



Gauley & Lower New Watershed Flood Risk Discovery Meeting

FEMA REGION III
July 25 - 26, 2023



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Why Are We Here?

- Discuss flood risk changes
- Gather local information
- Collaborate on planning, taking action, and communicating risk



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Agenda

- **Welcome and Overview**
- **The National Flood Insurance Program and Flood Risk Data**
- **Flood Risk Study Project and Discovery Overview**
- **Reducing Flood Risk in Communities**
- **Next Steps**
- **Risk and Action Identification Exercise**



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Introductions

- **Name**
- **Municipality or organization**
- **Role in floodplain management**



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The National Flood Insurance Program and Flood Risk Data



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National Flood Insurance Program (NFIP)

- Allows property owners to purchase flood insurance at reduced rates
- State and local governments agree to adopt and enforce floodplain management ordinances
- Over **22,616 communities** participate in the NFIP*
- Over **5 million policies in the NFIP**, >14,700 in WV*

*Data current as of April 2023: FEMA Community Status Book.



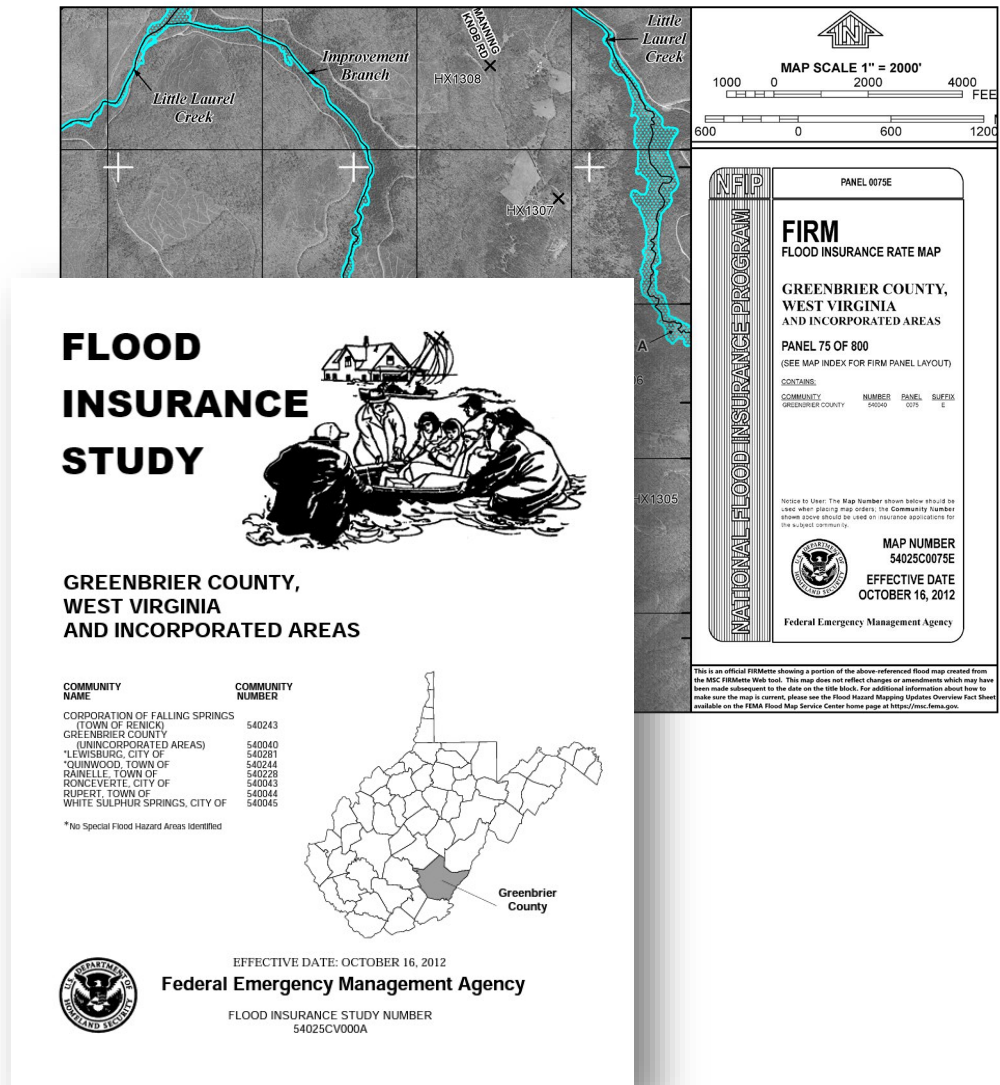
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Flood Insurance Rate Maps and Studies

Key Terms:

- Flood Insurance Rate Map (**FIRM**)
- Flood Insurance Study (**FIS**) Report
- Special Flood Hazard Area (**SFHA**)
- Flood Zone
- Base Flood Elevation (**BFE**)
- Regulatory Floodway
- Cross Section



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Typical FIRM Panel and Flood Zones

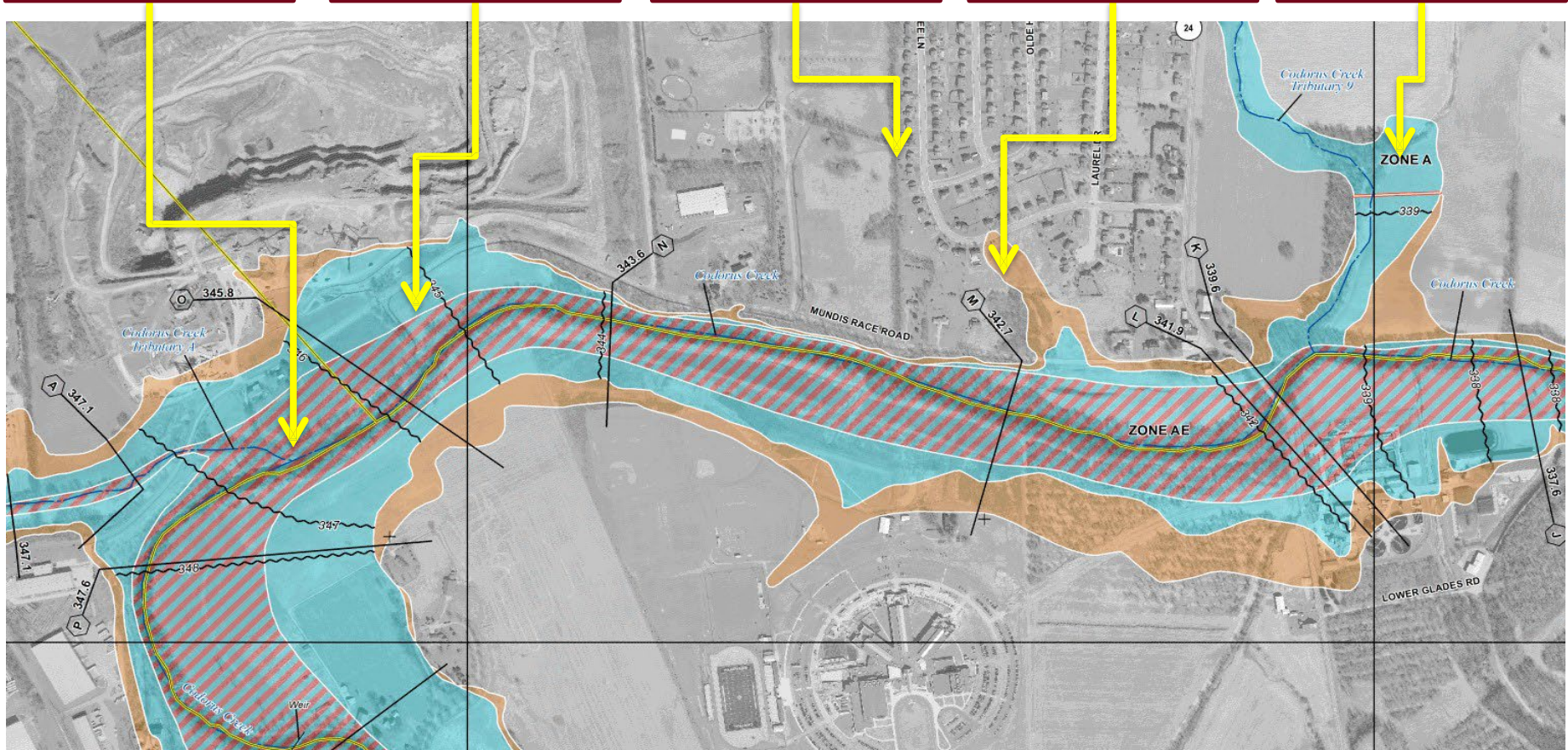
Zone AE
Floodway

Zone AE

Zone X

Shaded
Zone X

Zone A



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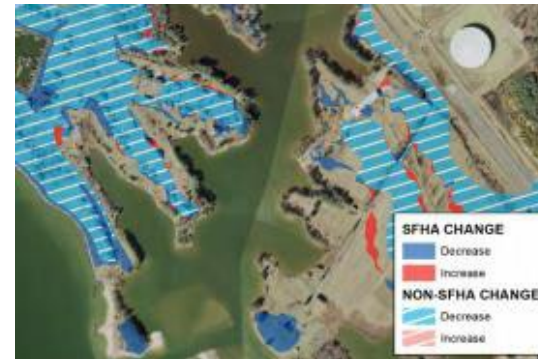
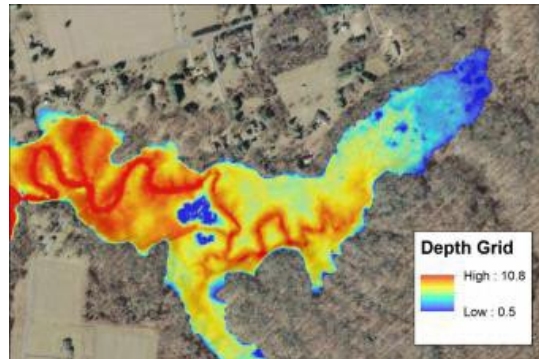
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Study Types

		Approximate (Zone A)	Detailed (Zone AE)
Survey	Channel XS	None	Field survey at road crossings
	Hydraulic Structures	None	Field survey
Hydrology	Methodology	Historically regression equations with gage analysis where applicable - Alternate methods such as HEC-HMS or Rainfall Run off	
Hydraulics	Recurrence Interval	10%, 4%, 2%, 1%, 1%+ and 0.2% annual chance	
	Manning's "n"	Aerial Imagery (Horizontal Variation)	
	Channel Geometry	LiDAR	LiDAR; Supplemented with field survey
Mapping	Boundaries	1% annual chance	1% and 0.2% annual chance
	Flood Zones	Zone A (no mapped BFEs but WSELs available in FEMA National Flood Hazard Layer)	Zone AE (all XS with labeled WSELs, and Floodways) and 'Shaded' Zone X
FIS Report	Tables	Study Summaries, Summary of Discharges	Study Summaries, Summary of Discharges, Floodway Data, Roughness Coefficient
	Profiles	None	10-, 4-, 2-, 1-, 1+, and 0.2% annual chance

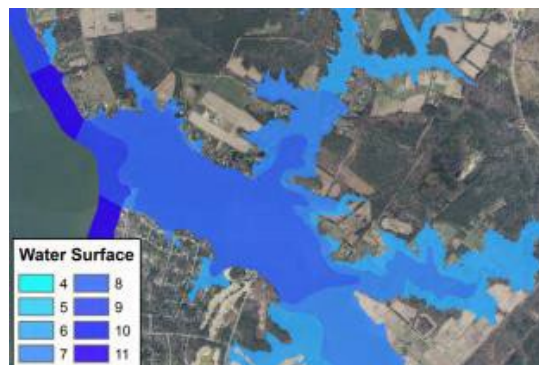
FEMA Flood Risk GIS Datasets

Flood Depth & Analysis Grids



Changes Since Last FIRM

Water Surface Elevation Grids



Flood Risk Assessment



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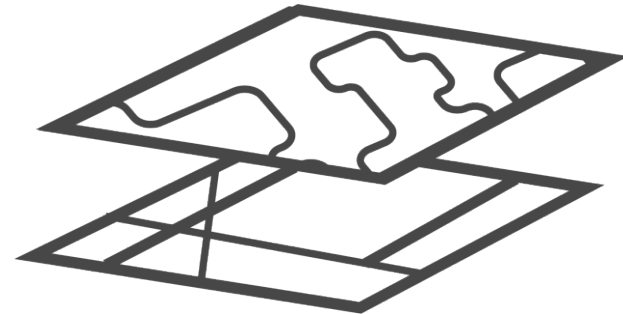
Where to Find Flood Risk Data

WV Flood Tool

- Digital mapping source publicly available that shows property-level flood risk
- www.mapwv.gov/flood

FEMA's Flood Map Service Center (MSC)

- Where you can view effective maps online for free
- <https://msc.fema.gov/portal/home>



National Flood Hazard Layer (NFHL)

- Geospatial database that contains current effective flood hazard data
- <https://www.fema.gov/flood-maps/national-flood-hazard-layer>



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Where Can I Find My Flood Maps?

The FEMA Map Service Center (MSC) is the official public source for flood hazard information: <https://msc.fema.gov/portal/home>

FEMA Flood Map Service Center


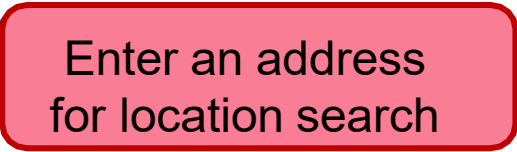
Looking for a Flood Map? ?

Enter an address, a place, or longitude/latitude coordinates:

Enter an address, a place, or longitude/latitude coordinates

Looking for more than just a current flood map?

Visit [Search All Products](#) to access the full range of flood risk products for your community.



Search Results for NICHOLAS COUNTY ALL JURISDICTIONS

Click [subscribe](#) to receive email notifications when products are updated. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (79) ?
 - FIRM Panels (57)
 - FIS Reports (1)
 - LOMC (19)
 - NFHL Data-State (1)
 - NFHL Data-County (1)
- Preliminary Products (0) ?
- Pending Product (0) ?
- Historic Products (55) ?
- Flood Risk Products (0) ?



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Menu Search

National Flood Hazard Layer

Visit <https://www.fema.gov/national-flood-hazard-layer-nfhl> for multiple options to view and download NFHL data.

Accessing the National Flood Hazard Layer

Map Service Center

Access localized National Flood Hazard Layer data by searching FEMA's Map Service Center.

[FEMA's Map Service Center](#)

NFHL ArcGIS Viewer

Or you may view, download, and print current local digital effective flood hazard data in an ArcGIS map.

[NFHL Viewer](#)

In the [NFHL Viewer](#), you can use the address search or map navigation to locate an area of interest and the NFHL Print Tool to download and print a full Flood Insurance Rate Map (FIRM) or FIRMette (a smaller, printable version of a FIRM) where modernized data exists. Technical GIS users can also utilize a series of dedicated GIS web services that allow the NFHL database to be incorporated into websites and GIS applications. For more information on available services, go to the [NFHL GIS Services User Guide](#).

You can also use the address search on the [FEMA Flood Map Service Center \(MSC\)](#) to view the NFHL data or download a FIRMette. Using the "Search All Products" on the MSC, you can download the NFHL data for a County or State in a GIS file format. This data can be used in most GIS applications to perform spatial analyses and for integration into custom maps and reports. To do so, you will need GIS or mapping software that can read data in shapefile format.

FEMA also offers a download of a KMZ (keyhole markup file zipped) file, which overlays the data in Google Earth™. For more information on using the data in Google Earth™, please see [Using the National Flood Hazard Layer Web Map Service \(WMS\) in Google Earth™](#).

Draft National Flood Hazard Layer

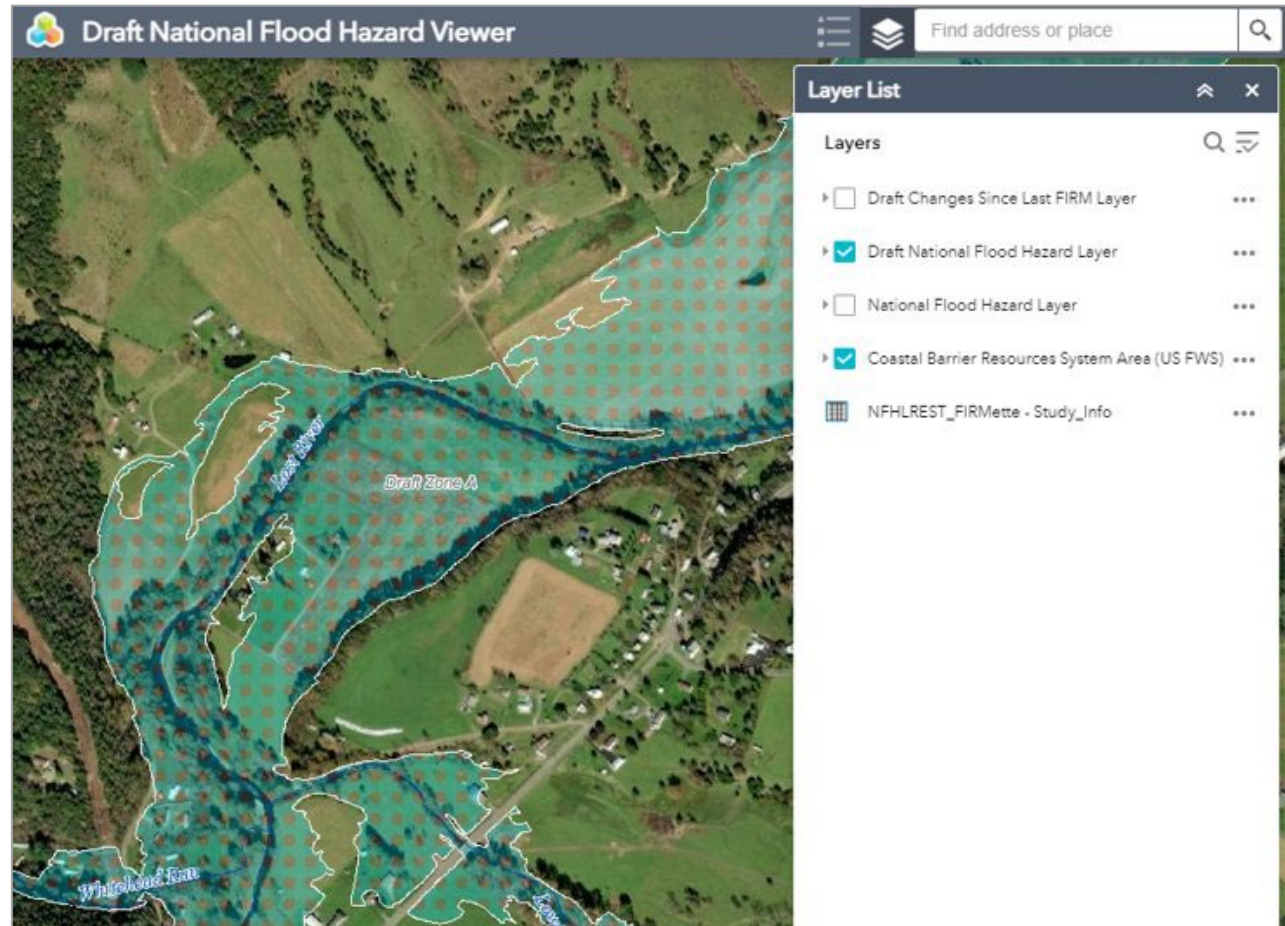
The [Draft National Flood Hazard Layer](#) is for early awareness of possible changes to regulatory flood map information. Until the data becomes effective and it appears in the National Flood Hazard Layer, the data cannot be used to rate flood insurance policies or enforce the federal mandatory purchase requirement.


Preliminary Flood Hazard Data

Preliminary flood hazard data provides the public an early look at their home or community's projected risk to flood hazards. Preliminary data may include new or revised Flood Insurance Rate Maps (FIRM), Flood Insurance Study (FIS) Reports and FIRM Databases. [View your community's preliminary flood hazard data.](#)

Pending Flood Hazard Data

Pending flood hazard data provides the public an early look at their home or community's projected risk to flood hazards. Pending data may include new or revised Flood Insurance Rate Maps (FIRM), Flood Insurance Study (FIS) Reports and FIRM Databases. [View your community's preliminary flood hazard data.](#)





Flood Risk Study Project and Discovery Overview



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Why Are We Here?

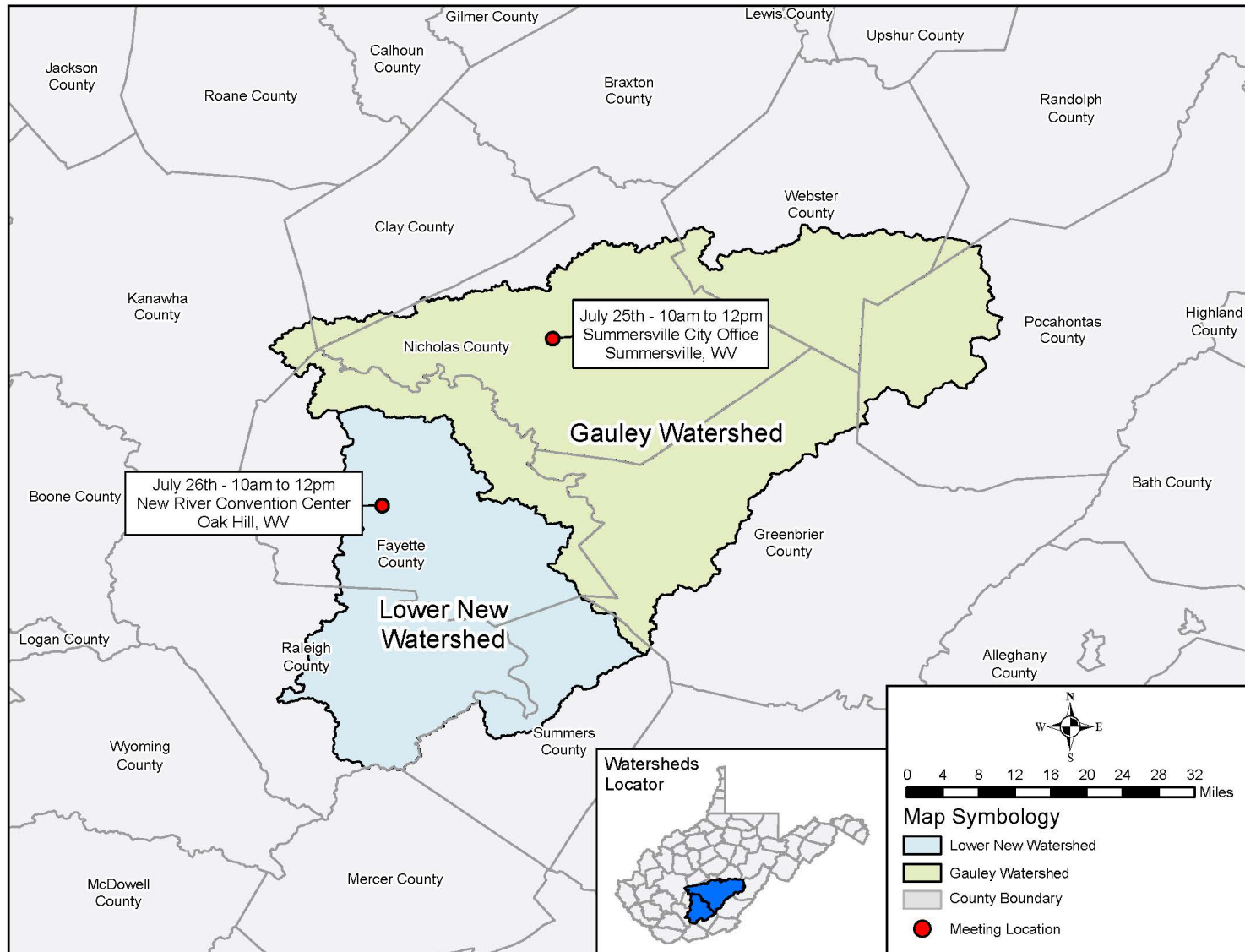
Through collaboration with State and local partners like yourselves, our goal is to deliver **quality flood hazard data** that helps you **increase public awareness** and **leads to action** that reduces risk to life and property.



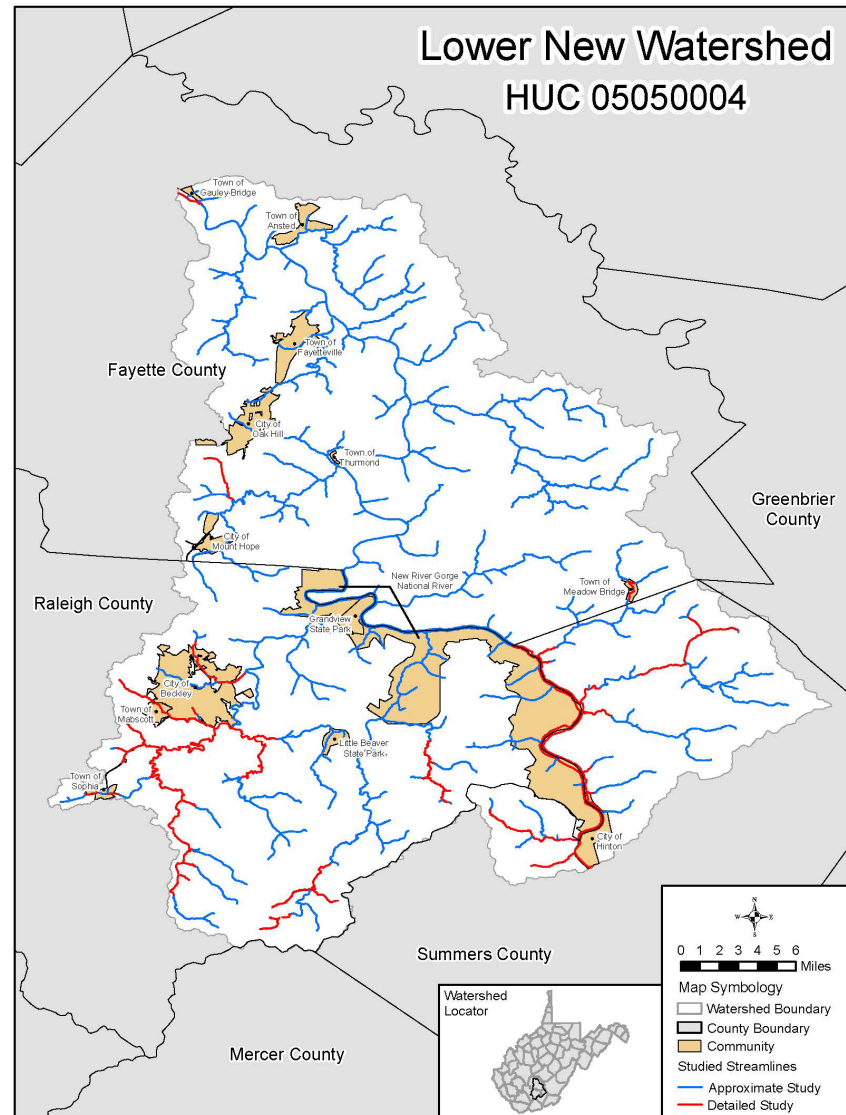
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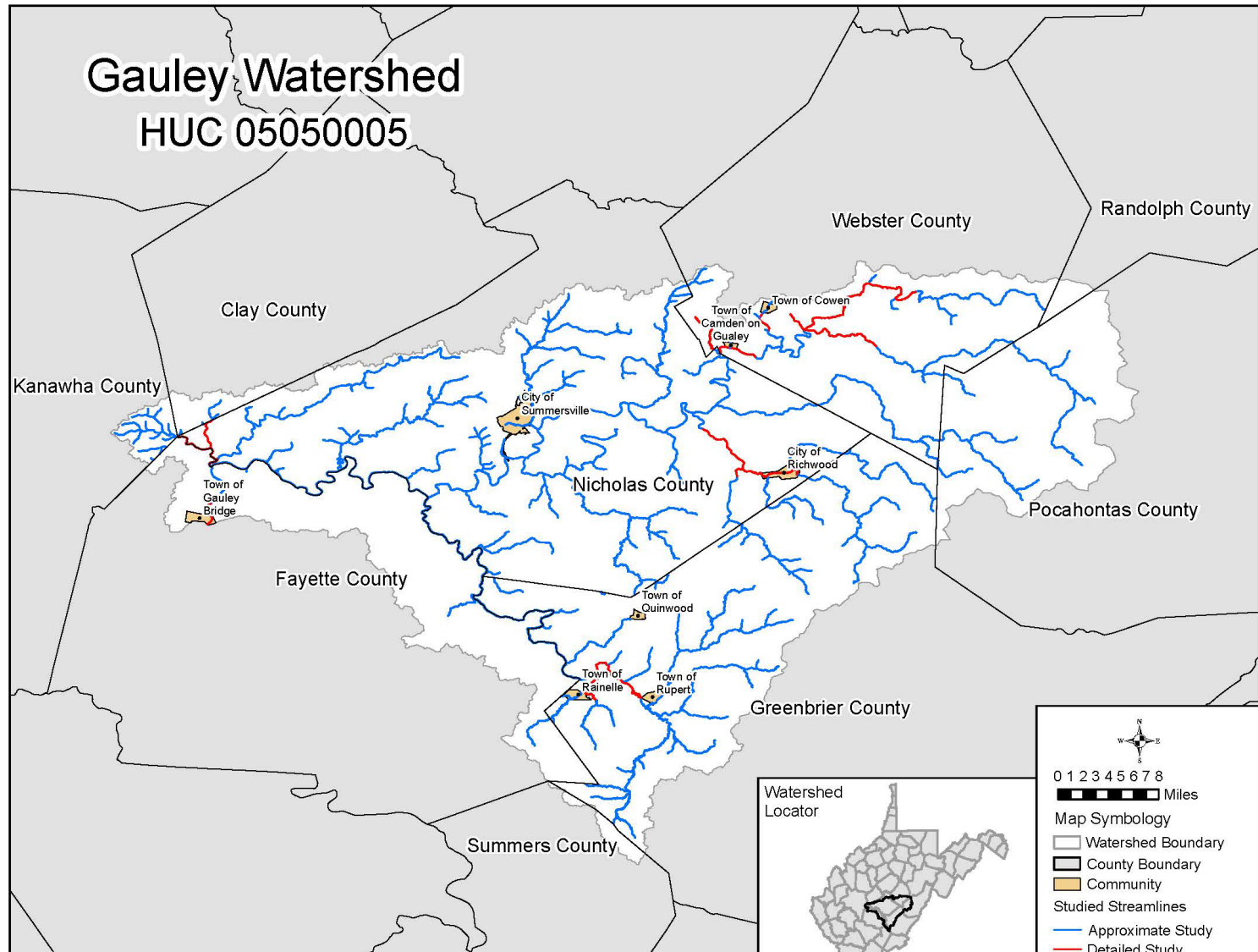
Watershed Maps



Watershed Maps



Watershed Maps



Flood Insurance Rate Map (FIRM) Status

Jurisdiction	Effective FIRM Date	Jurisdiction	Effective FIRM Date
Clay County	02/06/2013	Raleigh County	06/16/2009
Fayette County	09/03/2010	Randolph County	09/29/2010
Greenbrier County	07/05/2023	Summers County	10/07/2021
Kanawha County	08/01/2023	Webster County	05/03/2022
Nicholas County	09/24/2021		
Pocahontas County	11/04/2010		



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Why Now? Better Data!

- Availability of High Resolution Elevation Data (LiDAR)
(USGS QL2 LiDAR) <http://data.wvgis.wvu.edu/elevation/>
- Age of effective flood studies
- New hydrologic calculations (30-40 more years of rainfall data)
- Affordable model-backed Zone A flood studies (HEC-RAS)
- Ability to provide new Flood Risk Products (depth grids, etc.)



Discovery: Data Collection & Collaboration

- **Examples of data gathered and analyzed before the meeting include the following:**

- Watershed and Jurisdiction Boundaries
- Dams and Levees
- Stream Data
- Declared Disasters
- Effective Floodplains: Special Flood Hazard Areas
- Letters of Map Change
- NFIP Participation
- Individual and Public Assistance
- Mitigation Plan Status and Summary
- Population and Socioeconomic Characteristics



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Flood Risk Data Questions

- **Data**

- What data do you already have available?
- What is your data wish list?

- **Technical Assistance**

- What technical challenges are you facing, and what assistance could support your efforts right now?

- **Training and Outreach**

- What trainings and outreach would help support your existing or planned efforts?



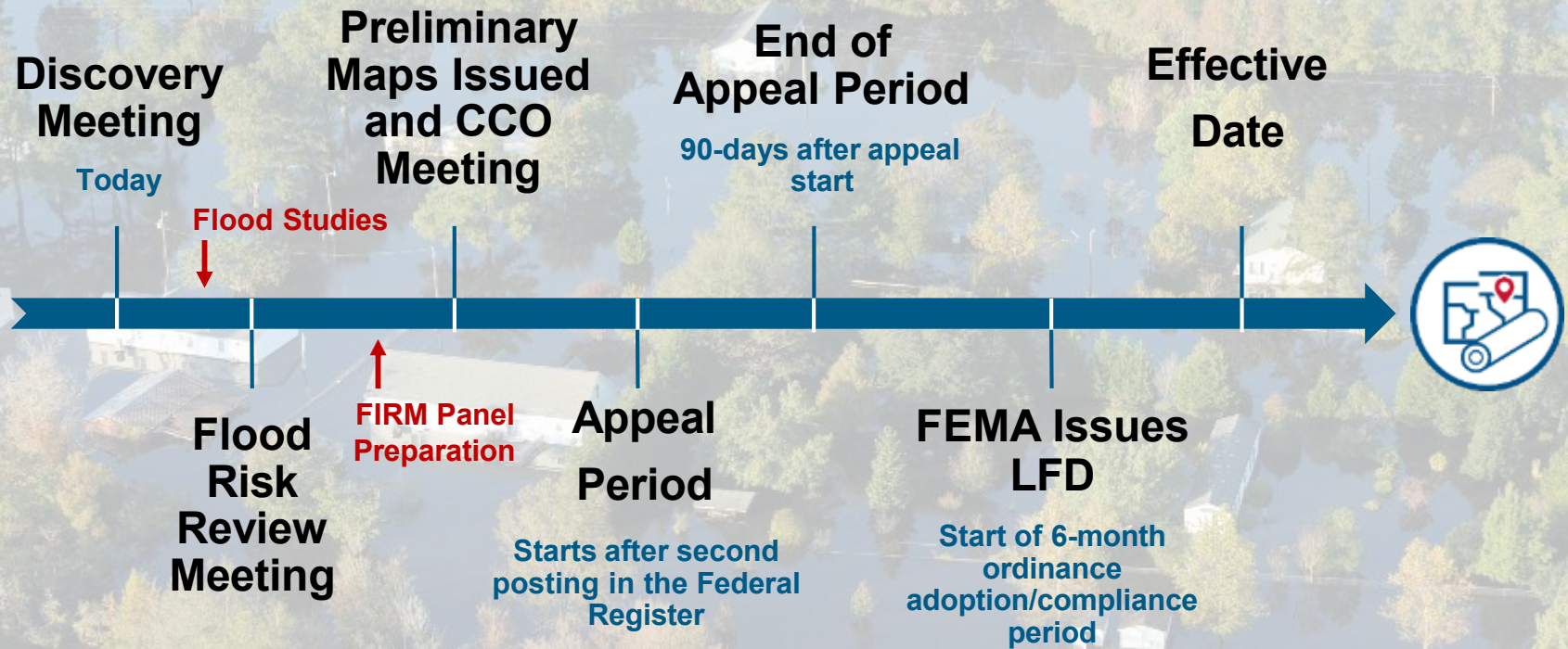
*For more information on floodplain management, insurance, and mitigation strategies, sign up for FEMA's "Resilience Report" e-newsletter



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Typical Flood Study Timeline



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COMMUNITY RISK ASSESSMENT

Discovery: Outcomes

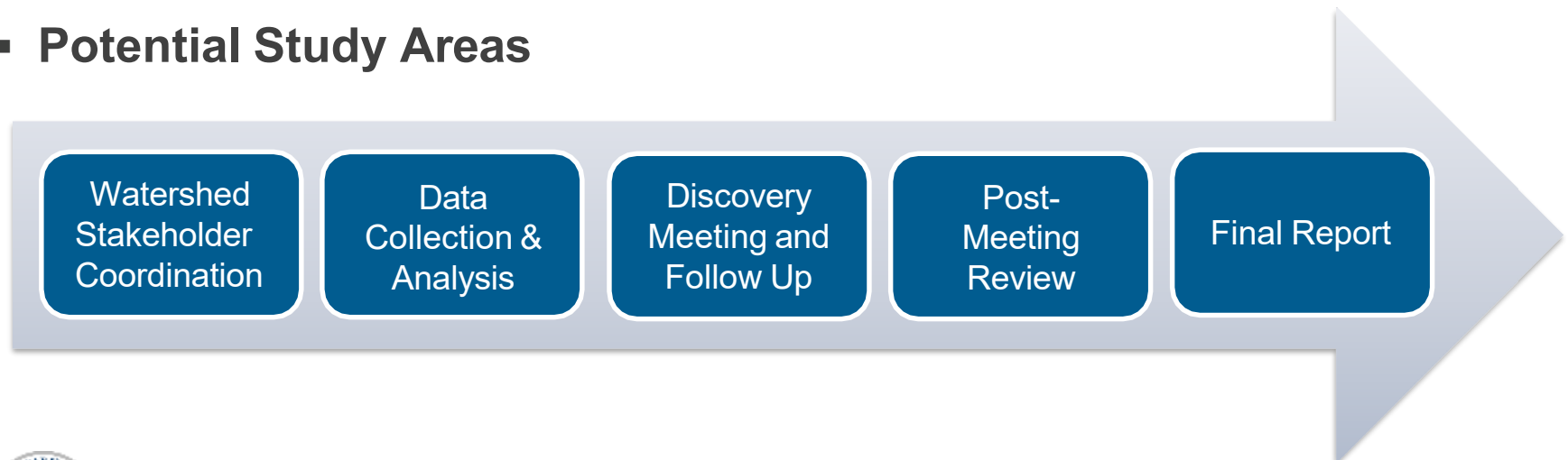
- **Discovery Report**

- Summary of data, analysis, meetings, and action items or decisions

- **Discovery Maps**

- Flood Hazards
- Potential Economic Loss
- Mapping Needs

- **Potential Study Areas**



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Reducing Flood Risk in Communities



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Flood Risk Dashboard

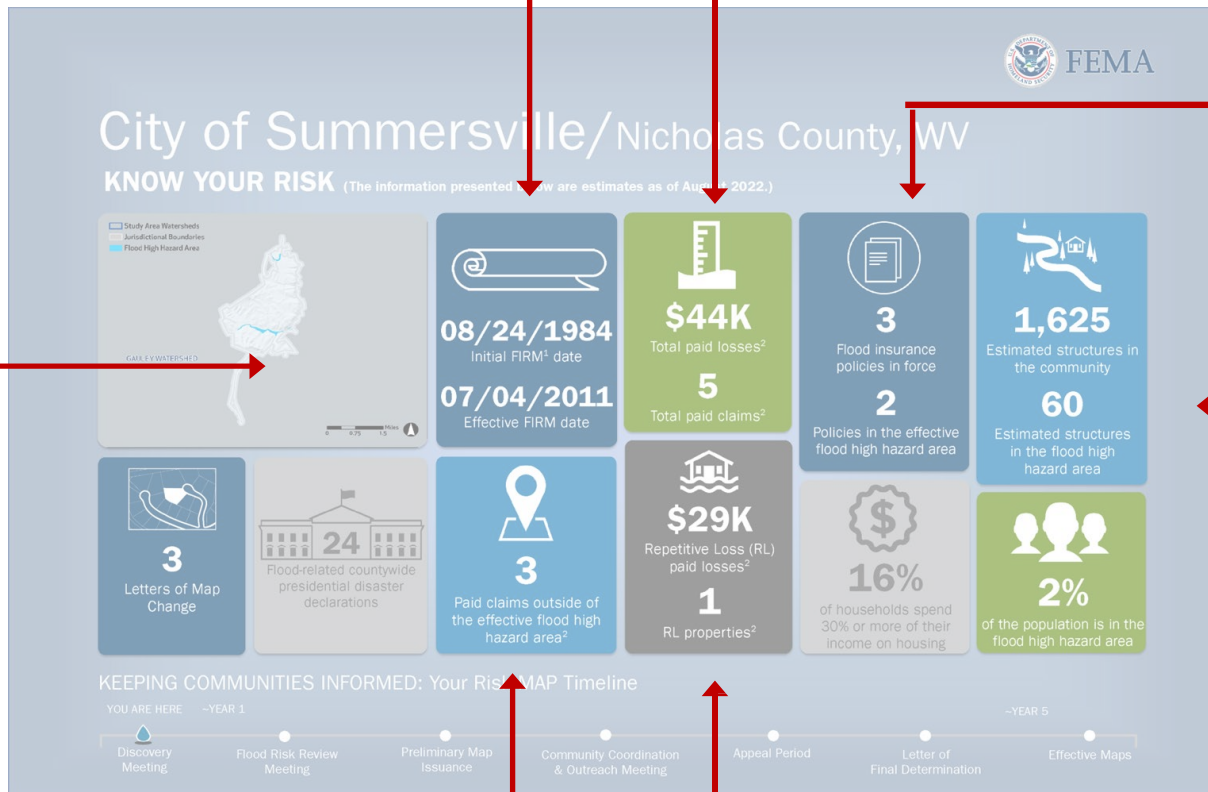
**NFIP FLOOD CLAIM
PAYOUTS**

**CLAIMS OUTSIDE
OF SFHA**

**NFIP FLOOD
POLICIES**

**AFFECTED
RESIDENTS**

**HIGH-RISK
STRUCTURES**



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**AVERAGE
PREMIUM**

**REPETITIVE
LOSSES**

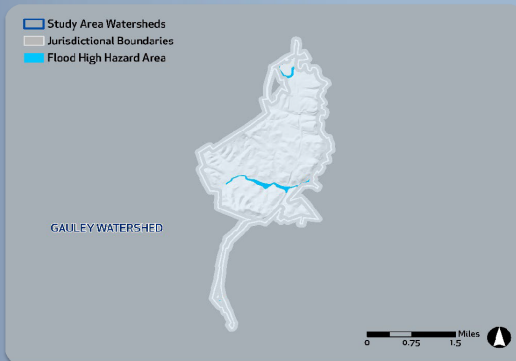
Dashboard of Your Community Profile



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City of Summersville/Nicholas County, WV

KNOW YOUR RISK (The information presented below are estimates as of August 2022.)



08/24/1984
Initial FIRM¹ date

07/04/2011
Effective FIRM date

\$44K
Total paid losses²

5
Total paid claims²

3
Flood insurance
policies in force

2
Policies in the effective
flood high hazard area

1,625
Estimated structures in
the community

60
Estimated structures
in the flood high
hazard area

3
Letters of Map
Change

24
Flood-related countywide
presidential disaster
declarations

3
Paid claims outside of
the effective flood high
hazard area²

\$29K
Repetitive Loss (RL)
paid losses²

1
RL properties²

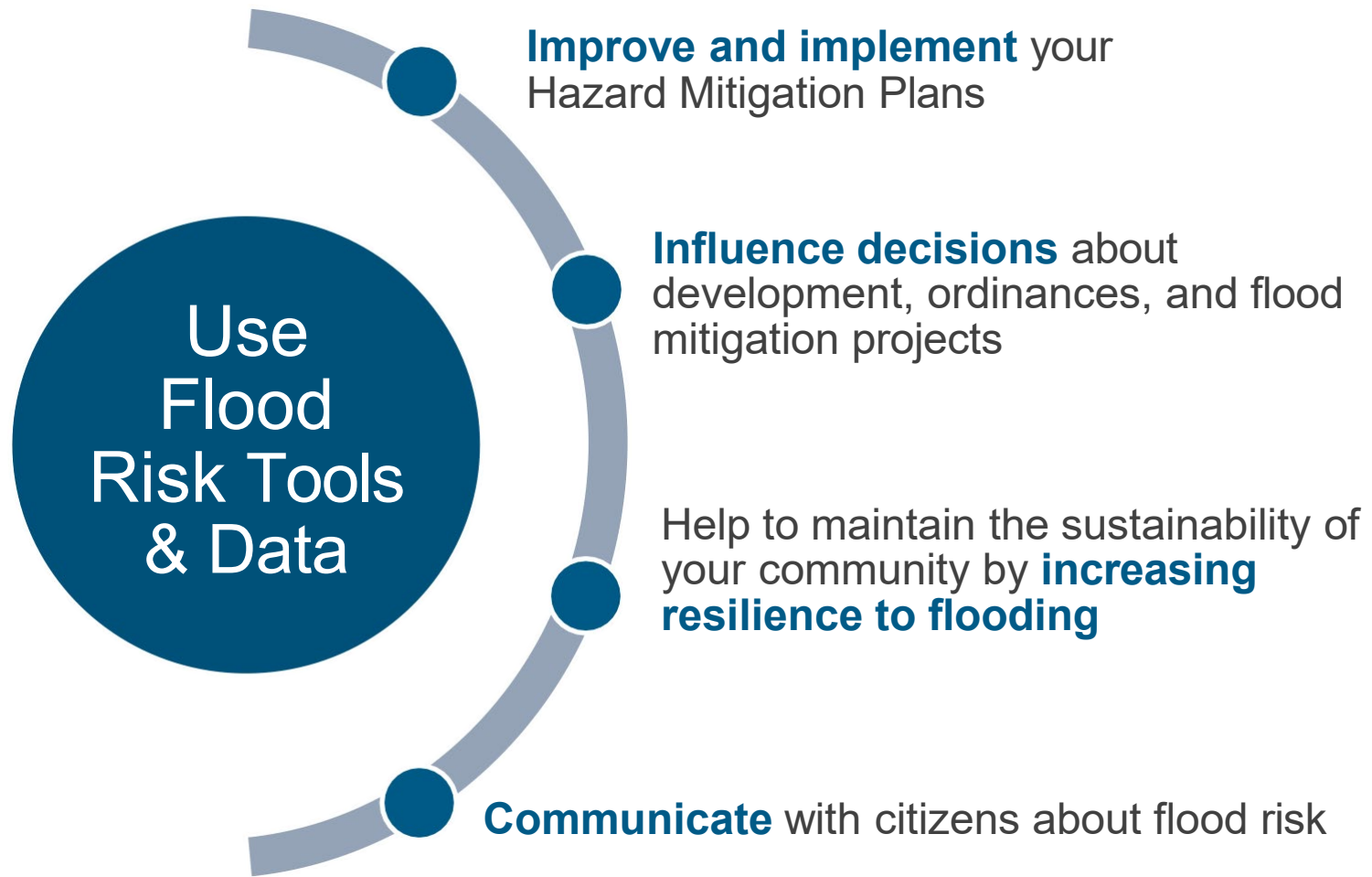
16%
of households spend
30% or more of their
income on housing

2%
of the population is in the
flood high hazard area

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline








How Can You Improve Your Community's Resilience to Flooding Now?



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Hazard Mitigation Actions Save

National Benefit-Cost Ratio (BCR) Per Peril <i>*BCR numbers in this study have been rounded</i>		Beyond Code Requirements	Federally Funded
Overall Hazard Benefit-Cost Ratio		\$4:1	\$6:1
	Riverine Flood	\$5:1	\$7:1
	Hurricane Surge	\$7:1	Too few grants
	Wind	\$5:1	\$5:1
	Earthquake	\$4:1	\$3:1
	Wildland-Urban Interface Fire	\$4:1	\$3:1

[Mitigation Saves Fact Sheet \(fema.gov\)](https://www.fema.gov/mitigation-saves)

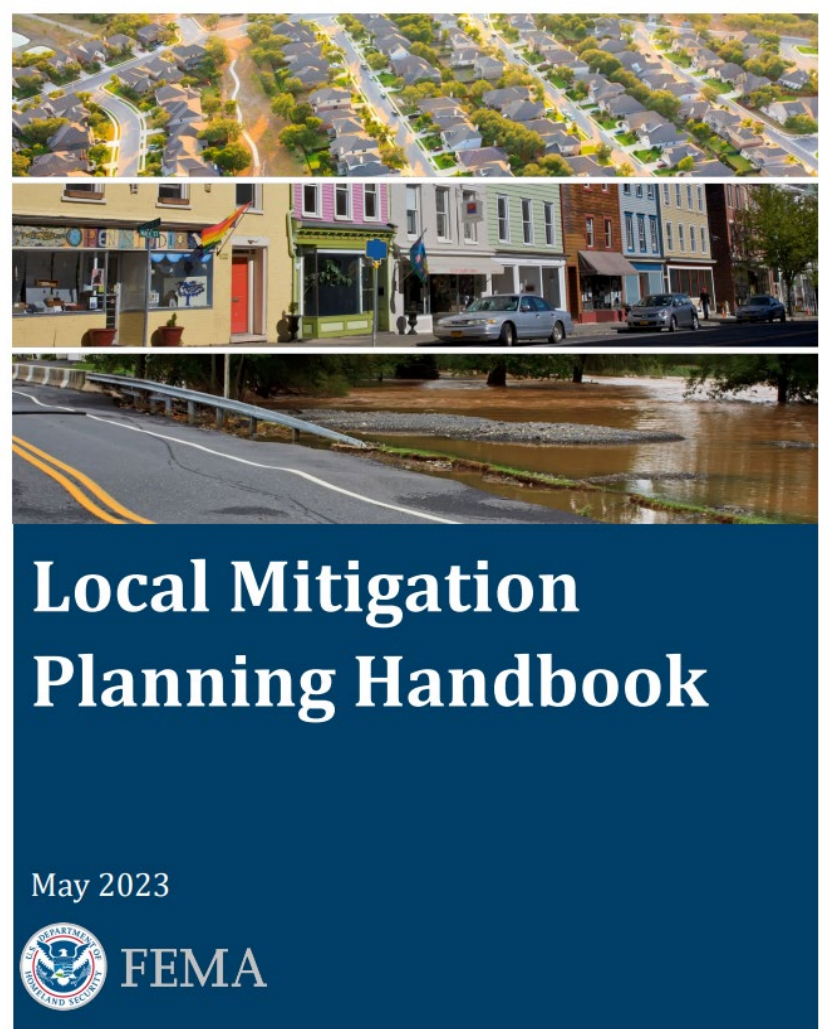


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Hazard Mitigation Plans

- **Hazard Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters**
 - Occurs before, during, and after disasters and serves to break the cycle of damage and repair
 - Long-term risk reduction
 - Essential part of community resilience

www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-handbook_052023.pdf



Next Steps



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Information We Need from You

- **Completed Discovery data questionnaire, with GIS contact**
- **Areas of Concern**
- **Areas of historical flooding and other flood risks**
- **Mitigation projects addressing flood risks**
- **Your ideas about ways to increase resilience**



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Project Contacts



State NFIP/CTP Office:

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State NFIP/CTP Coordinator
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WVGISTC:

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Mitigation Planning

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Mapping Partners:

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Madison Matera
Stakeholder Engagement Specialist

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WV Flood Tool

Remember: When In Doubt, It's Not Out!

Views

Public Expert Risk Map

Layers

Risk Reference Basemaps

Search

Address e.g., 123 street name, city, state, zip

Tools

Map navigation icons

Map navigation icons

West Junction

☒ BUILDING-LEVEL RISK: 100-YEAR FLOOD

☒ Primary Structure (Future Map)

☒ LOMA Verified (In or Out SFHA)

☐ Building Exposure Cost

☐ Building Year Pre-FIRM & Post-FIRM

☐ Foundation Type

☒ Elevation Certificates (Building Type)

☐ Minus-Rated Structure

☐ Building Damage Loss Estimate

☒ CRITICAL INFRASTRUCTURE

☒ FLOOD DEPTH

☒ OTHER NATURAL HAZARDS

☒ MITIGATED PROPERTIES & OPEN SPACE

☒ PRIMARY FLOOD HAZARD LAYERS

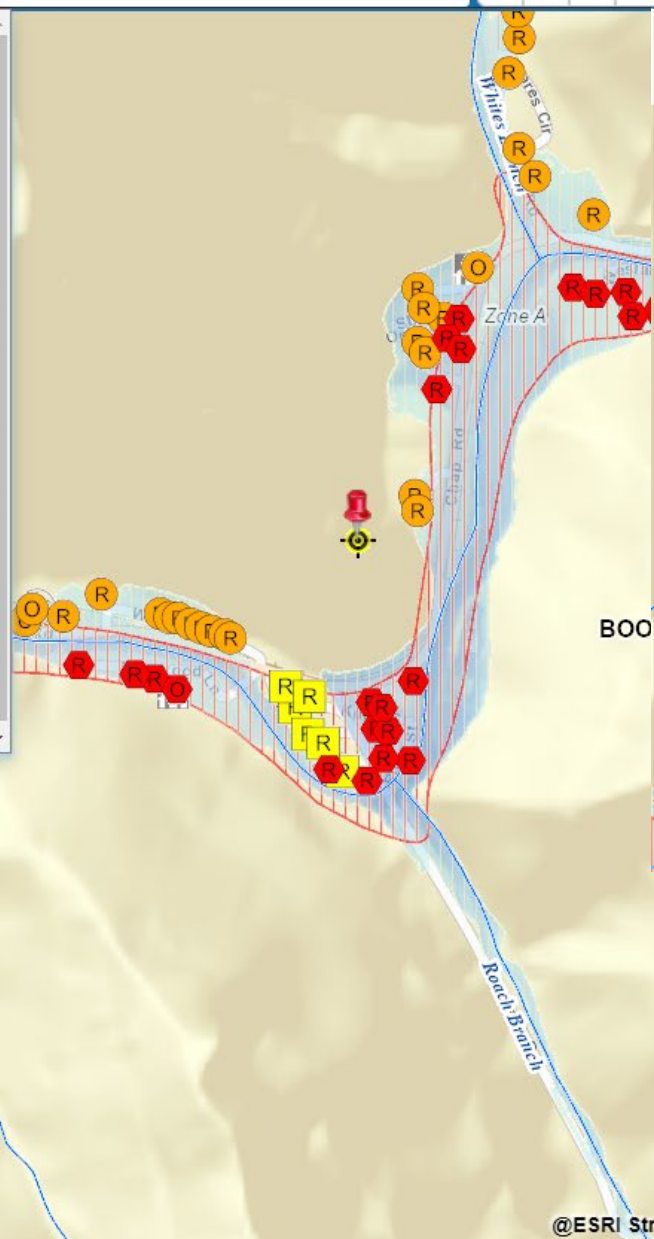
☒ PRELIMINARY/DRAFT FLOOD LAYERS

☒ OTHER FLOOD ZONE SYMBOLOGY

☒ MISCELLANEOUS LAYERS

* indicates that data is from FEMA

[Show Legend](#)



Flood Hazard Area: Location is NOT WITHIN any identified flood hazard area. Unmapped flood hazard areas may be present.

Flood Zone: Out of Flood Zone

Stream:

Watershed (HUC8): Coal (5050009)

FEMA's Flood Map: 54005C0280D NFHL

Map Effective Date: 5/16/2013

Contacts: Boone

Flood Height: N/A

Water Depth: N/A

HEC-RAS Model: N/A All Models

Flood Profile: N/A

Community: Boone County

Freeboard: 2 ft CRS Class: 10 CID: 540007

Location (lat, long): (37.973309, -81.702404) WGS84

Location (UTM 17N): (4203085, 438308) WGS84

External Viewers:

Elevation: 1005.7 ft (Source: FEMA 2018-20) NAVD88

Address: multiple addresses

Parcel: 03-01-0018-0083-0000 | Assessment

Flood Risk Information

[Flood Risk Assessment](#)

3D Flood Visualization N/A

[Related Resources](#)