RiskMAP
Increasing Resilience Together

Flood Risk Review (FRR) Meeting

Jefferson County, WV and Incorporated Areas
April 17, 2024

FEMA

Agenda

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

Welcome and Introductions

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Where We Are - Draft Maps

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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 Jefferson 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

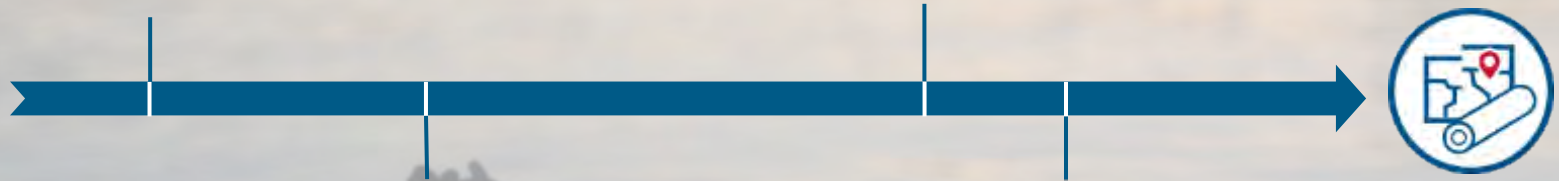
Timeline – Looking Back

Effective Maps
(DFIRM Conversion)
2009

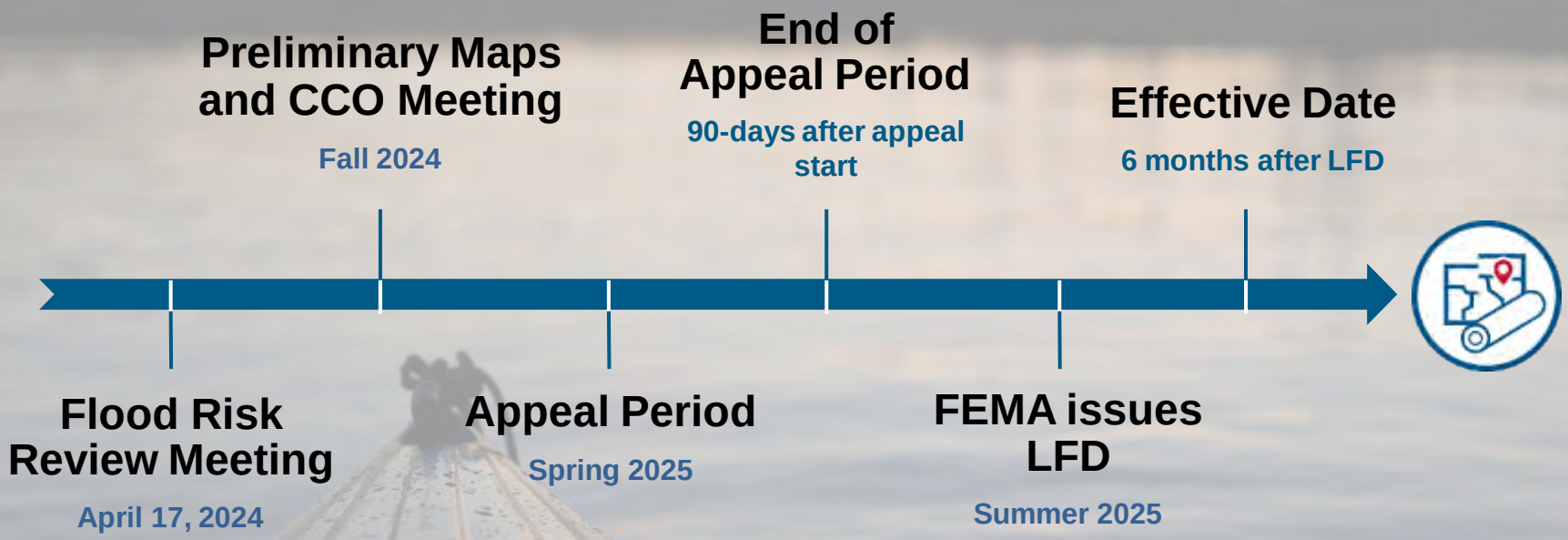
Advisory Flood Height (AFH) Data
2012

Risk MAP Study Notification
August 2021

Risk MAP Kickoff Meeting
September 2021



Timeline – Looking Ahead



Flood Study Update

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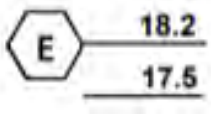
Floodplain Map Overview

HIGH RISK
(Special Flood Hazard Area)

MODERATE RISK

	Regulatory Floodway
ZONE AE	1-Percent-Annual-Chance Flood Hazard Area **with Base Flood Elevations** (BFEs)
ZONE A	1-Percent-Annual-Chance Flood Hazard Area **without published BFEs**
	0.2-Percent-Annual-Chance Flood Hazard Area
	Cross Sections with 1% Annual Chance Water Surface Elevation Value

"The 100-Year Flood Zone Explained"

Floodplain Map Overview

HIGH RISK
(Special Flood Hazard Area)

MODERATE RISK

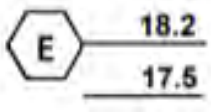
Development is not allowed unless “no rise” in flood levels is certified

ZONE AE

ZONE A

Flood insurance is mandatory for structures with federally-back mortgages

Flood insurance is not mandatory



Cross Sections with 1% Annual Chance Water Surface Elevation Value

“The 100-Year Flood Zone Explained”

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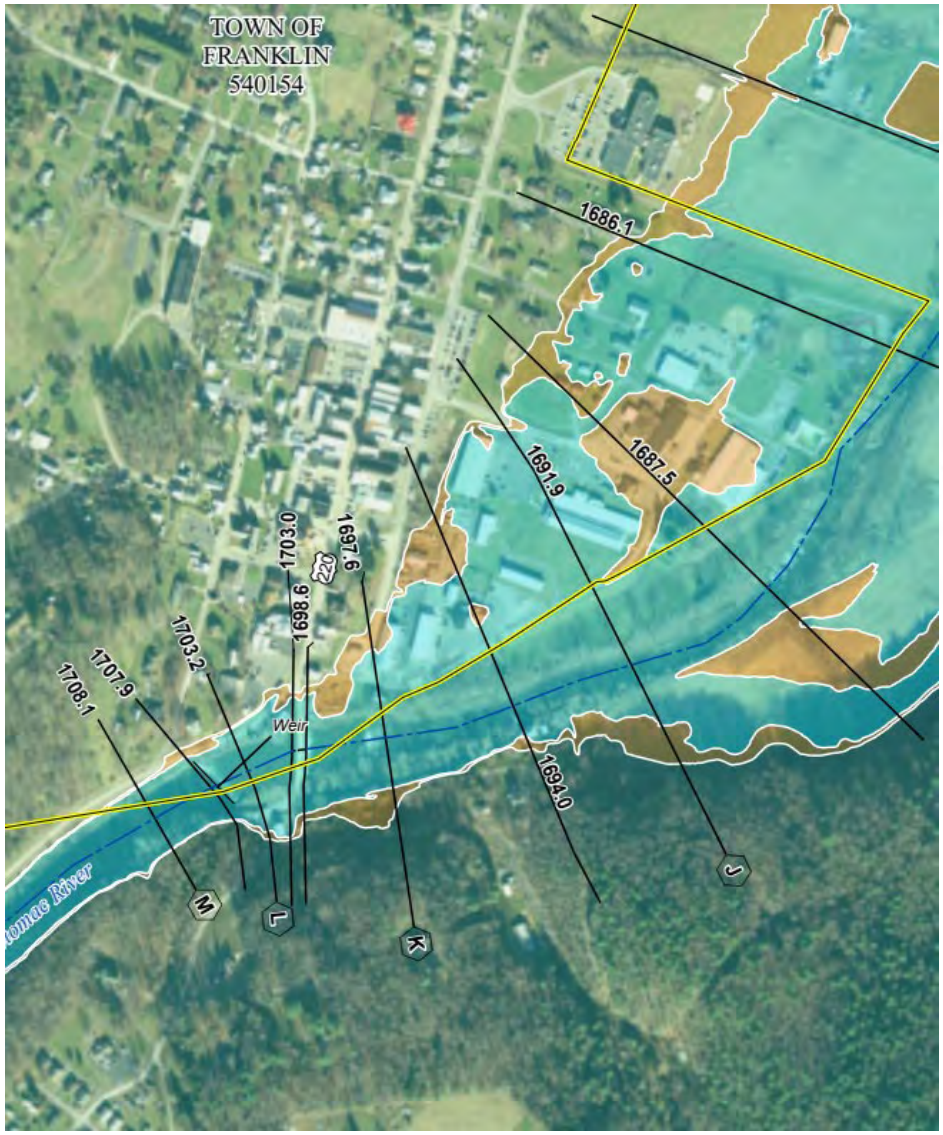
Floodplain Map Overview



SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / B — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- 8 — Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

Study Overview

Revised Modeling and Mapping, including:

- Updated GIS-based regulatory products, including:
  - Updated maps / database / report formats based on new FEMA guidelines and specifications
- Utilization of high-resolution topographic data (for modeling and mapping)
- ***Detailed 'Zone AE' Studies*** *– 47.4 miles*
- ***Model-backed Approximate 'Zone A' Studies*** *– 104.1 miles*
- *Scope refinement for* ***Town Run 2D analysis in Shepherdstown***

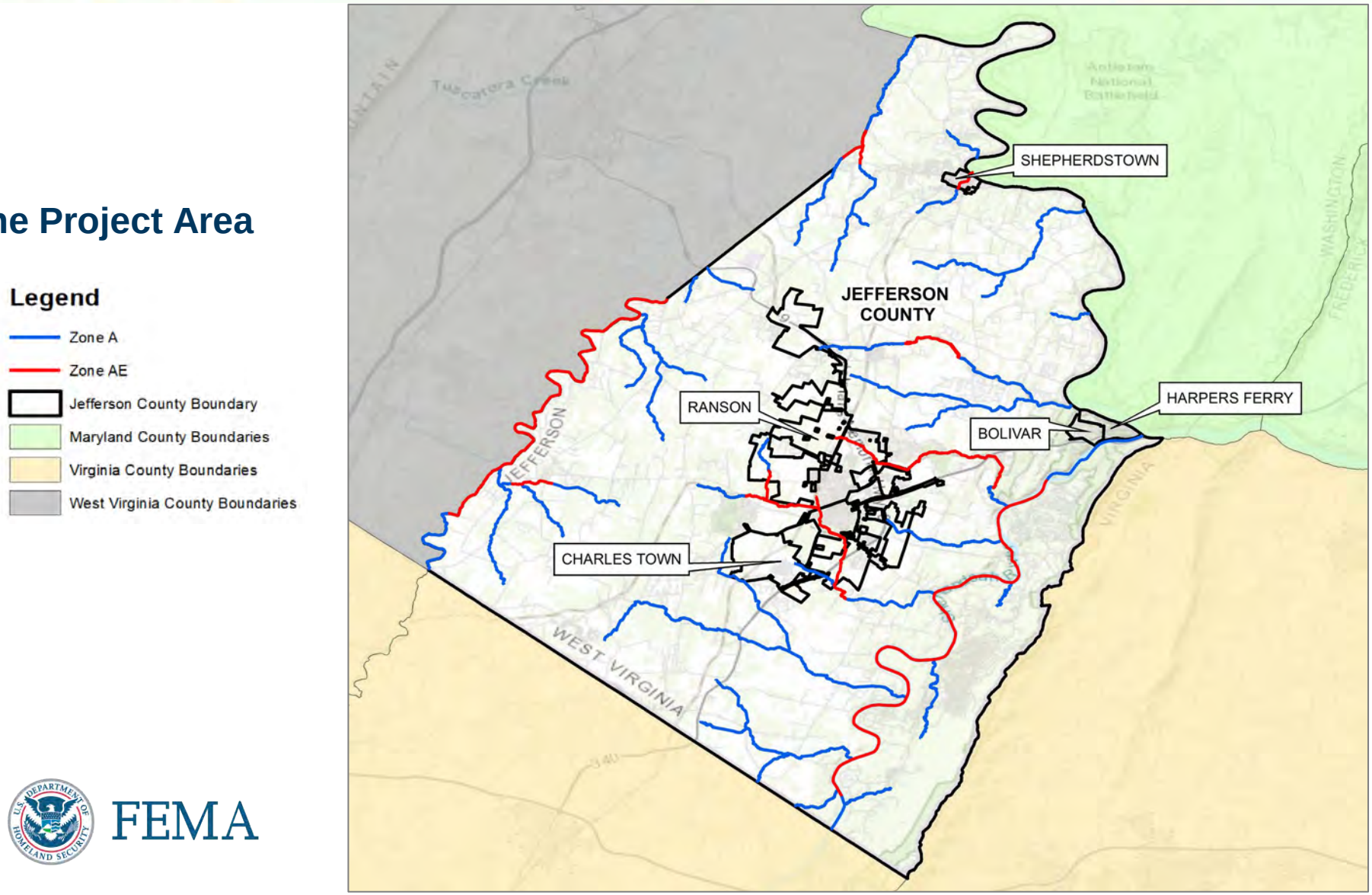
Study Overview (continued)

Revised Modeling and Mapping, including:

- Evaluation of **Letters of Map Change (LOMCs)**
  - Case-by-case results shown in a *Summary of Map Actions* (SOMA) that is sent to applicable communities with Preliminary Maps and Letters of Final Determination (LFDs)
  - Letters of Map Revision (LOMRs)
  - Letters of Map Amendment (LOMAs) – *including rectified LOMA locations on the WV Flood Tool*
- Production of associated *non-regulatory* flood risk datasets

Study Overview MAP

The Project Area



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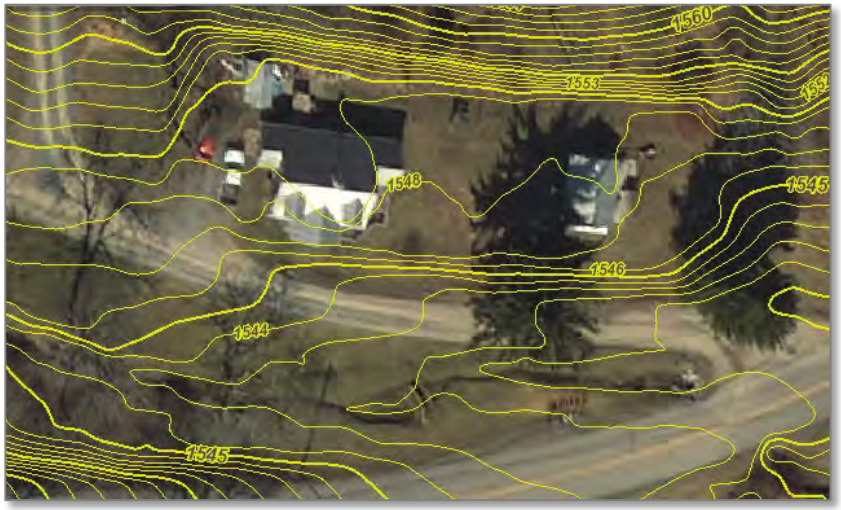
Topographic Data

2012 LiDAR Based Digital Elevation Model (DEM – 2' contours on WV Flood Tool)

LiDAR = Light Detection and Ranging

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



Hydrologic Analyses

Summary information will be published in the forthcoming Flood Insurance Study Report (to a greater degree for detailed Zone AE study reaches)

But a more focused, comprehensive **Hydrology Report** has already been prepared with full details of the sources and methodology, along with comparative evaluation between effective and draft / proposed restudied discharges.

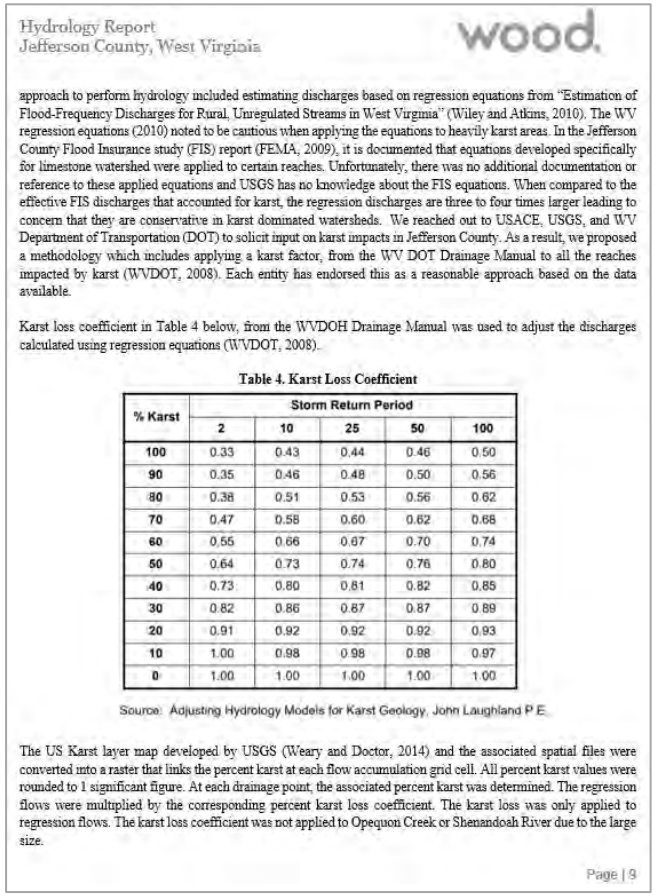
Key Finding

The study team performed an **updated 17C gage analysis** and used a **karst loss coefficient** to adjust the flows computed using the USGS 2010 regression equations for Jefferson County.

Bulletin 17C is an improved statistical method from Bulletin 17 (used in the effective study), and the study team analysis for detailed reaches included peak flow records up to the 2021 water year. The resulting flow was weighted with 2010 regression and gage-weighting equations (Wiley and Atkins, 2010).

The difference between the flow results may thus be attributed to additional peak flow data and updated regression equations, with karst loss coefficients.

Sample page from the Jefferson Risk MAP Hydrology Report



Hydrology Report
Jefferson County, West Virginia

wood.

approach to perform hydrology included estimating discharges based on regression equations from "Estimation of Flood-Frequency Discharges for Rural, Unregulated Streams in West Virginia" (Wiley and Atkins, 2010). The WV regression equations (2010) noted to be cautious when applying the equations to heavily karst areas. In the Jefferson County Flood Insurance study (FIS) report (FEMA, 2009), it is documented that equations developed specifically for limestone watershed were applied to certain reaches. Unfortunately, there was no additional documentation or reference to these applied equations and USGS has no knowledge about the FIS equations. When compared to the effective FIS discharges that accounted for karst, the regression discharges are three to four times larger leading to concern that they are conservative in karst dominated watersheds. We reached out to USACE, USGS, and WV Department of Transportation (DOT) to solicit input on karst impacts in Jefferson County. As a result, we proposed a methodology which includes applying a karst factor, from the WV DOT Drainage Manual to all the reaches impacted by karst (WVDOT, 2008). Each entity has endorsed this as a reasonable approach based on the data available.

Karst loss coefficient in Table 4 below, from the WVDOH Drainage Manual was used to adjust the discharges calculated using regression equations (WVDOT, 2008).

Table 4. Karst Loss Coefficient

% Karst	Storm Return Period				
	2	10	25	50	100
100	0.33	0.43	0.44	0.46	0.50
90	0.35	0.46	0.48	0.50	0.56
80	0.38	0.51	0.53	0.56	0.62
70	0.47	0.58	0.60	0.62	0.68
60	0.55	0.66	0.67	0.70	0.74
50	0.64	0.73	0.74	0.76	0.80
40	0.73	0.80	0.81	0.82	0.85
30	0.82	0.86	0.87	0.87	0.89
20	0.91	0.92	0.92	0.92	0.93
10	1.00	0.98	0.98	0.98	0.97
0	1.00	1.00	1.00	1.00	1.00

Source: Adjusting Hydrology Models for Karst Geology, John Laughland P.E.

The US Karst layer map developed by USGS (Weary and Doctor, 2014) and the associated spatial files were converted into a raster that links the percent karst at each flow accumulation grid cell. All percent karst values were rounded to 1 significant figure. At each drainage point, the associated percent karst was determined. The regression flows were multiplied by the corresponding percent karst loss coefficient. The karst loss was only applied to regression flows. The karst loss coefficient was not applied to Opequon Creek or Shenandoah River due to the large size.

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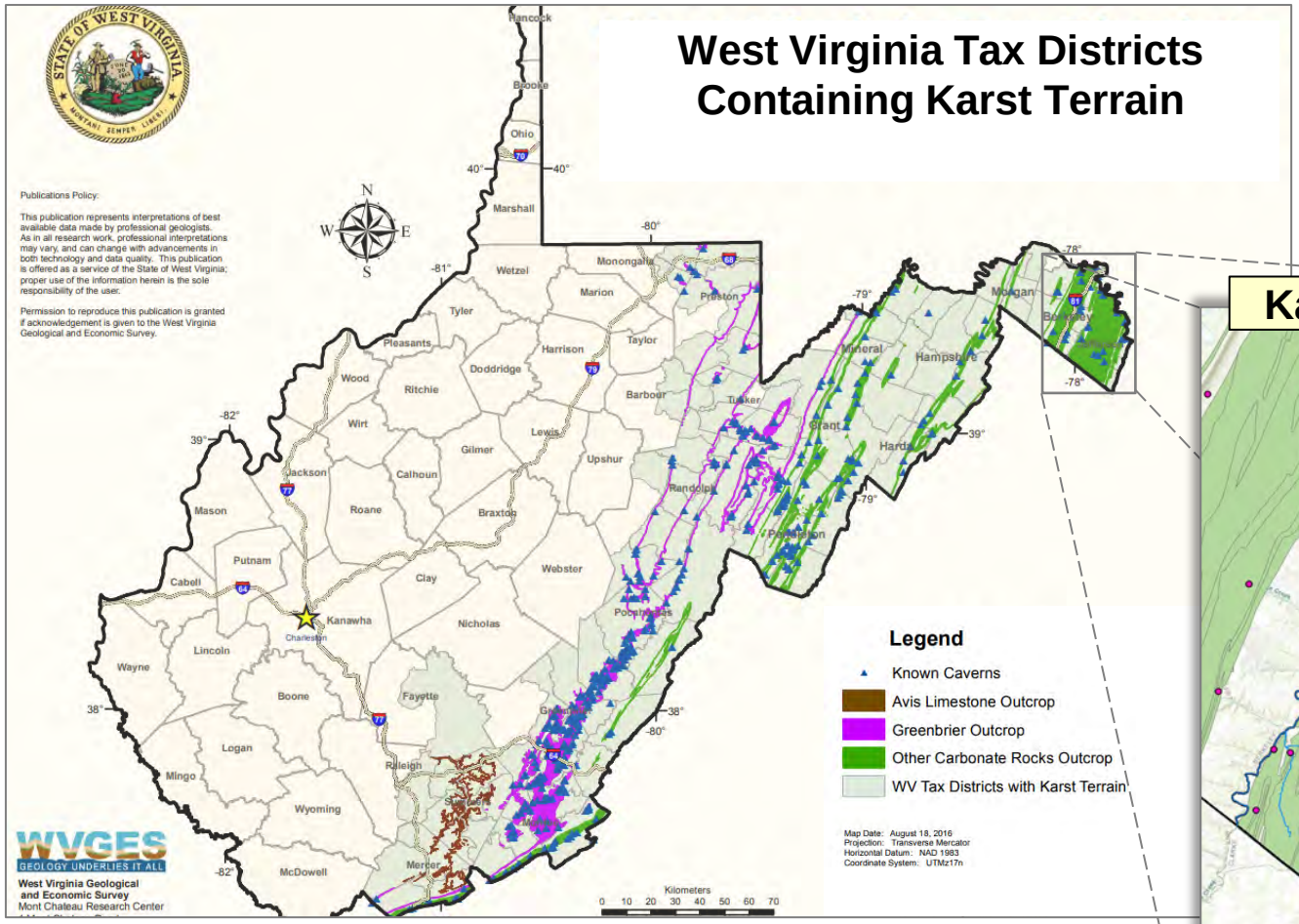
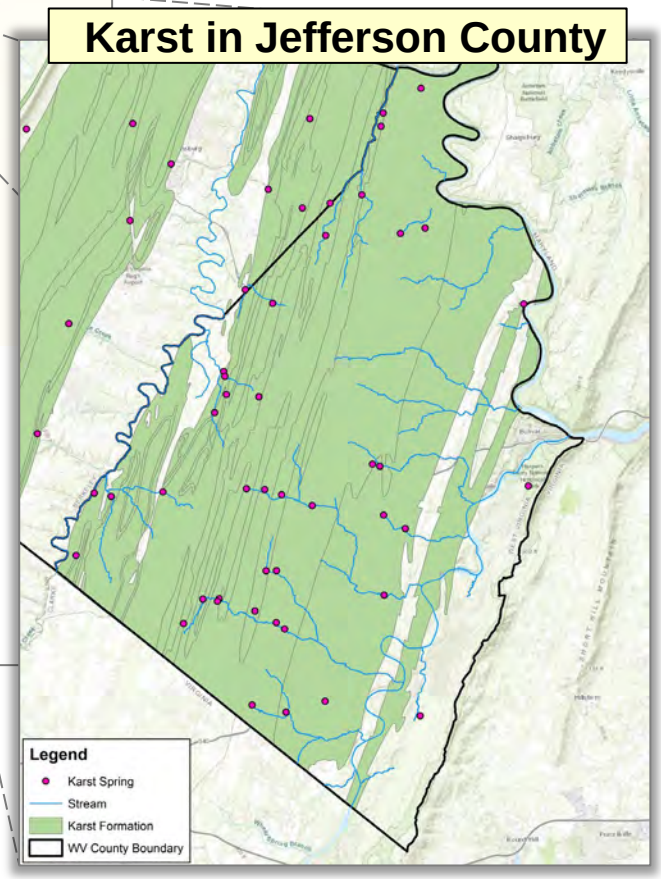
Hydrologic Analyses





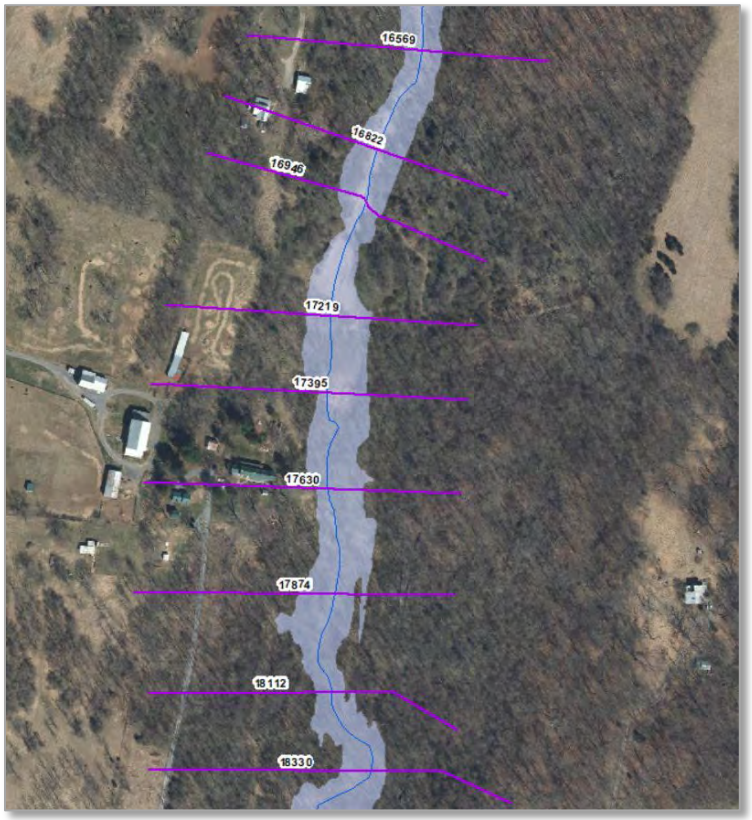
Hydrologic Analyses

Hydrologic Study Method	Study Type	Stream Names	Reach Lengths (*Miles*)
HEC-HMS 4.9	AE	Town Run (Lower Reach)	0.7
HEC-HMS 4.9	A	Town Run (Upper Reach)	1.5
USGS 2010 Regression Equations	AE	Elk Branch, Elk Branch (Lower Lateral Divert), Elk Branch (Upper Lateral Divert), Evitts Run (Middle Reach), Evitts Run Tributary 2, Evitts Run Tributary 3 (Lower Reach), Flowing Spring Run (Upper Reach), Rockymarsh Run (Middle Reach), Rockymarsh Run Tributary 1 (Lower Reach), Turkey Run (Middle Reach)	18.3
USGS 2010 Regression Equations	A	All Remaining Zone A Studies	82.3
Gage Analysis weighted with USGS 2010 Regression Equations	AE	Opequon Creek (Lower Reach), Shenandoah River (Middle Reach)	28.4
Gage Analysis weighted with USGS 2010 Regression Equations	A	Bullskin Run, Opequon Creek (Upper Reach), Rockymarsh Run (Lower Reach), Shenandoah River (Lower Reach), Shenandoah River (Upper Reach)	20.4

Hydraulic Analyses – Zone A

Approximate 'Zone A' Base Level Study *(104.1 miles)*

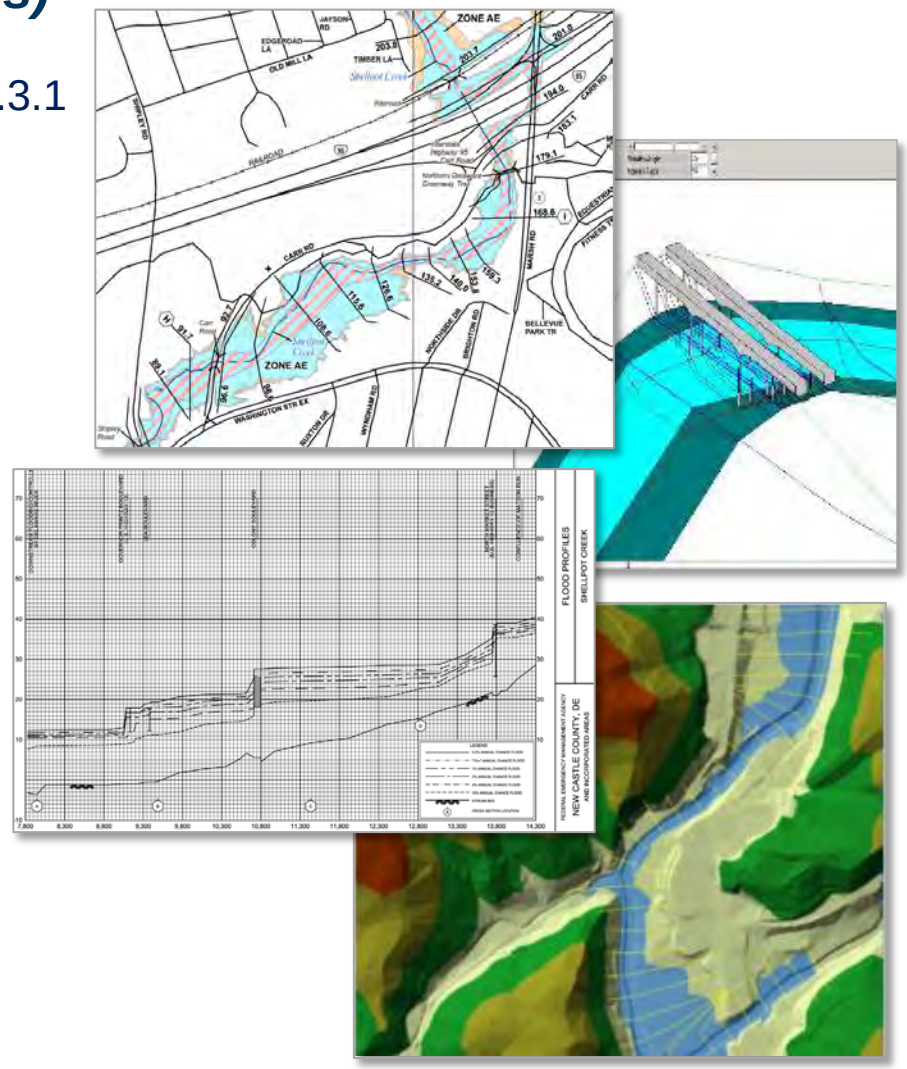
- Generally used in areas with lower development / lower development potential
- Cross-sections generated from LiDAR used for hydraulics:
  - Automated processes
  - Does not include information below normal water surface
  - No structures are modeled
  - No Floodway or BFEs (but modeled XS in FIRM database)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



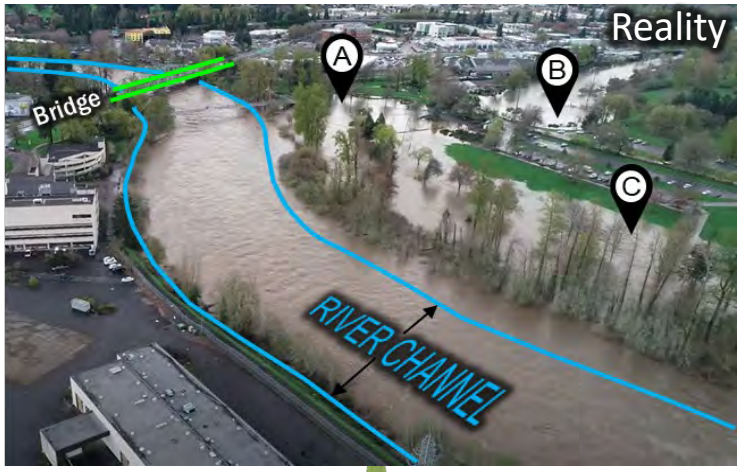
Hydraulic Analyses – Zone AE

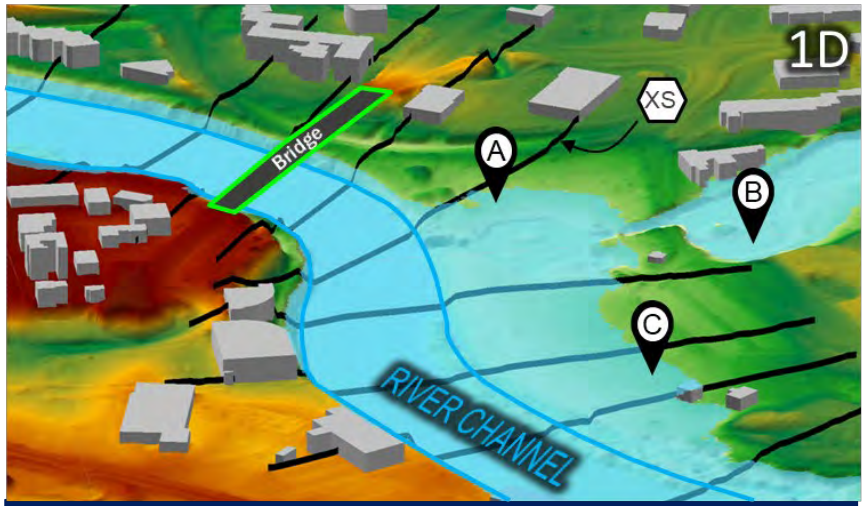
Detailed 'Zone AE' Studies *(47.4 miles)*

- Developed using HEC-RAS 6.1.0, 6.3.0, and 6.3.1
- Generally used in areas with higher development / higher development potential
- Structures are modeled (e.g. culverts, bridges)
- Detailed hydraulic parameter refinement (coefficients, obstructions, Manning's ‘n’ values, etc.)
- Encroachments computed and regulatory floodways mapped
- Multiple flood profiles included in FIS.
- Floodway, cross sections, BFES, 1%-annual-chance, and 0.2%-annual-chance event floodplains shown on FIRMs

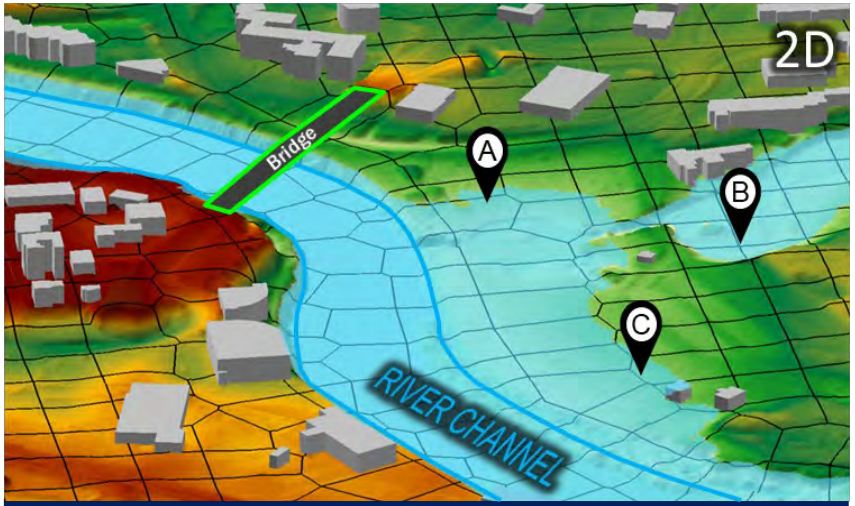


Hydraulic Analyses – 1D vs 2D



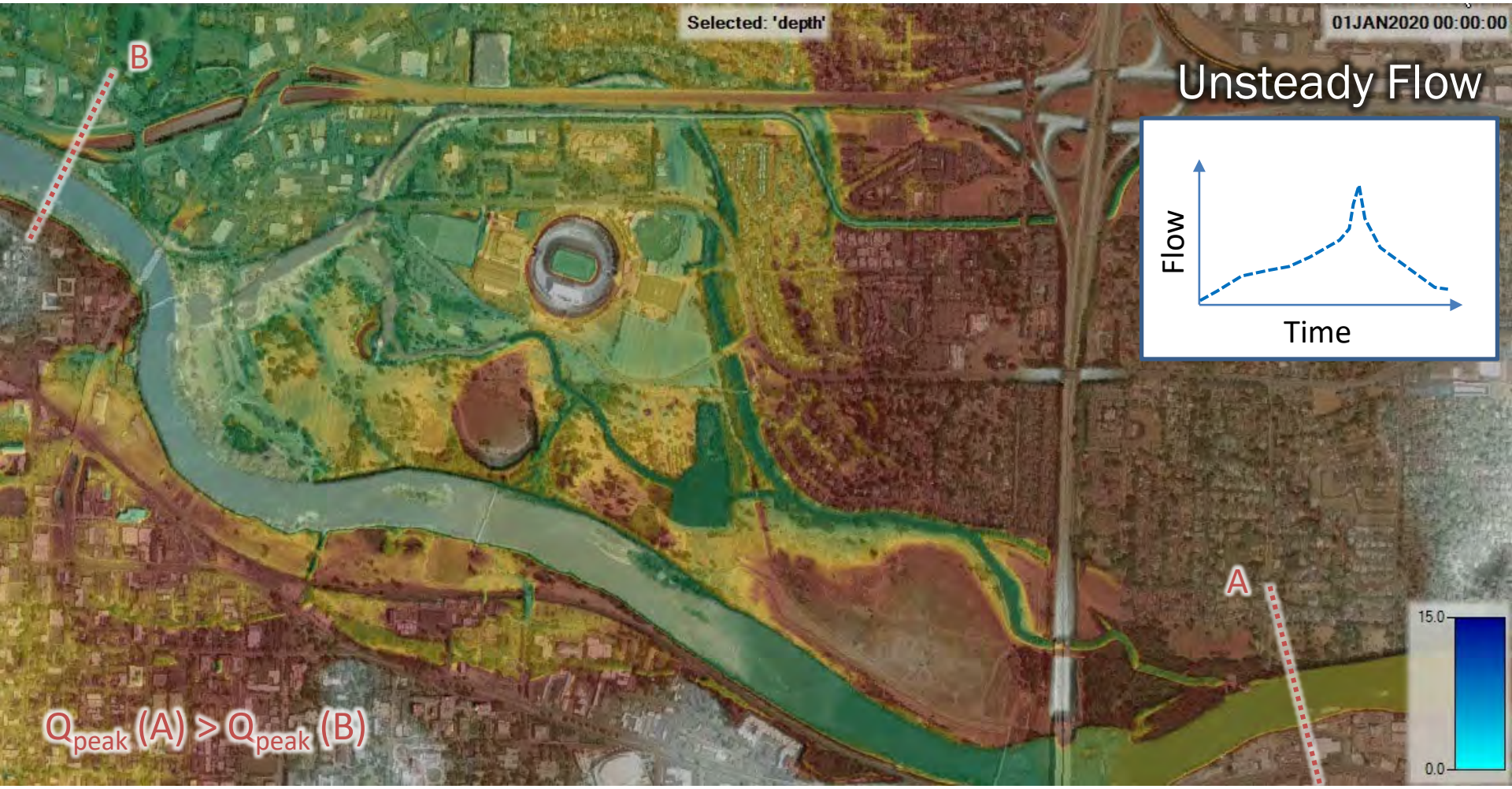


1D: most existing NFIP studies; confined flow; flow generally in one direction



2D: unconfined, split/diverted flows; flow in multiple directions; wide/flat floodplains; shallow flooding

Example 2D Modeling – Unsteady Flow



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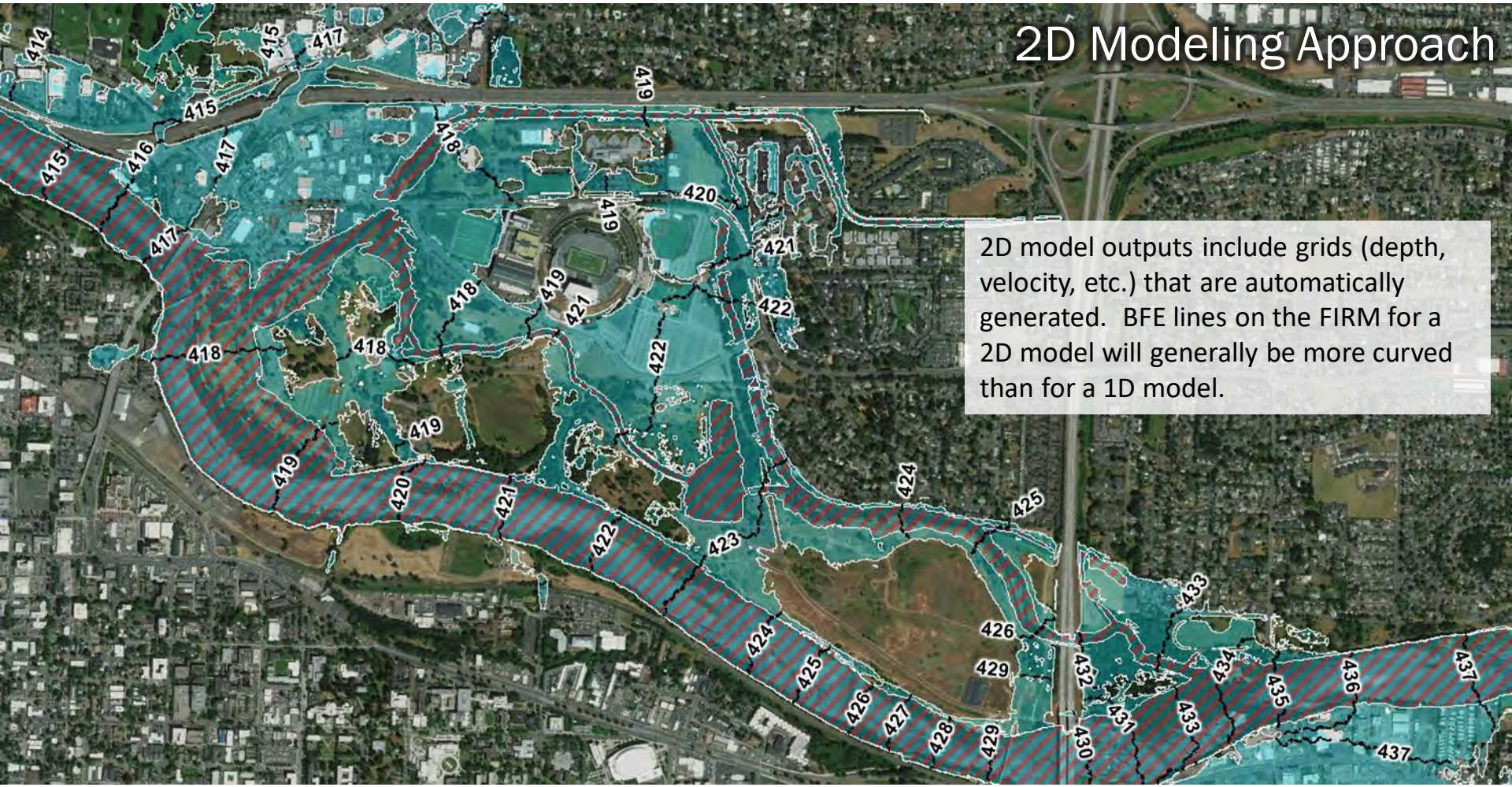
Example 2D Modeling – FIRM Depiction



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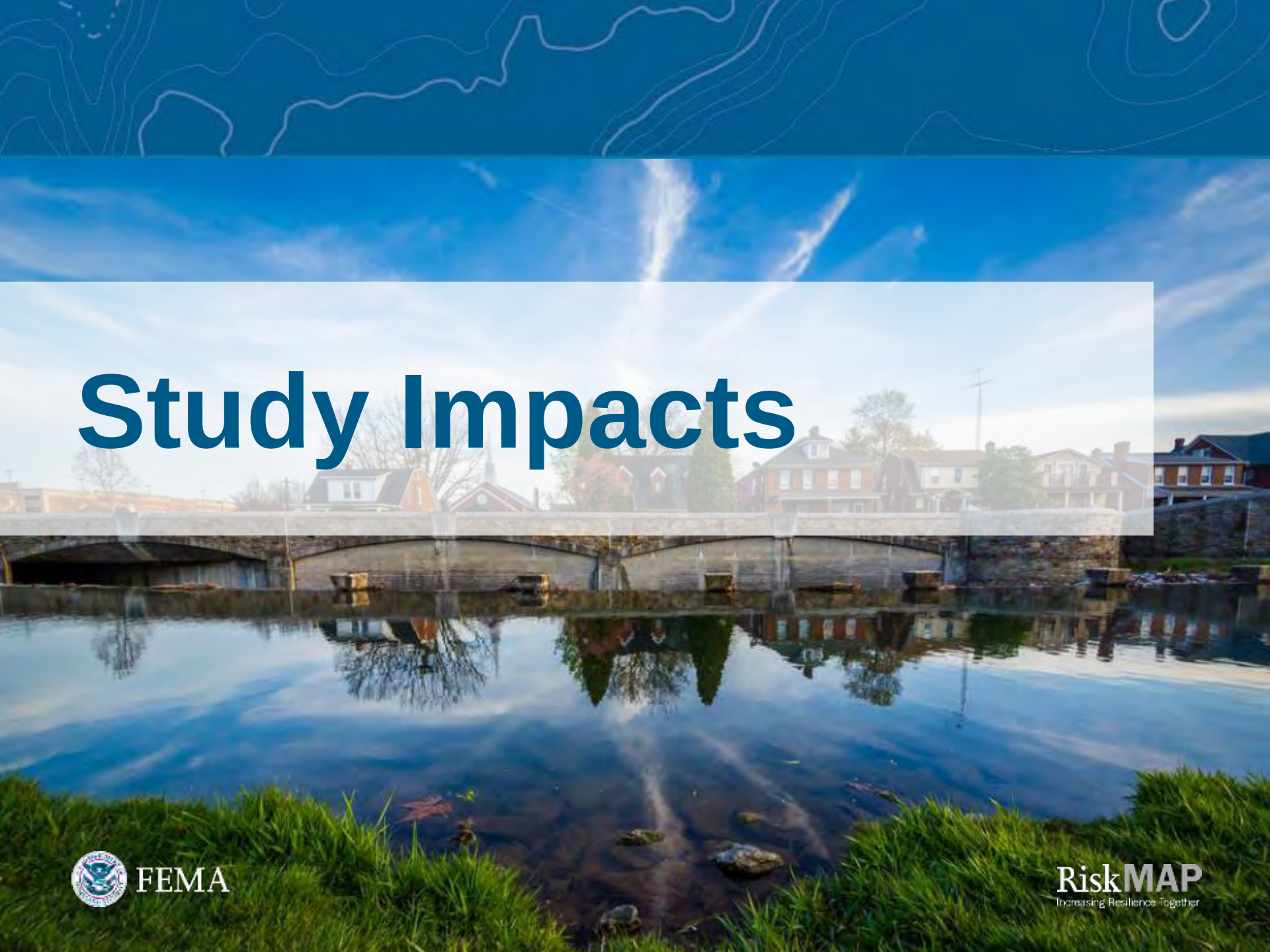
Study Impacts



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Significant Impacts Overview

- Compared to effective NFHL, **widening and narrowing of the 1-percent-annual-chance floodplain (SFHA) extent** was observed throughout the county.
- Extended study reaches (with drainage areas of 2 square mile and greater, and not on current effective FIRM) result in new properties within the SFHA.
- Most streams experienced both **increases and decreases** when comparing the computed model WSELs to the current regulatory base flood elevations.
- **More structures will be mapped out than mapped in.** Basic estimate: -350 / +120

WV Flood Tool – SFHA Future Map Conditions

No Change SFHA	Mapped In SFHA	Mapped Out SFHA	Total Structures
343 *(+30 Floodway)*	122 *(+3 Floodway)*	276	774

Flood Risk Dashboard

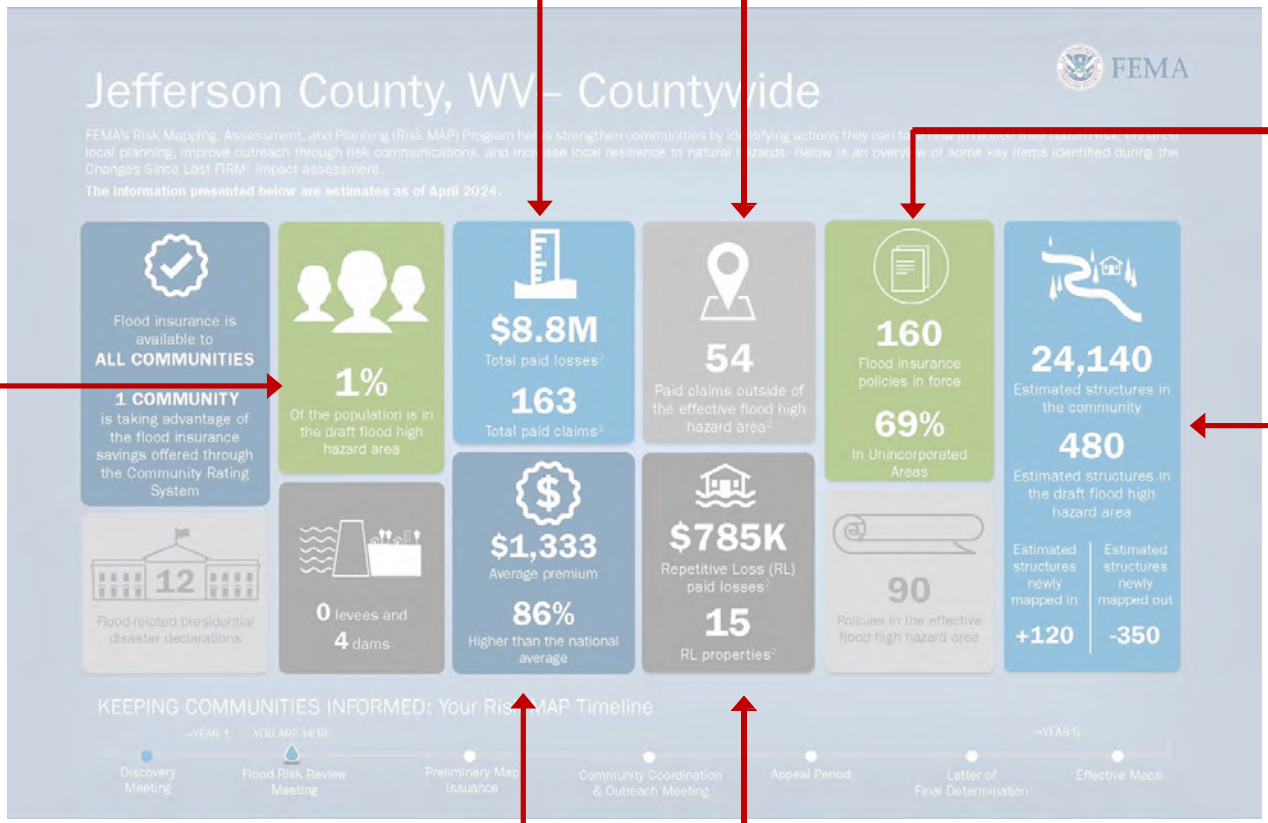
NFIP FLOOD CLAIM PAYOUTS

CLAIMS OUTSIDE OF SFHA

NFIP FLOOD POLICIES

AFFECTED RESIDENTS

HIGH-RISK STRUCTURES



AVERAGE PREMIUM

REPETITIVE LOSSES

Flood Risk Dashboard

Jefferson County, WV– Countywide

FEMA

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 2024.

Flood insurance is available to **ALL COMMUNITIES**

1 COMMUNITY is taking advantage of the flood insurance savings offered through the Community Rating System

12
Flood-related presidential disaster declarations

1%
Of the population is in the draft flood high hazard area

0 levees and **4** dams

$8.8M
Total paid losses[2]

163
Total paid claims[2]

$1,333
Average premium

86%
Higher than the national average

54
Paid claims outside of the effective flood high hazard area[2]

$785K
Repetitive Loss (RL) paid losses[2]

15
RL properties[2]

160
Flood insurance policies in force

69%
In Unincorporated Areas

90
Policies in the effective flood high hazard area

24,140
Estimated structures in the community

480
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in	Estimated structures newly mapped out
+120	-350

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

~YEAR 1 — YOU ARE HERE — ~YEAR 5

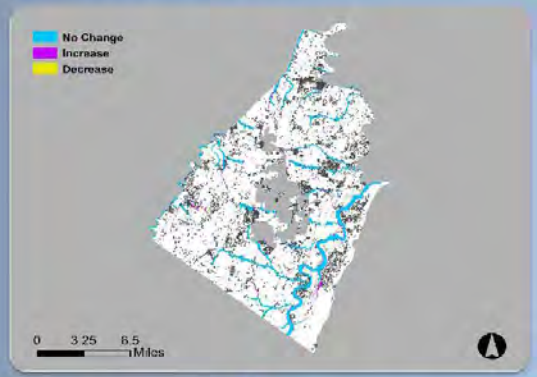
Discovery Meeting → Flood Risk Review Meeting → Preliminary Map Issuance → Community Coordination & Outreach Meeting → Appeal Period → Letter of Final Determination → Effective Maps

Flood Risk Dashboard

FEMA

Unincorporated Areas/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1] Flood Insurance Rate Map. [2] Since 1978.)



10/15/1980
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$1.6M
Total paid losses[2]

127
Total paid claims[2]

111
Flood insurance policies in force

57
Policies in the effective flood high hazard area

7 CRS

19,635
Estimated structures in the community

325
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in	Estimated structures newly mapped out
+80	-300

1%
Of the population is in the draft flood high hazard area

22%
Of households spend 30% or more of their income on housing

44
Paid claims outside of the effective flood high hazard area[2]

$670K
Repetitive Loss (RL) paid losses[2]

13
RL properties[2]

12
Flood-related countywide presidential disaster declarations

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

YOU ARE HERE

- Discovery Meeting
- Flood Risk Review Meeting
- Preliminary Map Issuance
- Community Coordination and Outreach Meeting
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- Effective Maps

Flood Risk Dashboard

FEMA

Town of Bolivar/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1]Flood Insurance Rate Map. [2]Since 1978.)

12/18/2009
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$0
Total paid losses[2]

0
Total paid claims[2]

2
Flood insurance policies in force

0
Policies in the effective flood high hazard area

405
Estimated structures in the community

5
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in **+5**

Estimated structures newly mapped out **-0**

<1%
Of the population is in the draft flood high hazard area

34%
Of households spend 30% or more of their income on housing

0
Paid claims outside of the effective flood high hazard area[2]

$0
Repetitive Loss (RL) paid losses[2]

0
RL properties[2]

12
Flood-related countywide presidential disaster declarations

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

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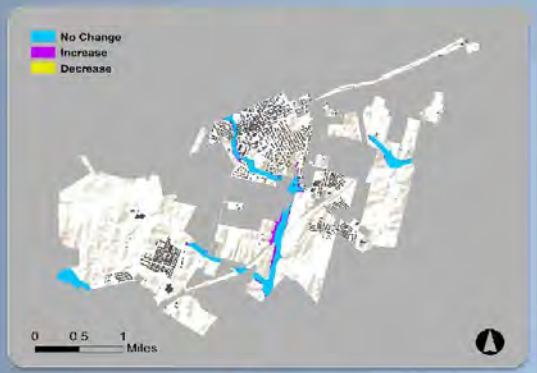
Flood Risk Dashboard

FEMA

City of Charles Town/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1]Flood Insurance Rate Map. [2]Since 1978.)



12/4/1979
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$31K
Total paid losses[2]

3
Total paid claims[2]

9
Flood insurance policies in force

2
Policies in the effective flood high hazard area

1,905
Estimated structures in the community

25
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in **+5**

Estimated structures newly mapped out **-5**

1%
Of the population is in the draft flood high hazard area

20%
Of households spend 30% or more of their income on housing

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

$0
Repetitive Loss (RL) paid losses[2]

0
RL properties[2]

12
Flood-related countywide presidential disaster declarations

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

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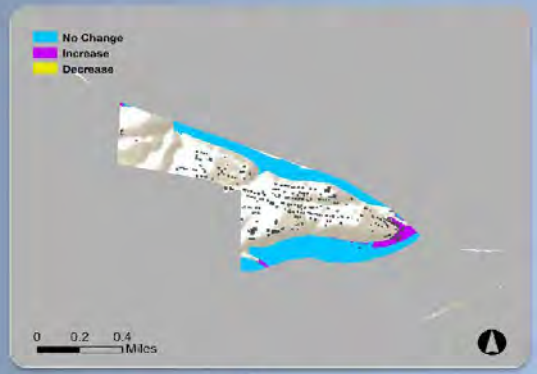
Flood Risk Dashboard

FEMA

Town of Harpers Ferry/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1]Flood Insurance Rate Map. [2]Since 1978.)



8/24/1984
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$7.1M
Total paid losses[2]

11
Total paid claims[2]

3
Flood insurance policies in force

1
Policies in the effective flood high hazard area

220
Estimated structures in the community

15
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in **+10**

Estimated structures newly mapped out **-0**

1%
Of the population is in the draft flood high hazard area

18%
Of households spend 30% or more of their income on housing

6
Paid claims outside of the effective flood high hazard area[2]

$105K
Repetitive Loss (RL) paid losses[2]

1
RL properties[2]

12
Flood-related countywide presidential disaster declarations

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

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Flood Risk Dashboard

FEMA

City of Ranson/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1]Flood Insurance Rate Map. [2]Since 1978.)

6/15/1979
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$60K
Total paid losses[2]

20
Total paid claims[2]

16
Flood insurance policies in force

13
Policies in the effective flood high hazard area

1,630
Estimated structures in the community

60
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in	Estimated structures newly mapped out
+0	-30

2%
Of the population is in the draft flood high hazard area

28%
Of households spend 30% or more of their income on housing

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

$10K
Repetitive Loss (RL) paid losses[2]

1
RL properties[2]

12
Flood-related countywide presidential disaster declarations

KEEPING COMMUNITIES INFORMED: Your Risk MAP Timeline

YOU ARE HERE

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

Flood Risk Dashboard

FEMA

Town of Shepherdstown/ Jefferson County, WV

KNOW YOUR RISK (The information presented below are estimates as of April 2024. [1] Flood Insurance Rate Map. [2] Since 1978.)

3/18/1980
Initial FIRM[1] date

12/18/2009
Effective FIRM date

$0
Total paid losses[2]

0
Total paid claims[2]

19
Flood insurance policies in force

17
Policies in the effective flood high hazard area

345
Estimated structures in the community

55
Estimated structures in the draft flood high hazard area

Estimated structures newly mapped in **+20**

Estimated structures newly mapped out **-15**

16%
Of the population is in the draft flood high hazard area

35%
Of households spend 30% or more of their income on housing

0
Paid claims outside of the effective flood high hazard area[2]

$0
Repetitive Loss (RL) paid losses[2]

0
RL properties[2]

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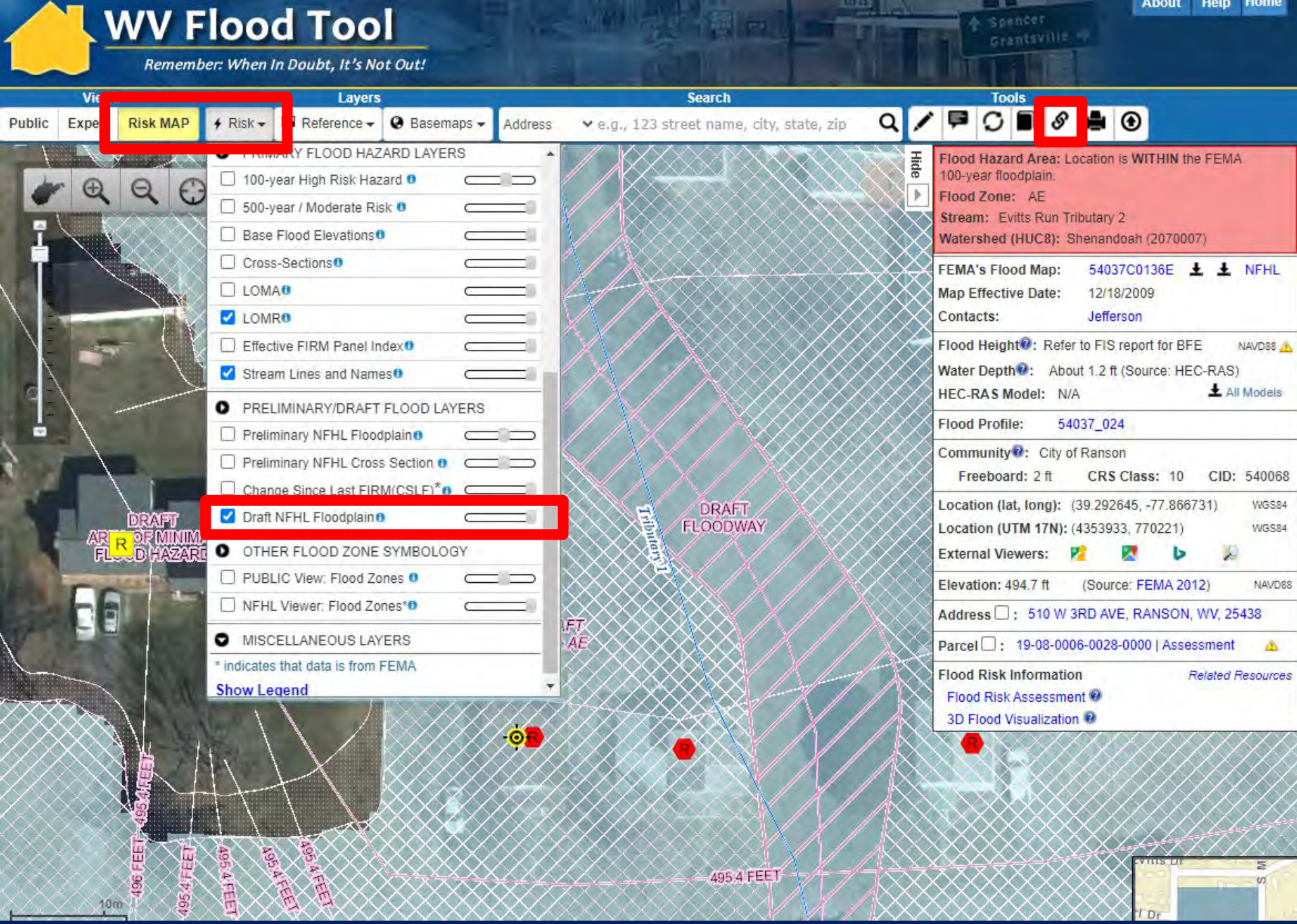


http://www.mapwv.gov/flood/

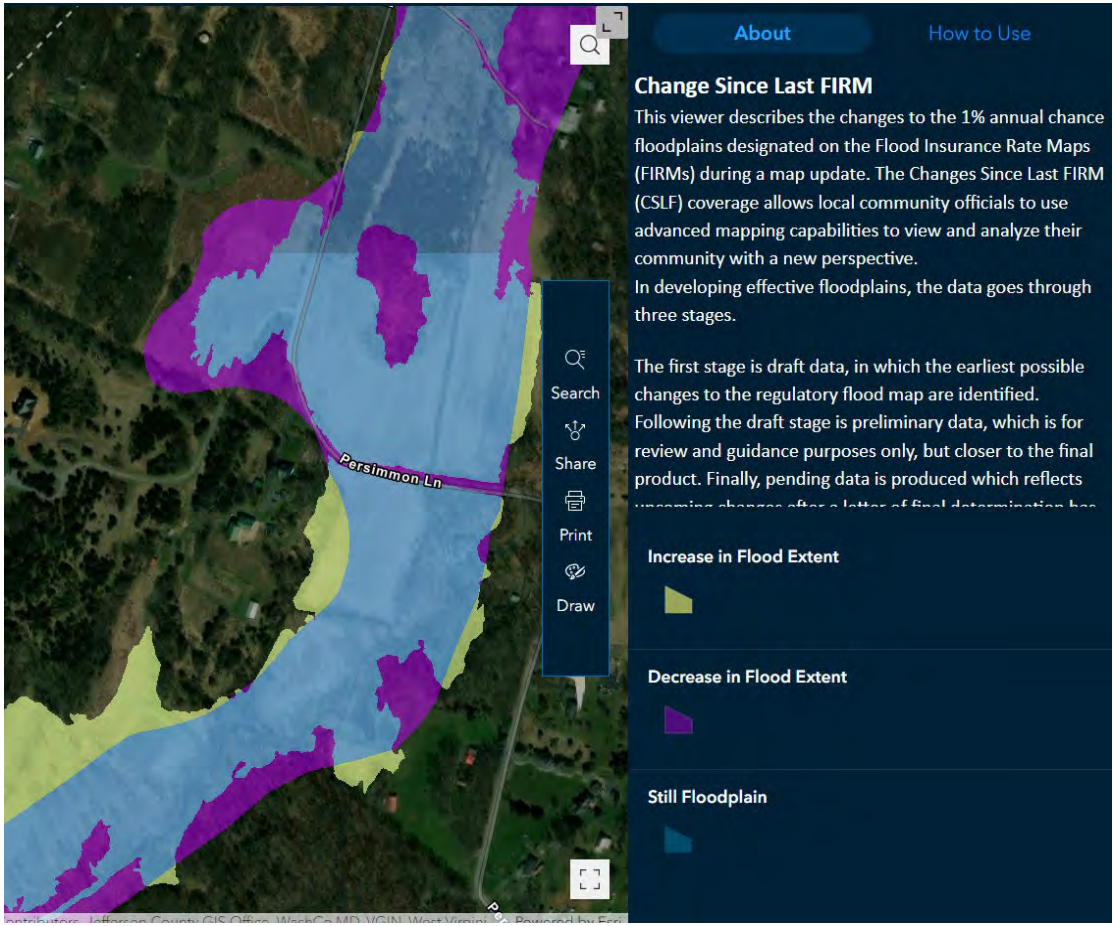
How Did the Floodplain Maps Change?

FEMA Region 3 Changes Since Last FIRM (CSLF) Viewer: https://arcg.is/1GS0T80

Change in Floodplain Extents:

- Purple – Decrease
- Blue – Still Floodplain
- Yellow – Increase

**Map view has scale-dependent layers*



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 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

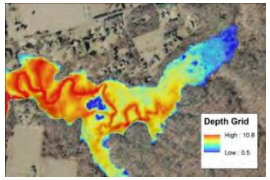
Preliminary flood hazard data provides the public an early look at their home or community's projected risk to flood hazards. Preliminary data may include new or revised Flood Insurance Rate Maps (FIRM), Flood Insurance Study (FIS) Reports and FIRM Databases. View your community's preliminary flood hazard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

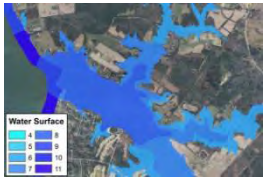
Using Flood Risk Data to Identify and Reduce Risk

Types of Flood Risk Products



Flood Depth & Analysis Grids

Changes Since Last FIRM



Water Surface Elevation Grids

Flood Risk Assessment /
Economic Loss Esimates

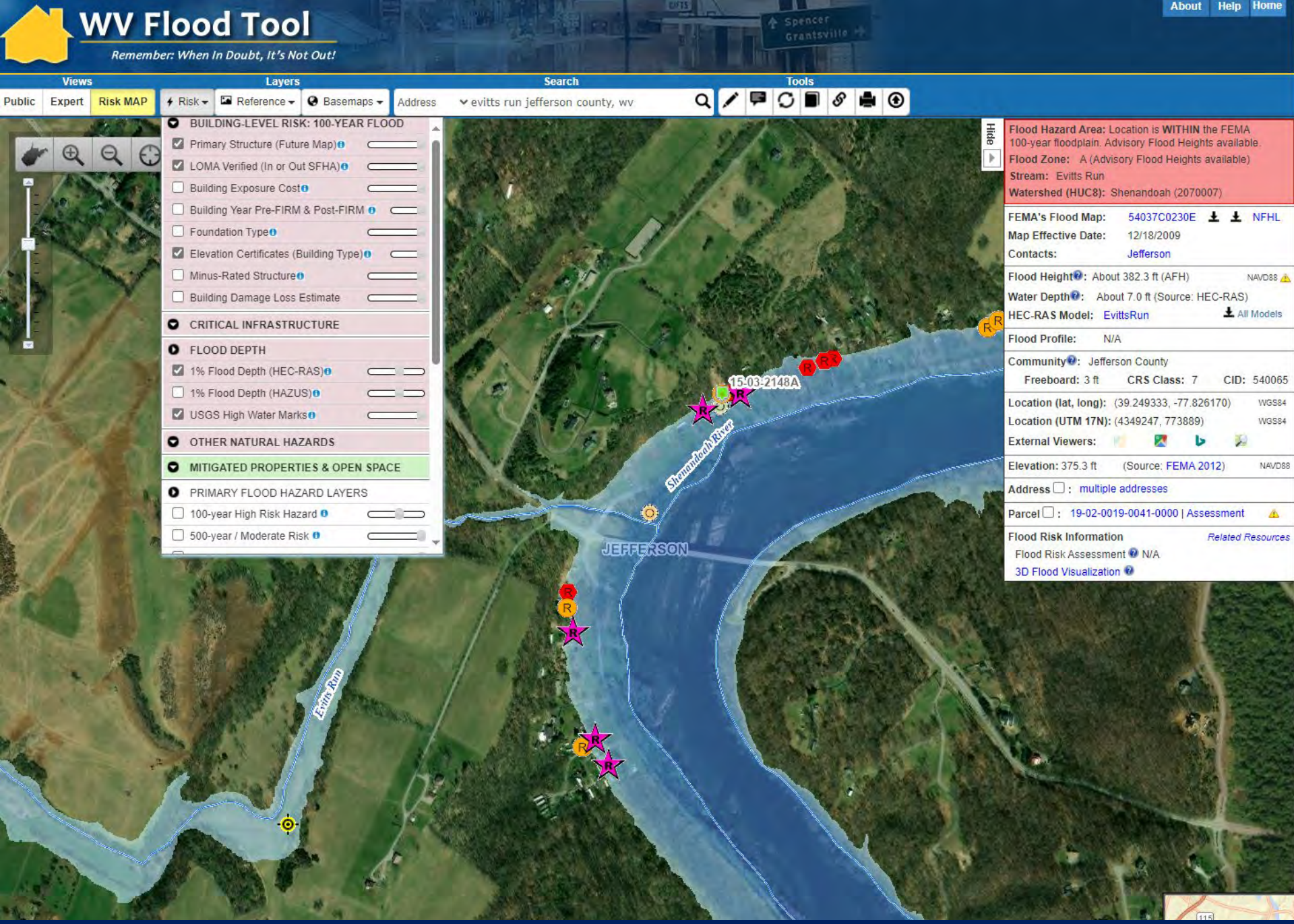
Areas of Mitigation Interest

Water Surface Elevation Grids

Represent the continuous water surface elevations as determined at modeled cross-sections and interpolated values between cross sections

Depth Grids

Represent the difference between the ground surface and the water surface elevations



http://www.mapwv.gov/flood/

Flood Hazard Mitigation Planning

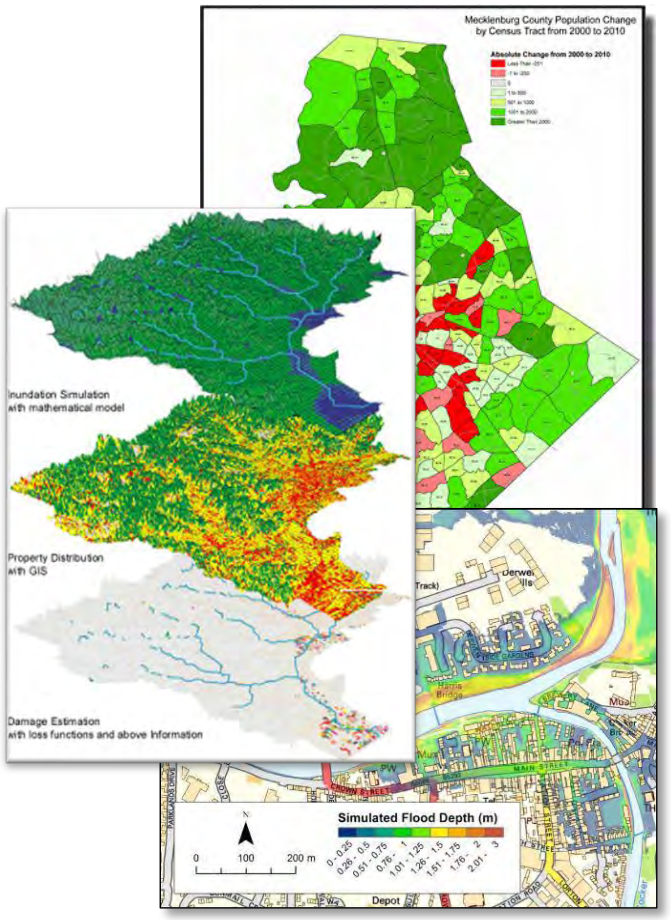
We are here

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

RiskMAP
Increasing Resilience Together

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




Floodplain
Management
FEMA
RiskMAP
Increasing Resilience Together

Flood Risk Doesn't Stop at a Line

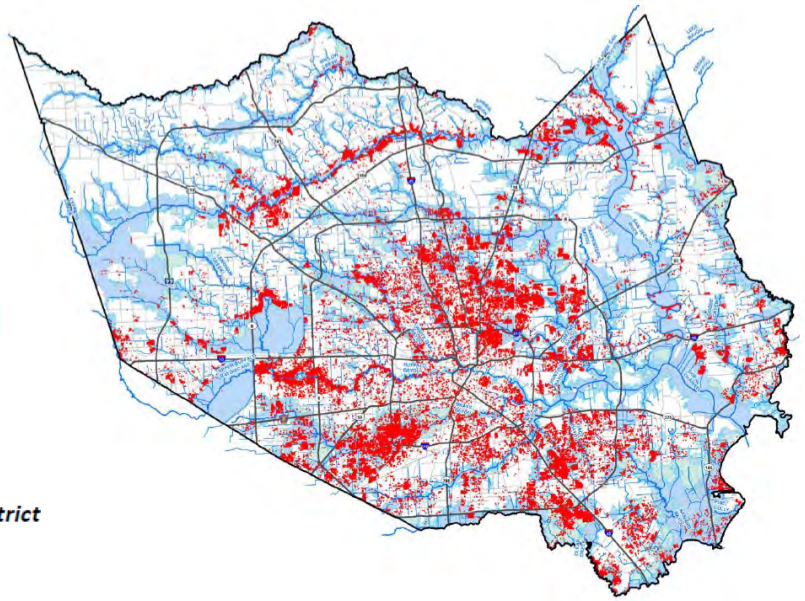
- 25% of all flood insurance claims come from outside high-risk areas.
- Your community can regulate to standards higher than the NFIP minimum standards. Consider strengthening regulations using:
  - 0.2% annual chance flood
  - "Freeboard"
  - Buffer around Special Flood Hazard Area (SFHA)
  - Flood depth grids

HURRICANE HARVEY
GREATER HOUSTON

154,170 Homes Flooded

32% < 100-yr
23% > 100 yr, < 500 yr
46% > 500 yr

SOURCE: Harris County Flood Control District



FEMA

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

Harpers Ferry, West Virginia (Jefferson County)

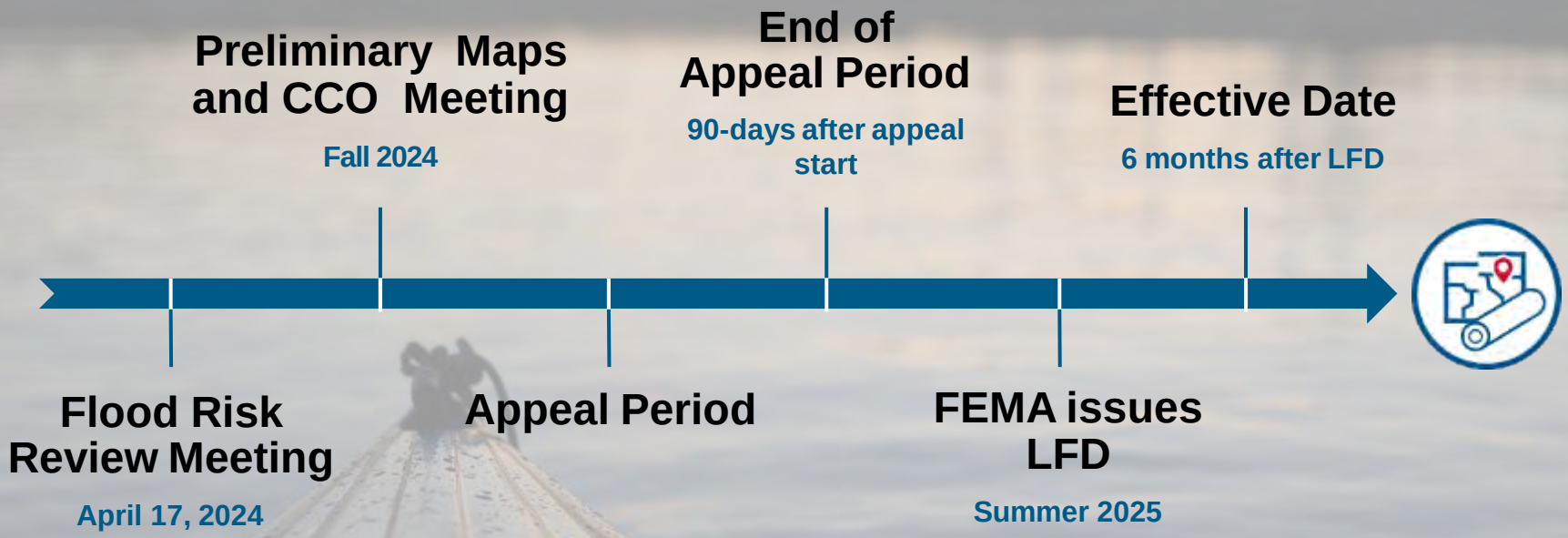
Floodplain Management

- 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


Discussion
FEMA
RiskMAP
Increasing Resilience Together

Timeline – Looking Ahead

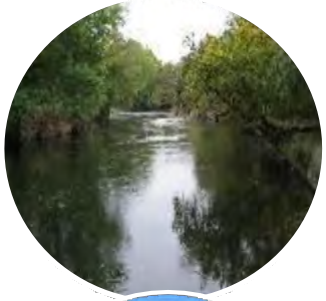


We want to hear from you!

- 30-day review and comment period
- WV Flood Tool: https://www.mapwv.gov/flood
- 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!***

Project Contacts

State NFIP / CTP:
Timothy W. Keaton, CFM
(304) 414-7659
tim.w.keaton@wv.gov



FEMA Region III:
Elizabeth Ranson
Mitigation Planning Specialist (215) 347-0686
elizabeth.ranson@fema.dhs.gov

Vinod Mahat
Project Officer
(202) 664-9597
vinod.mahat@fema.dhs.gov

Mapping Partner:
David Cooper
Study Manager
(703) 964-1189
david.r.cooper@wsp.com

WVGISTC:
Kurt Donaldson, GISP, CFM
Manager
(304) 293-9467
kurt.donaldson@mail.wvu.edu

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