

Flood Risk Assessment Logan County

WV GIS Tech Center

June 2024



WV Flood Risk Index

OVERALL FLOOD RISK

Under Development

(1) FLOODPLAIN CHARACTERISTICS	(2) BUILDING EXPOSURE	(3) BUILDING CHARACTERISTICS	(4) CRITICAL INFRASTRUCTURE	(5) COMMUNITY ASSETS	(6) DAMAGE ESTIMATES	(7) PEOPLE /SOCIAL	(8) OTHER HAZARDS
Floodplain Area ²	Building Floodplain Count ^{1 2}	Building Value ^{1 2}	Essential Facilities	Historical Assets	Substantial Damage Estimates ^{*1 2}	Population in Floodplain	Dam/Levee Failure
Floodplain Length ¹	Building Floodway Count ^{1 2}	Mobile Homes	Roads Inundated	Non-Historical Assets	Previous Claims	Population Displaced	Landslides
Floodplain Depth ^{1 2}	Building Floodplain Ratio ²	Basement			Repetitive Losses	WV Social Vulnerability Index	Karst
Flood Disaster Frequency	Building Density ^{1 2}	One Story					
		Building Year*					

* Multiple Indicators

¹ River/Stream Indicator

² Watershed Indicator

At nine geographic scales:

- Community
- Incorporated Place
- Unincorporated Area
- County
- PDC Region
- Major Streams
- Watershed
- State
- Buildings

WV Flood Risk Index

Logan County

OVERALL FLOOD RISK

Under Development

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		Building Year*					

Among Top 10% Counties

Among Top 20% Counties

* Multiple Indicators

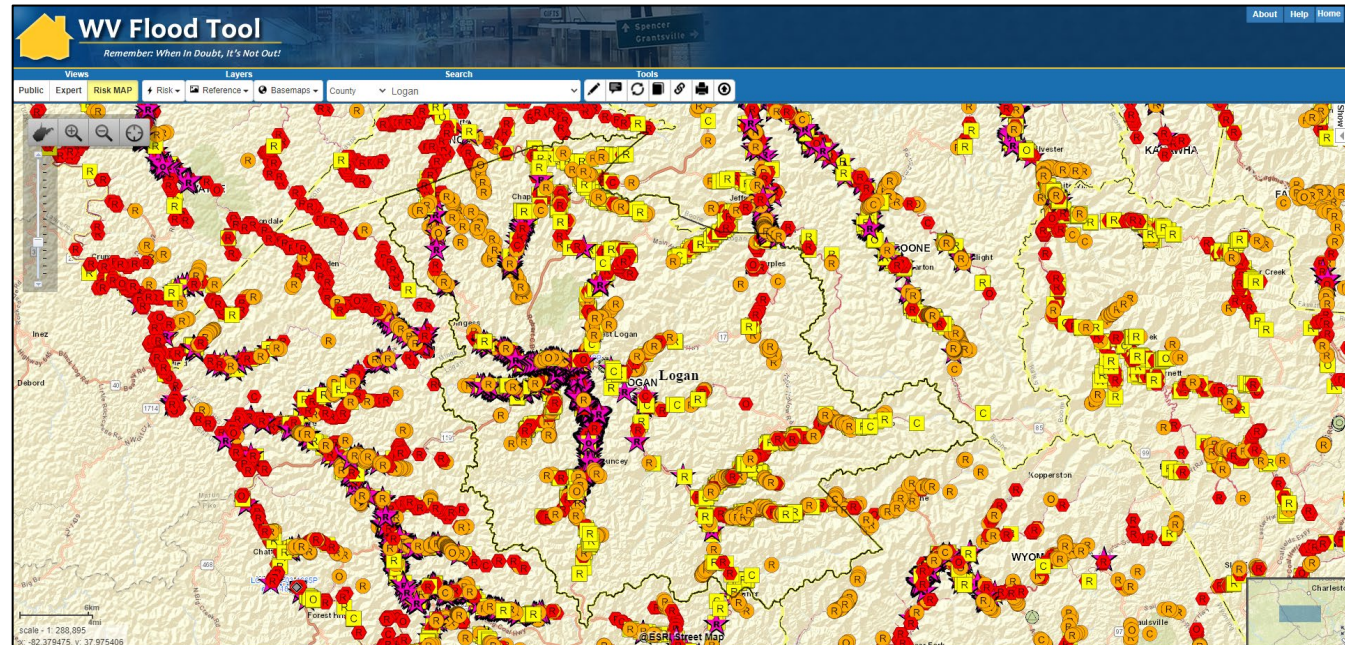
¹ River/Stream Indicator

² Watershed Indicator

General Information

Logan County

Variable	Value for Logan County	Median Value (WV Counties)	Mean Value (WV Counties)	Min. Value (WV Counties)	Max. Value (WV Counties)	State Stats
Total Area (Acres)	291,379	269,049	281,826	1,528	26,607	15,500,454
Total Structures	25,311	16,115	20,341	3,954	100,457	1,118,761
Total Population	32,786	22,603	32,746	5,264	181,953	1,801,049
Population Density (per sq. mi)	72.0	47.0	93.6	8.5	389.9	74.4
Number of Households	12,382	7,912	12,934	2,081	76,919	711,352
Average Household Size	2.6	2.6	2.6	2.2	3.1	2.5



Map of Logan County on Flood Tool ([WV Flood Tool link](#))

Flood Risk Indicator / Index Scores

Logan County

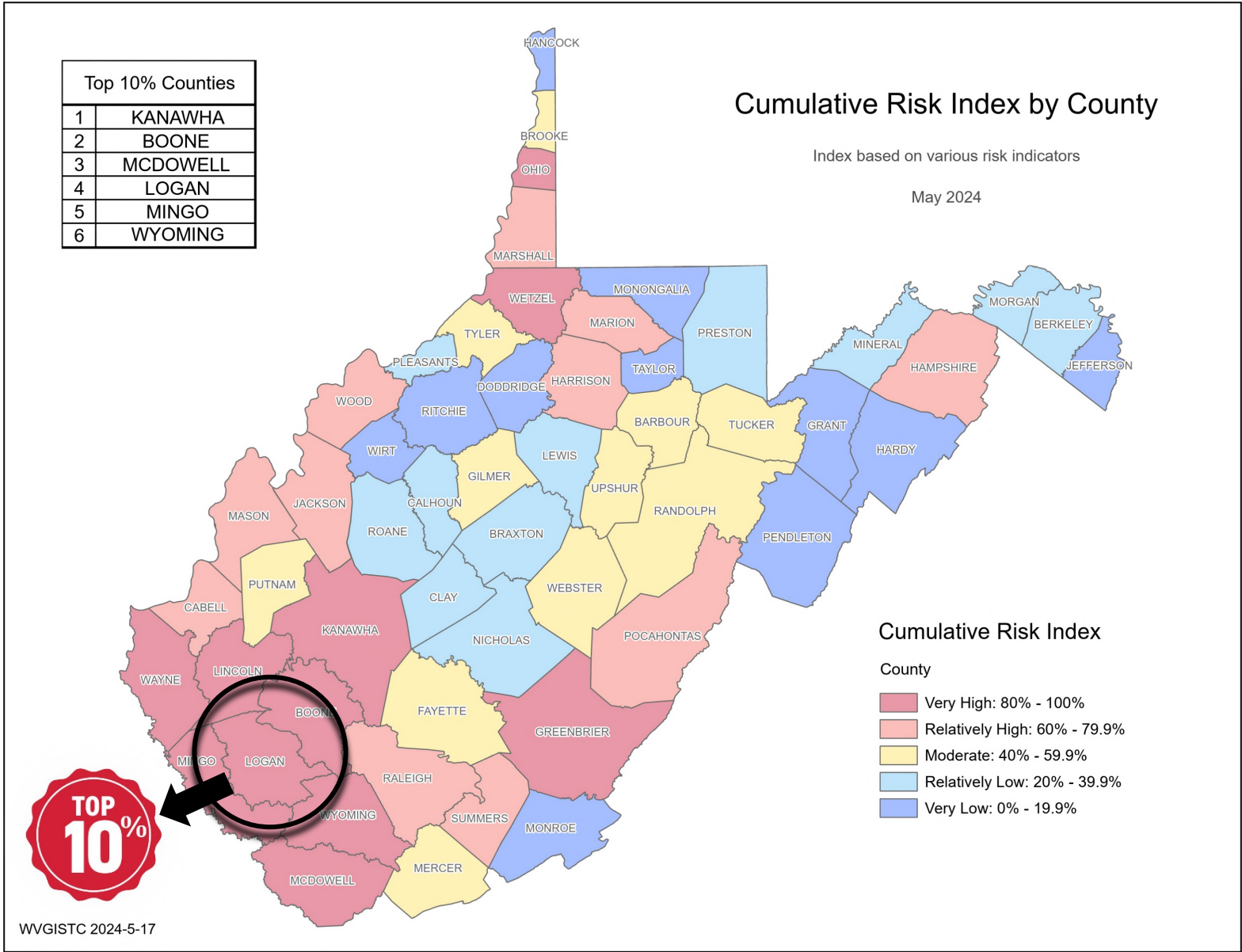
12 of 25 risk indicators reach the 90th percentile.

15 of 25 risk indicators reach the 80th percentile.

Category	Flood Risk Indicator	Value for Logan County	Indicator Score (0 - 100%) for Logan County	Median Value (WV Counties)	Mean Value (WV Counties)	Min. Value (WV Counties)	Max. Value (WV Counties)	State Stats
FLOODPLAIN CHARACTERISTICS	Declared Flood Disasters	27	96.2%	16	16	9	28	64
BUILDING EXPOSURE	Building Floodplain Count	4,498	98.1%	939	1,498	300	13,452	82,408
	Building Floodway Count	961	98.1%	67	150	0	1,462	8,237
	Building Floodplain Ratio	17.8%	94.4%	5.9%	7.9%	0.8%	24.5%	7.4%
	Building Density	0.81	98.1%	1.10	0.19	0.02	1.12	0.16
BUILDING CHARACTERISTICS	Mobile Homes Ratio	35.5%	87.0%	25.8%	25.9%	4.0%	53.3%	27.5%
CRITICAL INFRASTRUCTURE	Essential Facilities	18	88.8%	5	9	0	52	489
	Roads Inundated Ratio	14.6%	96.2%	4.9%	6.0%	0.3%	19.2%	6.0%
COMMUNITY ASSETS	Non-Historical Community Assets	115	96.2%	27	38	8	261	2,092
BUILDING DAMAGE LOSS	Substantial Damage Count	306	92.5%	80	118	4	975	6,493
	Previous Damage Claims	2,418	98.1%	350	507	34	3,044	27,882
	Repetitive Loss Structures	1,110	98.1%	127	176	5	1,547	9,689
PEOPLE / SOCIAL VULNERABILITIES	Population in Floodplain Ratio	33.8%	94.4%	10.6%	14.0%	1.0%	45.0%	11.0%
	Population Displaced Ratio	23.0%	96.2%	5.5%	8.2%	0.6%	30.4%	6.6%
	WV Social Vulnerability Index	88.9%	88.9%	50.0%	50.0%	0.0%	100.0%	N/A
Cumulative Flood Index Score of 25 Risk Factors (Among 55 Counties in WV)		94.4% (4th Rank)		50.0%	50.0%	0.0%	100.0%	N/A

Flood Risk Index Map

Counties



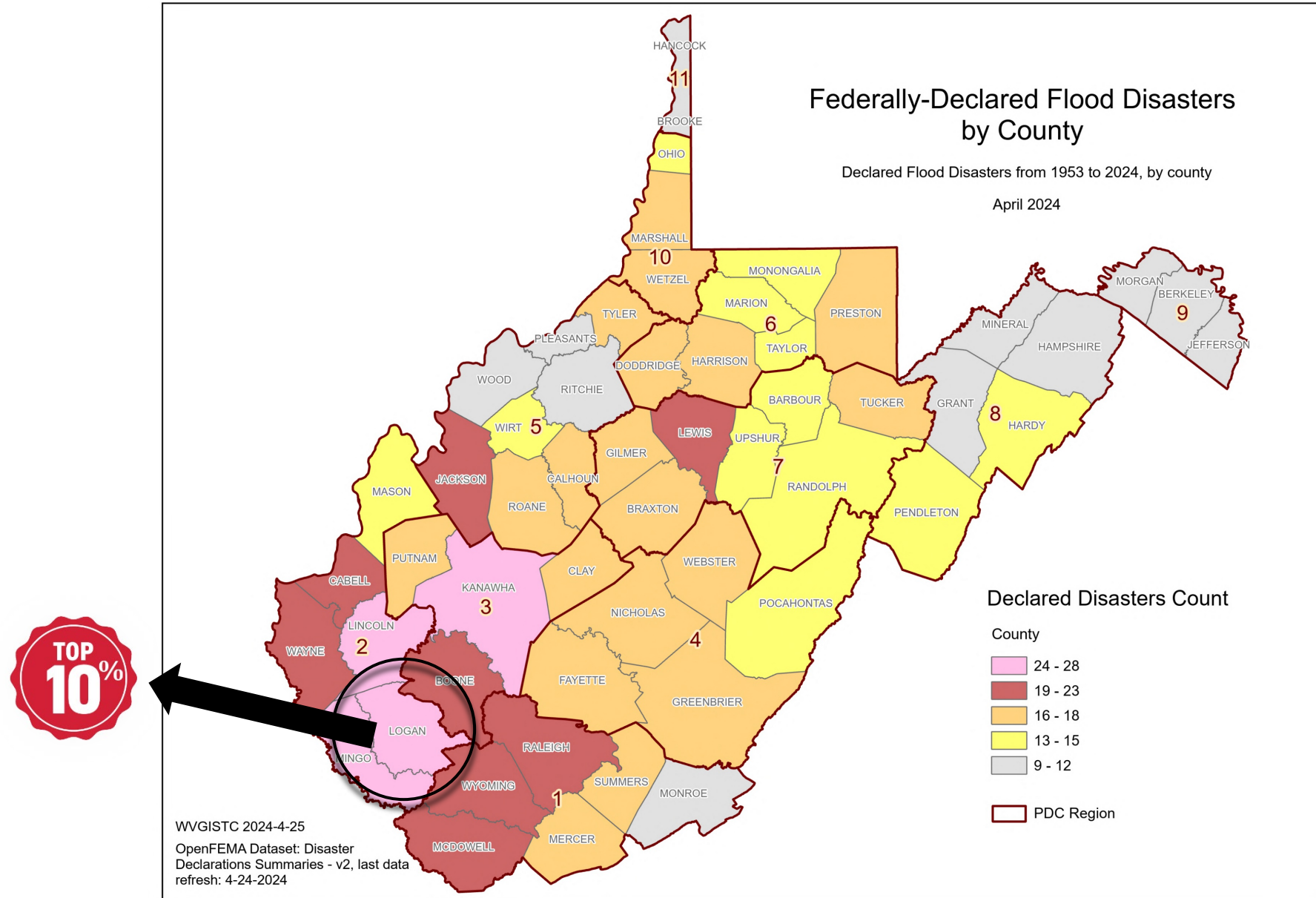
Among the top 10% counties for the Cumulative Flood Risk Index

Ranked 4th among 55 counties in WV for the Cumulative Flood Risk Index

Ranked 1st among 55 counties in WV for the Building Exposure Category

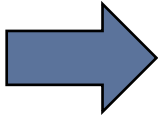
Flood Disaster Frequency

Federally-Declared Disaster



Most Recent Federally-Declared Disaster

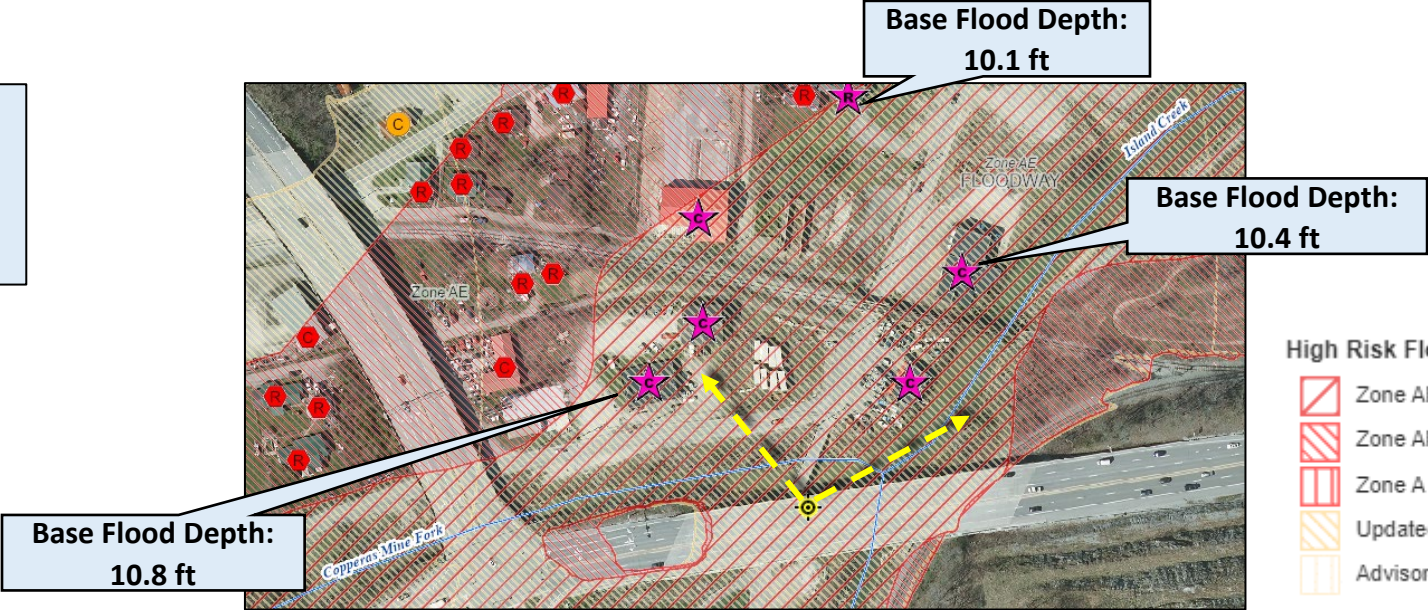
March 2021 Flood



March 2021

[Image source](#)

Enterprise Dr.
Logan Unincorporated Area,
(to the West of City of Logan)
[WV Flood Tool link](#)



Base Flood Depth:
10.1 ft

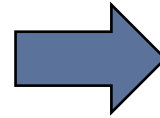
Base Flood Depth:
10.4 ft

Base Flood Depth:
10.8 ft

- High Risk Flood Zones
- Zone AE FLOODWAY
 - Zone AE (AH, AO)
 - Zone A
 - Updated Zone AE
 - Advisory Zone A

Most Recent Federally-Declared Disaster

March 2021 Flood

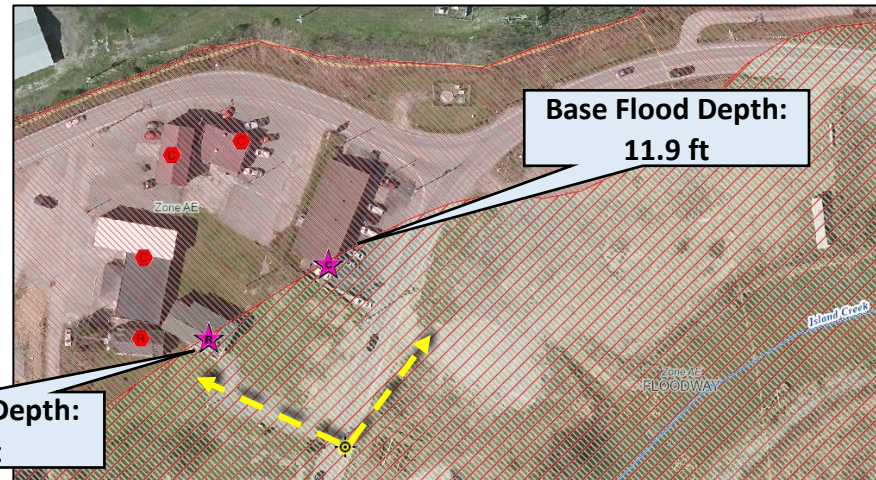


[Image source](#)

**Enterprise Dr.
Logan Unincorporated Area,
(to the West of City of Logan)**






[WV Flood Tool link](#)

**Base Flood Depth:
10.1 ft**



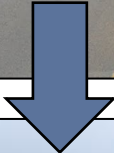
**Base Flood Depth:
11.9 ft**

High Risk Flood Zones

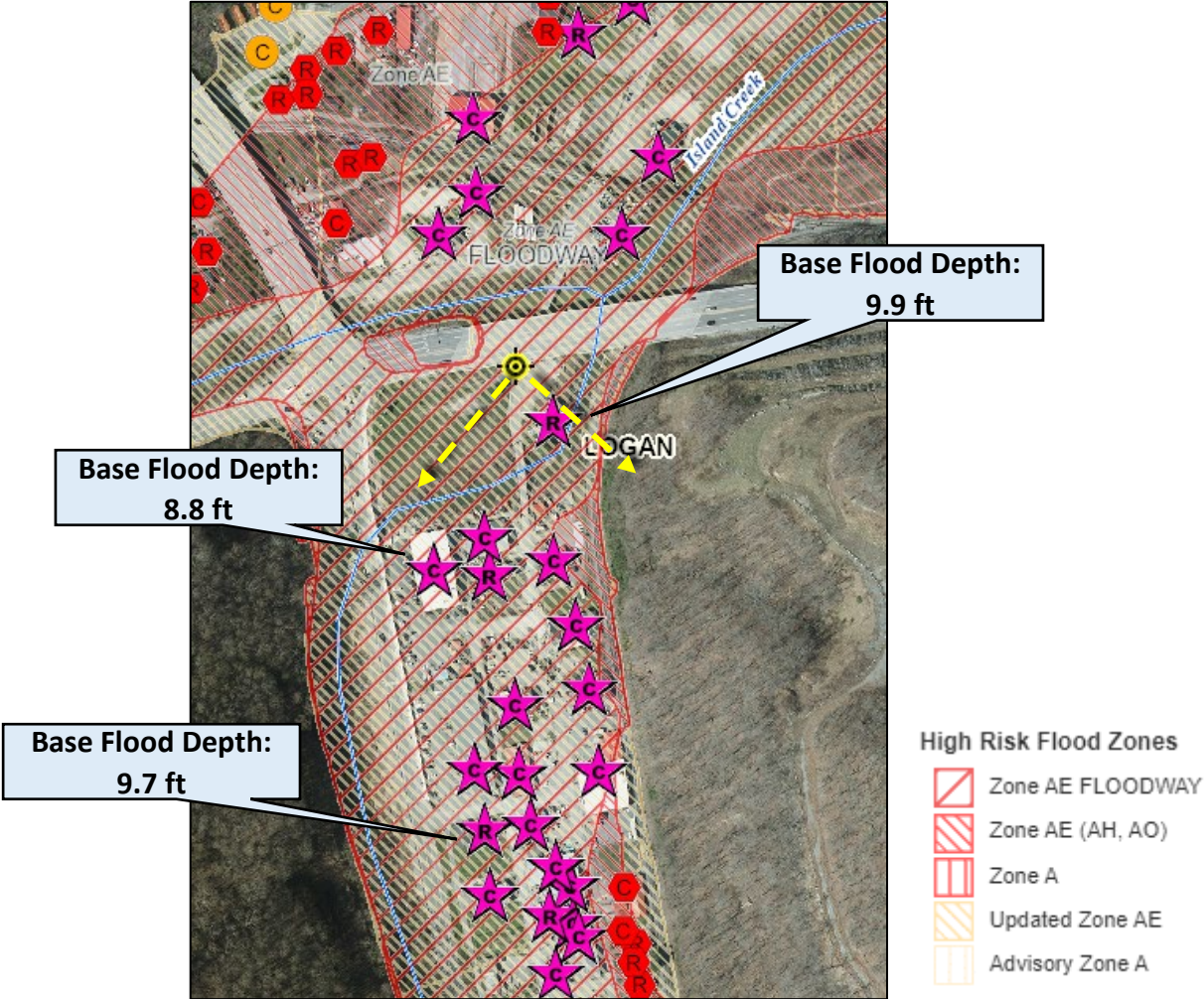
-  Zone AE FLOODWAY
-  Zone AE (AH, AO)
-  Zone A
-  Updated Zone AE
-  Advisory Zone A

Most Recent Federally-Declared Disaster

March 2021 Flood

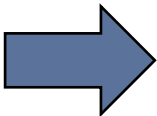


Enterprise Dr.
Logan Unincorporated Area
[WV Flood Tool link](#)



Most Recent Federally-Declared Disaster

March 2021 Flood

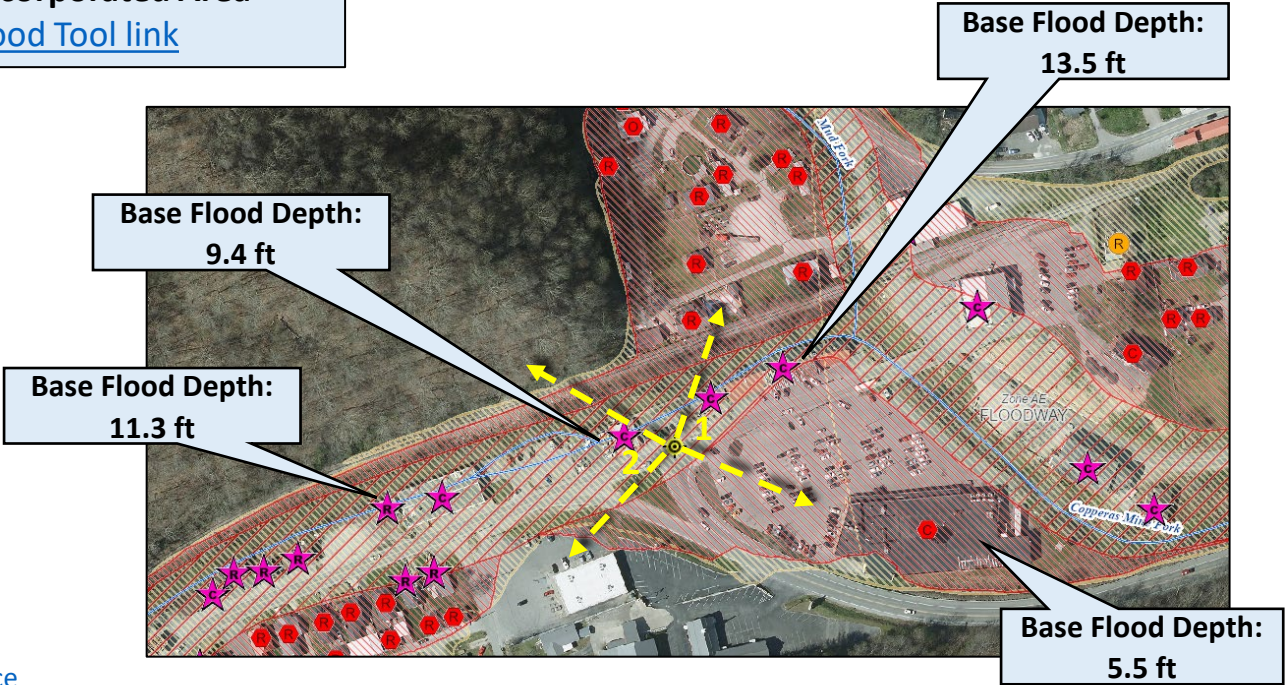


[Image source](#)



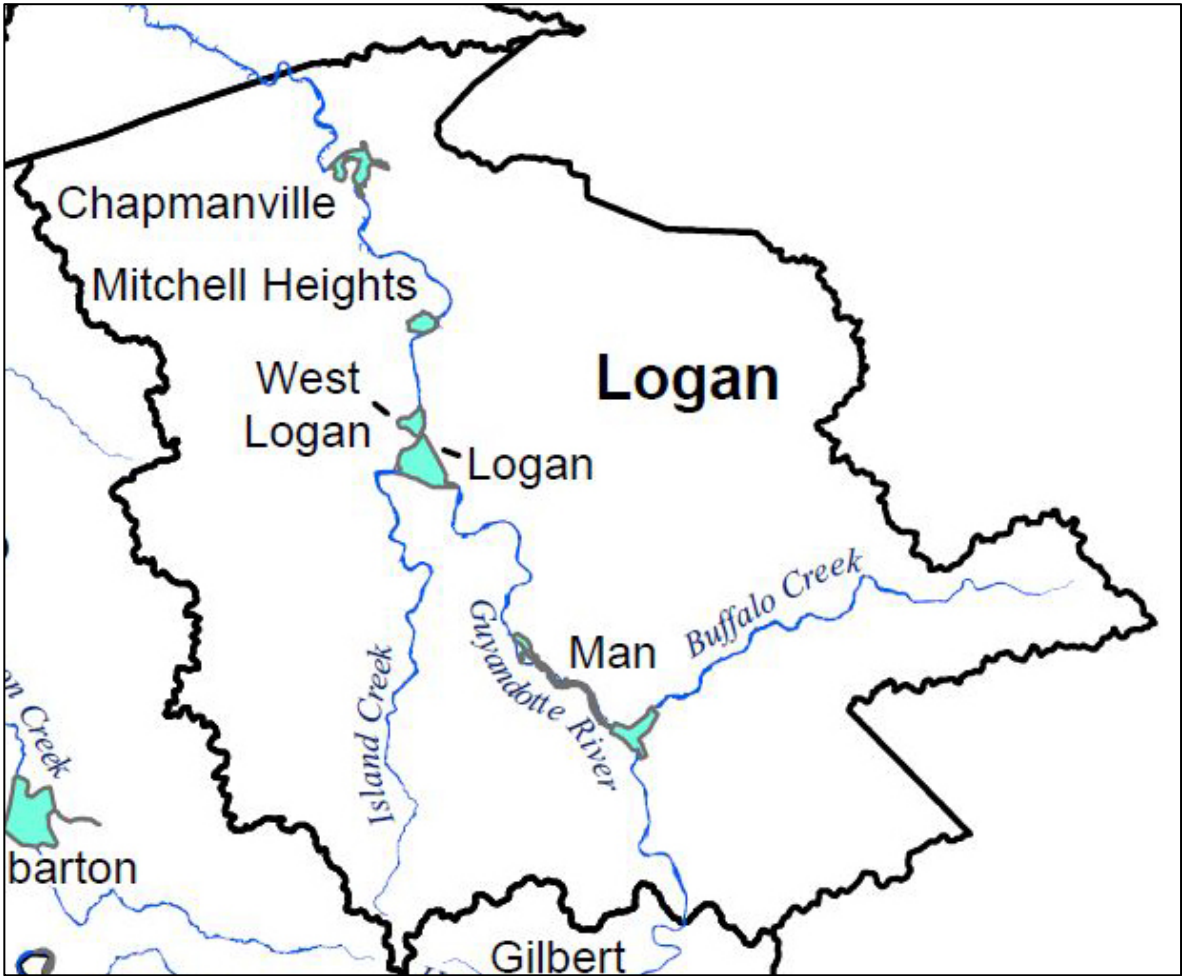
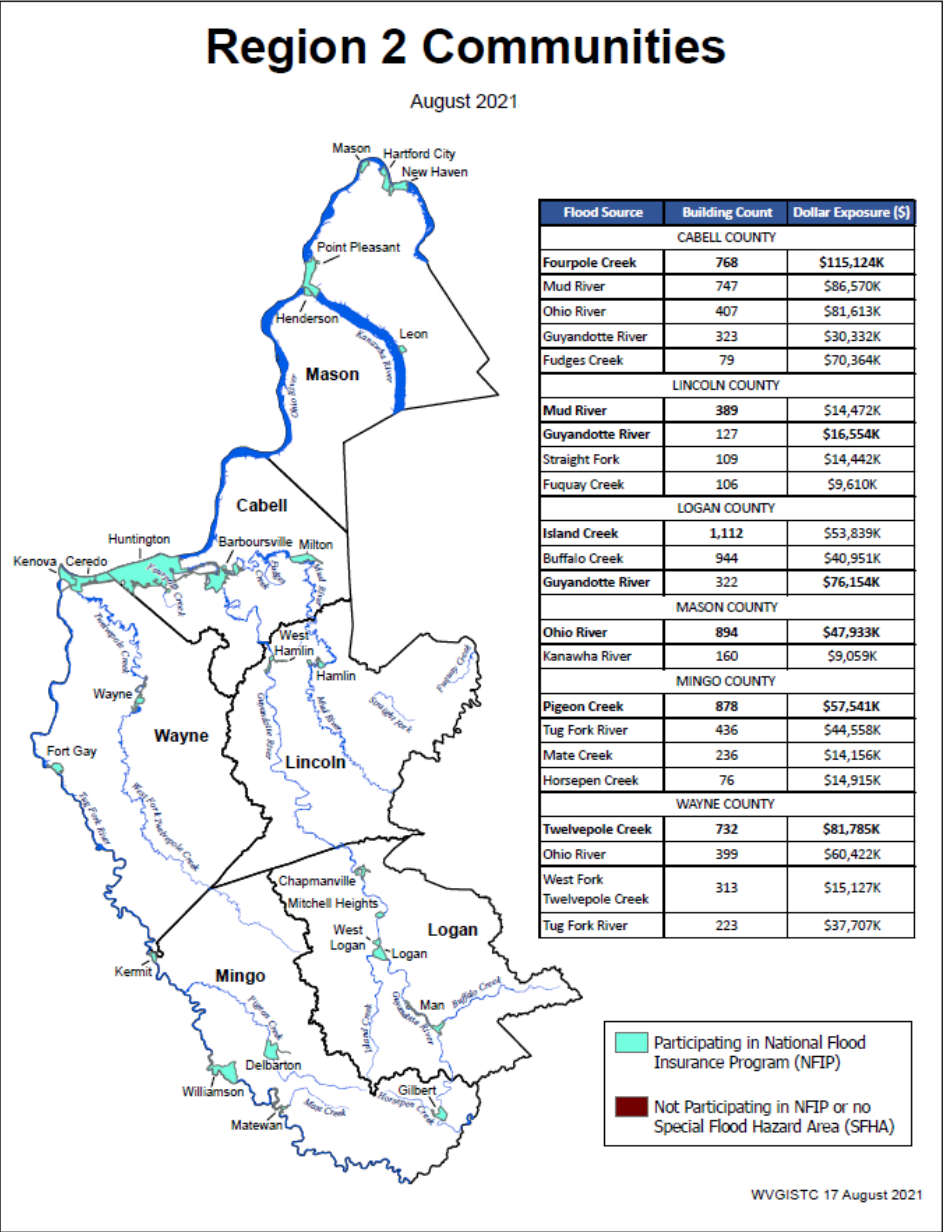
[Image source](#)

Holden Rd.
Logan Unincorporated Area
[WV Flood Tool link](#)



Building Counts by Rivers (2021)

Logan County



Top Rivers with highest building counts are **Island Creek** (1,112), **Buffalo Creek** (944), and **Guyandotte River** (322).

Building Floodplain

Densely Developed in Floodplain

TOP 10%

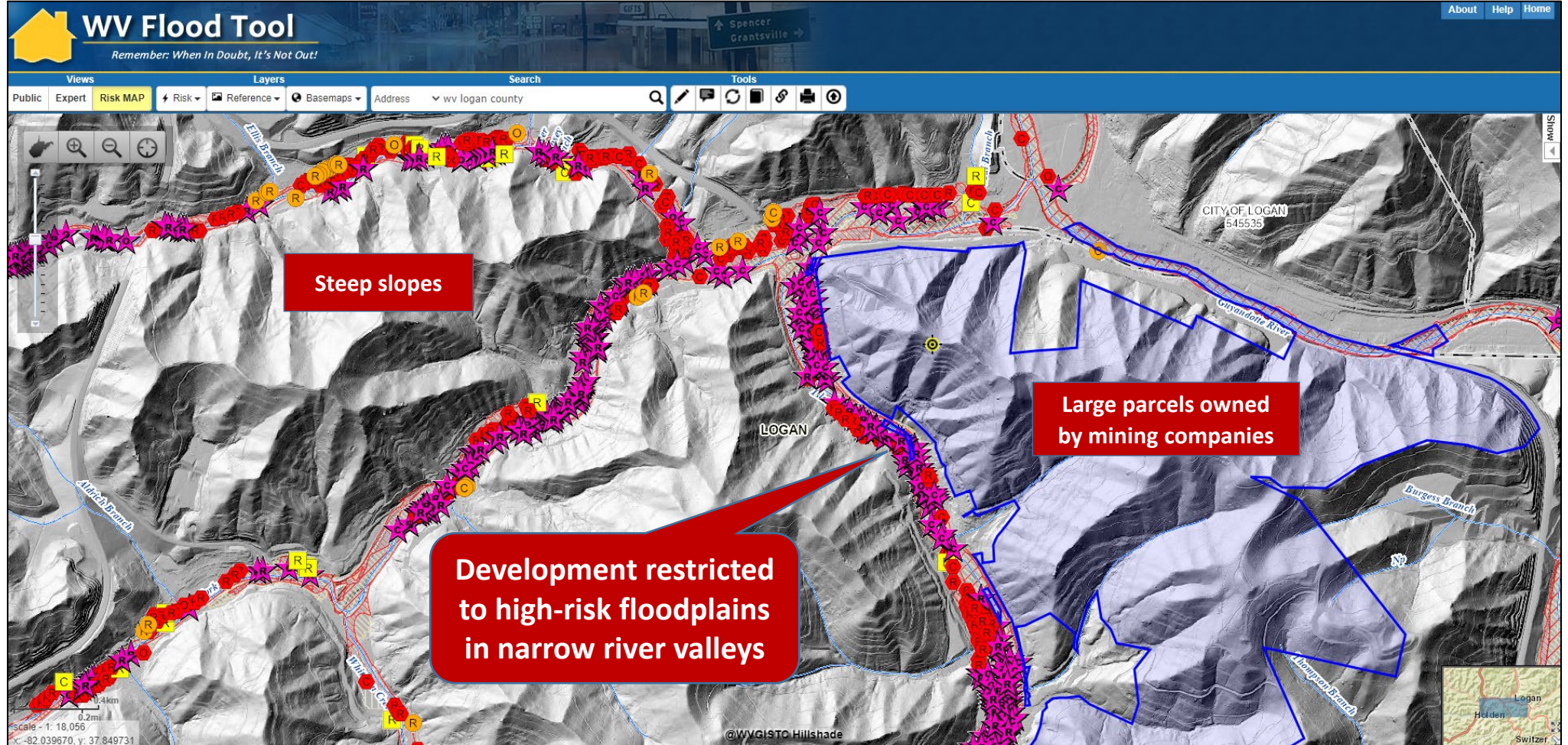
Top 10% rankings
among 55 counties

Building Exposure

High building
count in
floodplain (4,498)

High building
Floodplain ratio
(17.8%)

High building
density in
floodplain (0.81)



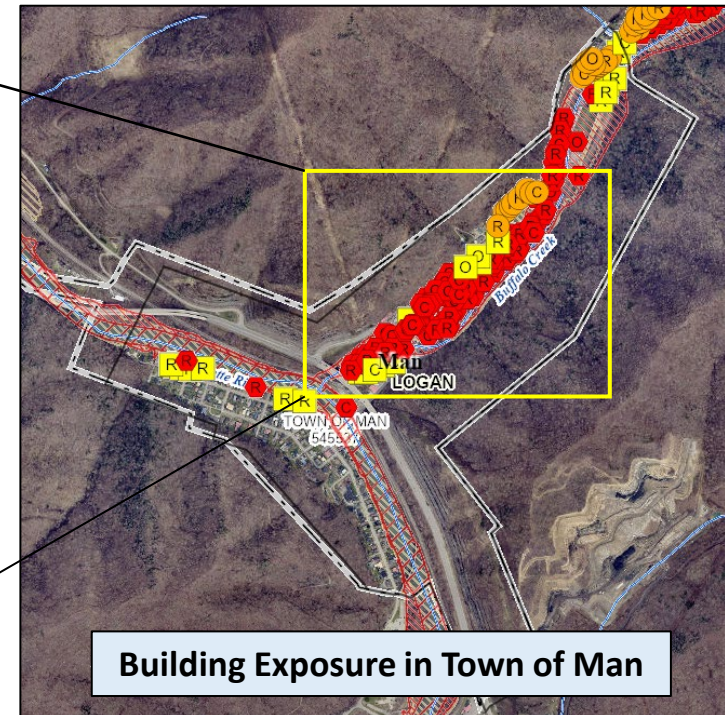
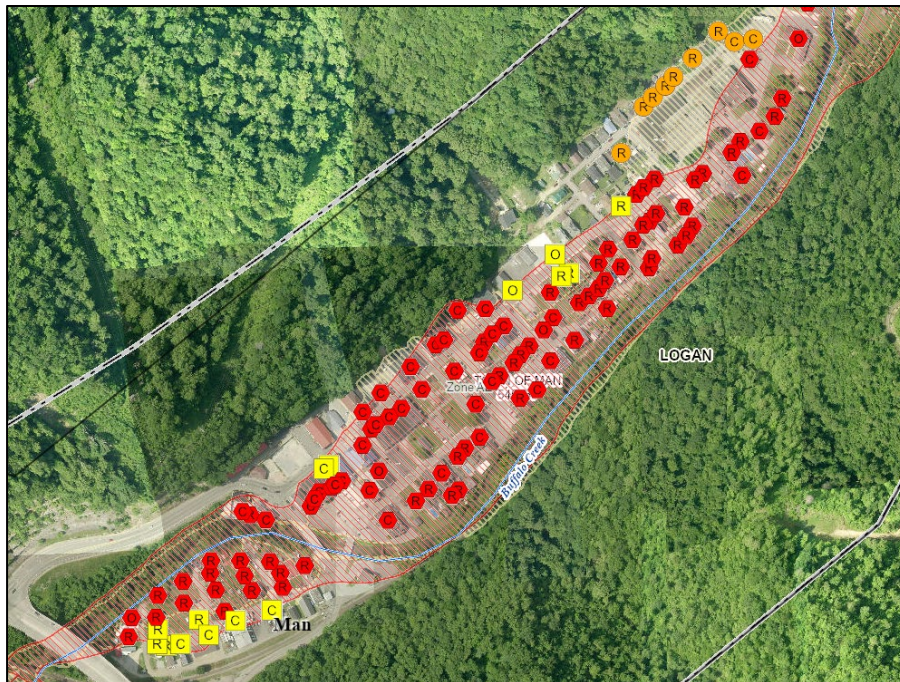
[WV Flood Tool link](#)

Future Map Condition		Land Use Category
	Mapped Out SFHA	(R) Residential
	Mapped In SFHA	(C) Commercial
	Remains Same	(O) Other
★	Floodway	

Building Floodplain

Logan County

Community Name	Community Type	Estimated Structures in Community	Estimated Structures in High-risk Floodplain	Building Floodplain Ratio	Estimated Structures Newly Mapped in	Estimated Structures Newly mapped out
Logan County*	Unincorporated	22,651	4,279	18.9%	817	940
Man	Incorporated	486	137	28.2%	21	27
Chapmanville	Incorporated	715	50	7.0%	12	20
West Logan	Incorporated	265	14	5.3%	1	4
Mitchell Heights	Incorporated	189	14	7.4%	0	16
Logan	Incorporated	1,005	4	0.4%	1	0
	County	25,311	4,498	17.8%	852	1,007



Future Map Condition		Land Use Category	
Yellow Square	Mapped Out SFHA	(R)	Residential
Yellow Circle	Mapped In SFHA	(C)	Commercial
Red Hexagon	Remains Same	(O)	Other
Star	Floodway		

Building Exposure in Town of Man

[WV Flood Tool link](#)

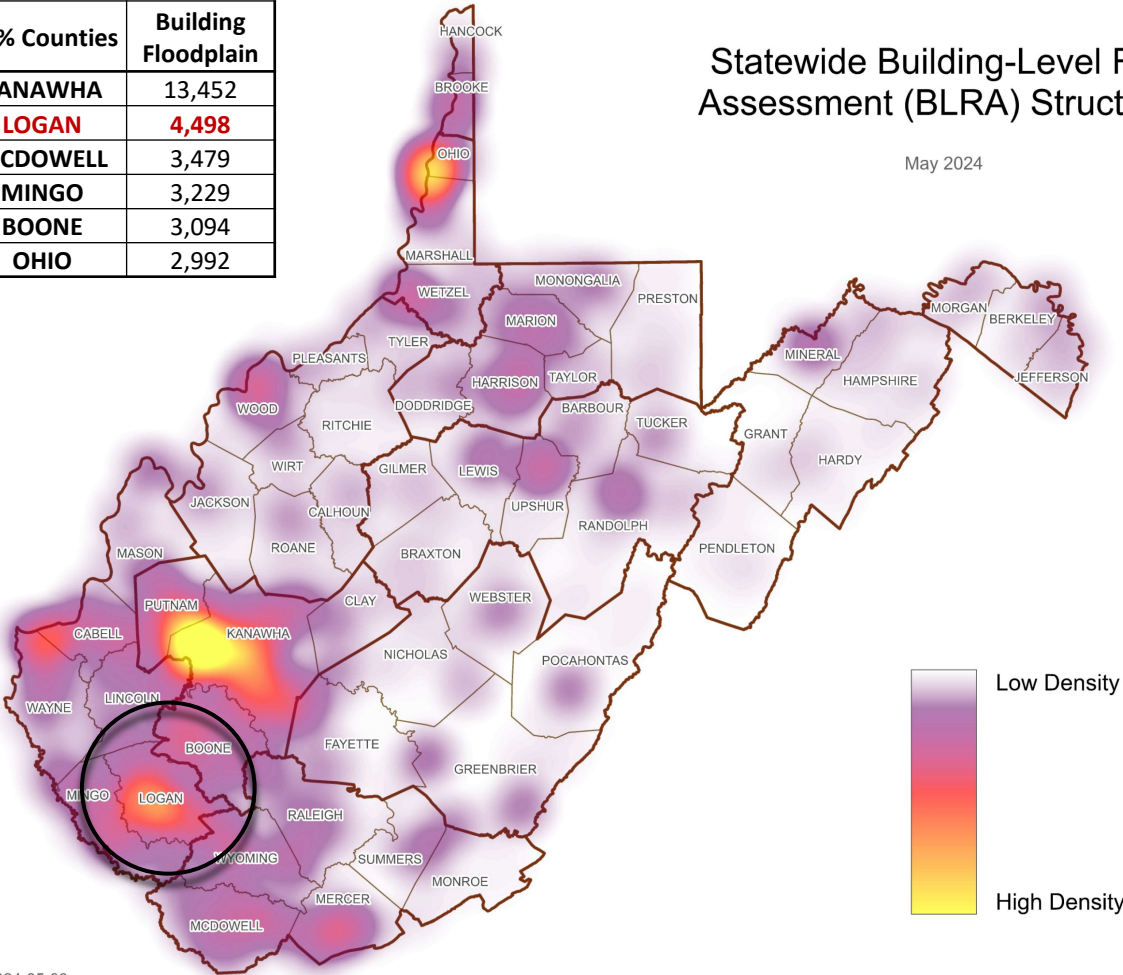
Building Floodplain

Statewide Heat Map / Highest Depths

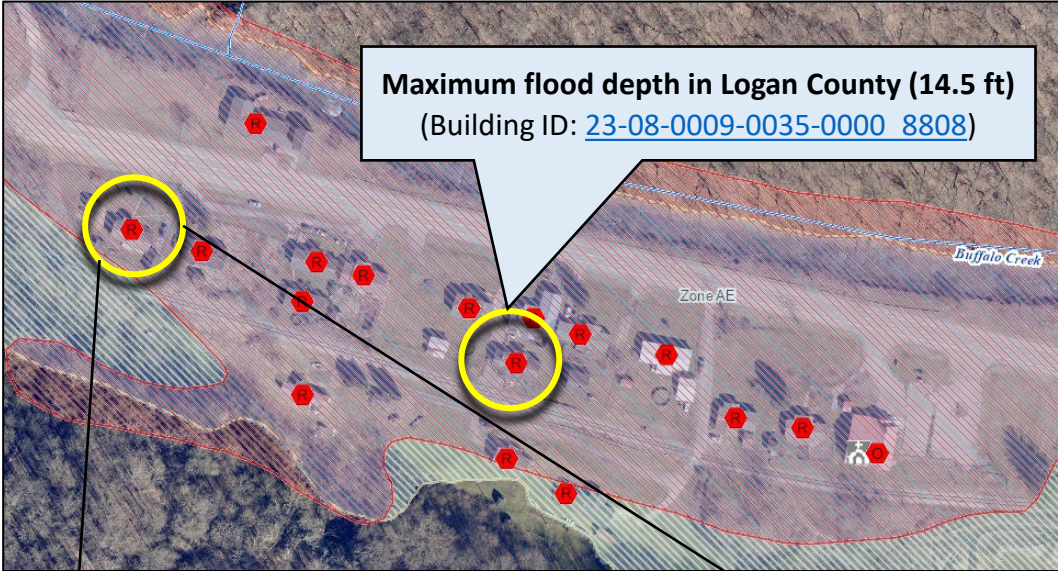
Top 10% Counties		Building Floodplain
1	KANAWHA	13,452
2	LOGAN	4,498
3	MCDOWELL	3,479
4	MINGO	3,229
5	BOONE	3,094
6	OHIO	2,992

Statewide Building-Level Risk Assessment (BLRA) Structures

May 2024

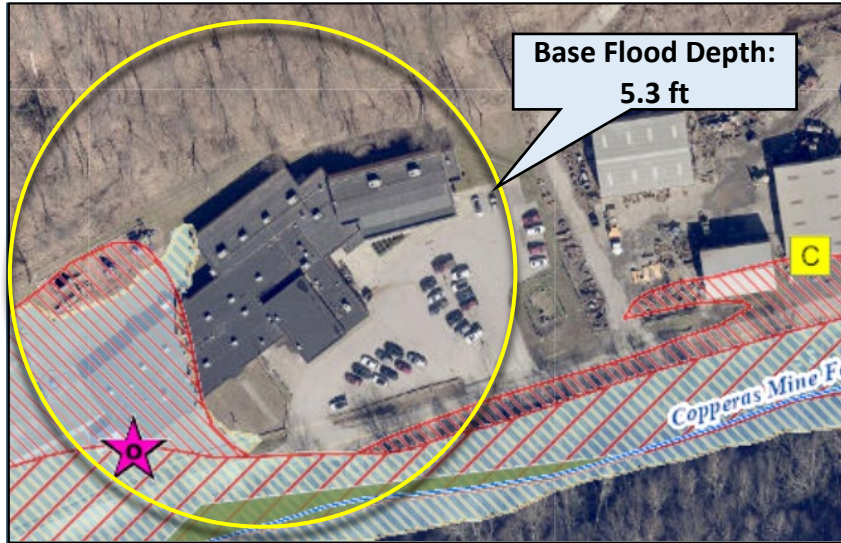


WVGISC 2024-05-08
Data Source: 2024-05-03 Building Level Risk Assessment (BLRA) database

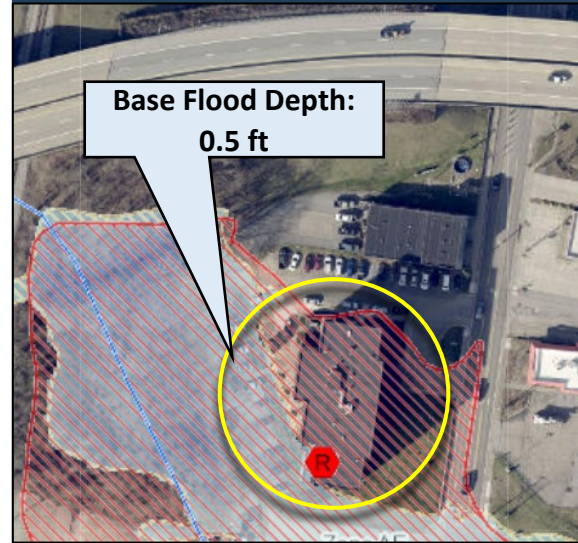


2nd Highest Flood Depth (14.0 ft)
(Building ID: [23-08-0009-0028-0000 8758](#))

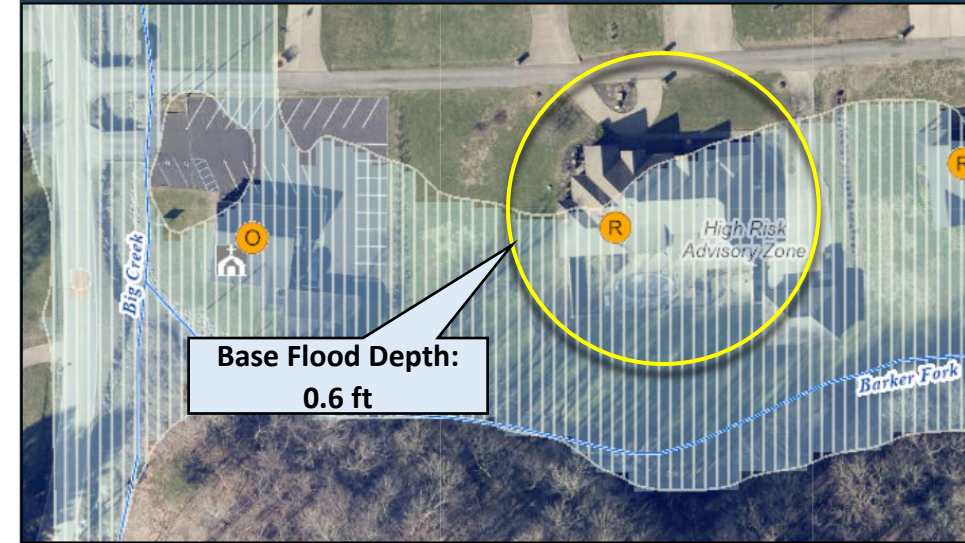
Building Floodplain Highest Values



Holden Central Elementary School
Highest Value (\$6.2M)
(Building ID: [23-03-0002-0095-0000_1034](#))



Chapmanville Towers
Highest Multi-Family Residential Value (\$2.0M)
(Building ID: [23-01-0002-0115-0000_647](#))



House near Chapmanville
Highest Single-Family Residential Value (\$325K)
(Building ID: [23-02-129A-0007-0000_9999](#))



Building Floodway Statewide Heat Map

TOP
10%

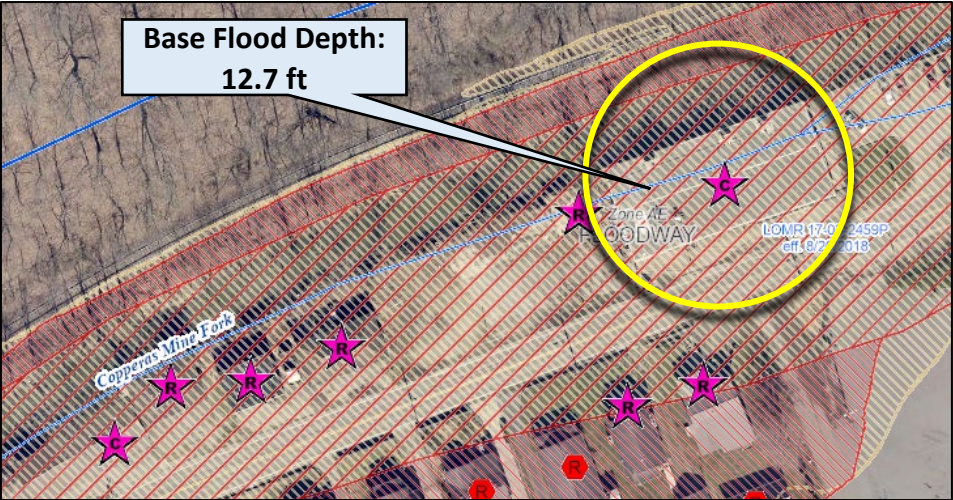
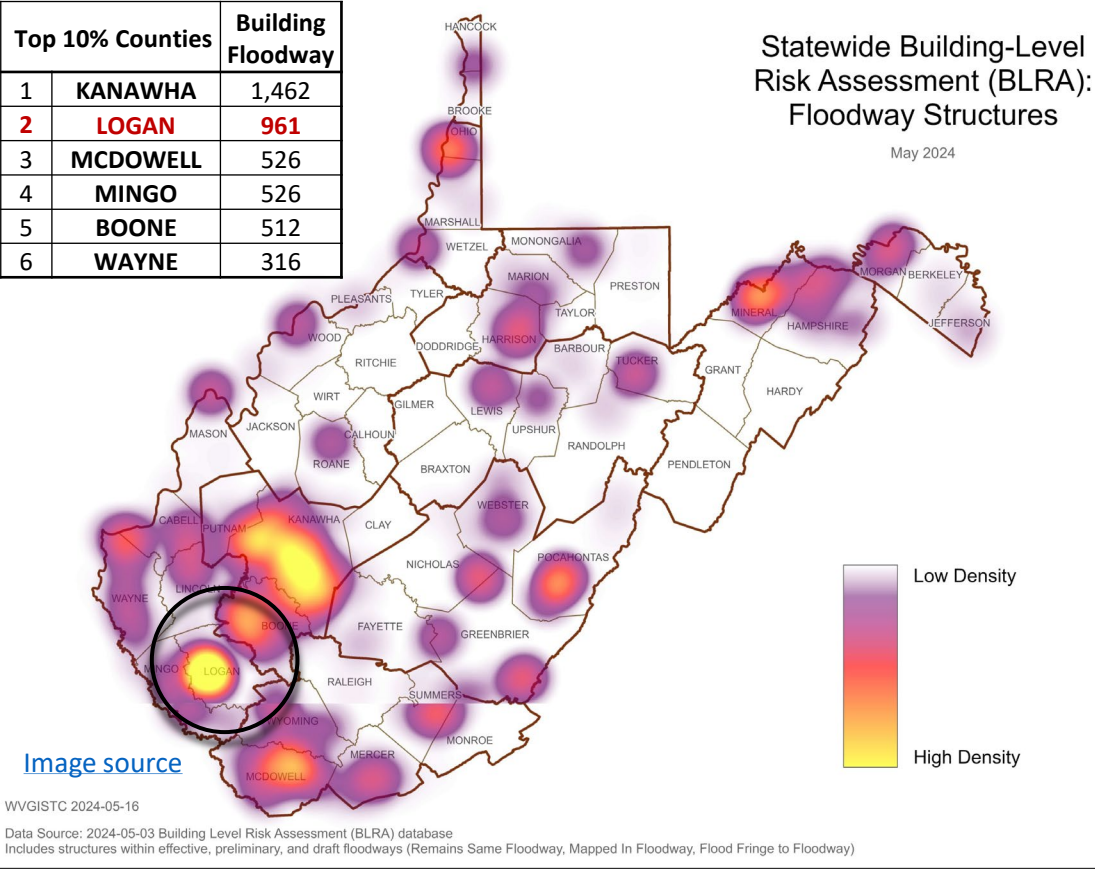
Top 10% rankings
among 55 counties

Building
Exposure

High building
count in floodway
(961)

Highest flood depths
Highest velocities
Highest debris potential

Top 10% Counties		Building Floodway
1	KANAWHA	1,462
2	LOGAN	961
3	MCDOWELL	526
4	MINGO	526
5	BOONE	512
6	WAYNE	316



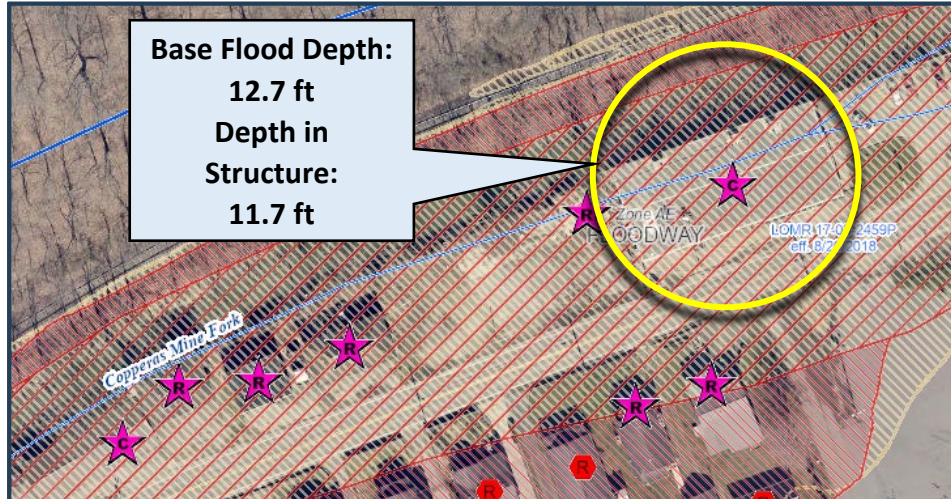
Walgreens on Holden Rd. in Floodway
(Building ID: [23-03-0066-0068-0001](#) 164)



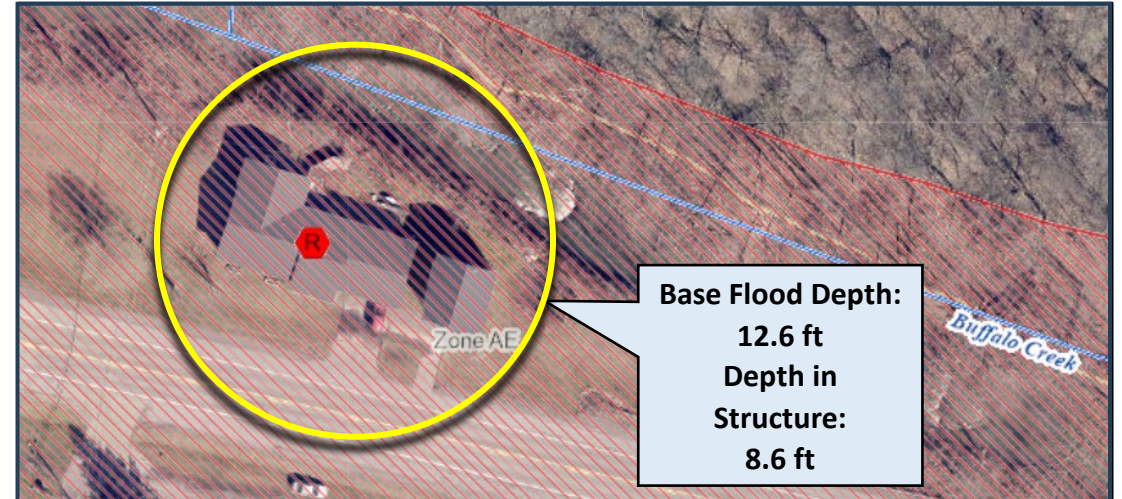
March 2021



Minus-Rated Post-FIRM Highest Depth in Structures



Walgreens on Holden Rd., 1988
Highest Depth in Structure (Post-FIRM)
(Building ID: [23-03-0066-0068-0001_164](#))

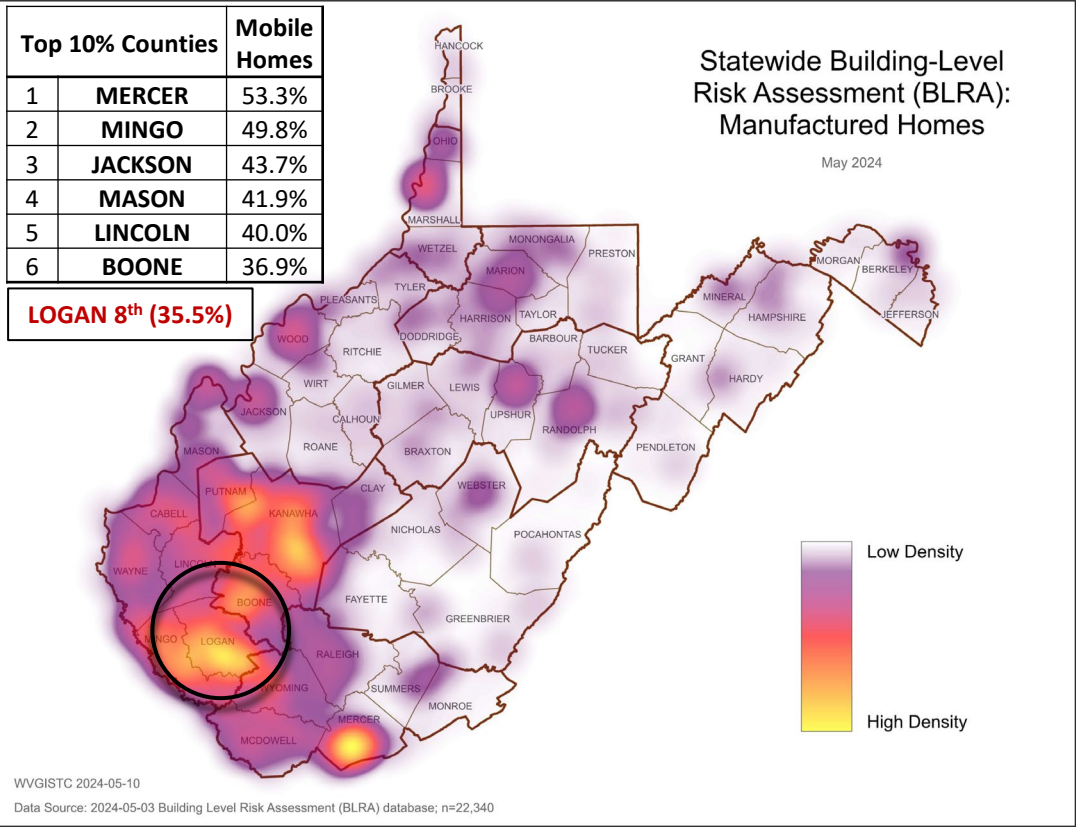


House in Lundale, 1981
Highest Depth in Residential Structure (Post-FIRM)
(Building ID: [23-08-0009-0116-0000_8785](#))



Mobile Homes

Logan County



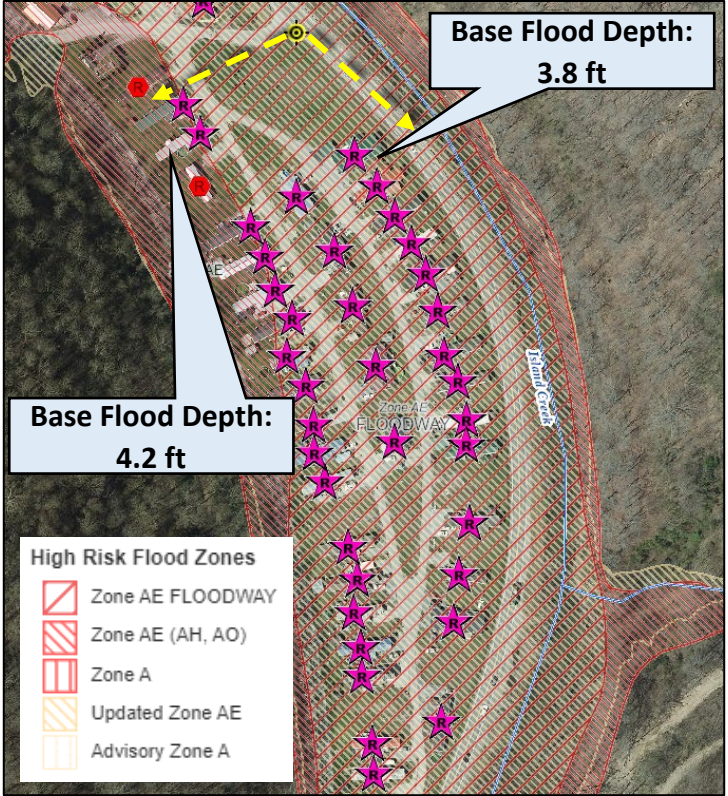
TOP 20%

Top 20% rankings among 55 counties

Building Characteristics

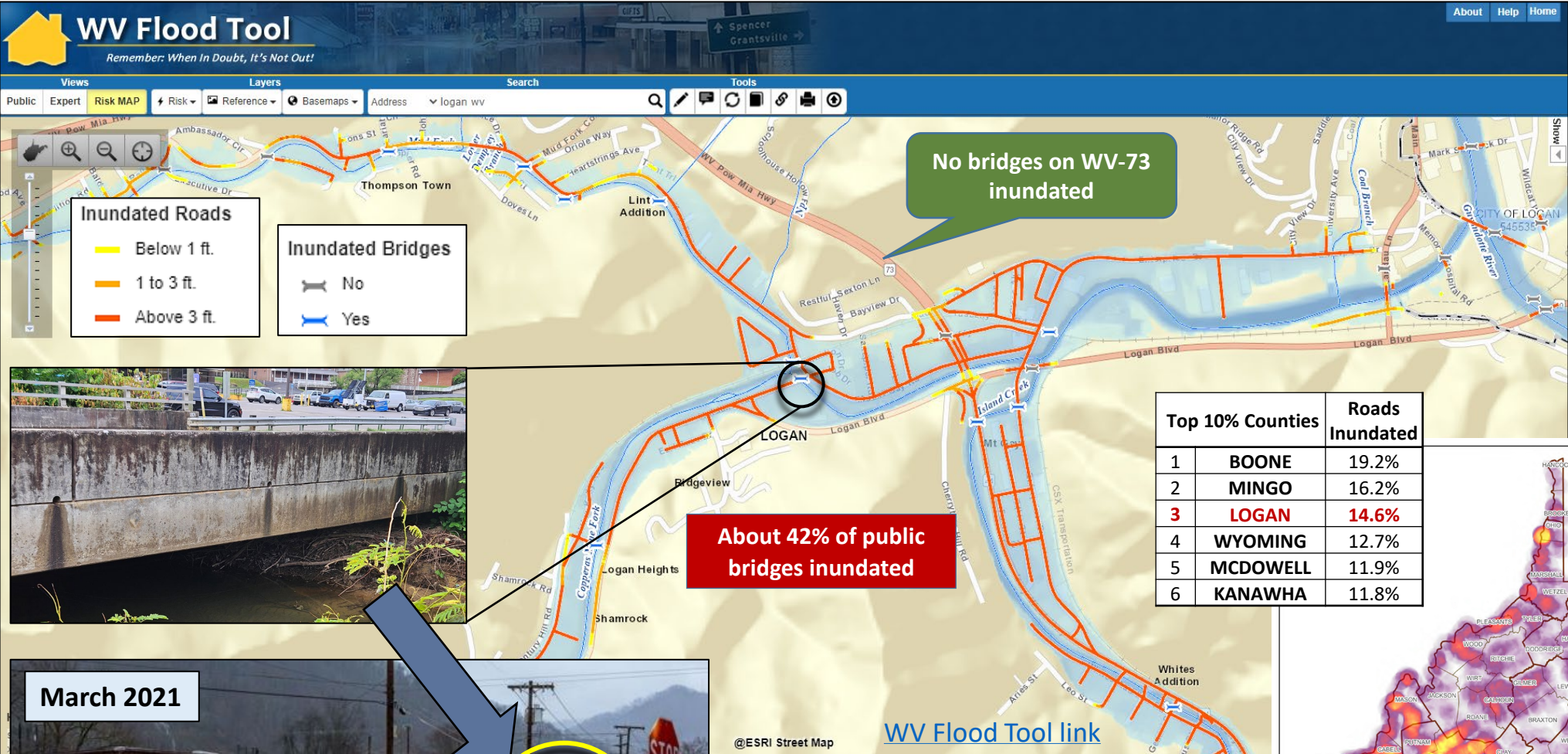
High ratio of mobile homes in floodplain (35.5%)
1,729 mobile homes of 4,871 single family dwellings in floodplain

Mobile home park in floodway
Jerry West Hwy.
Logan Unincorporated Area
[WV Flood Tool link](#)



Roads/Bridges Inundated

Logan County

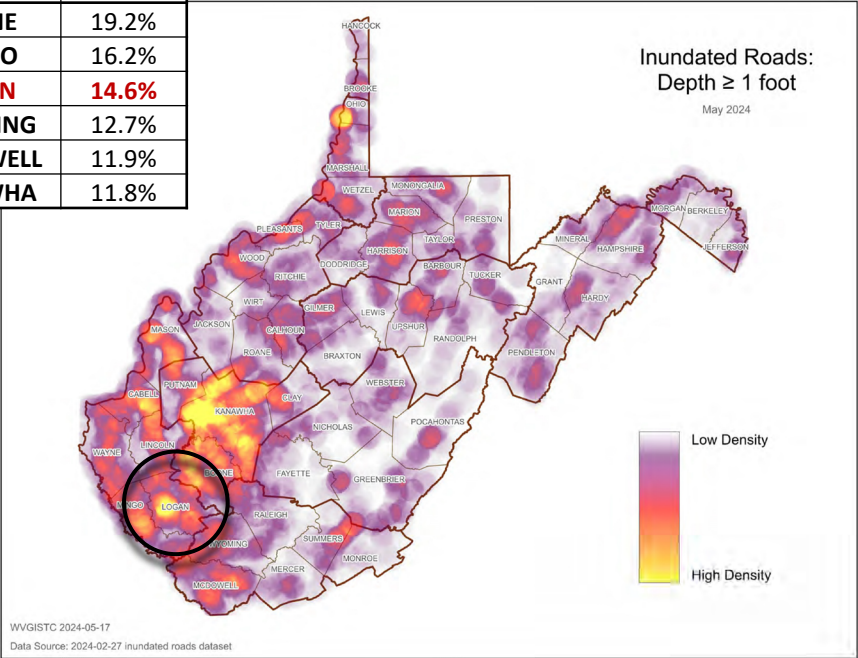


TOP 10%

Top 10% rankings among 55 counties

Critical Infrastructure

High mileage & ratio of flooded roads (14.6%)



Essential Facilities

Logan County



Top 20% rankings
among 55 counties

Critical Infrastructure

High number of
essential facilities
in high- or
moderate-risk
floodplains (18)



Police Station



Fire Station



E-911 Dispatch



School



Hospital



Nursing Home

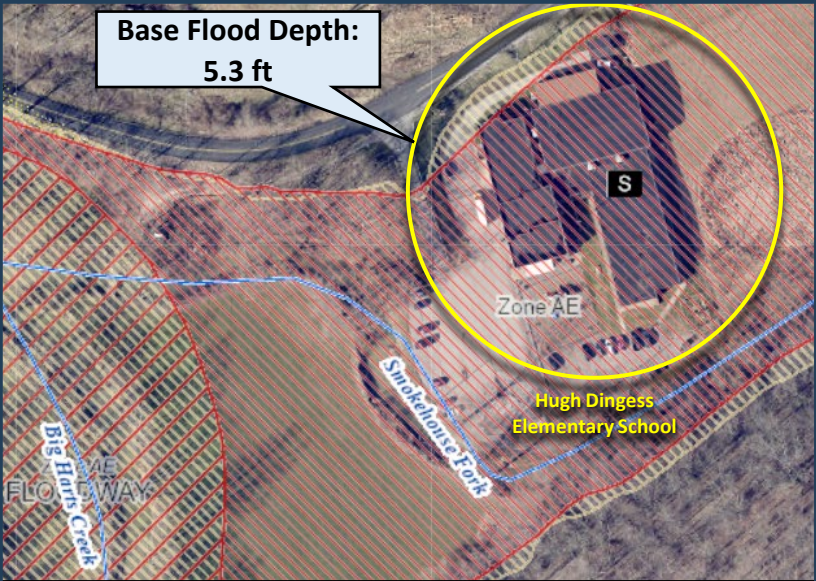
- Essential Facilities provide emergency services during a flood.
- Hospitals and nursing homes with immobile patients are particularly susceptible to flooding. Schools often serve as refuges during floods.
- Communities need to establish emergency protocols to maintain critical services amidst a flood.

COMMUNITY	ESSENTIAL FACILITIES					FLOOD ZONE BREAKDOWN			
	Police Station	Fire Station	911 Center	School	Hospital	Floodway	High-Risk 100-Yr Floodplain	Moderate-Risk 500-Yr Floodplain	Total in 100 & 500-Yr Floodplains
Logan County*	0	4	0	6	1	2	7	2	11
Chapmanville	1	0	0	2	0	0	3	0	3
Logan	0	0	1	1	0	0	1	1	2
Man	1	1	0	0	0	0	2	0	2
COUNTY	2	5	1	9	1	2	13	3	18

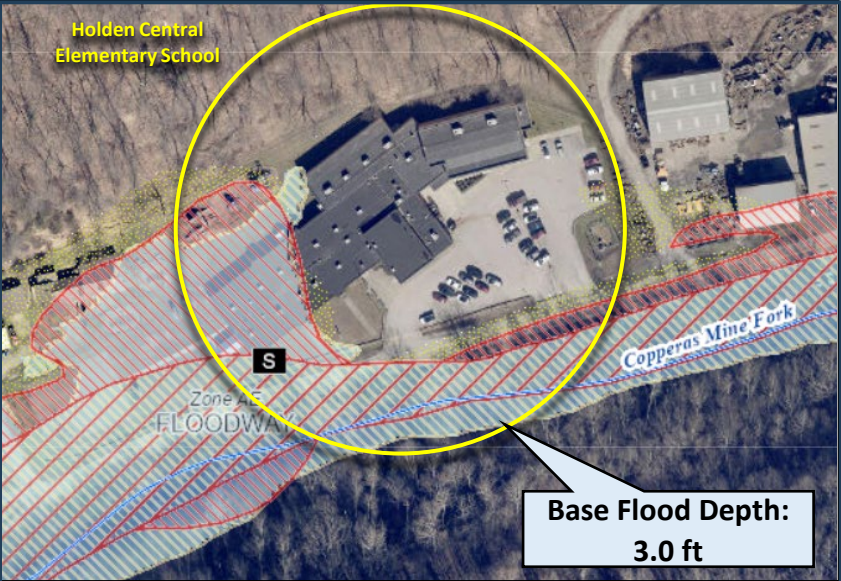
Among the essential facilities in Logan County 3 are more vulnerable
(in Floodway or Depths \geq 3 ft)

Essential Facilities

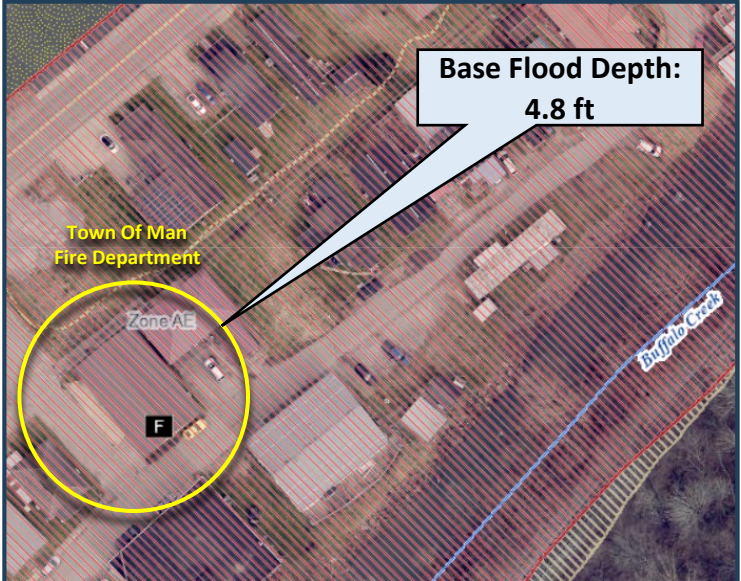
Most Vulnerable



Hugh Dingess Elementary School
(Building ID: [23-02-0108-0012-0000_29](#))



Holden Central Elementary School
(Building ID: [23-03-0002-0095-0000_1034](#))



Town of Man Volunteer Fire Department
(Building ID: [23-06-0003-0117-0000_353](#))



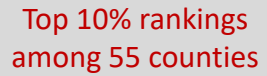
The infographic is divided into two main sections. The top section features a red seal with a scalloped edge containing the text 'TOP 10%'. Below this seal, the text 'Top 10% rankings among 55 counties' is displayed in a dark blue font. The bottom section has a dark blue header with the text 'Community Assets' in white. Below the header, a light blue box contains the text 'High number of non-historical community assets in floodplain (115)' in a dark blue font.

TOP 10%

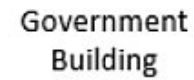
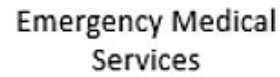
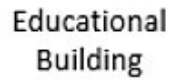
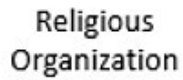
Top 10% rankings among 55 counties

Community Assets

High number of non-historical community assets in floodplain (115)



High number of non-historical community assets in floodplain (115)



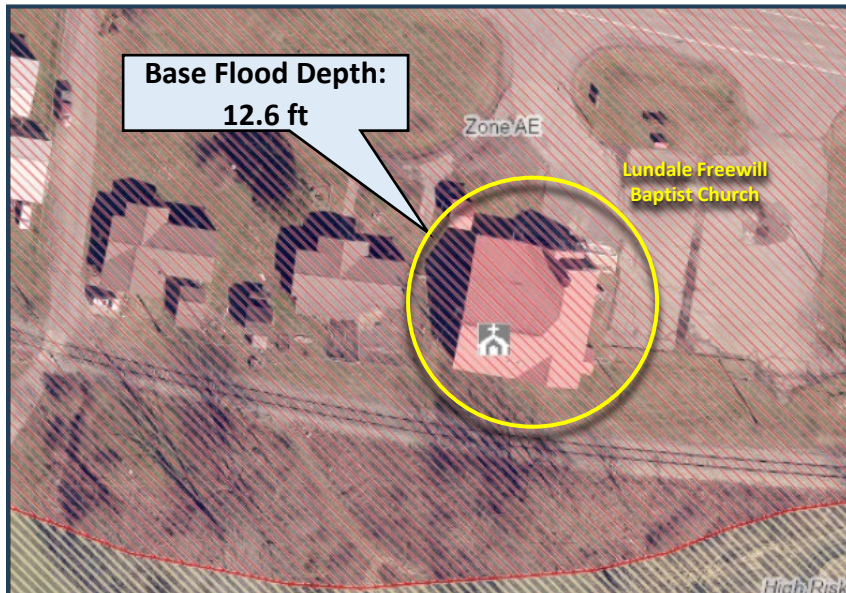
COMMUNITY	NON-HISTORICAL COMMUNITY ASSETS			Total Non-Historical Community Assets
	Religious	Government	Post-secondary Educational	
Logan County*	86	22	1	109
Man	4	2	0	6
COUNTY	90	24	1	115

Top 10% Counties		Non-Hist. CA
1	KANAWHA	261
2	MCDOWELL	116
3	LOGAN	115
4	BOONE	96
5	MINGO	80
6	WYOMING	80

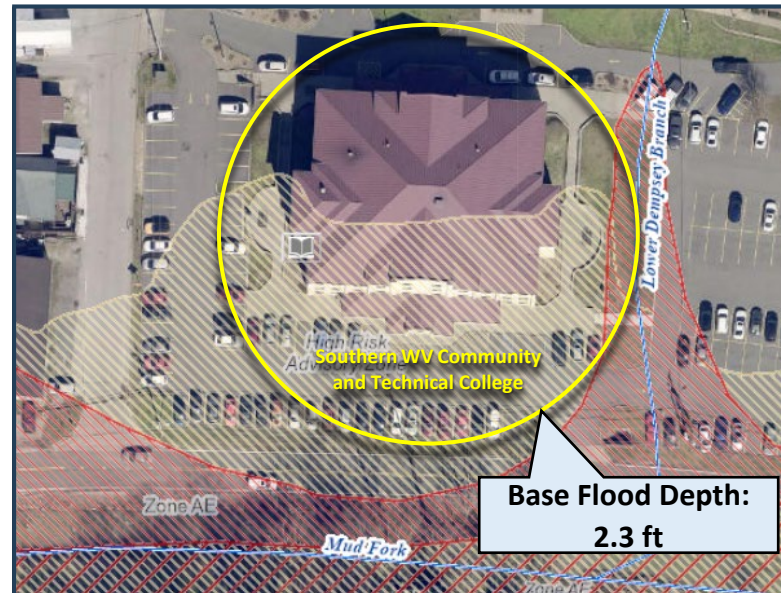


Non-Historical Community Assets

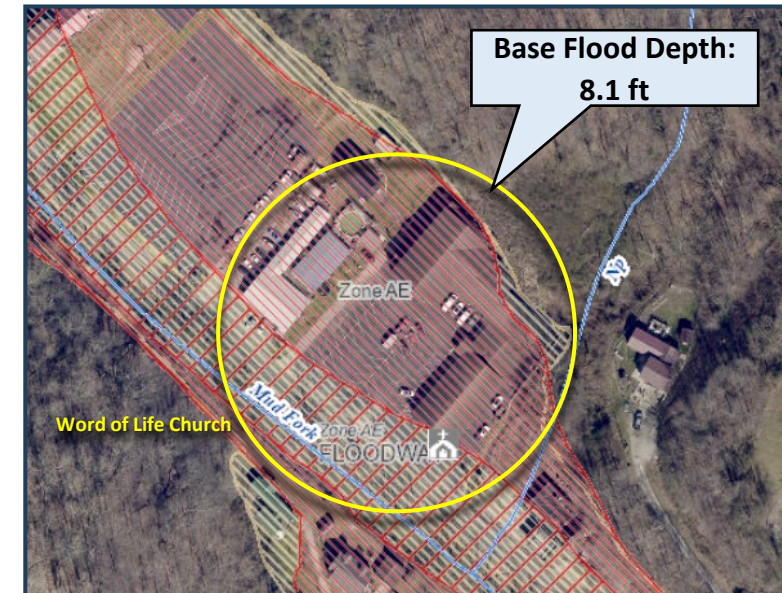
Highest Depths / Values



Lundale Freewill Baptist Church
Highest Non-Hist. CA Depth (12.6 ft)
(Building ID: [23-08-0009-0051-0000 8968](#))



Southern WV Community and Technical College
Highest Non-Hist. CA Value (\$4.6M)
(Building ID: [23-03-0056-0086-0000 1070](#))



Word of Life Church
High Value (\$1.4M) & Depth (8.1 ft)
(Building ID: [23-03-0043-0010-0000 518](#))



Substantial Damage

Logan County



Top 10% rankings
among 55 counties

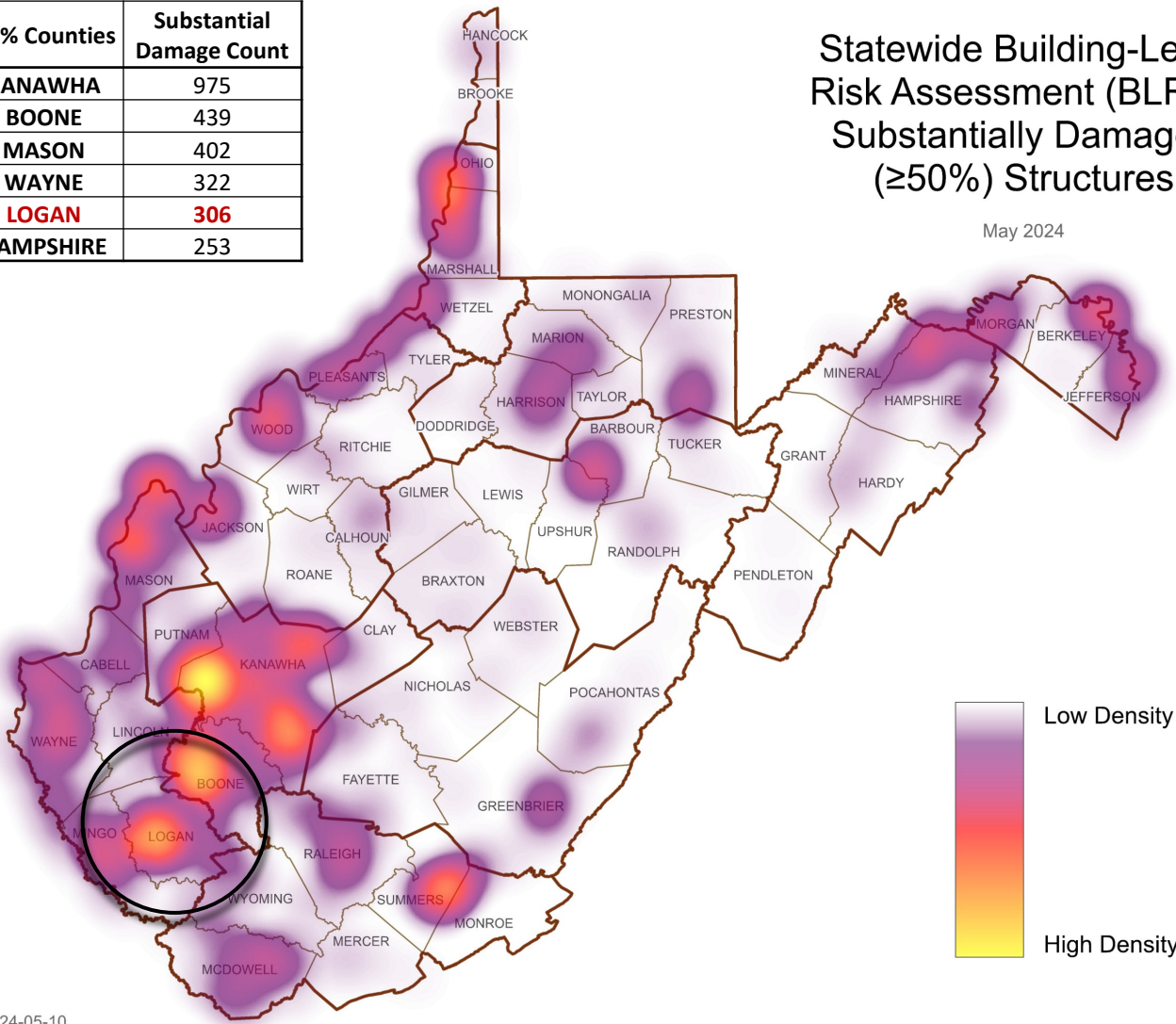
Building Damage Loss

High substantial
damage count
(306)

Top 10% Counties		Substantial Damage Count
1	KANAWHA	975
2	BOONE	439
3	MASON	402
4	WAYNE	322
5	LOGAN	306
6	HAMPSHIRE	253

Statewide Building-Level Risk Assessment (BLRA): Substantially Damaged (≥50%) Structures

May 2024



WVGISTC 2024-05-10

Data Source: 2024-05-03 Building Level Risk Assessment (BLRA) database; n=6,497



Repetitive Loss Structures

Logan County



Top 10% rankings
among 55 counties

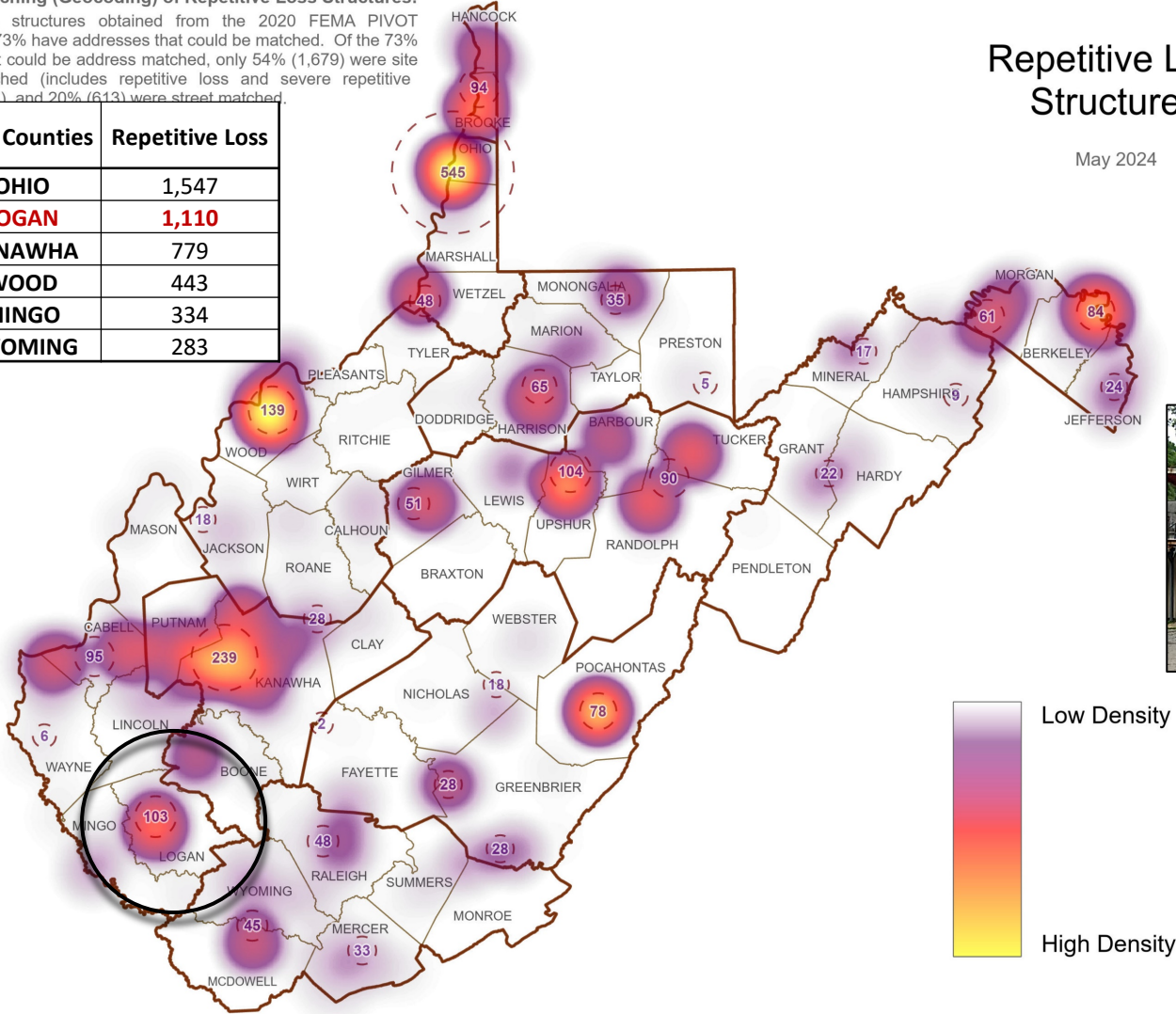
Building Damage Loss

High number of
previous damage
claims (2,418)

High number of
repetitive loss
structures
(1,110)

Address Matching (Geocoding) of Repetitive Loss Structures:
Of 3,132 RL structures obtained from the 2020 FEMA PIVOT System, only 73% have addresses that could be matched. Of the 73% of records that could be address matched, only 54% (1,679) were site address matched (includes repetitive loss and severe repetitive loss structures) and 20% (613) were street matched.

Top 10% Counties		Repetitive Loss
1	OHIO	1,547
2	LOGAN	1,110
3	KANAWHA	779
4	WOOD	443
5	MINGO	334
6	WYOMING	283



Top 10% Counties		Previous Damage Claims
1	OHIO	3,044
2	LOGAN	2,418
3	KANAWHA	2,376
4	MINGO	1,751
5	GREENBRIER	1,072
6	MCDOWELL	1,049



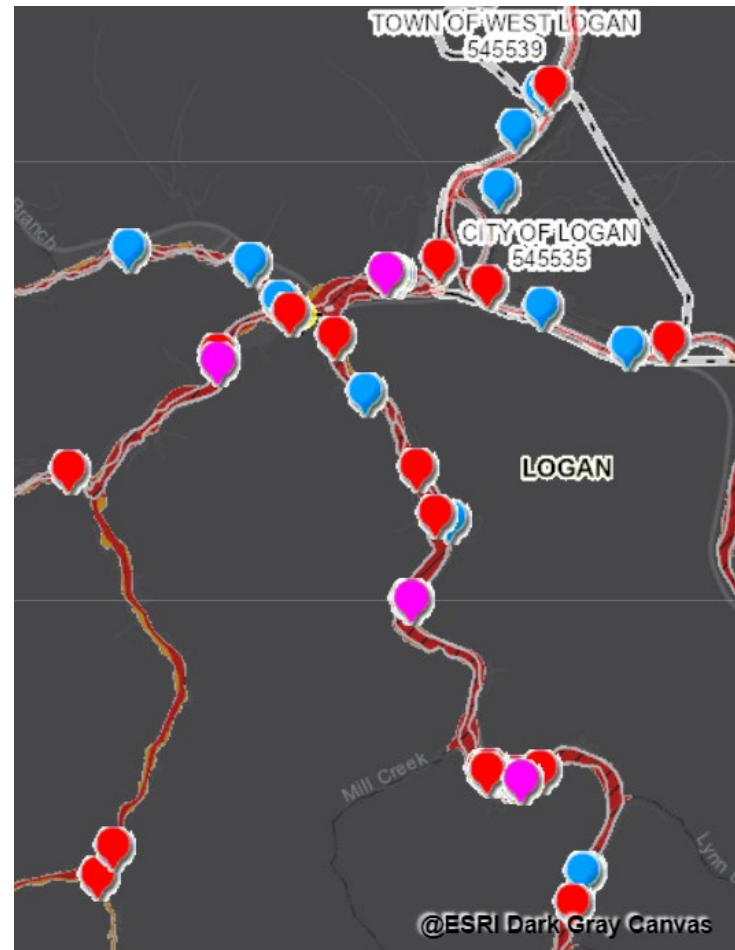
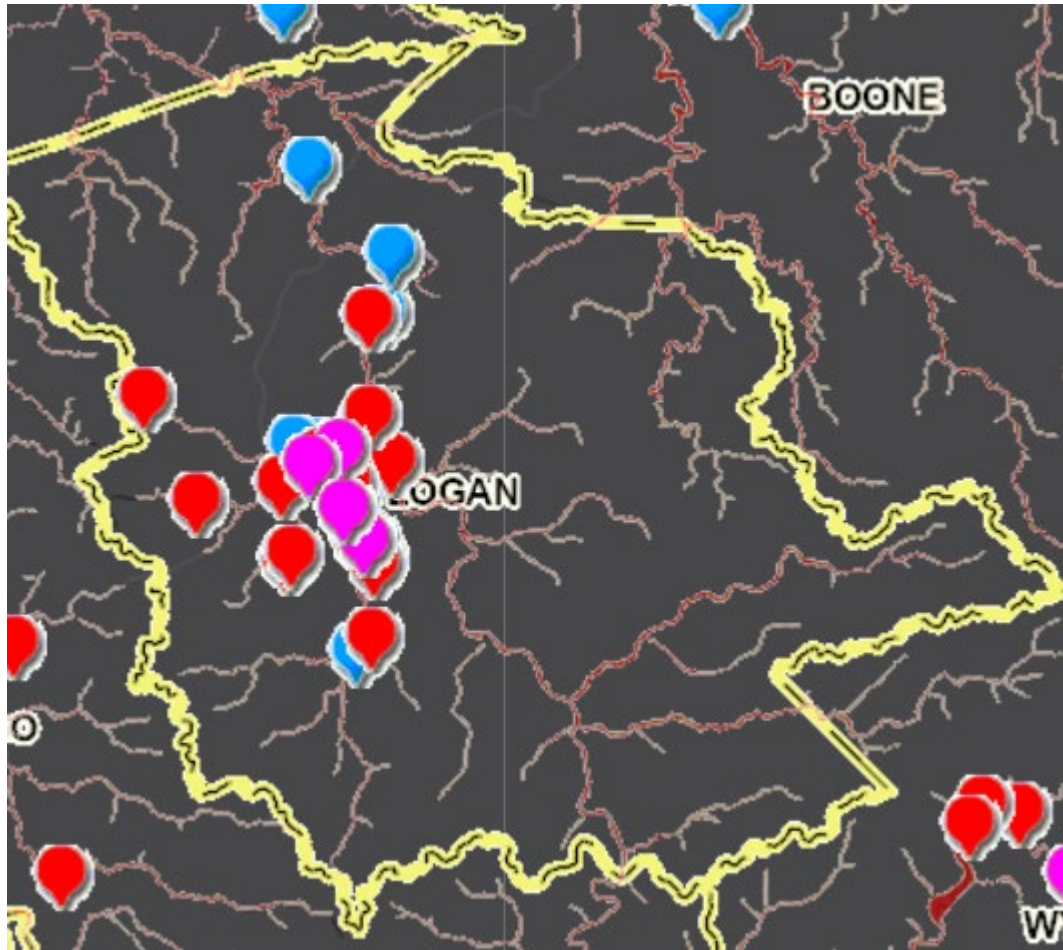
(Building ID: [23-03-0066-0074-0000_50](#))

Repetitive Loss Structure:

At least 2 paid flood losses of more than \$1,000 each in any 10-year period since 1978

Repetitive Loss Structures

Logan County



Severe Repetitive Loss
(Site Address Matched)



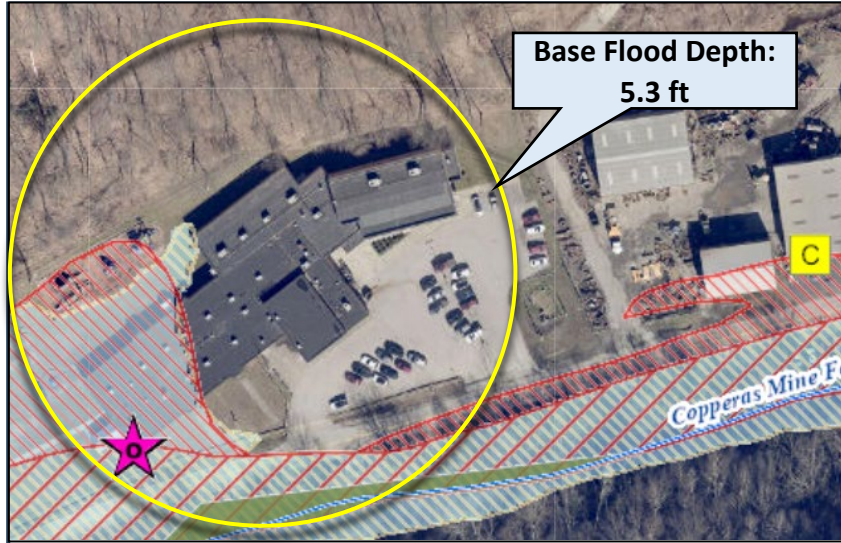
Repetitive Loss
(Site Address Matched)



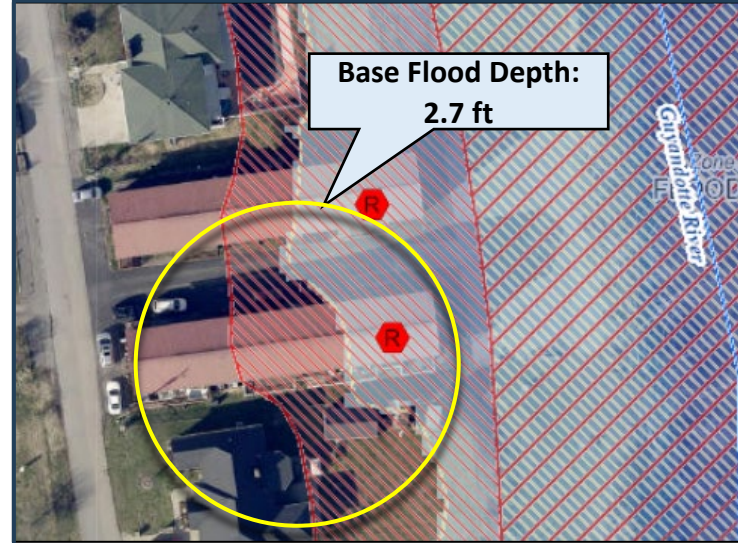
Repetitive Loss
(Street Address Matched)

Building Damage Loss

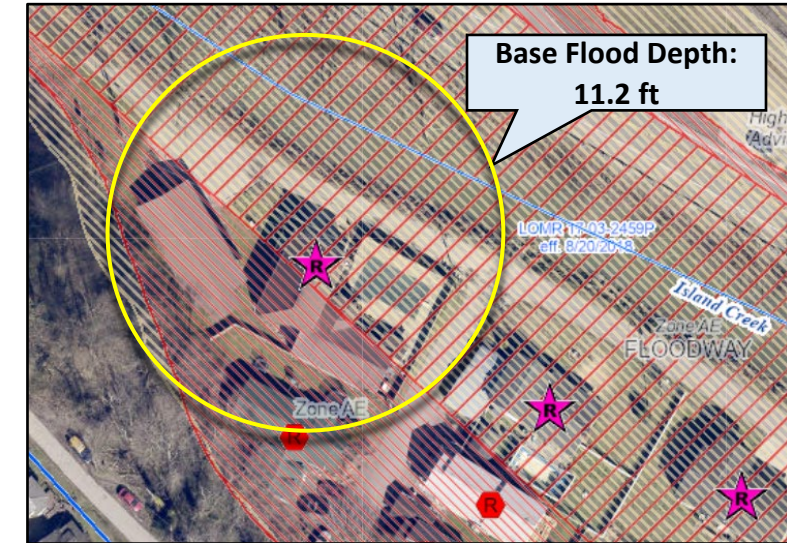
Highest Estimated Loss Value



Holden Central Elementary School
Highest Loss (\$386K)
(Building ID: [23-03-0002-0095-0000_1034](#))



Apartment Building in Chapmanville
Highest Multi-Family Residential Loss (\$142K)
(Building ID: [23-01-0001-0044-0000_134](#))



House near Logan
Highest Single-Family Residential Loss (\$86K)
(Building ID: [23-03-0006-0039-0000_94](#))

People / Social Vulnerabilities

Population Exposure & Displacement



Top 10% rankings
among 55 counties

People / Social Vulnerabilities

High population in
floodplain ratio
(33.8%)

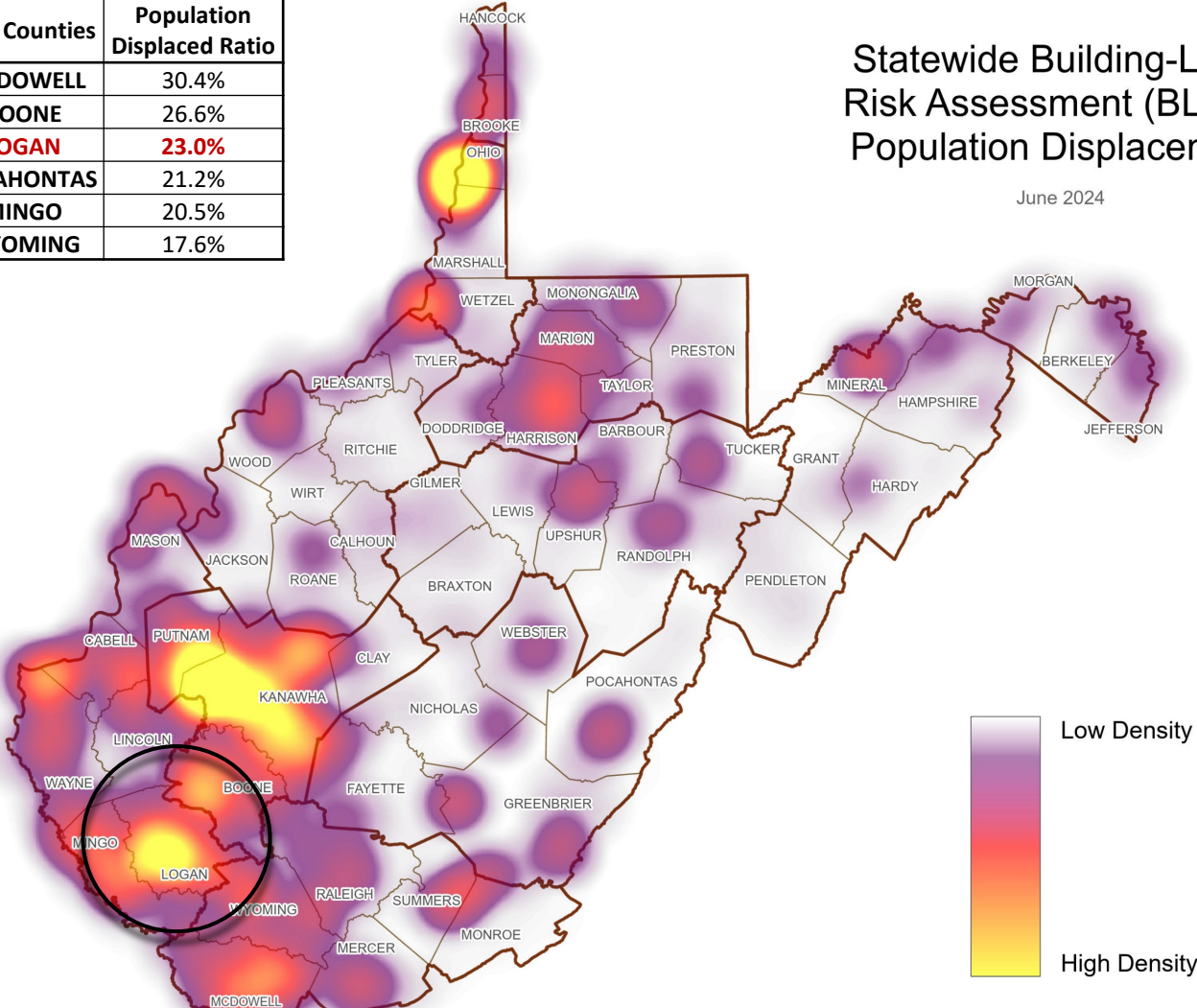
High population
displaced ratio
(23.0%)

High WV Social
Vulnerability
Index (88.9%)

Top 10% Counties		Population Displaced Ratio
1	MCDOWELL	30.4%
2	BOONE	26.6%
3	LOGAN	23.0%
4	POCAHONTAS	21.2%
5	MINGO	20.5%
6	WYOMING	17.6%

Statewide Building-Level Risk Assessment (BLRA): Population Displacement

June 2024



WVGISTC 2024-06-06
Data Source: 2024-05-03 Building Level Risk Assessment (BLRA) database
Households in areas inundated to 1ft or higher (n=45,523), weighted by estimated displaced population per building

Top 10% Counties		Population in Floodplain Ratio
1	MCDOWELL	45.0%
2	BOONE	37.5%
3	MINGO	34.1%
4	LOGAN	33.8%
5	LINCOLN	31.6%
6	WYOMING	30.0%

Logan County
Feb. 1972

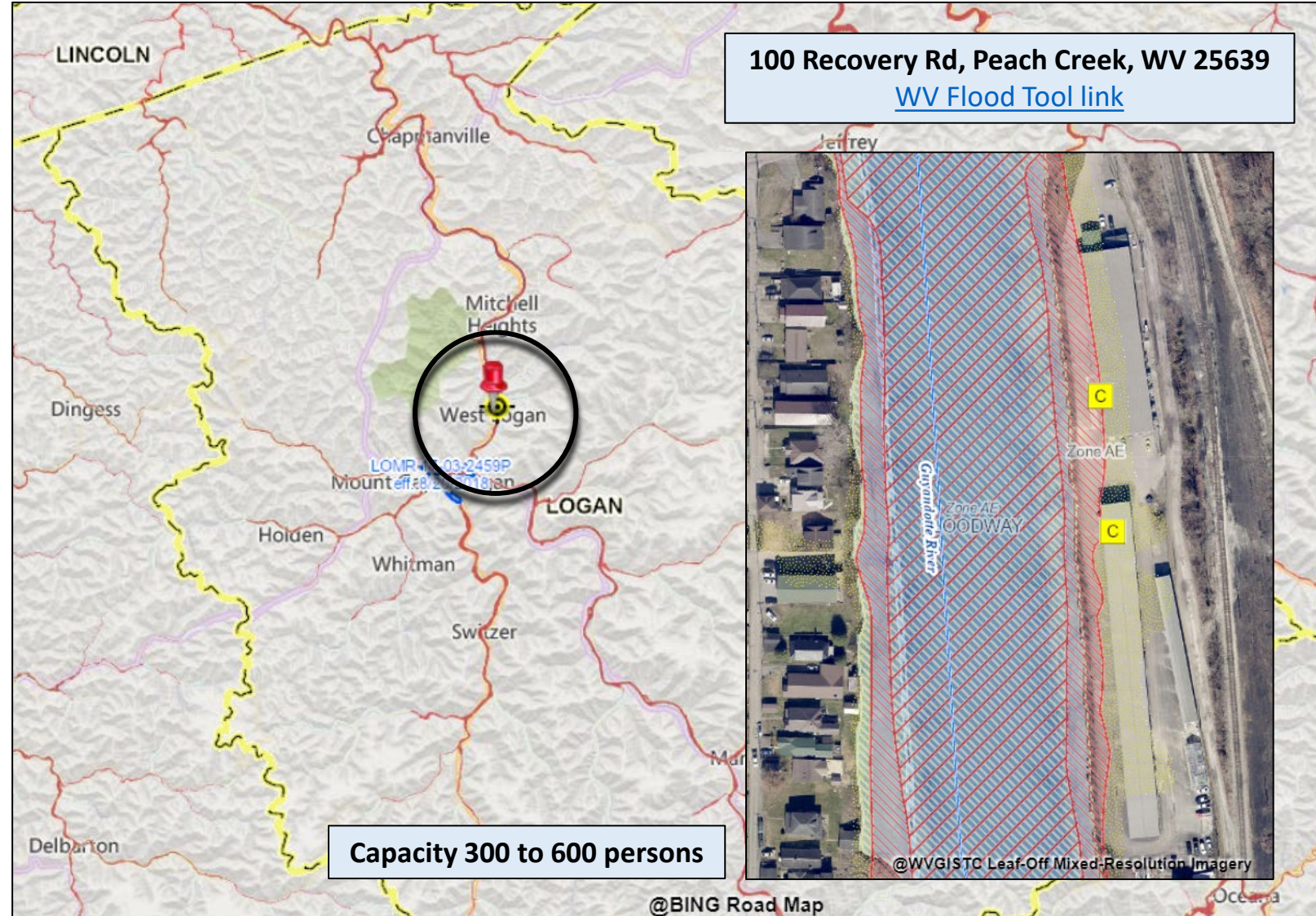


Top 10% Counties		WV Social Vulnerability Index
1	MCDOWELL	100.0%
2	WYOMING	98.1%
3	MINGO	96.3%
4	CLAY	94.4%
5	WEBSTER	92.6%
6	CALHOUN	90.7%

LOGAN 7th (88.9%)


People / Social Vulnerabilities Shelter Needs


**Estimated population in need of short-term
shelters in Logan County: 1,570
Estimated Companion Pets: 425**



Flood Risk Indicator / Index Scores

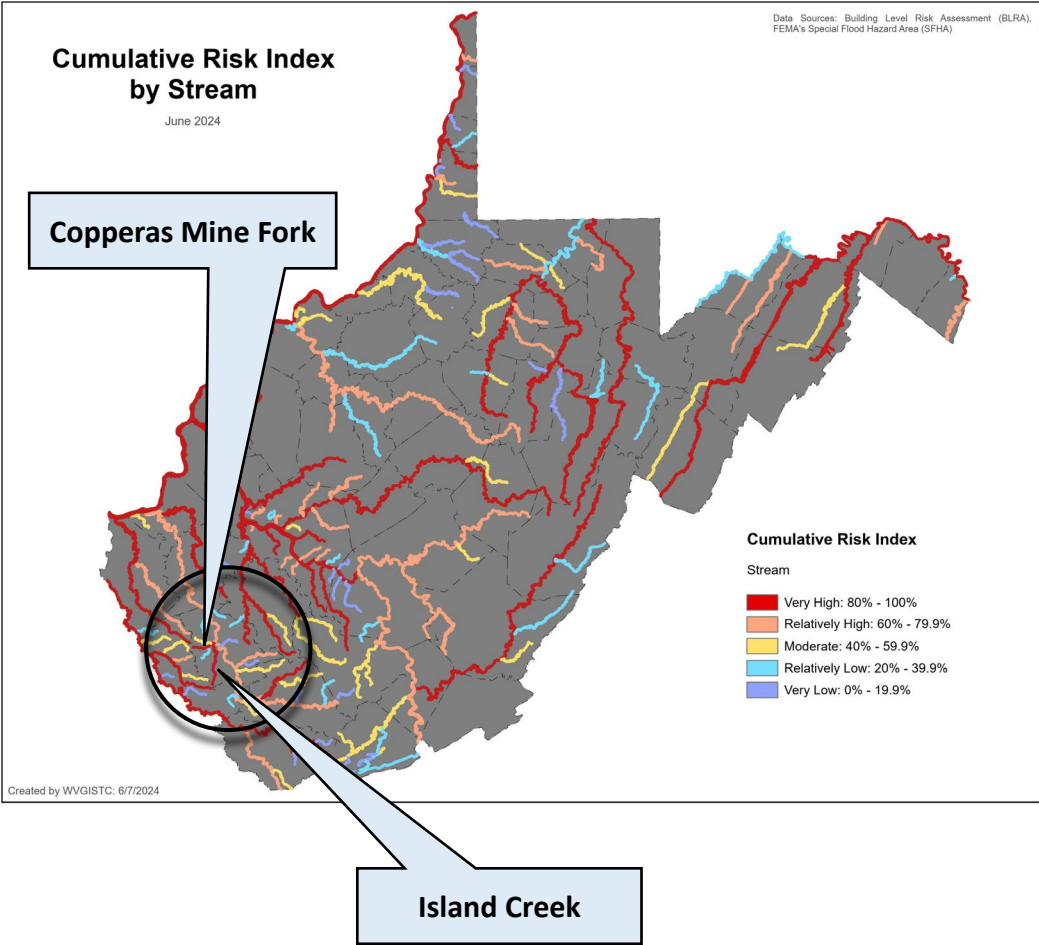
Island Creek & Copperas Mine Fork

Island Creek: **Ranked 1st**  for 1 indicator. **6 of 8 risk indicators** reach the 80th percentile.
5 of 8 risk indicators reach the 90th percentile.

Category	Flood Risk Indicator	Value for Island Creek	Indicator Score (0 - 100%) for Island Creek
FLOODPLAIN CHARACTERISTICS	Median Flood Depth	4.39	96.1%
	Building Floodplain Count	1,084	95.4%
BUILDING EXPOSURE	Building Floodway Count	632 	100.0%
	Building Density	58.9	98.7%
	Substantial Damage Count	168	97.4%
BUILDING DAMAGE LOSS	Substantial Damage Ratio	15.5%	85.8%
Cumulative Flood Index Score of 8 Risk Factors (Among 156 Streams in WV with ≥ 100 structures in floodplain)		98.0% (4th Rank)	

Copperas Mine Fork: **2 of 8 risk indicators** reach the 90th percentile.
2 of 8 risk indicators reach the 80th percentile.

Category	Flood Risk Indicator	Value for Copperas Mine Fork	Indicator Score (0 - 100%) for Copperas Mine Fork
BUILDING EXPOSURE	Building Floodway Count	158	92.2%
	Building Density	51.1	96.7%
Cumulative Flood Index Score of 8 Risk Factors (Among 156 Streams in WV with ≥ 100 structures in floodplain)		81.2% (30th Rank)	



Flood Risk Indicator / Index Scores

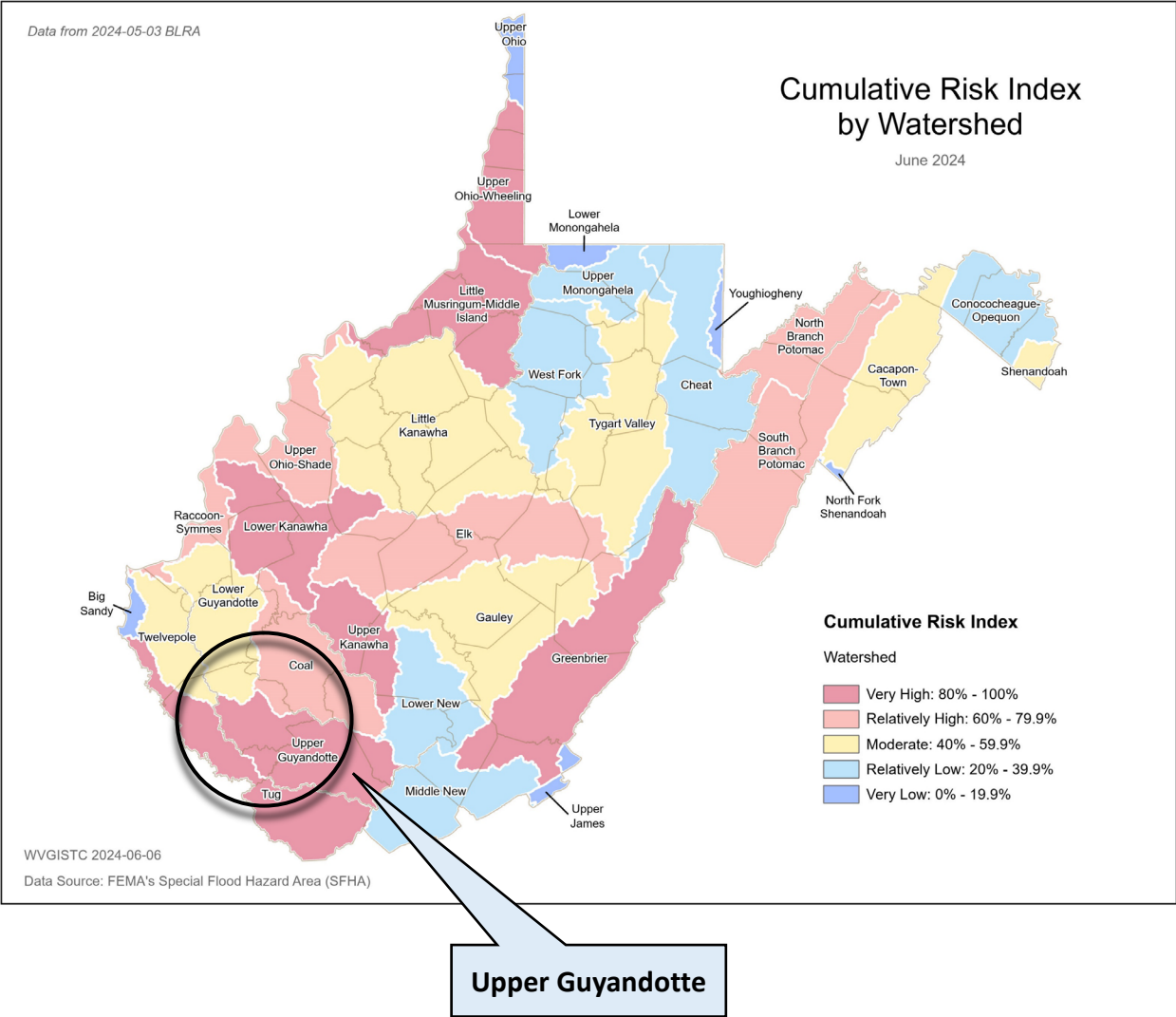
Upper Guyandotte Watershed

Ranked 1st **1** for 1 indicator.

4 of 9 risk indicators reach the 90th percentile.

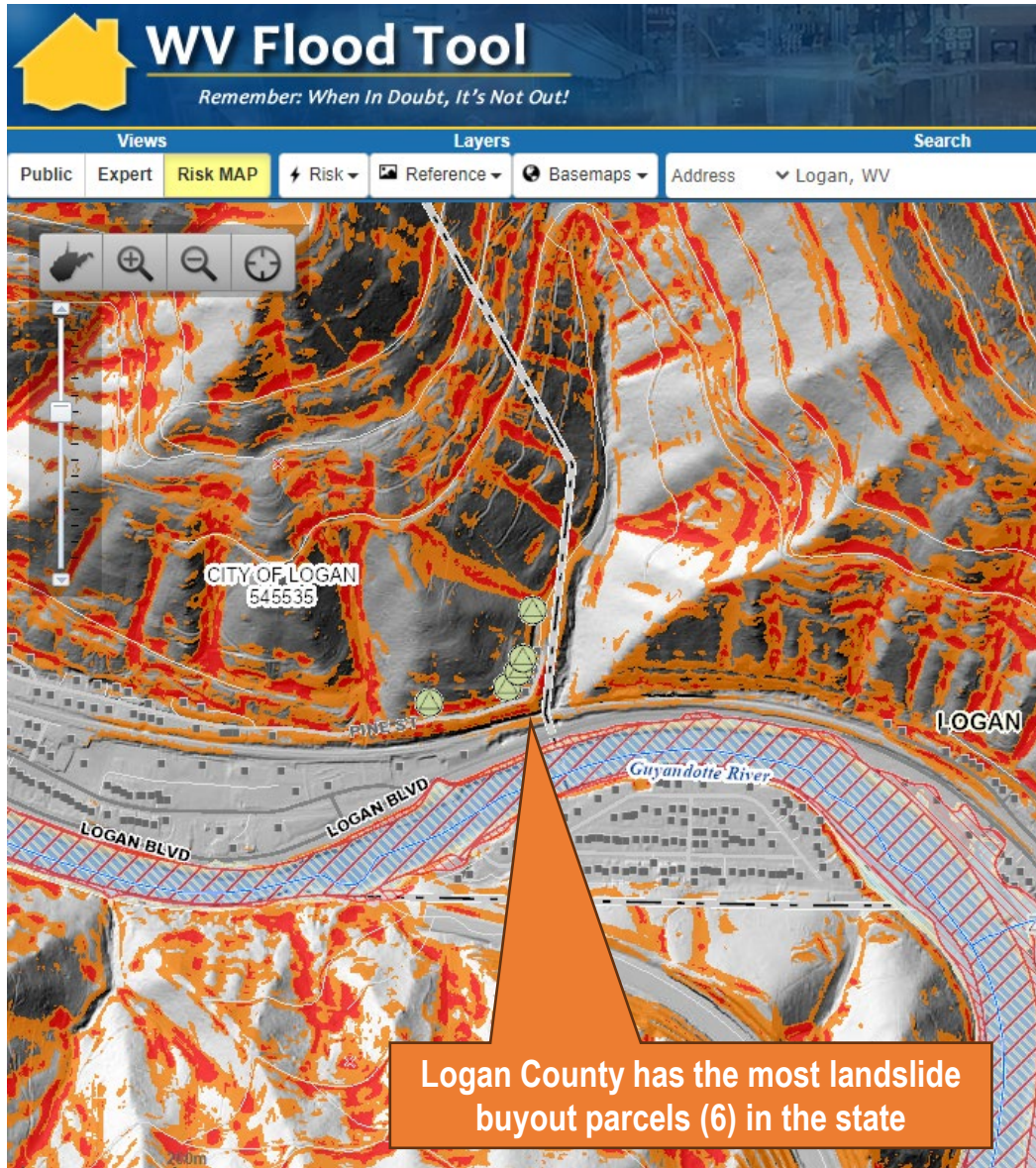
6 of 9 risk indicators reach the 80th percentile.

Category	Flood Risk Indicator	Value for Upper Guyandotte	Indicator Score (0 - 100%) for Upper Guyandotte
FLOODPLAIN CHARACTERISTICS	Median Flood Depth	1.36	87.5%
BUILDING EXPOSURE	Building Floodplain Count	6,211	93.7%
	Building Floodway Count	1,274 1	100.0%
	Building Floodplain Ratio	18.8%	96.8%
	Building Density	3.39	81.2%
BUILDING DAMAGE LOSS	Substantial Damage Count	364	90.6%
Cumulative Flood Index Score of 9 Risk Factors (Among 33 Watersheds in WV)		100.0% (1st Rank)	



Other Hazards

Landslides

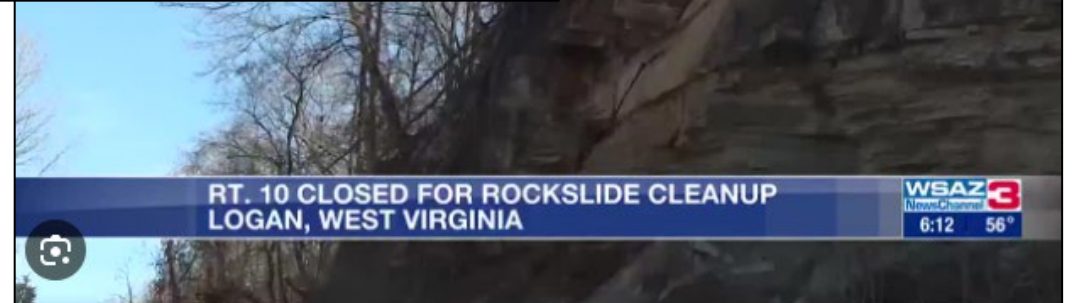


Man mudslide destroys home, furthers neighbor concerns about nearby abandoned mine

by ANNA SAUNDERS | Wed, August 3rd 2022 at 8:35 AM
Updated Wed, August 3rd 2022 at 9:13 AM



A mudslide destroys a family's home on Vine Street in Man in Logan County. (WCHS)



Rt. 10 closed for rockslide repair in Logan

Uploaded: Feb 20, 2024

Watch >

West Virginia RISK EXPLORER

Web Design Layout (6/8/2024 Draft)

A localized exploration tool for understanding riverine flood risk at nine geographic scales of analysis.

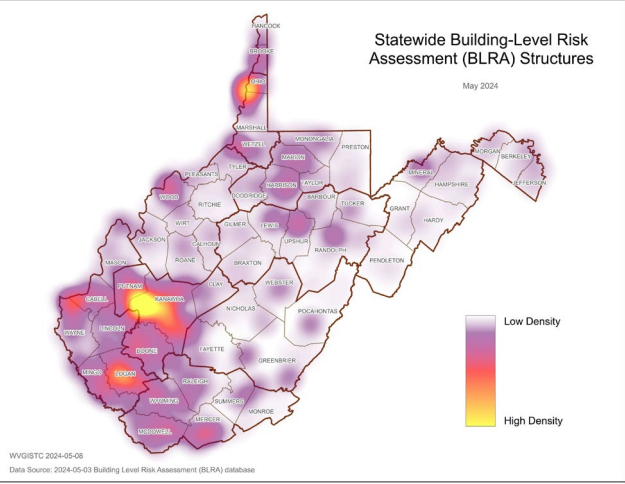
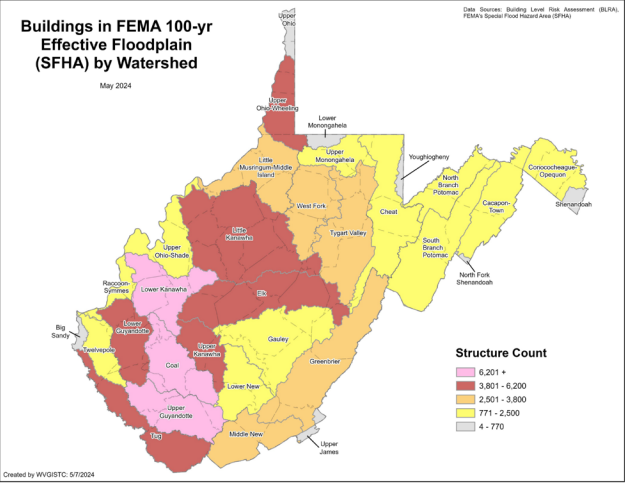
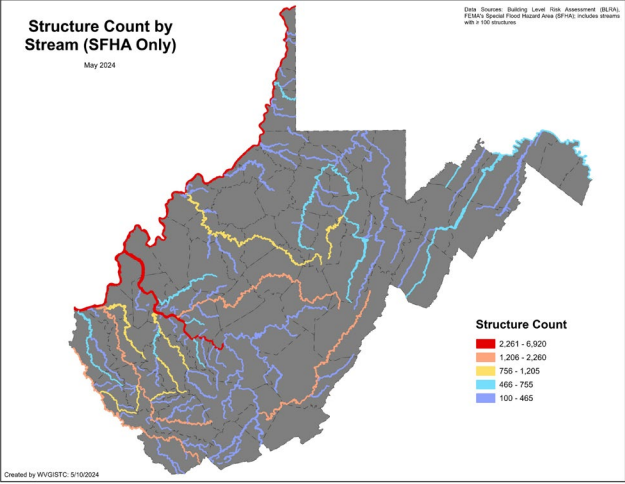
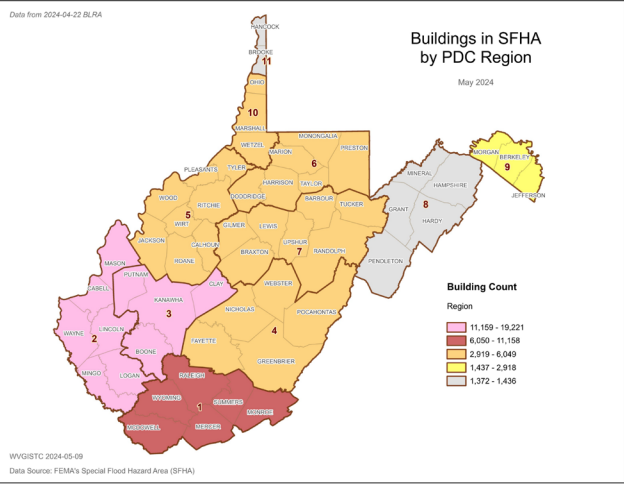
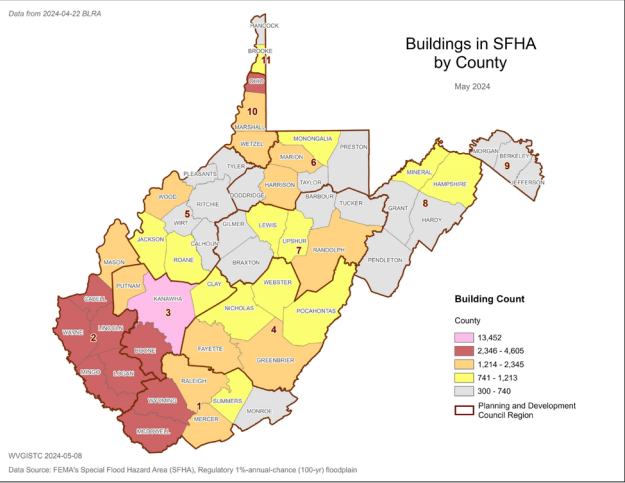
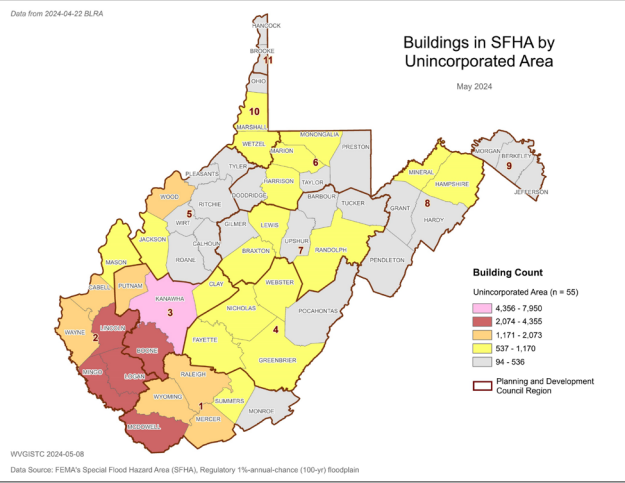
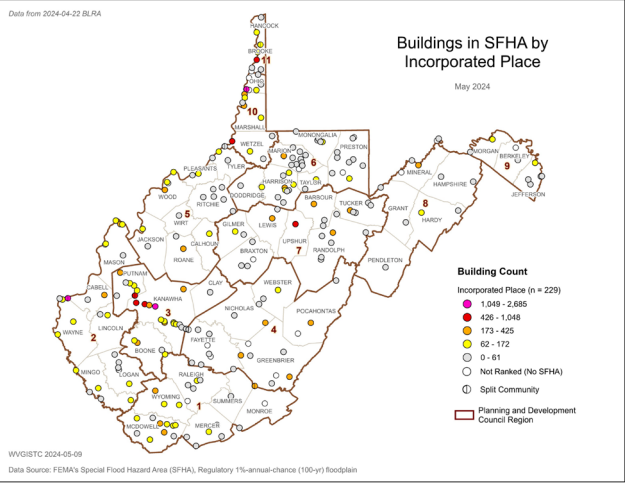
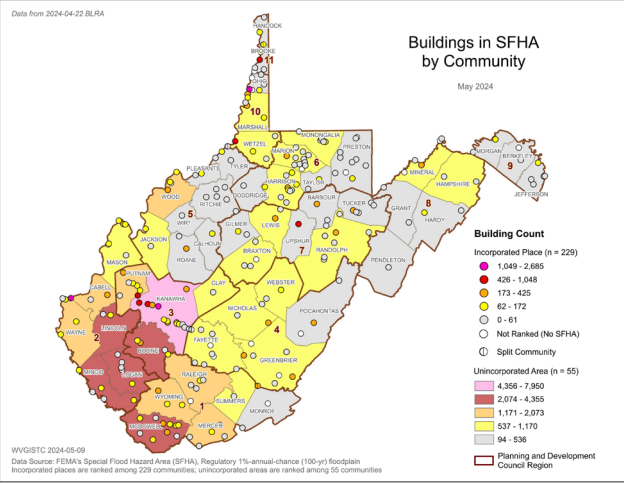
Long Description	Short Description	Related Web Pages or Functions
<u>VIEW MAPS*</u> Interactively view and explore risk indicators to identify communities of higher risk	View Risk Maps	<i>None</i>
<u>VIEW REPORTS*</u> View risk assessment reports and export data	View Risk Reports and access the data	➤ Chose 1 of 5 Report Types... <ul style="list-style-type: none"> • Risk Factors 80th Percentile • Risk Factors 0-100th Percentile • Risk Comparison • Full Risk Factor Report** • Building Level** ➤ Print or Export... <ul style="list-style-type: none"> • Print Report • Export Report Data
<u>LEARN MORE*</u> Learn more about the methodology and other technical aspects for quantifying (measuring) risk Variant: What is the WV Flood Risk Explorer?	Learn about the methodology	❖ Behind the Risk Explorer <ul style="list-style-type: none"> • Risk Indicator Descriptions • Methodology • Data Dictionaries • Technical Document • Disclaimer
<u>VISUALIZATIONS</u> Visualize flood models and past flood events at the community and building level scales	Visualize flood risk	❖ Data and Visual Resources <ul style="list-style-type: none"> • <i>Visual Media</i> • Hazard Library • Access Data
<u>HAZARD LIBRARY</u> Search the document and visual media library for hazard information	Search Hazard Library	❖ Data and Visual Resources <ul style="list-style-type: none"> • Visual Media • <i>Hazard Library</i> • Access Data
<u>BENEFITS</u> Realize the benefits and uses of the statewide risk assessment	Understand how the Risk Explorer can help	❖ Benefits
<u>FREQUENTLY ASKED QUESTIONS</u> Review answers to questions that have been asked about the WV Risk Explorer	Check the Frequently Asked Questions	❖ Frequently Asked Questions
<u>ACCESS DATA</u> Access downloads and other data resources to use the WV Risk Explorer data in your own analysis, map, or application.	Access the data	❖ Data and Visual Resources <ul style="list-style-type: none"> • Visual Media • Hazard Library • <i>Access Data</i>
<u>ABOUT*</u> Contact us for help or more information about using Flood Risk Explorer and data	Contact information	NRI About cascading info example

* Title Menu ** Does not apply to all geographic scales

Indicator / Index Maps (Multiple Scales)

Example: Building Floodplain Count

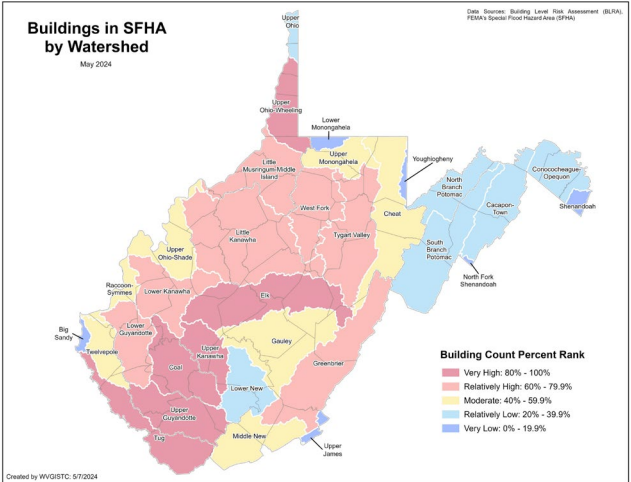
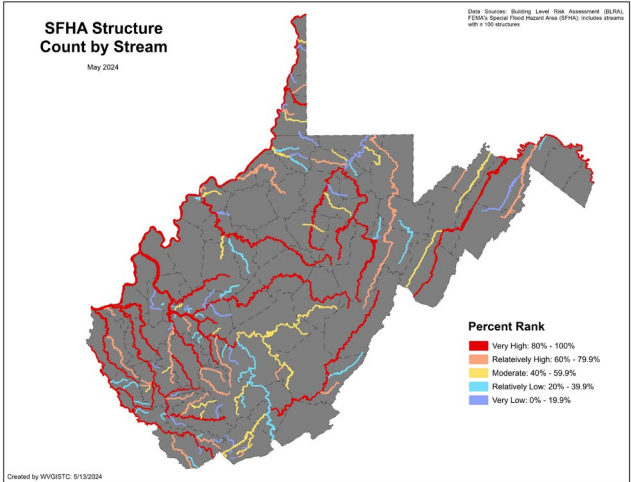
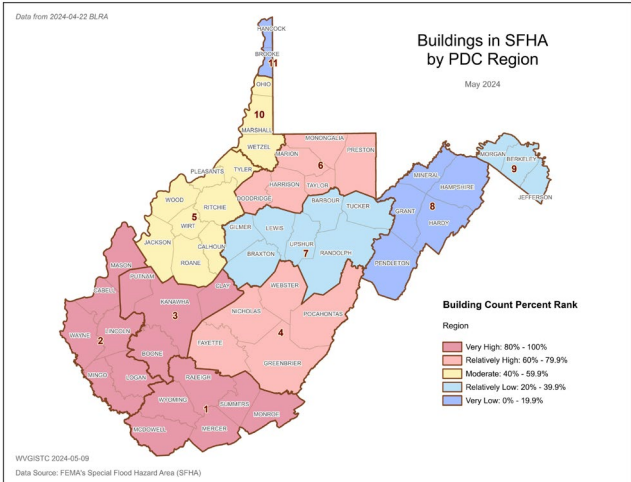
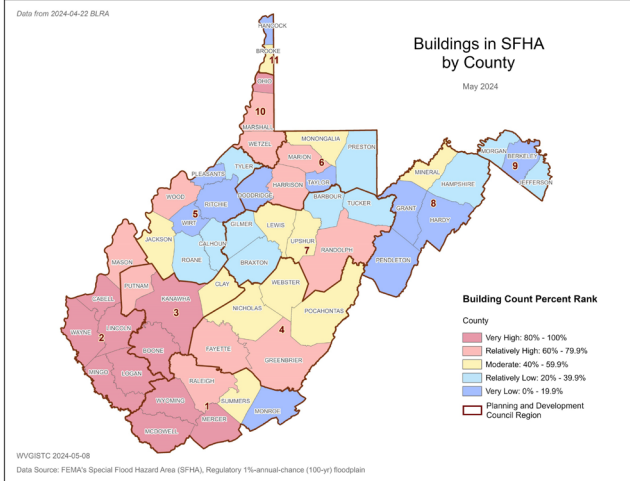
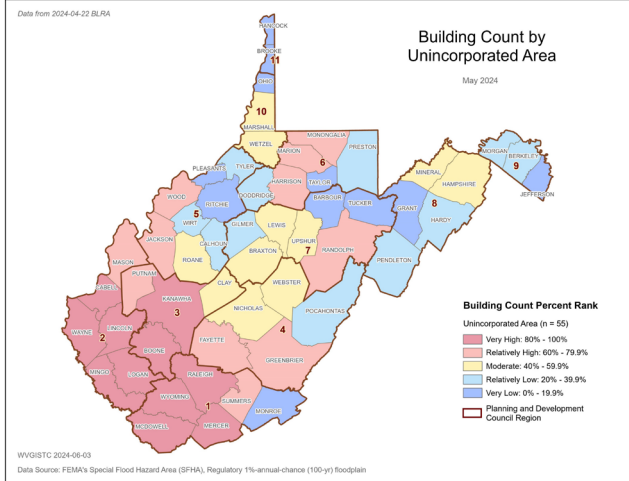
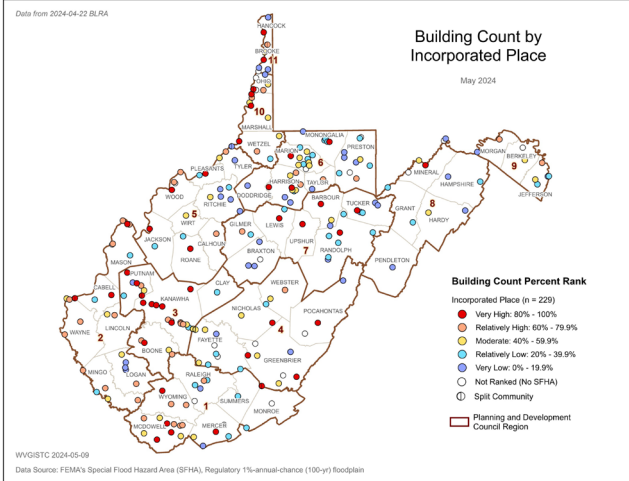
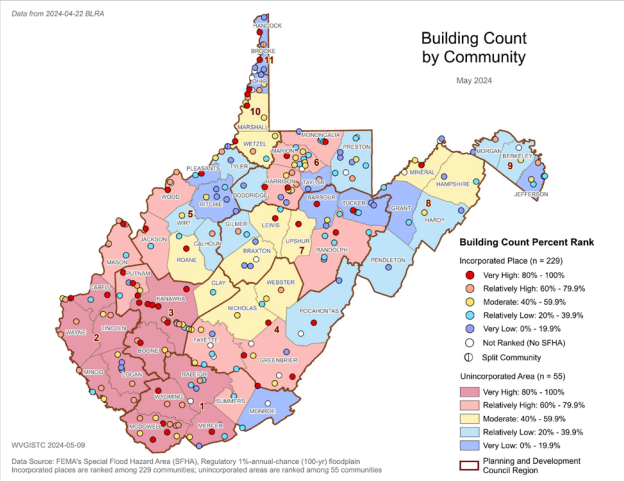
Natural Break Classification



Indicator / Index Maps (Multiple Scales)

Example: Building Floodplain Count

Percent Rank Classification



Risk Reports

Example: Logan County

LOGAN Flood Risk Report (County Scale)

Report URL: www.mapwv.gov/FR/3CTY/Logan/Report-80thPCT

RANKINGS FOR LOGAN, WV

- 12 of 27 risk indicators reach the 90th percentile.
- 15 of 27 risk indicators reach the 80th percentile.

NOTEWORTHY FLOOD RISKS FACTS

Table 1. A Cumulative Flood Risk Index of 27 flood factors reveals that **Logan County** ranks number four in the state of all 55 counties with a Cumulative Flood Risk Score of **94.4%**. Below are **15** flood risk indicators above the 80th percentile. Click on the More Info link for rationale and recommendations of each indicator.

Risk Indicator	Description	More Info	Supplementary External Links
Flood Frequency	27 Declared Flood Disasters since 1953.	ⓘ	County Natural Break County Percent Rank
Buildings in Floodplain	4,498 buildings in high-risk flood zone.	ⓘ	NatBrik PCTmkt High Risk Regulatory High Risk Advisory Mapped-Out Future Conditions Mapped-In Future Conditions Report
Buildings in Floodway	961 buildings in floodway	ⓘ	Density NatBrik PCTmkt Floodplain Ratio
Building Ratio	17.8% percentage of buildings in floodplain.	ⓘ	PCTmkt
Building Density	0.81 buildings per acre in floodplain.	ⓘ	Density PCTmkt
Mobile Homes Ratio	35.5% percentage of mobile homes in single-family dwellings in floodplain	ⓘ	Density NatBrik
Essential Facilities	18 essential facilities.	ⓘ	Density NatBrik
Roads Inundated	14.6% percentage of roads estimated to be flooded.	ⓘ	Density Depth-Class NatBrik Railroads Depth Class
Community Assets	115 non-historical assets.	ⓘ	Density NatBrik
Damage Count	306 substantially damaged buildings.	ⓘ	Density Top50PCT Top30 Top100 Top125 Debris Removal
Damages Previously	2,418 previous damage claims.	ⓘ	No Claims Docs at County Level
Repetitive Loss	1,110 repetitive loss structures.	ⓘ	Density GeoCode
Population Ratio	33.8% of the population resides in the high-risk flood zone.	ⓘ	No Docs at any Level
Population Displaced	23.0% of population displaced from major flood event.	ⓘ	Density Short-Term Shelter
Social Vulnerability	88.9% WV Social Vulnerability Index (WV SVI) score	ⓘ	PCTmkt CDRZ Population Change Report

1

FLOOD RISK INDEX SCORES FOR LOGAN COUNTY, WV

Table 2. A Cumulative Flood Risk Index of 27 flood factors reveals that **Logan County** ranks number four in the state of all 55 counties with a Cumulative Flood Risk Score of **94.4%**. Below are **15** flood risk indicators above the 80th percentile. [Cumulative Rank Static Graphic](#).

Category	Flood Risk Indicator	Value for Logan (Red – Top 10%) (Orange – Top 20%)	Indicator Score (0 – 100%)
FLOODPLAIN CHARACTERISTICS	Declared Flood Disasters ⓘ	27	96.2%
	Building Floodplain Count ⓘ	4,498	98.1%
BUILDING EXPOSURE	Building Floodway Count	961	98.1%
	Building Floodplain Ratio ⓘ	17.8%	94.4%
	Building Density	0.81	98.1%
BUILDING CHARACTERISTICS	Mobile Homes Ratio	35.5%	87.0%
CRITICAL INFRASTRUCTURE	Essential Facilities	18	88.8%
	Roads Inundated Ratio	14.6%	96.2%
COMMUNITY ASSETS	Non-Historical Community Assets	115	96.2%
BUILDING DAMAGE LOSS	Substantial Damage Count	306	92.5%
	Previous Damage Claims	2,418	98.1%
	Repetitive Loss Structures	1,110	98.1%
	Population Residing in Floodplain Ratio	33.8%	94.4%
PEOPLE / SOCIAL VULNERABILITIES	Displaced Population Ratio	23.0%	96.2%
	WV Social Vulnerability Index	88.9%	88.9%
Cumulative Flood Index Score of 27 Risk Factors (55 Counties in WV)			94.4% (4th Rank)

2

FLOOD RISK FACTORS OF LOGAN COUNTY COMPARED TO OTHER COUNTIES

Table 3. Flood risk indicator values for **Logan** compared to descriptive statistics of all counties.

Category	Flood Risk Indicator	Value for Logan	Median Value	Mean Value	Min Value	Max Value	State Stats
FLOODPLAIN CHARACTERISTICS	Declared Flood Disasters ⓘ	27	16	16	9	28	64
	Building Floodplain Count ⓘ	4,498	939	1,498	300	13,452	82,408
BUILDING EXPOSURE	Building Floodway Count	961	67	150	0	1,462	8,237
	Building Floodplain Ratio ⓘ	17.8%	5.9%	7.9%	0.8%	24.5%	7.4%
	Building Density	0.81	1.10	0.19	0.02	1.12	0.16
BUILDING CHARACTERISTICS	Mobile Homes Ratio	35.5%	25.8%	25.9%	4.0%	53.3%	27.5%
CRITICAL INFRASTRUCTURE	Essential Facilities	18	5	9	0	52	489
	Roads Inundated Ratio	14.6%	4.9%	6.0%	0.3%	19.2%	6.0%
COMMUNITY ASSETS	Non-Historical Community Assets	115	27	38	8	261	2,092
BUILDING DAMAGE LOSS	Substantial Damage Count	306	80	118	4	975	6,493
	Previous Damage Claims	2,418	350	507	34	3,044	27,882
	Repetitive Loss Structures	1,110	127	176	5	1,547	9,689
PEOPLE / SOCIAL VULNERABILITIES	Population Residing in Floodplain Ratio	33.8%	10.6%	14.0%	1.0%	45.0%	11.0%
	Displaced Population Ratio	23.0%	5.5%	8.2%	0.6%	30.4%	6.6%
	WV Social Vulnerability Index	88.9%	50.0%	50.0%	0.0%	100.0%	N/A

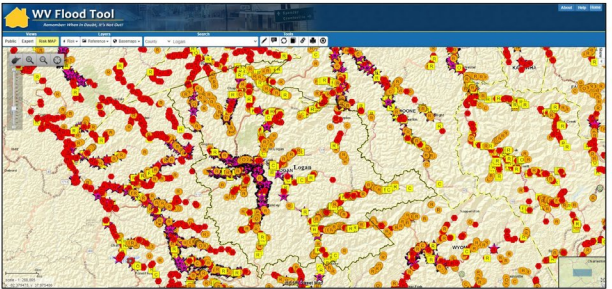
3

GENERAL INFORMATION STATISTICS FOR LOGAN COUNTY

Table 4. General Information and comparison statistics for **Logan**.

	Total Area (Acres)	Total Structures	Total Population	Population Density (per sq. mi)	Number of Households	Average Household Size
Logan County	291,379	25,311	32,786	72.0	12,382	2.6
STATE STATS						
STATES	15,500,454	1,118,761	1,801,049	74.4	711,352	2.5
COUNTIES						
Median	269,049	16,115	22,603	47.0	7,912	2.6
Mean	281,826	20,341	32,746	93.6	12,934	2.6
Minimum	1,528 (HANCOCK)	3,954 (CALHOUN)	5,264 (WIRT)	8.5 (POCAHONTAS)	2,081 (WIRT)	2.2 (BROOKE)
Maximum	26,607 (HAMPSHIRE)	100,457 (KANAWHA)	181,953 (KANAWHA)	389.9 (OHIO)	76,919 (KANAWHA)	3.1 (DODDRIDGE)

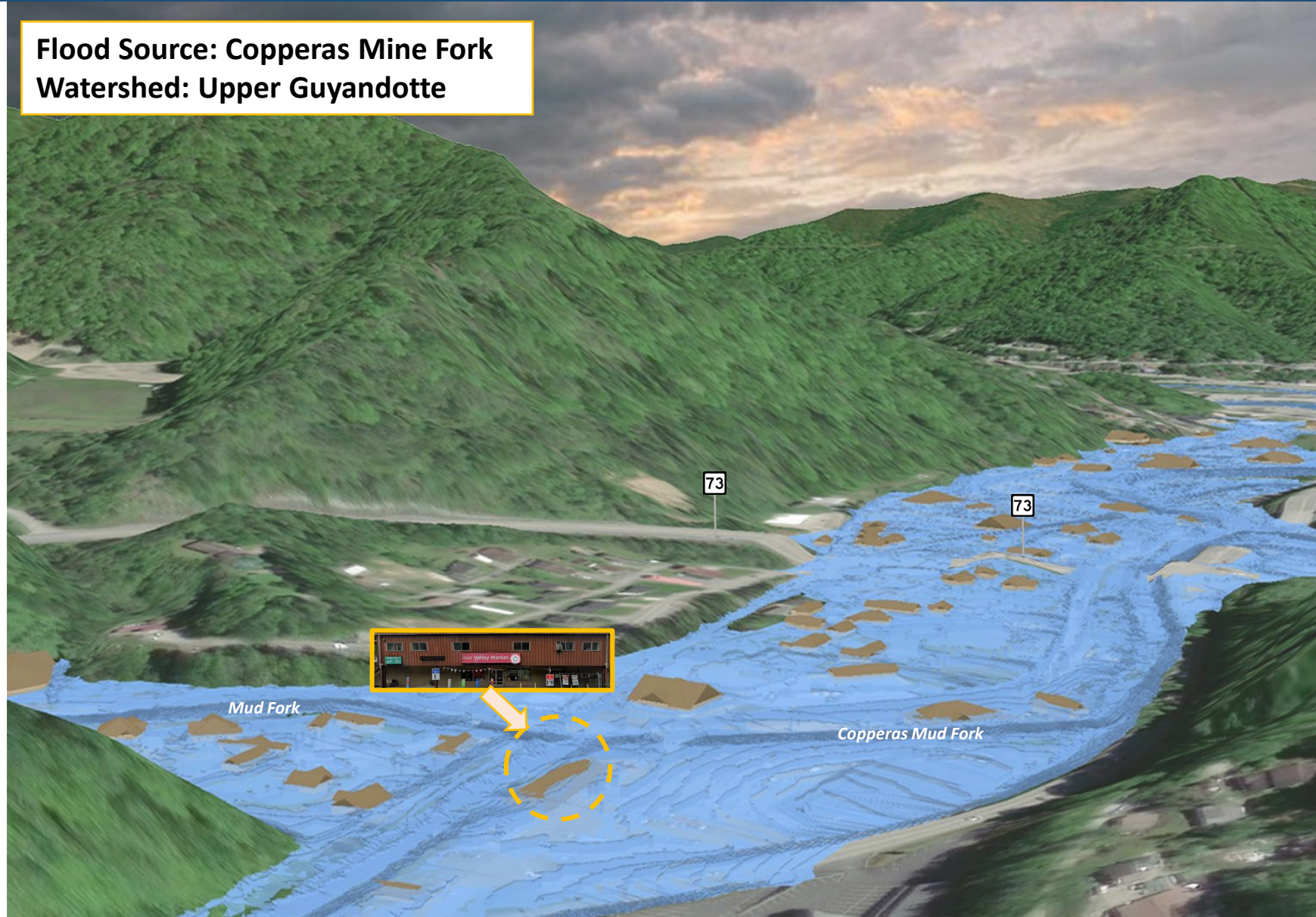
Figure 1. Map of Logan County ([WV Flood Tool link](#))



4

Inundated Area in one-hundred-year flood

Flood Source: Copperas Mine Fork
Watershed: Upper Guyandotte



Building General Identification

23-03-0066-0074-0000 50

50 HOLDEN RD, MOUNT GAY, WV, 25637



▼ BUILDING INFORMATION

Property Class Type C - Commercial

Land Use 347 - Supermarket

Year Built 1950 **Pre-FIRM**

Story Height 2

Flood Profile

Flood Profile

	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	12.6
FEMA 100-Yr + FBD	14.6
FEMA 0.2% (500-Yr)	



12.6' (FEMA 1% / 100-Yr)

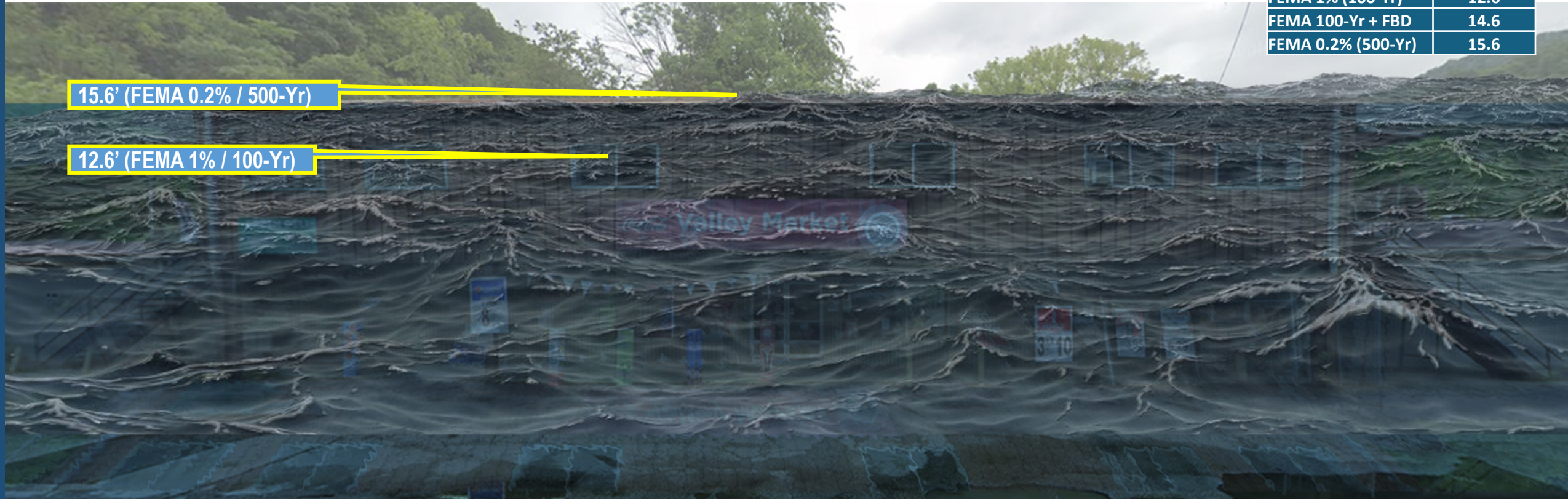
Flood Profile

Flood Profile

	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	12.6
FEMA 100-Yr + FBD	14.6
FEMA 0.2% (500-Yr)	15.6

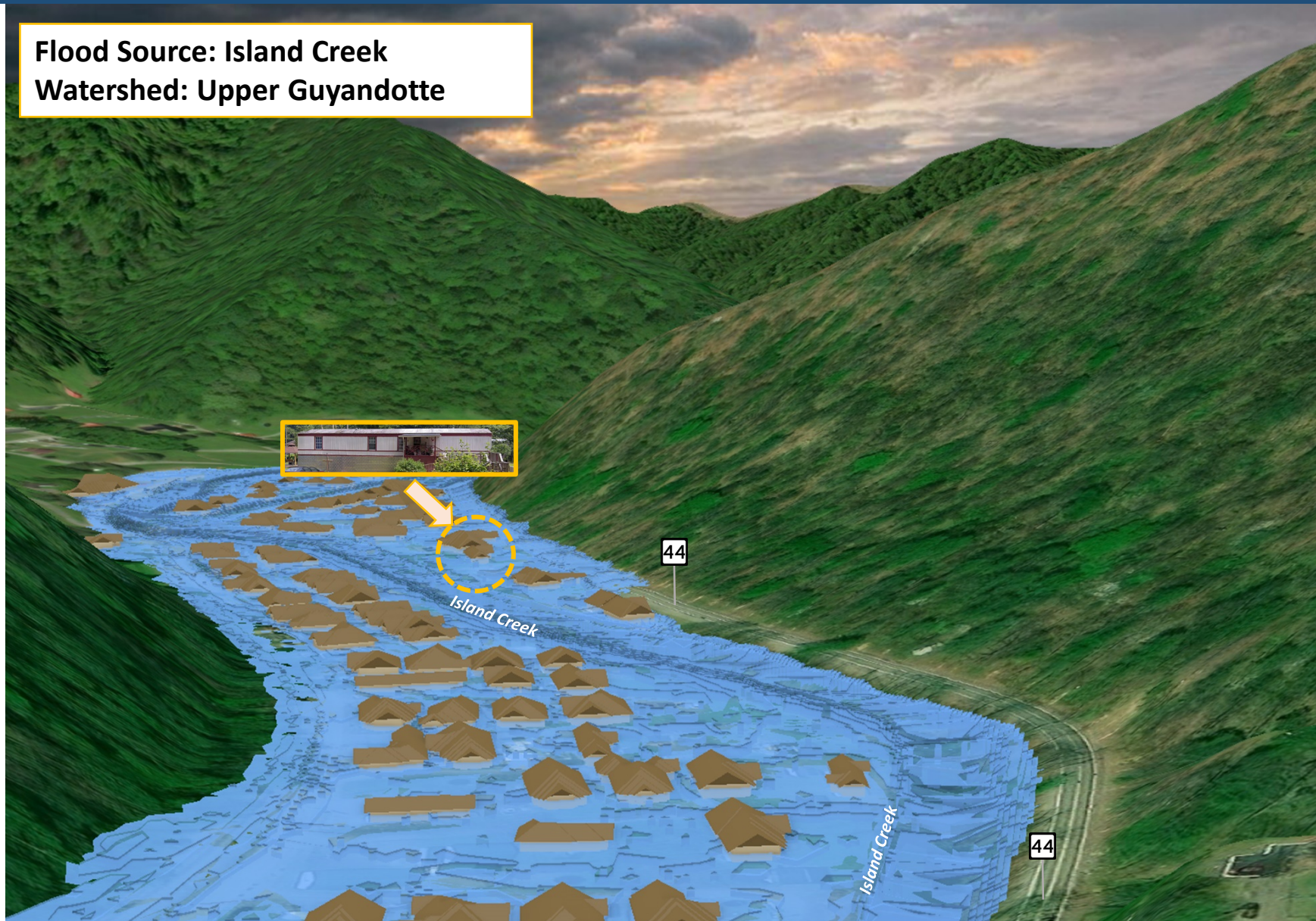
15.6' (FEMA 0.2% / 500-Yr)

12.6' (FEMA 1% / 100-Yr)



Inundated Area in one-hundred-year flood

Flood Source: Island Creek
Watershed: Upper Guyandotte



Building General Identification

[23-03-0029-0029-0000](#) 3456

3456 JERRY WEST HWY TRLR, ROSSMORE, WV, 25636



BUILDING INFORMATION		
Property Class Type	R - Residential	
Land Use	108 - Mobile Home	
Year Built	1996	Post-FIRM

Flood Profile

Flood Profile

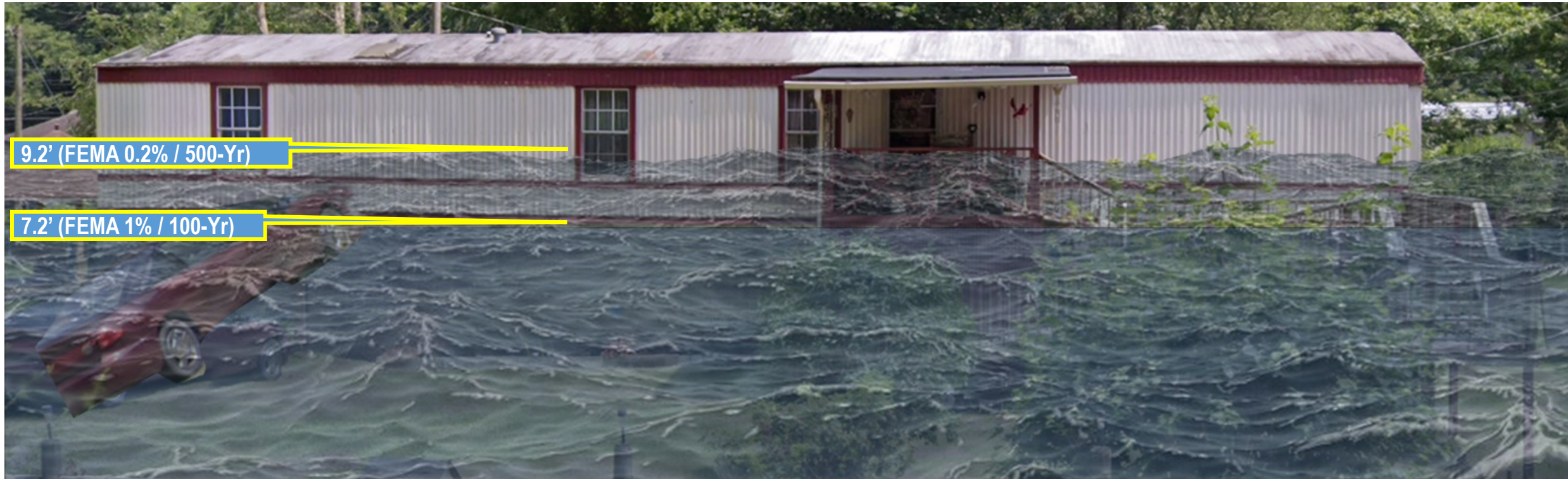
	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	7.2
FEMA 100-Yr + FBD	9.2
FEMA 0.2% (500-Yr)	



Flood Profile

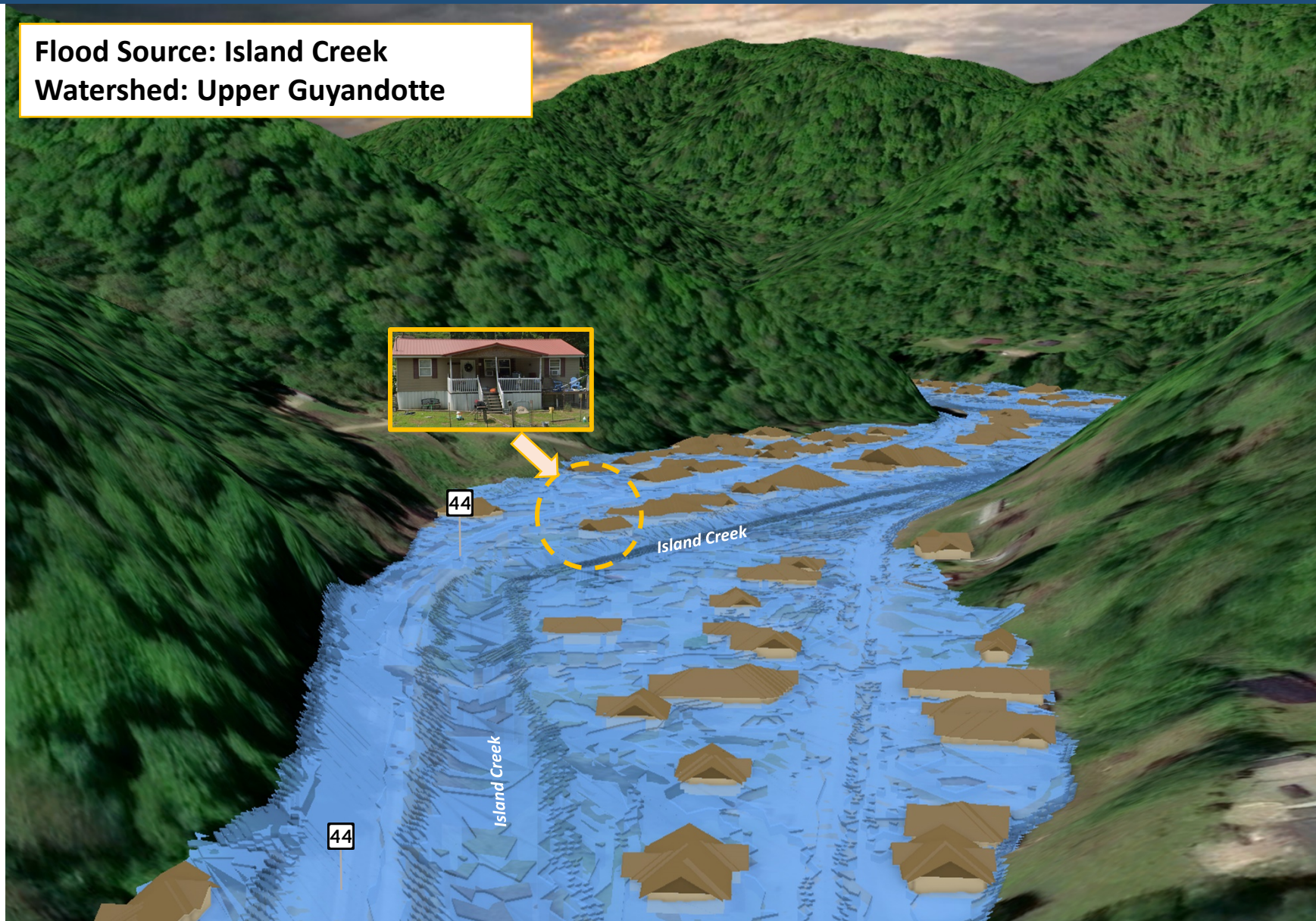
Flood Profile

	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	7.2
FEMA 100-Yr + FBD	9.2
FEMA 0.2% (500-Yr)	9.2



Inundated Area in one-hundred-year flood

Flood Source: Island Creek
Watershed: Upper Guyandotte



Building General Identification

[23-03-0048-0113-0000](#) 5312

5312 JERRY WEST HWY, SWITZER, WV, 25647



▼ BUILDING INFORMATION

Property Class Type R - Residential

Land Use 101 - Residential 1 Family

Year Built 2013 **Post-FIRM**

Architectural Style Conventional

Story Height 1

Flood Profile

Flood Profile

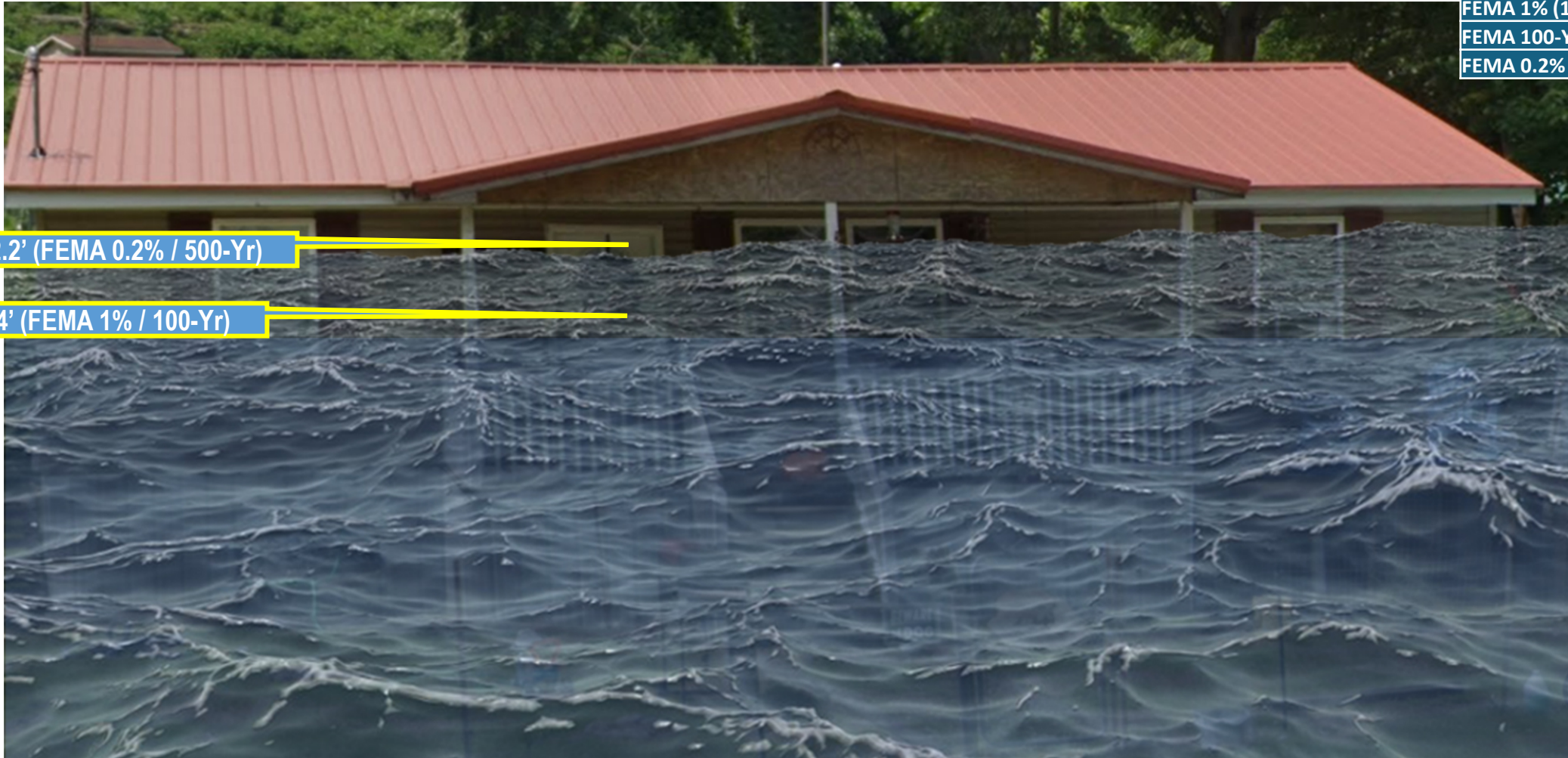


9.4' (FEMA 1% / 100-Yr)

	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	9.4
FEMA 100-Yr + FBD	11.4
FEMA 0.2% (500-Yr)	

Flood Profile

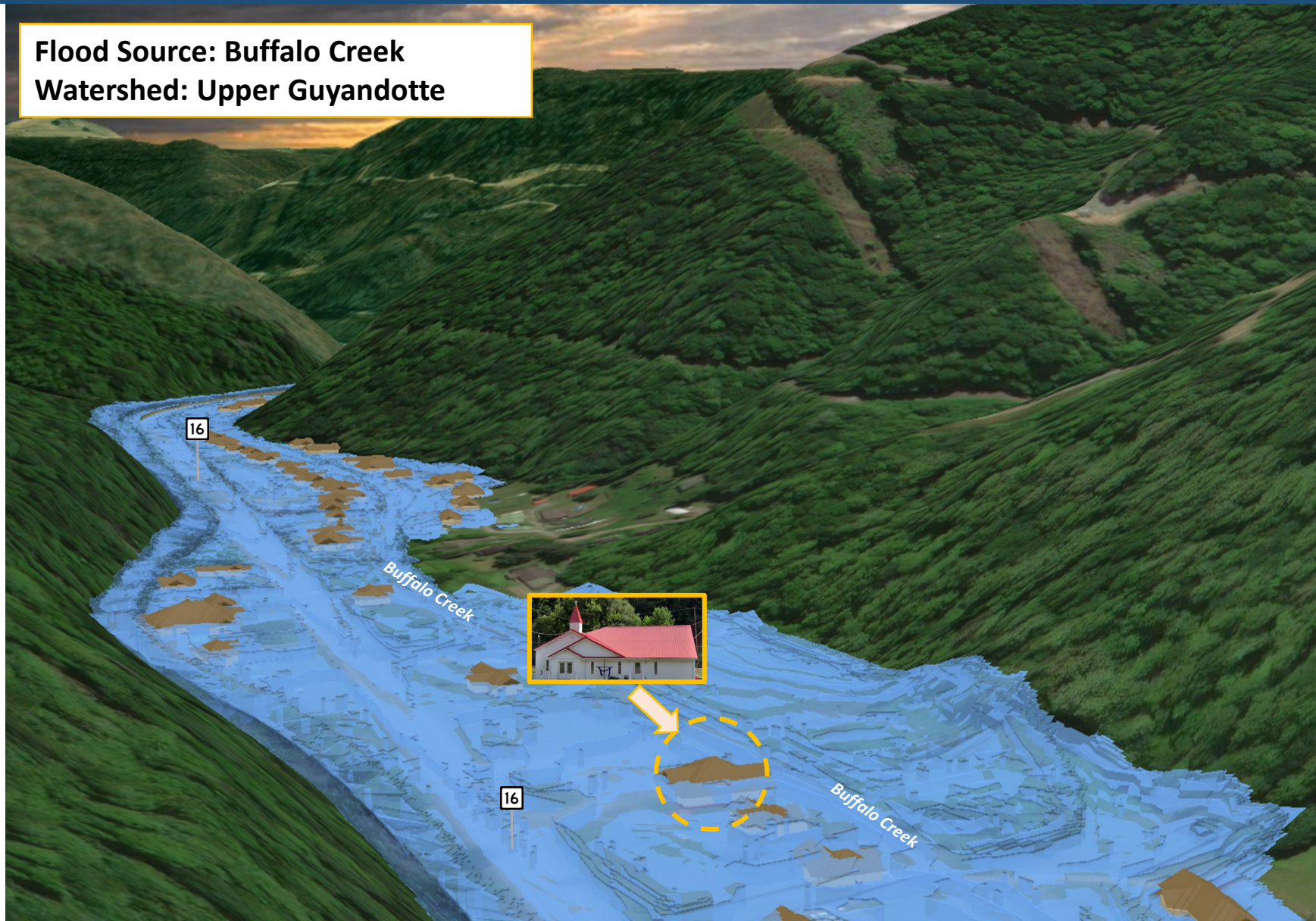
Flood Profile



	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	9.4
FEMA 100-Yr + FBD	11.4
FEMA 0.2% (500-Yr)	12.7

Inundated Area in one-hundred-year flood

Flood Source: Buffalo Creek
Watershed: Upper Guyandotte



Building General Identification

Building: 23-08-0009-0051-0000 8968

8968 BUFFALO CREEK RD, LORADO, WV, 25630



Flood Profile

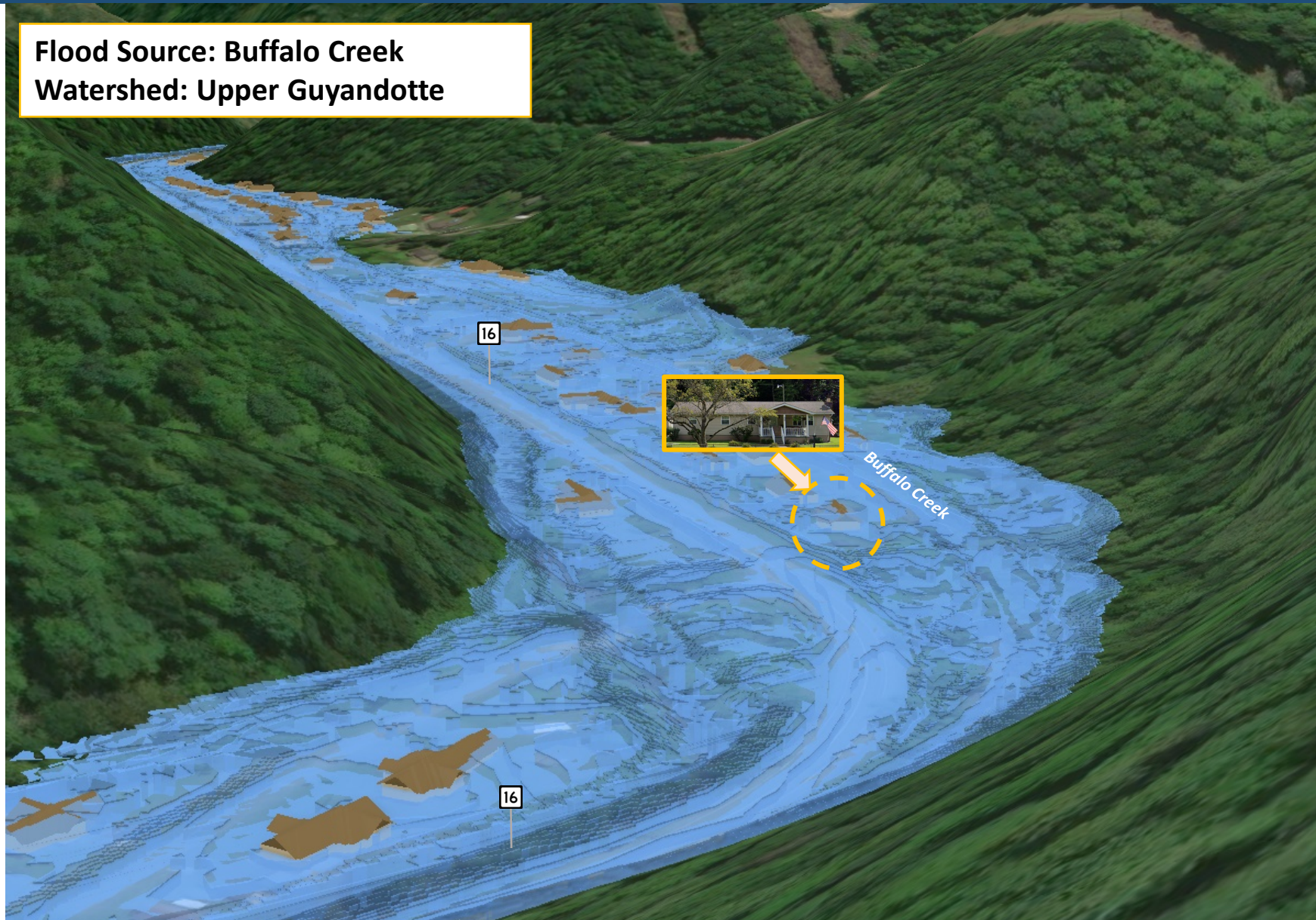


Flood Profile



Inundated Area in one-hundred-year flood

Flood Source: Buffalo Creek
Watershed: Upper Guyandotte



Building General Identification

[Building: 23-08-0009-0028-0000 8758](#)

8758 BUFFALO CREEK RD, LORADO, WV, 25630



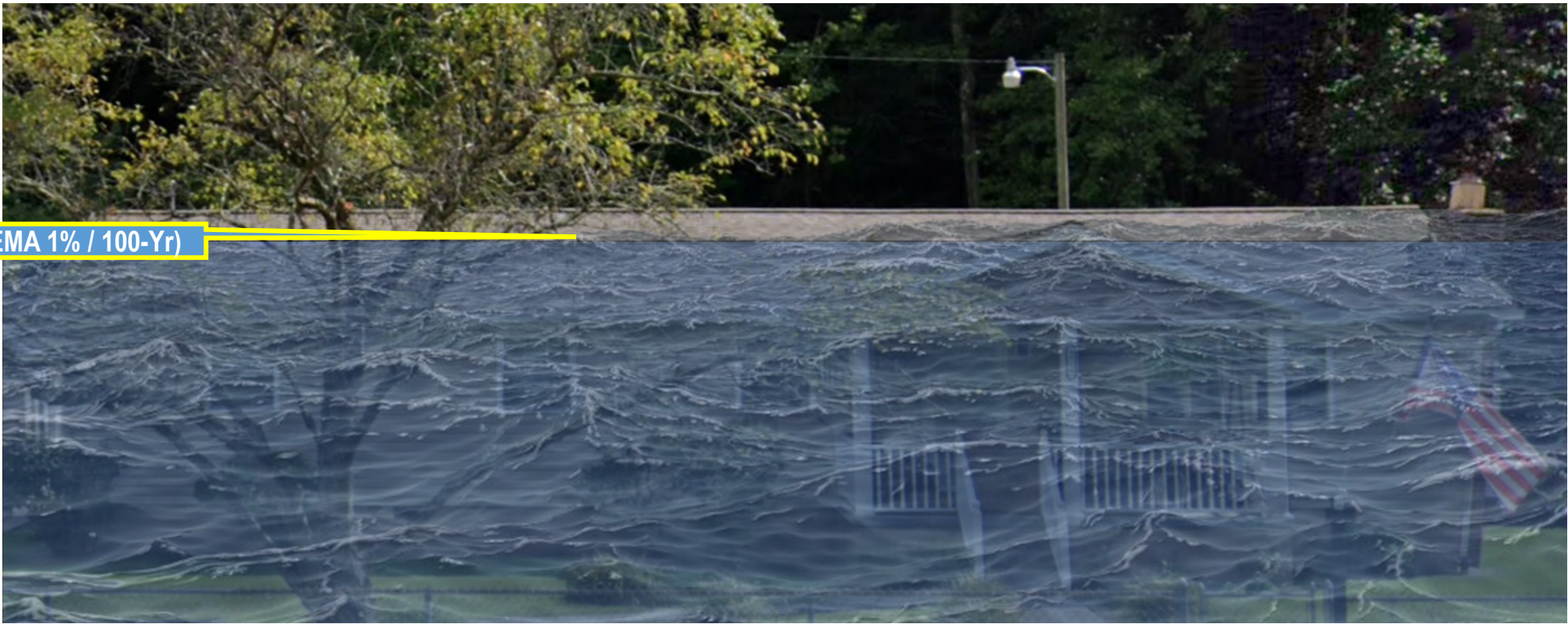
BUILDING INFORMATION		
Property Class Type	R - Residential	
Land Use	101 - Residential 1 Family	
Year Built	1973	Pre-FIRM
Architectural Style	Conventional	
Story Height	1	

Building General Identification

Flood Profile

	HEIGHT (ft.)
BUILDING	
Freeboard (FBD)	2
FLOOD DEPTH	
FEMA 1% (100-Yr)	13.9
FEMA 100-Yr + FBD	15.9
FEMA 0.2% (500-Yr)	

13.9' (FEMA 1% / 100-Yr)



Building General Identification

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FEMA 100-Yr + FBD	15.9
FEMA 0.2% (500-Yr)	16.7



Flood History and Flood Control

How we try to control
flooding in Logan
County?

RAY PERRY



Indicator Description, Rationale, & Data Sources

Indicator	Description	Rationale	Data Source
Median Flood Depth	Median value of flood depths of all primary structures inventoried in the high-risk flood zones.	The depth of floodwater around a structure is by far the most critical element to be considered in planning and designing flood proofing measures. The floodwater depth largely determines the strength and stability requirements for the structure as a whole and for individual structural elements below the design flood level. Source: https://www.publications.usace.army.mil/portals/76/publications/engineerpamphlets/ep_1165-2-314.pdf#page=60	WV BLRA; FEMA model-backed depth grids; Hazus-generated depth grids. Notes: In some cases, depth grid anomalies or map errors may result in high flood depths of select structures and thus should be validated
Declared Flood Disasters	Number of declared flood disasters in a county since 1953.	Previous disasters and frequency indicate potential for future risk. In addition, the recentness of flood disasters has proven to increase communities' willingness to seek mitigation activities. In West Virginia, many flood control structures (e.g., dams, levees, flood walls) built in the 20th Century have decreased the number of major flood disasters.	FEMA's Disaster Declarations for States and Counties online database. Incident subcategories include "flood" or "severe storms" or "hurricanes". https://www.fema.gov/data-visualization/disasterdeclarations-states-and-counties
Building Floodplain Count	Building count in Special Flood Hazard Area.	The higher number of buildings in the floodplain indicates higher physical and human exposure to riverine flooding. More structures also correlate to higher debris totals and displaced people from a major storm. If a building owner has a mortgage from a federally regulated lender and the property is in the Special Flood Hazard Area, then the building owner is required by Federal law to carry flood insurance. The building count in the SFHA is a programming variable required for those communities participating in FEMA's Community Rating System (CRS) program.	Effective and Advisory Floodplains for 1% Annual-Chance event; WV BLRA
Building Floodway Count	Building count in Regulatory Floodway.	High flood velocities and deep flood depths increase the likelihood of physical damage and loss of life. Structures in the floodway require the purchase of mandatory flood insurance for federally-backed loans. Restricted development. Before a local permit can be issued for proposed development in the floodway, a "No-Rise/No Impact" certification must be submitted by a professional engineer licensed in West Virginia to ensure a proposed project won't increase flood levels.	Effective and Advisory Floodplains for 1% Annual-Chance event; WV BLRA
Building Floodplain Ratio	Percentage of floodplain buildings to total buildings.	A higher ratio of buildings in the floodplain to total buildings signifies a greater physical and human exposure to flooding.	Effective and Advisory Floodplains for 1% Annual-Chance event; WV BLRA

Indicator Description, Rationale, & Data Sources

Indicator	Description	Rationale	Data Source
Building Density	Density of buildings in high-risk flood areas to total floodplain acres (or building per mile for rivers/streams)	A higher ratio of buildings in the floodplain to total buildings signifies a greater physical and human exposure to flooding.	Effective and Advisory Floodplains for 1% Annual-Chance event; WV BLRA
Mobile Homes Ratio	Percentage of manufactured buildings (occupancy code RES2) among all single-family structures.	Light-weight manufactured homes are not designed for withstanding floods and are more vulnerable to flood damage. Communities with a higher prevalence of manufactured homes often encounter more obstacles in achieving resilience, as these structures typically do not offer the same level of security as traditionally constructed homes. Moreover, these homes are often situated in regions beyond the urban core, where access to major roadways and public transit systems may be less available.	Effective and Advisory Floodplains for 1% Annual-Chance event; WV BLRA
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Essential Facilities	Number of essential facilities in the in the high, moderate, and reduced risk flood zones. Providing critical services to the community, essential facilities include police and fire stations, E-911 emergency operations centers, schools, hospitals, and nursing homes.	Hospitals and nursing homes with immobile patients are particularly susceptible to flooding. Schools often serve as refuges during floods. Communities need to establish emergency protocols to maintain critical services amidst a flood.	WV BLRA; Emergency Management Division; Department of Education; USA Reference; Department of Transportation
Roads Inundated Ratio	Percentage of roads inundated by flood waters of 1 foot or more by a major 1%-annual-chance (100-yr) flood event.	A foot of water will float many vehicles and make roads impassable. About three feet is near the limit to use high profile vehicles to perform high water rescues and instead boats and helicopters are required to perform rescues.	TIGER/Line, Census data, Depth grids from FEMA models, FEMA Hazus software generated, FSF Models

Indicator Description, Rationale, & Data Sources

Indicator	Description	Rationale	Data Source
Non-Historical Community Assets	Number of non-historical community assets including utilities (water, sewage, gas, electric, or phone), post-secondary educational facilities, emergency medical services (EMS), government buildings providing public services, and facilities hosting religious services.	Buildings such as churches often serve as emergency shelters during floods. Flooding can disrupt critical community lifelines including safety, water, shelter, health, and energy.	WV BLRA; Reference USA; Homeland Infrastructure Foundation-Level DATA; WV Water Development Authority; WV Infrastructure Jobs Development Council; WV Division of Natural Resources; Community feedback
Substantial Damage Count	Estimated number of primary structures substantially damaged (equal to or greater than 50% of the building value) from a 1% annual chance (100-yr) flood.	A key indicator of the severity and impact of a flood event. Helps in the efficient allocation of resources for recovery and reconstruction, adjusting insurance premiums and understanding risk exposure.	WV BLRA; Depth grids based on HEC-RAS and Hazus depth models
Substantial Damage Ratio	Percentage of substantially damaged structures to total floodplain structures.	See above.	See above.
Previous Damage Claims	Number of previous flood-related insurance claims since 1978.	A high number of claims in a community indicates that flooding is occurring, and community members are making claims against their policies.	FEMA NFIP Policy and Claims Report, West Virginia, 2024
Repetitive Loss Structures	Number of NFIP-insured structures that have had at least 2 paid flood losses of more than \$1,000 each in any 10-year period since 1978.	A preponderance of repetitive loss structures indicates that the community is at a higher risk for future losses.	FEMA NFIP Policy and Claims Report, West Virginia, 2024

Indicator Description, Rationale, & Data Sources

Indicator	Description	Rationale	Data Source
Population Residing in Floodplain Ratio	Percentage of population residing in the high-risk Special Flood Hazard Area to total population.	More people residing in floodplains means higher human exposure to floods causing higher human loss.	WV BLRA; Total population and average household size from Census Bureau's 2021 American Community Survey (ACS) 5-year estimates
Displaced Population Ratio	Estimated percentage of population displaced by a major flood of a 1%-annual-chance (100-yr) probability causing inundation of >= 1 foot.	The short-term displacement may happen by inundation causing damages to the residential units or blocking access to them. The evacuees plan to return to their communities after the inundation ends and the damaged residential units are restored. Until then, they may stay with their relatives or friends in safer areas, go to hotels, or use short-term shelters. The flood depth of evacuation is considered one foot that is the inundation at which vehicles begin to float.	WV BLRA; Total population and average household size from Census Bureau's 2021 American Community Survey (ACS) 5-year estimates; HEC-RAS depth model; Hazus depth model
WV Social Vulnerability Index	Social vulnerability index developed for West Virginia based on eight socioeconomic and demographic indicators.	A community with a higher social vulnerability is less likely to be able to recover from a flood disaster quickly and fully. The WV Socioeconomic Index is a combination of eight social and economic indicators to measure a population's vulnerability to flood hazards. The select indicators are economic factors (Poverty Rate, Unemployment Rate), population characteristics (Vulnerable Ages Rate, Disability Rate, Population without a High School Education, Population Change), and housing (Median Housing Unit Value, Mobile Homes as Percentage of Housing).	Census Bureau’s American Community Survey (ACS) 5-year estimate of 2021; Census Bureau’s Decennial Census (DEC) of 2010 & 2020 (For population change)