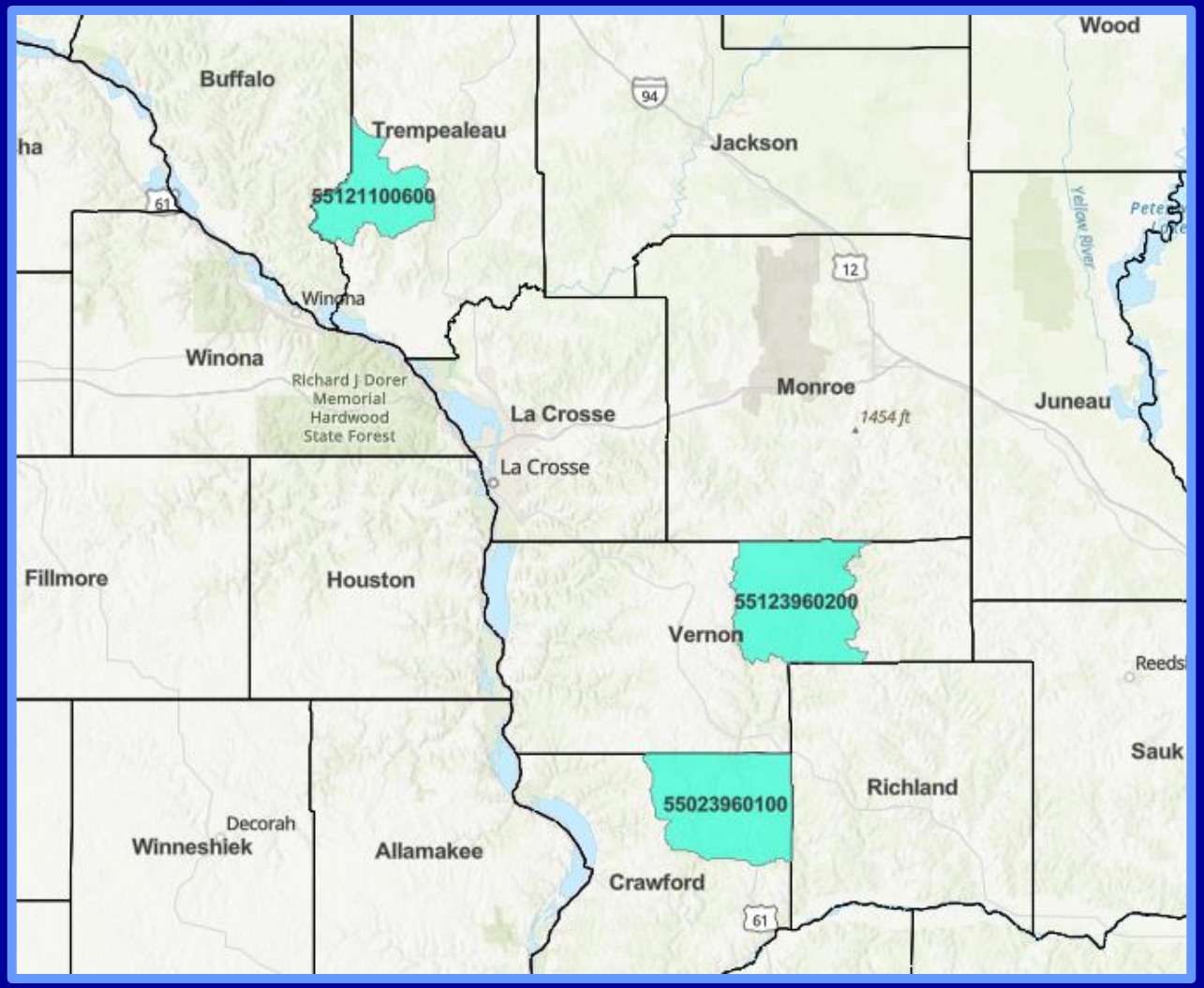
Town of Clover, WI

CDRZs

Community Disaster Resilience Zones

- Congressionally-mandated
- Risk + vulnerability
- Tribal CDRZs forthcoming
- 5 years
- 90/10 cost share
- $400,000 allocation
- BCA assistance

Community Disaster Resilience Zones



Helpful Websites

- **WEM Hazard Mitigation:** https://wem.wi.gov/mitigation-resources/
- **FEMA Hazard Mitigation Assistance:** https://www.fema.gov/grants/mitigation
- **FEMA Hazard Mitigation Planning:** https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning

Questions?

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Questions & Discussion

- **Maps, Scheduling**: Ben Sanborn
- **NFIP, Ordinance**: Sarah Rafajko
- **Engineering**: Chris Olds, Marc Budsberg
- **Mitigation, Emergency Management**: Heather Thole, Katie Sommers, Chad Atkinson

Thanks for participating! We'll be communicating again soon.