RiskMAP
Increasing Resilience Together

Flood Risk Review (FRR) Meeting

Pendleton County, West Virginia
April 15, 2021

FEMA

Agenda

- Welcome and Introductions
- Where We Are - Draft Maps
- Flood Study Update
- Using Flood Risk Data to Reduce Risk
- Discussion

Welcome and Introductions

FEMA

Risk MAP

Where We Are - Draft Maps

FEMA

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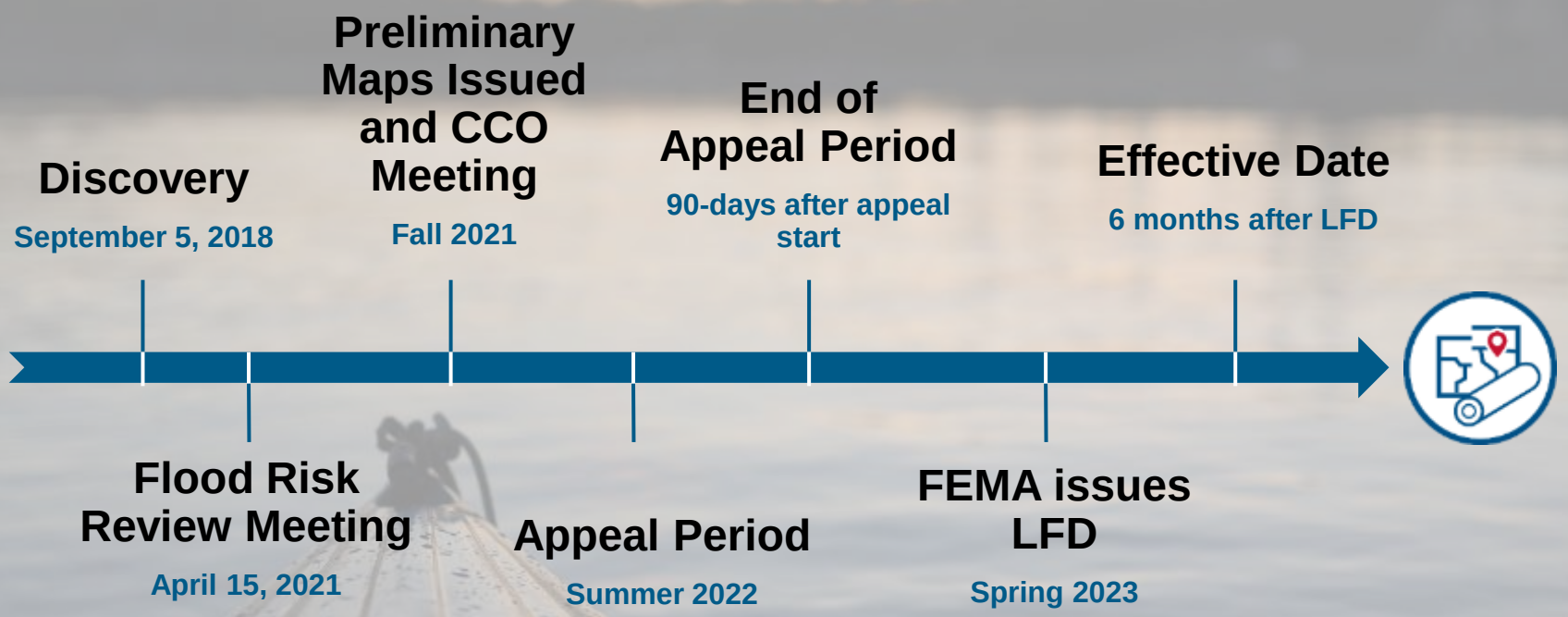
3 Reasons We Are Here Today

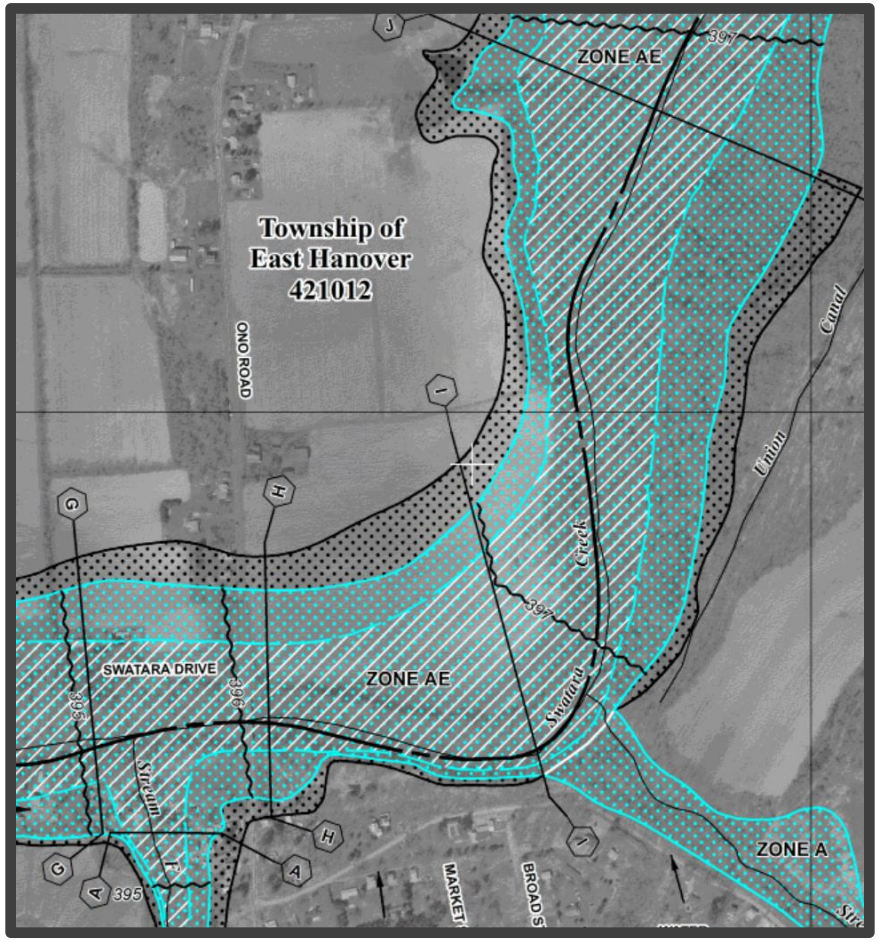
- To preview and discuss the updated Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM) for Pendleton County, West Virginia
- To examine the new study areas, discuss how the analysis and mapping have changed since the previous FIRM, and work collaboratively to ensure that the needs of the community and its partners are met. **BECAUSE THE EARLIER YOU KNOW THE BETTER!**
- To present a timeline of next steps

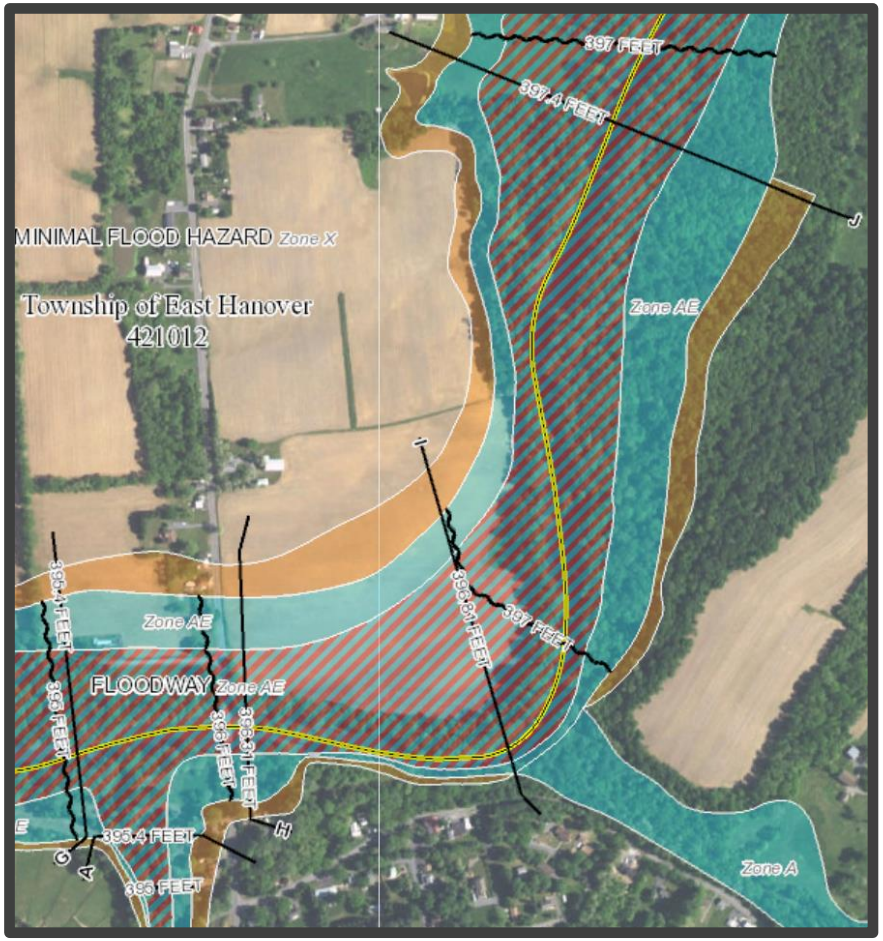
Timeline for Pendleton County



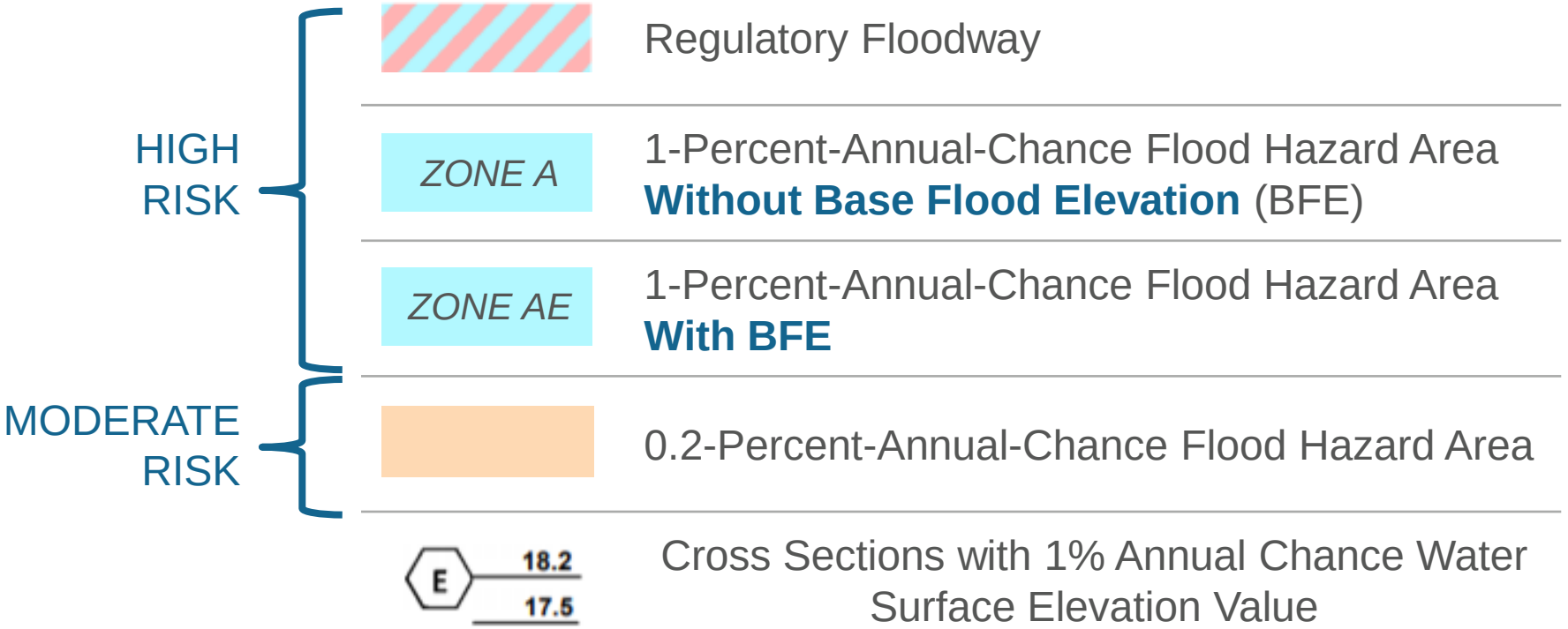
Flood Study Update

Current vs. New FIRM Panels





Floodplain Map Overview



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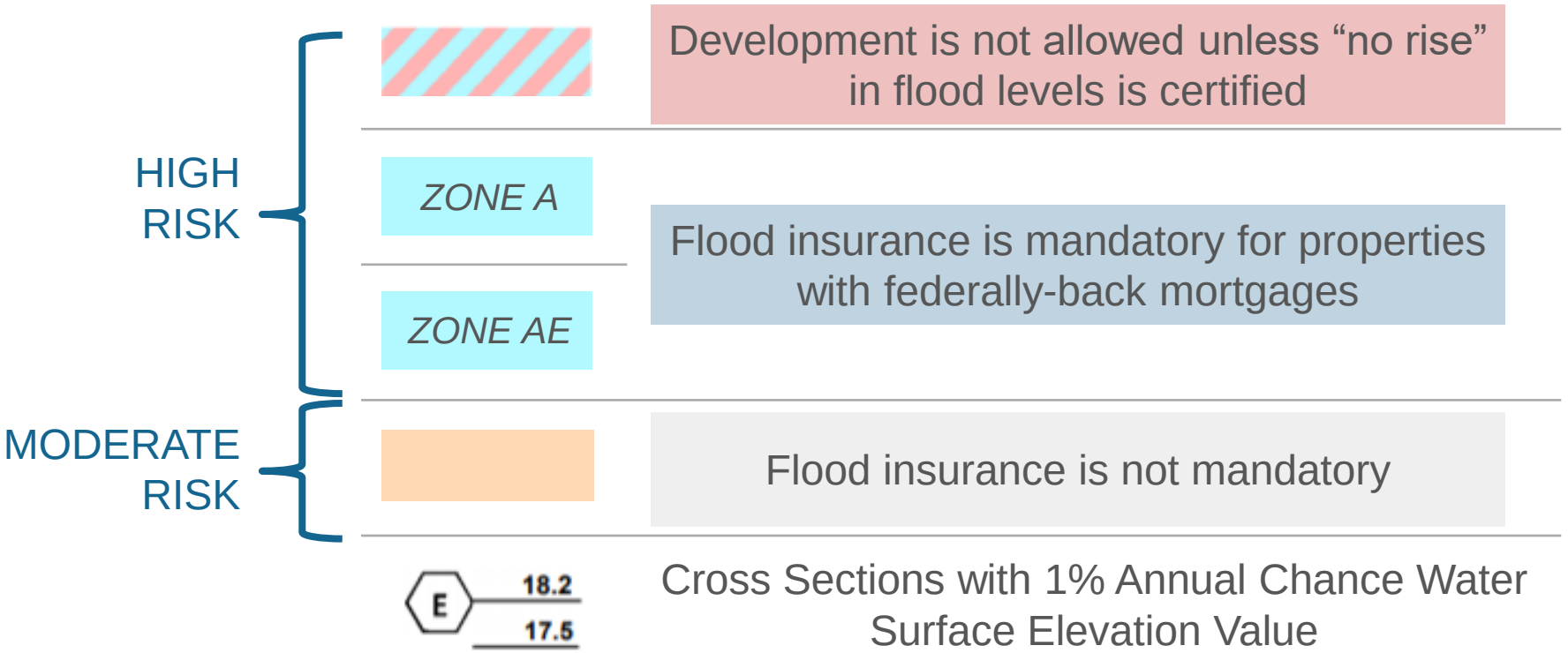
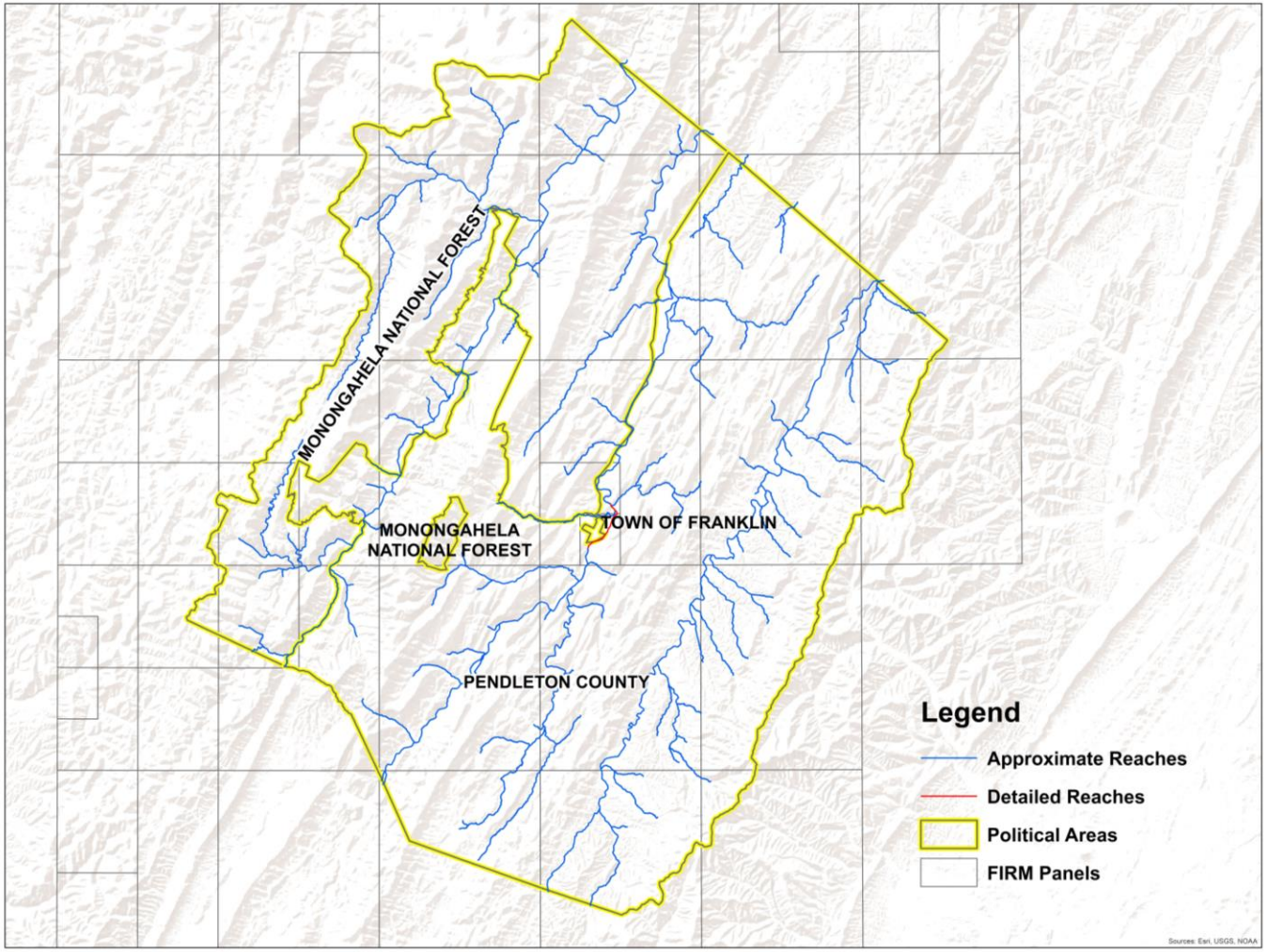


What We Studied



Data Collection

Because conditions change over time, FEMA's updated data analysis used the most recent available data:

- **Survey Data**: Bridges, culverts, and immediate upstream / downstream cross-sections
- **USGS**: Hydrologic analyses (including stream gages)

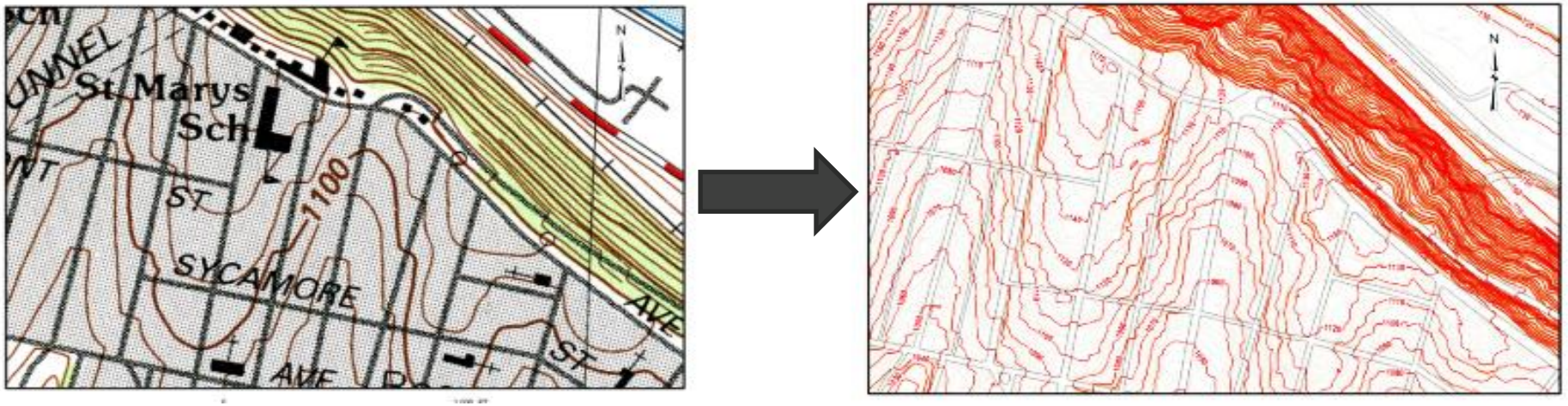
Data Collection

Topographic Data:

- 2016-17 QL2 FEMA R3 WV Northeast LiDAR Acquisition

LiDAR = Light Detection and Ranging

- *Uses light pulses and GPS to survey elevation data*
- *Improves the level of detail available for hydraulic modeling and floodplain delineation*



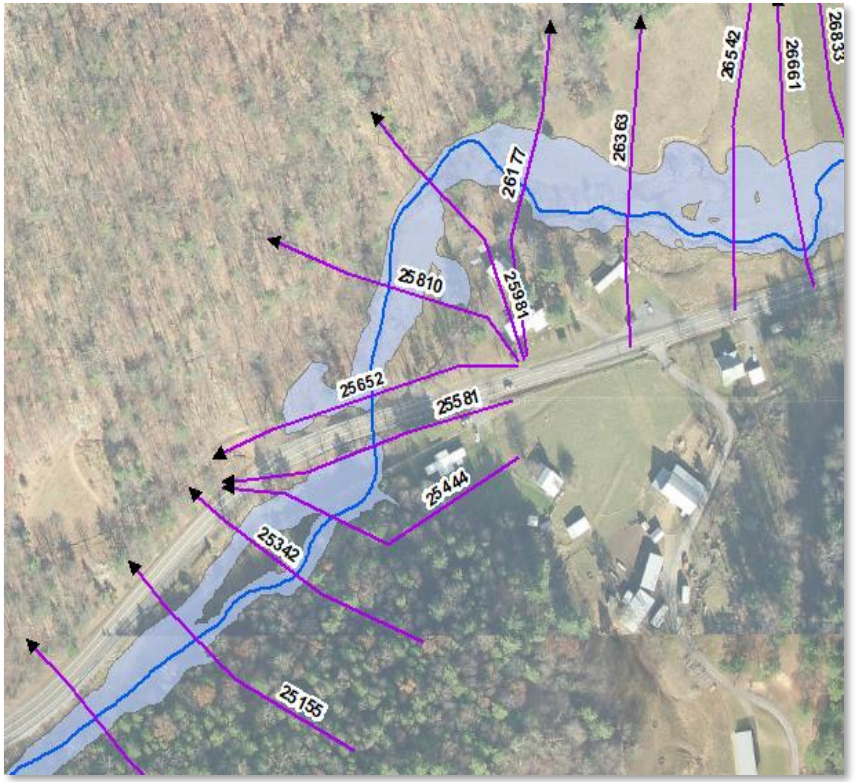
Hydrologic Analyses

Hydrologic Study Method	Study Type	Stream Names	Reach Lengths (*Miles*)
Gage Analysis weighted with Regional Regression Equations	AE	South Branch Potomac River (1)	2.6
Gage Analysis weighted with Regional Regression Equations	A	Brush Run (1), North Fork South Branch Potomac River, North Mill Creek, South Branch Potomac River, South Branch Potomac River (2)	78.8
Gage Analysis of Regulated Flows	A	South Fork South Branch Potomac River	39
Regional Regression Equations	A	All Remaining	283.8

What We Studied – Approximate Study

Approximate ‘Zone A’ Base Level Study

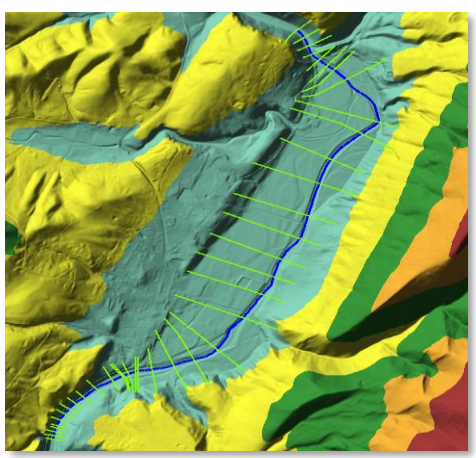
- 402 miles
- Generally used in areas with low development / low development potential
- Cross-sections generated from LiDAR used for hydraulics:
  - Automated processes
  - Does not include information below normal water surface
  - No structures are modeled
  - No Floodway or BFEs (but modeled XS in FIRM database)
  - Multi-frequency flood values computed but only 1% annual chance on FIRM

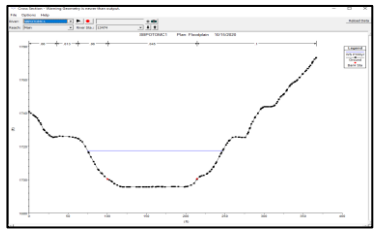


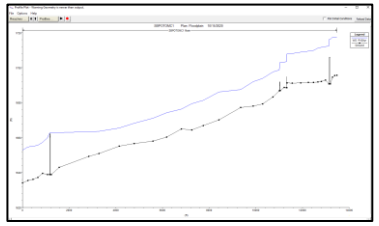
What We Studied – Detailed Study

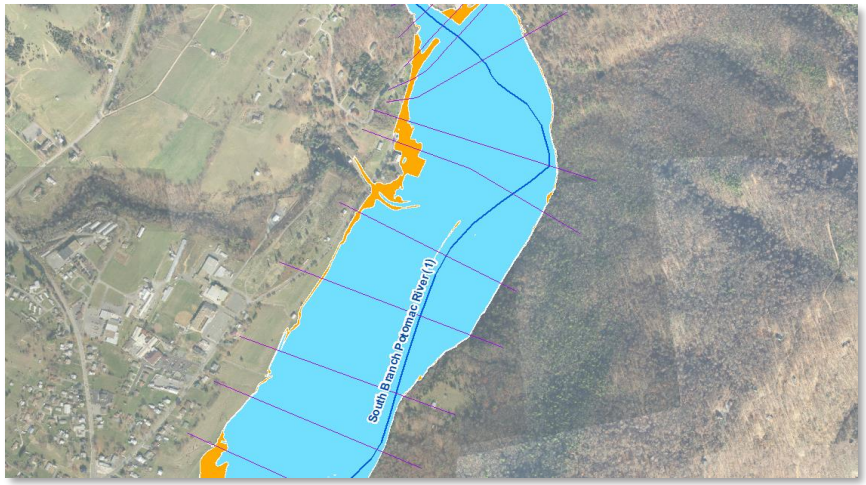
Detailed ‘Zone AE’ Restudy

- 2.6 stream miles
- Used in areas with high development or high development potential
- Structures are modeled
- Channel bathymetry is obtained from Field Survey









Significant Impacts

- Compared to effective NFHL, **widening and narrowing of the 1-percent-annual-chance floodplain extent** was observed throughout the county.
- Most streams experienced both **increases and decreases** when comparing the computed model WSELs to the current regulatory base flood elevations (BFEs).

➢ After the map update, **about ten percent of County structures** are expected to be in the SFHA, mostly along South Branch of the Potomac River

Flood Risk Dashboards

NFIP FLOOD CLAIM PAYOUTS

CLAIMS OUTSIDE OF SFHA

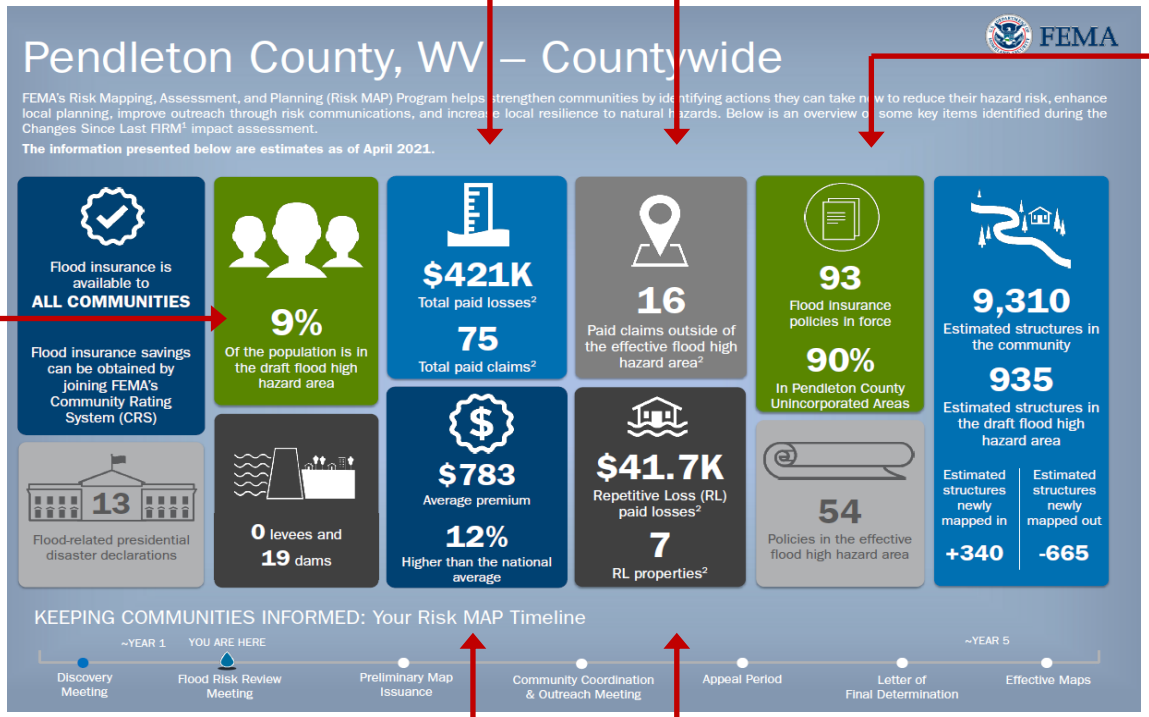
NFIP FLOOD POLICIES

AFFECTED RESIDENTS

HIGH-RISK STRUCTURES

AVERAGE PREMIUM

REPETITIVE LOSSES



Significant Impacts

Pendleton County, WV – Countywide

FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) Program helps strengthen communities by identifying actions they can take now to reduce their hazard risk, enhance local planning, improve outreach through risk communications, and increase local resilience to natural hazards. Below is an overview of some key items identified during the Changes Since Last FIRM[1] impact assessment.

The information presented below are estimates as of April 2021.

Flood insurance is available to **ALL COMMUNITIES**

Flood insurance savings can be obtained by joining FEMA's Community Rating System (CRS)

9%
Of the population is in the draft flood high hazard area

$421K
Total paid losses[2]

75
Total paid claims[2]

16
Paid claims outside of the effective flood high hazard area[2]

93
Flood insurance policies in force

90%
In Pendleton County Unincorporated Areas

9,310
Estimated structures in the community

935
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in	Estimated structures newly mapped out
+340	-665

13
Flood-related presidential disaster declarations

0 levees and **19** dams

$783
Average premium

12%
Higher than the national average

$41.7K
Repetitive Loss (RL) paid losses[2]

7
RL properties[2]

54
Policies in the effective flood high hazard area

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

~YEAR 1 — YOU ARE HERE — ~YEAR 5

Discovery Meeting → Flood Risk Review Meeting → Preliminary Map Issuance → Community Coordination & Outreach Meeting → Appeal Period → Letter of Final Determination → Effective Maps

How Did the Floodplain Map Change?

- WV Flood Tool: https://www.mapwv.gov/flood/map/
- FEMA Region 3 Changes Since Last FIRM (CSLF) Viewer
  - Change in Floodplain Extents:
    - Purple – Increase
    - Blue – Still Floodplain
    - Yellow – Decrease
- FEMA Draft National Flood Hazard Viewer: https://msc.fema.gov/draft

Using Flood Risk Data to Reduce Risk

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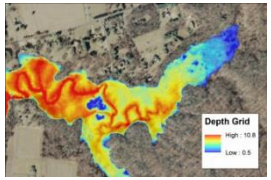
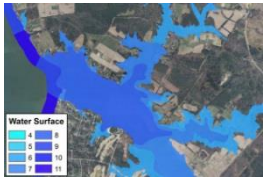
Types of Flood Risk Products



Flood Depth & Analysis Grids

Changes Since Last FIRM



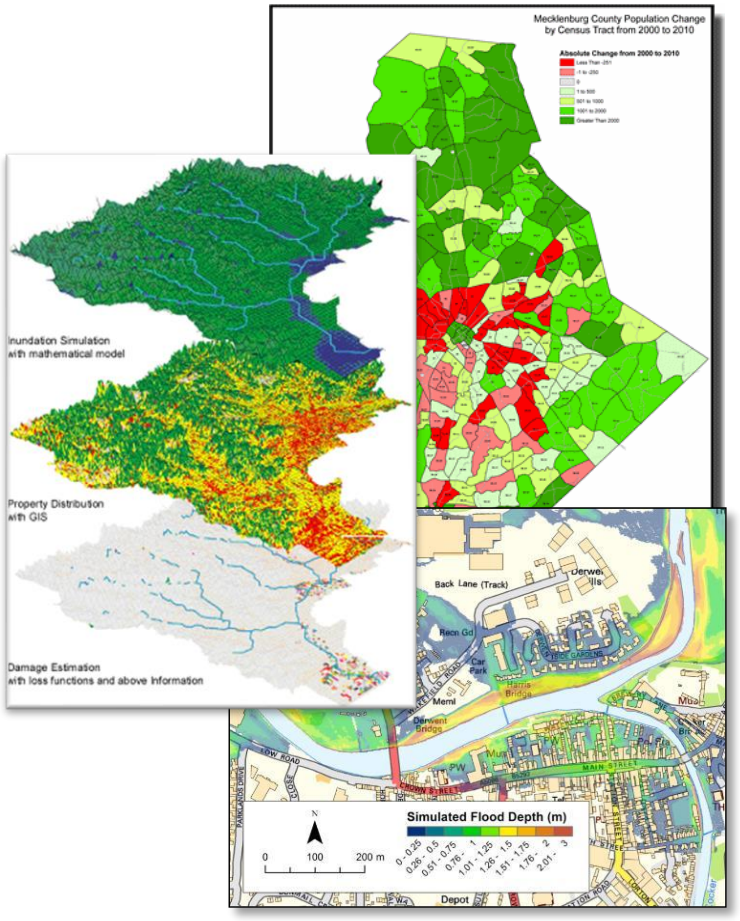
Water Surface Elevation Grids

Flood Risk Assessment / Economic Loss Calculations

Areas of Mitigation Interest

Using FRPs to Manage Development

- Structure-based Depth of Flooding Analyses
- Prioritization of Mitigation Action
- Residential/commercial density in the floodplain
- Location/inundation area of historic events
- Properties with insurance policies and as a percentage of the population
- Areas of population growth
- Areas requiring protection



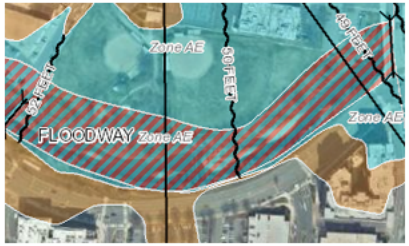
Where Can I Find Flood Risk Products?

FEMA Flood Map Service Center : Welcome!

Looking for a Flood Map?

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

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



Looking for more than just a current flood map?

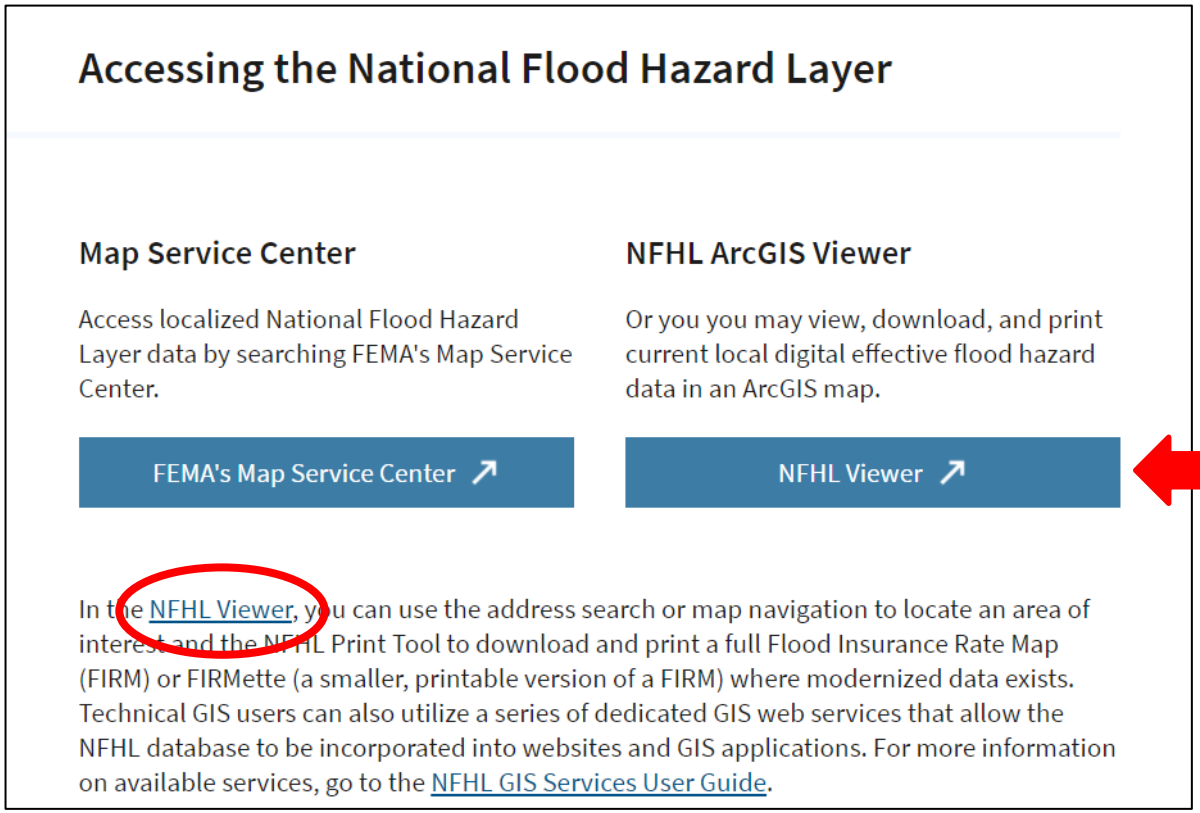
Visit **Search All Products** to access the full range of flood risk products for your community.

About Flood Map Service Center

The FEMA Flood Map Service Center (MSC) is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). Use the MSC to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk.

https://msc.fema.gov/portal/home

Where Can I Find 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 you may view, download, and print current local digital effective flood hazard data in an ArcGIS map.

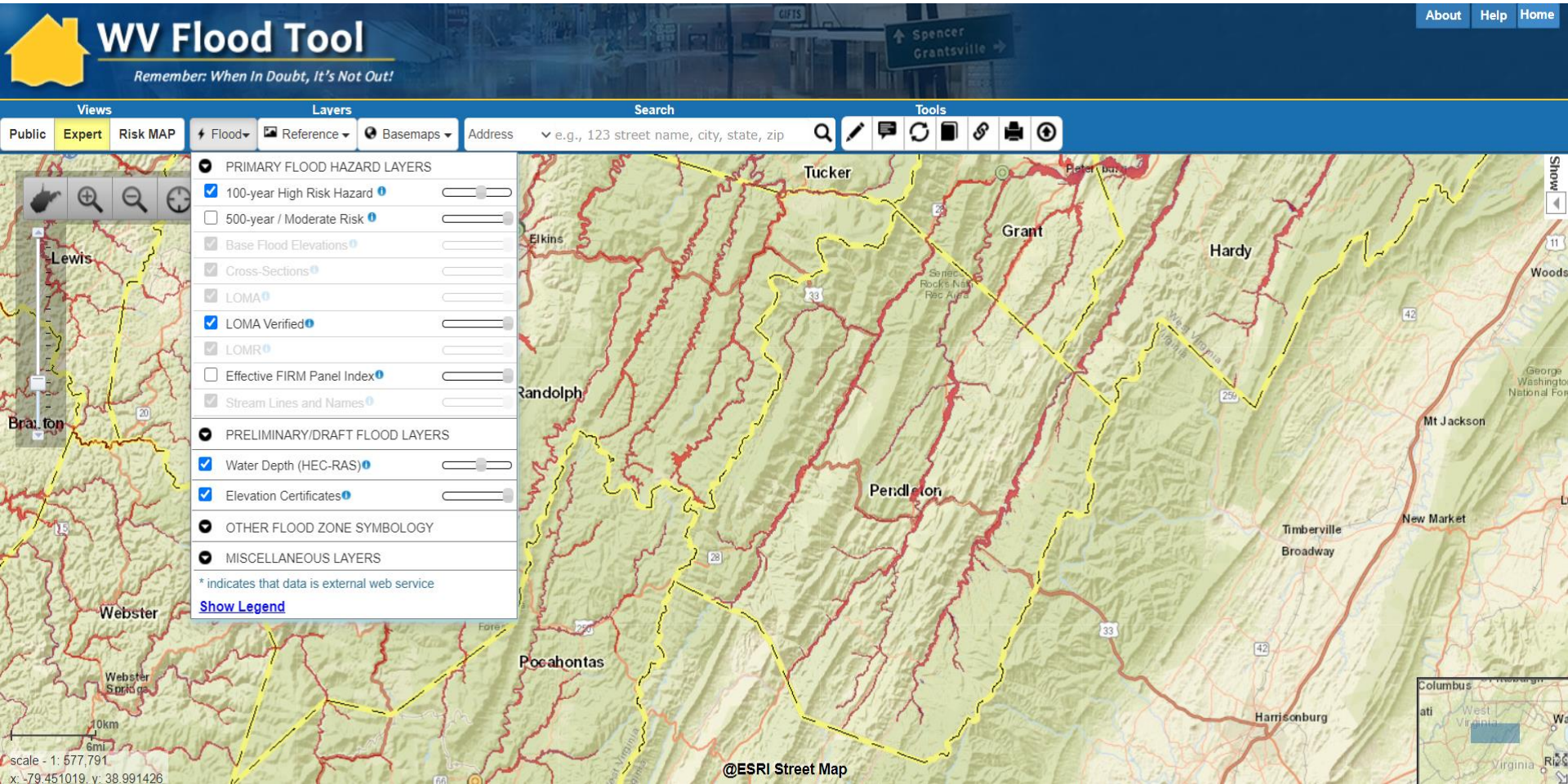
NFHL Viewer ↗

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.

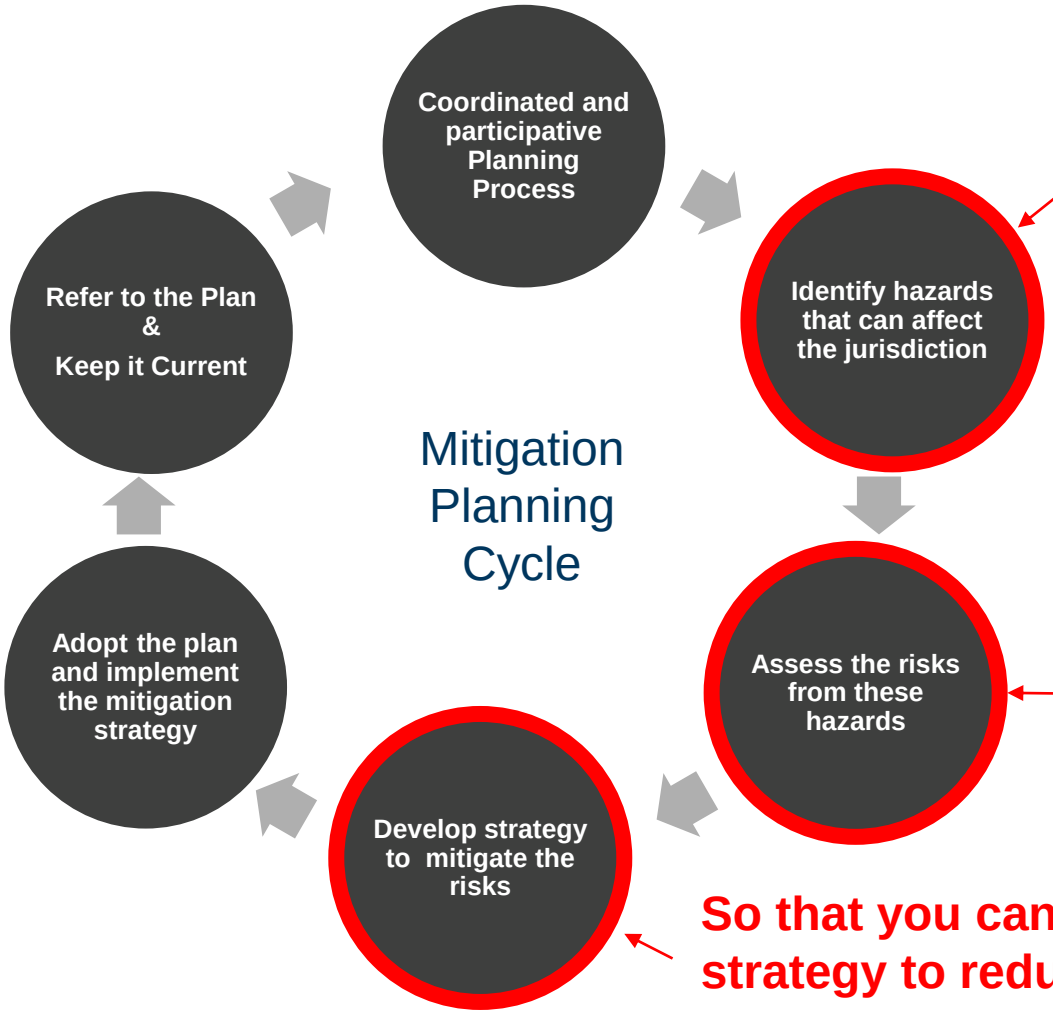
https://www.fema.gov/flood-maps/national-flood-hazard-layer

WV Flood Tool

https://www.mapwv.gov/flood/map/



Flood Hazard Mitigation Planning



We are here!

It's time to start assessing the impacts of the new floodplain boundaries

So that you can develop a strategy to reduce flood risk

Floodplain Management

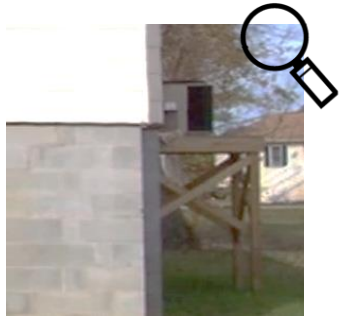
- **Permits are Required for ALL Development in the floodplain!**
- Development means any **manmade change** to improved or unimproved real estate
- Build it **right** and insurance premiums will be more affordable
- Build it **wrong** and premiums will be very expensive

Route 33, Pendleton County, West Virginia (WHSV)

Floodplain Management

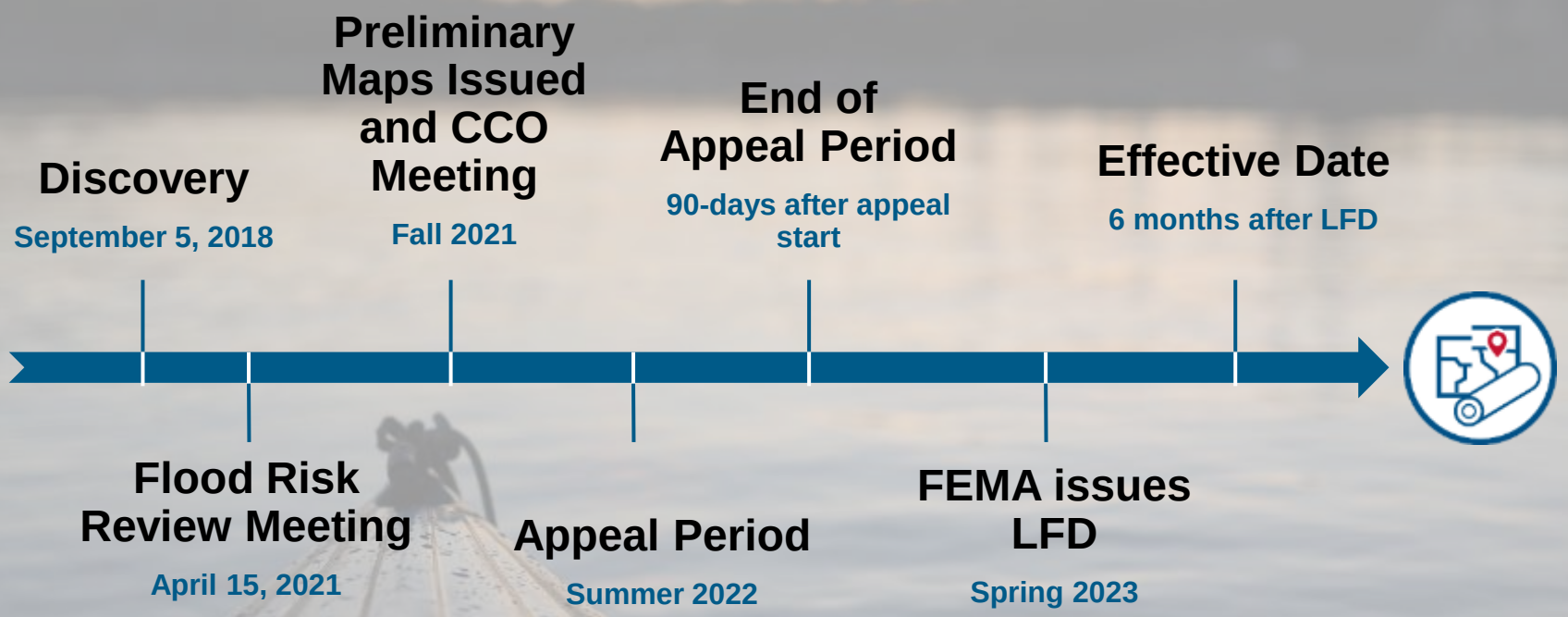
- Communities must regulate based on FIRMs
- Development should be reasonably safe from flooding
- Permits are required for all development
- State/federal permits are required
- Elevate and/or construct with flood-resistant materials
- Locate and design mechanicals to minimize or eliminate flood damage
- Locate and design public utilities and facilities to minimize or eliminate flood damage

A Zones: top of lowest floor (residential) elevated to or above the base flood level



Project Timeline

Timeline for Pendleton County




Discussion
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We want to hear from you!

- 30 day comment period
- WV Flood Tool: https://www.mapwv.gov/flood/map/
- Review the materials we will be sending you
- We are available to answer questions
- Talk about mitigation actions in your community
- ***Thank you for your participation!***

For More Information

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