

# Flood Characteristics

# Flood Zone Measurements

## 1%-Annual-Chance Flood Zone or Special Flood Hazard Area (SFHA):

**White Sulphur Springs:** 21.9% of the community area; 266 acres

**Rainelle:** 31.1% of the community area; 223 acres

Median ratio for all incorporated areas in the state: 10.2%

## Historical Flood Information (2016 event):

**White Sulphur Springs:** Similarities to a 500-year event

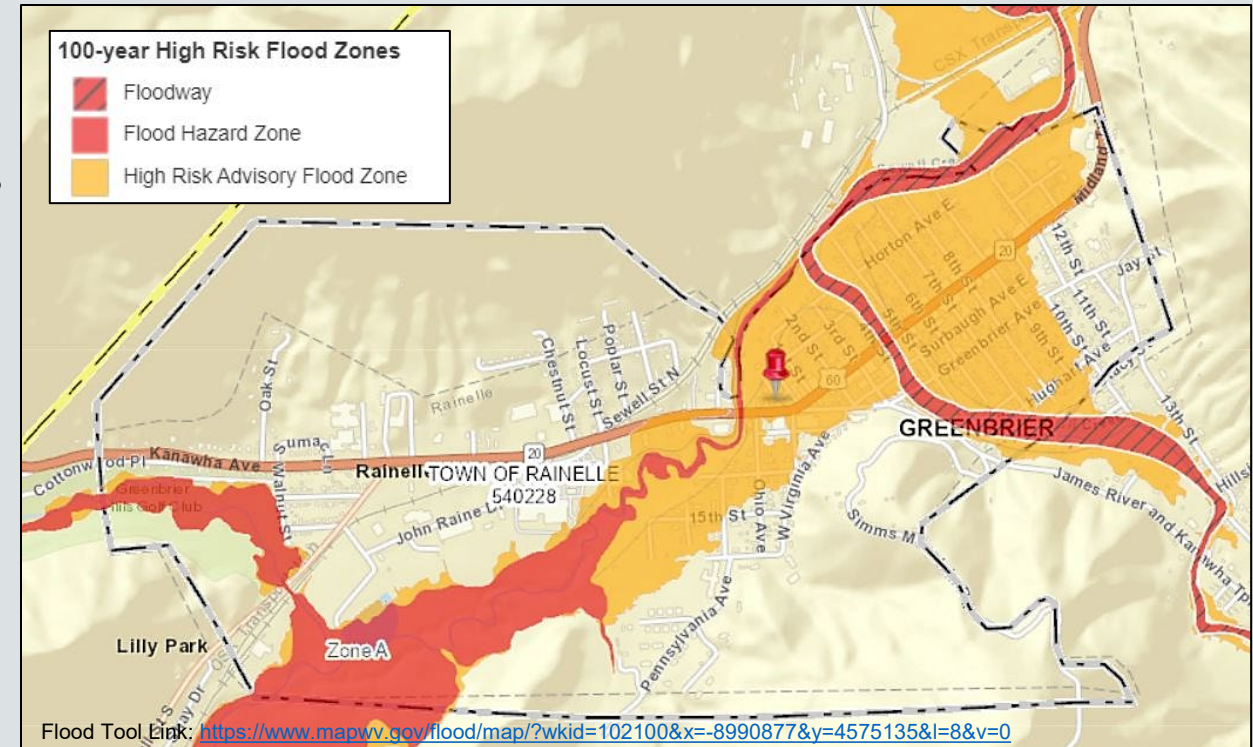
**Rainelle:** Between a 1%-annual chance (100-yr) and 0.2% chance (500-yr) flood event

2016 high-water marks: 2,396 ft; 100-year BFE: 2,393; 500-year flood depth: 2,399 ft

Large destructive event but not a 1000-year flood (0.1%) as erroneously publicized in the media

## Active Flood Studies & Mapping:

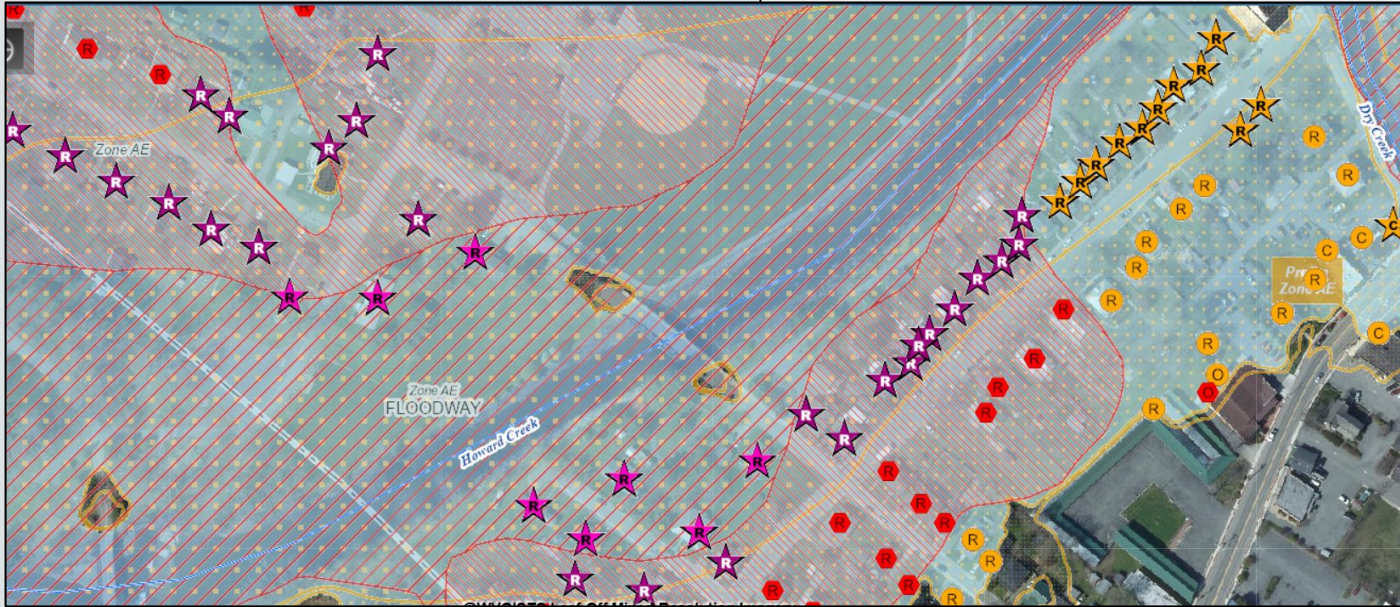
**Rainelle:** A significant SFHA increase in the new maps (July 2023) due to the 2012 inaccurate effective floodplain maps currently in use



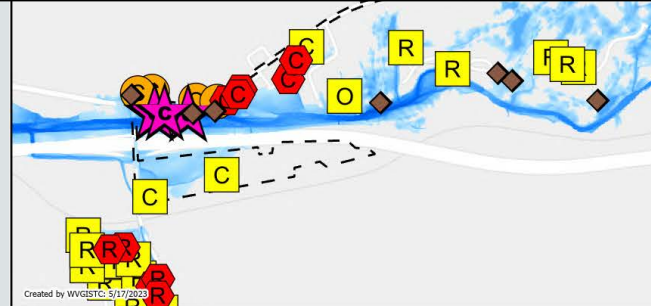
# Future Map Conditions, White Sulphur Springs

Future Map Conditions:  
White Sulphur Springs, WV

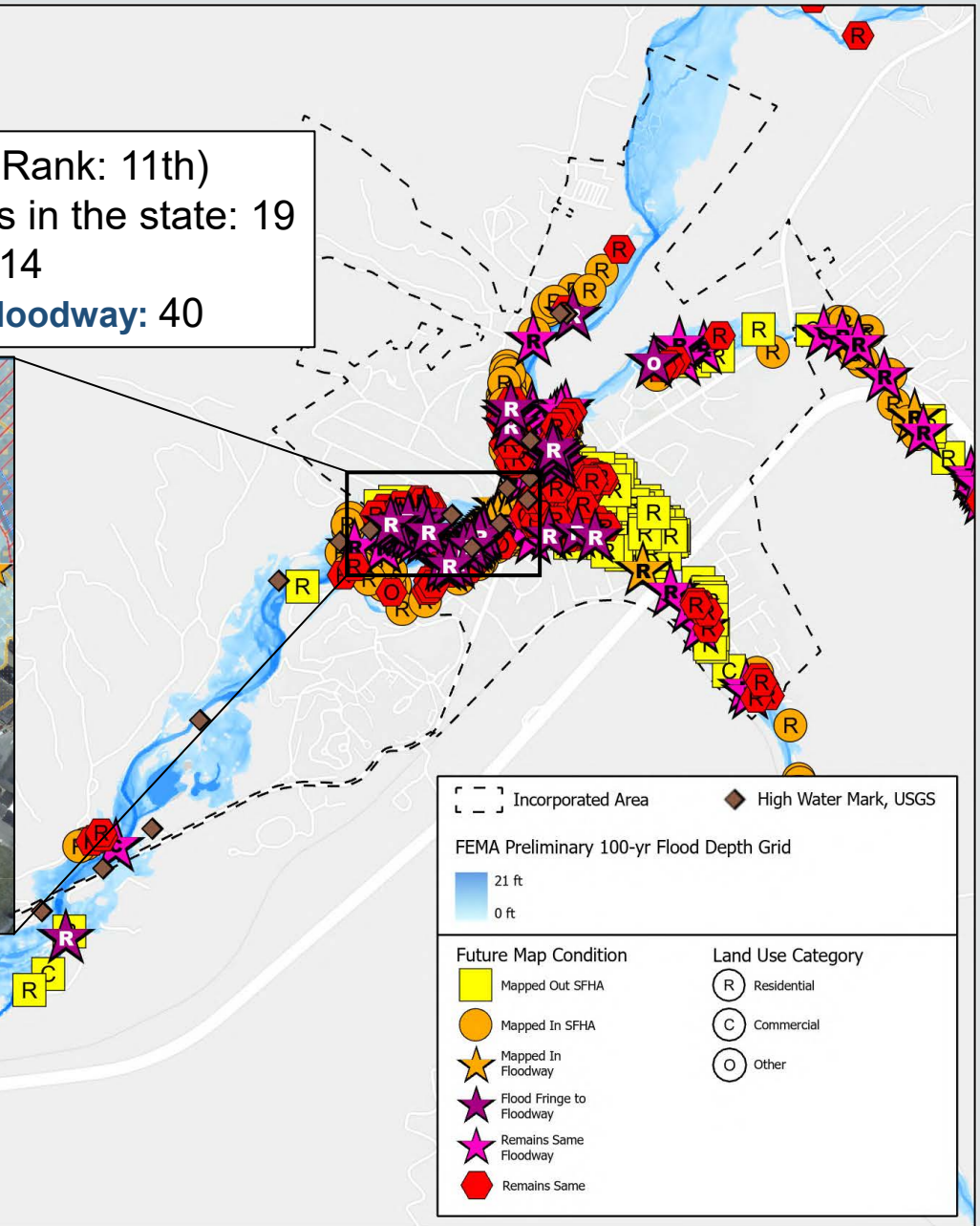
**Buildings “Mapped In” SFHA: 75 (Rank: 11th)**  
**Average in all incorporated areas in the state: 19**  
**Buildings “Mapped In” Floodway: 14**  
**Buildings Mapped from SFHA to Floodway: 40**



Flood Tool Link: <https://www.mapwv.gov/flood/map/?wkid=102100&x=-8939505&y=4550361&l=11&v=2>



Created by WVGIS/CS 5/17/2023

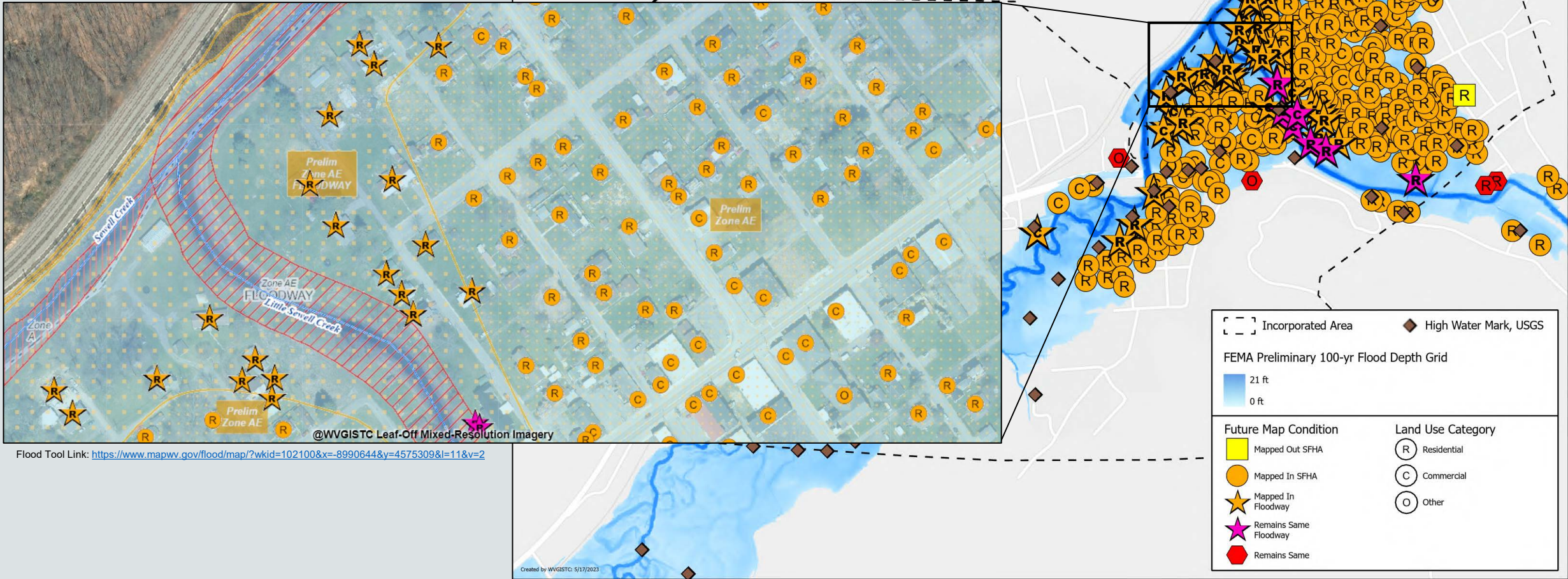


[ - - ] Incorporated Area	◆ High Water Mark, USGS
FEMA Preliminary 100-yr Flood Depth Grid	
■ 21 ft	
■ 0 ft	
Future Map Condition	
■ Mapped Out SFHA	○ Residential (R)
● Mapped In SFHA	○ Commercial (C)
★ Mapped In Floodway	○ Other (O)
★ Flood Fringe to Floodway	
★ Remains Same Floodway	
● Remains Same	

# Future Map Conditions, Rainelle

Future Map Conditions:  
Rainelle, WV

**Buildings “Mapped In” SFHA: 325 (Rank: 3<sup>rd</sup>)**  
 Average in all incorporated areas in the state: 19  
**Buildings “Mapped In” Floodway: 38**  
**Buildings Mapped from SFHA to Floodway: 0**



# Major Concerns

## White Sulphur Springs: Higher flood velocity



Image courtesy of The Register Herald at

[https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection\\_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html](https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html)

## Rainelle: Higher flood depths; Higher frequency; Longer duration



Image courtesy of Elevated Media, clipped from a video at <https://www.youtube.com/watch?v=FmZBWNuWms8>

# Physical / Human Exposure

# Total Primary Buildings in Floodplain

## Rationale:

The number of structures located in floodplain indicates the level of physical and human exposure, as elements of flood risk, in a community.

## Findings:

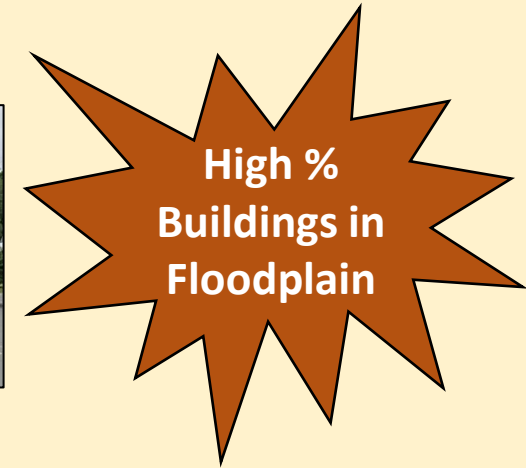
**White Sulphur Springs:** 26% of total buildings in the community (n=425, Rank: 12<sup>th</sup>)



Building ID: 13-17-0011-0246-0000\_559 [Flood Tool Link](#)



Building ID: 13-17-0009-0342-0000\_150 [Flood Tool Link](#)



**Rainelle:** 34% of total buildings in the community (n=338, Rank: 18<sup>th</sup>)



Building ID: 13-13-0004-0194-0000\_506 [Flood Tool Link](#)



Building ID: 13-13-0005-0341-0000\_249 [Flood Tool Link](#)

User Survey  
75% primary residences affected by 2016 flood

Median ratio for all incorporated areas in the state: 9%

## Recommendations:

**Community-level management:** Regulations limiting development in floodplains

# Total Primary Buildings in Floodplain...

## Rationale:

The number of structures located in floodplain indicates the level of physical and human exposure, as elements of flood risk, in a community.

## Recommendations:

### Building-level by owners:

- Purchase flood Insurance;
- Elevate buildings;
- Provide flood openings;
- Seal foundations;
- Elevate and anchor utilities;
- Protect valuable possessions

<https://www.floodsmart.gov>

*"What to do before a flood"*



Retrieved from: FEMA. *Understanding Flood Dangers in Central West Virginia: LESSONS LEARNED FROM THE JUNE 2016 FLOOD*



# Primary Buildings in Floodway

**Rationale:**  
Buildings in the floodway channel of a stream or close to the flood source, will be subject to the greatest flood depths, highest velocities, and greatest debris potential.

**Findings:**  
**White Sulphur Springs:** 105 (Rank: 6<sup>th</sup>); 25% of SFHA buildings in floodway  
**Rainelle:** 47 (Rank: 18<sup>th</sup>); 14% of SFHA buildings in floodway  
Median ratio for all incorporated areas in the state: 8%

White Sulphur Springs, 2016



Image courtesy of The Register Herald at [https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection\\_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html](https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html)

Structures  
exposed to High  
Velocity Flows

**Recommendations:**  
Should be a priority for mitigation efforts  
Stricter engineering development standards should be applied: No expansion on building footprint; “No-Rise/No Impact” cert.

# Essential Facilities in the Moderate Risk (0.2%-Annual-Chance) Floodplain



## Rationale:

Providing emergency services during a flood; Used as shelters; Immobile patients or residents

## Findings:



## Recommendations:

Plan to relocated out of high-risk floodplains

# Transportation: Inundated Roads & Bridges

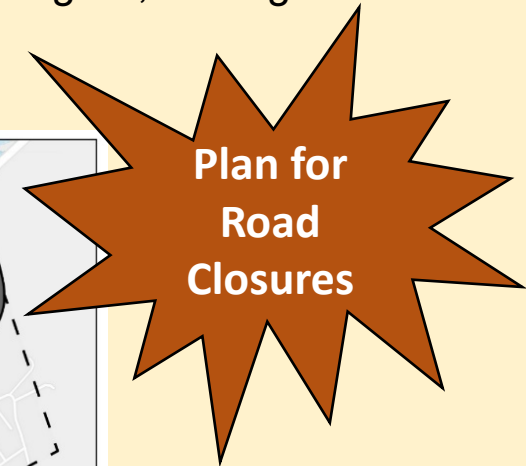
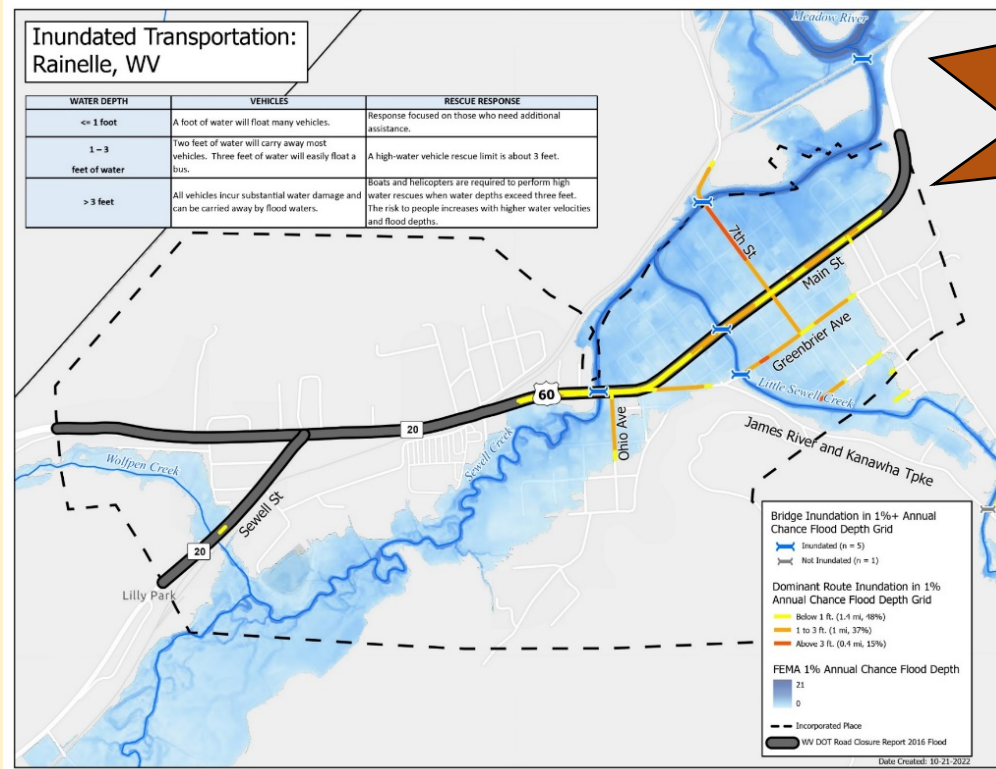
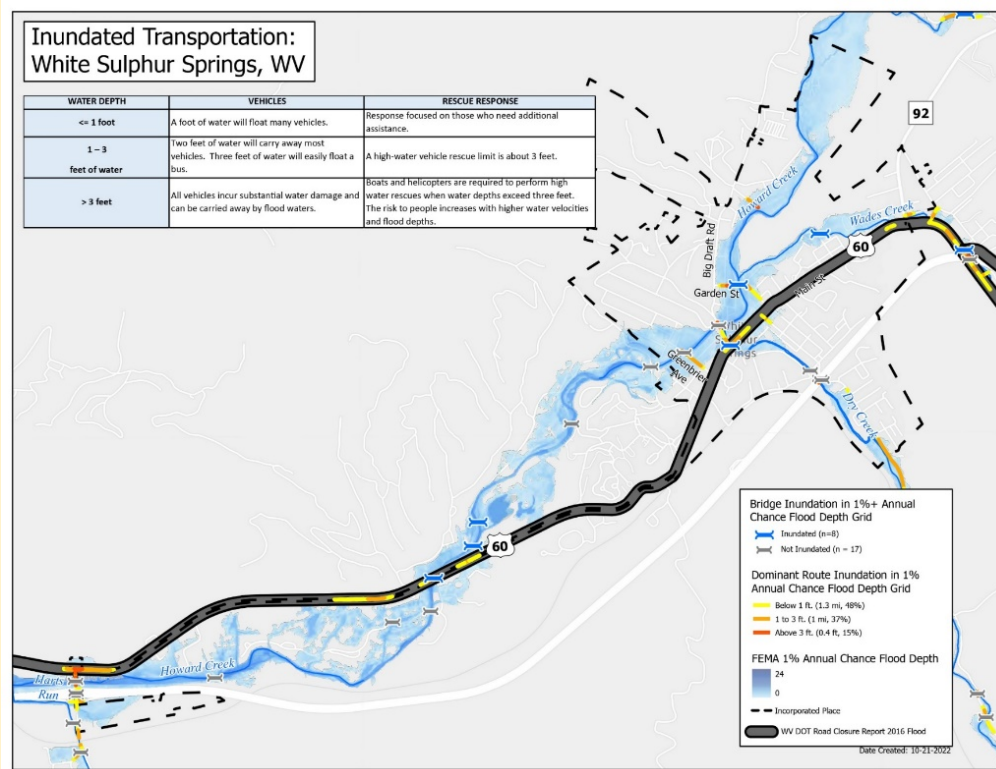
## Rationale:

1 ft: Vehicles start floating & roads impassable; 3 ft: Need to high-profile vehicles for rescues

## Findings:

**White Sulphur Springs:** 23% of the Total Road Network Mileage including U.S. 60 inundated to 1 ft or higher; 3 bridges

**Rainelle:** 36% of the Total Road Network Mileage including U.S. 60 inundated to 1 ft or higher; 2 bridges



## Recommendations:

Pre-disaster planning should consider how road closures affect disaster response and recovery

# Estimated Population Residing in High-Risk Flood Zones

## Rationale:

More people residing in floodplains, higher human exposure to floods and higher human loss

## Findings:

**White Sulphur Springs:** 39% of the total population (n=1,026)

**Rainelle:** 43% of the total population (n= 582)

Ratio for all incorporated areas in the state: 10%



Image courtesy of The Register Herald at [https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection\\_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html](https://www.register-herald.com/flood/gallery-white-sulphur-springs-flood-of-2016/collection_cdf2d4b0-56d9-11e7-a382-7b8f9ba26dee.html)

## Recommendations:

Plan for more effective acquisition and relocation out of high-risk floodplains including early warning systems

# **Social / Physical Vulnerability**

# Social Vulnerability

**Rationale:**  
Demographic and socioeconomic characteristics can make some groups of people more susceptible to hazards, affecting their ability to anticipate, respond to, and recover

**Findings:**



Vulnerability Indicators		White Sulphur Springs	Rainelle	State Ratio	National Ratio
	Poverty Rate	14.4%	<b>37.0%</b>	17.3%	12.9%
	Unemployment Rate	21.4%	<b>33.6%</b>	23.8%	14.7%
	Vulnerable Ages Ratio	<b>41.7%</b>	<b>39.8%</b>	30.8%	28.3%
	Disability Ratio	17.8%	<b>26.9%</b>	18.7%	13.0%
	Population Growth Ratio	<b>-9.1%</b>	<b>-20.9%</b>	-3.2%	7.4%
	Renter-Occupied Ratio	<b>42.8%</b>	<b>43.0%</b>	26.8%	36.0%
	Housing Values Less than \$50K Housing Median Value	3.9% \$125,700	<b>37.5%</b> <b>\$59,400</b>	16.9% \$119,600	6.6% \$229,800

**Recommendations:**  
Economic development incentives

# Red Tag Structures

## Rationale:

Dilapidated, vacant, or low-valued structures ( $\leq \$10K$ ) may be more vulnerable to floods in terms of building quality.

## Findings:

**White Sulphur Springs:** 5% of the total buildings in floodplain (n=20)

**Rainelle:** 17% of the total buildings in floodplain (n=56)

Median ratio for all incorporated areas (with more than 50 buildings in the high-risk floodplain) statewide: 4%



White Sulphur Springs

Building IDs: 13-17-0009-0270-0000\_208 & 13-17-0009-0269-0000\_196

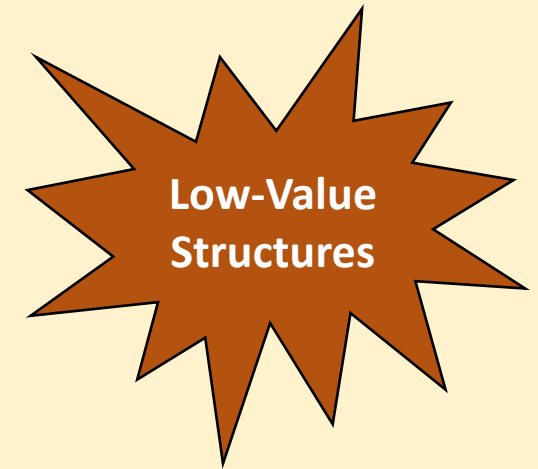
[Flood Tool Link](#)



Rainelle

Building ID: 13-13-0001-0176-0000\_214

[Flood Tool Link](#)



## Recommendations:

Acquisition and demolition of red tag structures in floodplain for community recovery and resilience

# Flood Loss Estimates



# Substantial Damage (2016)

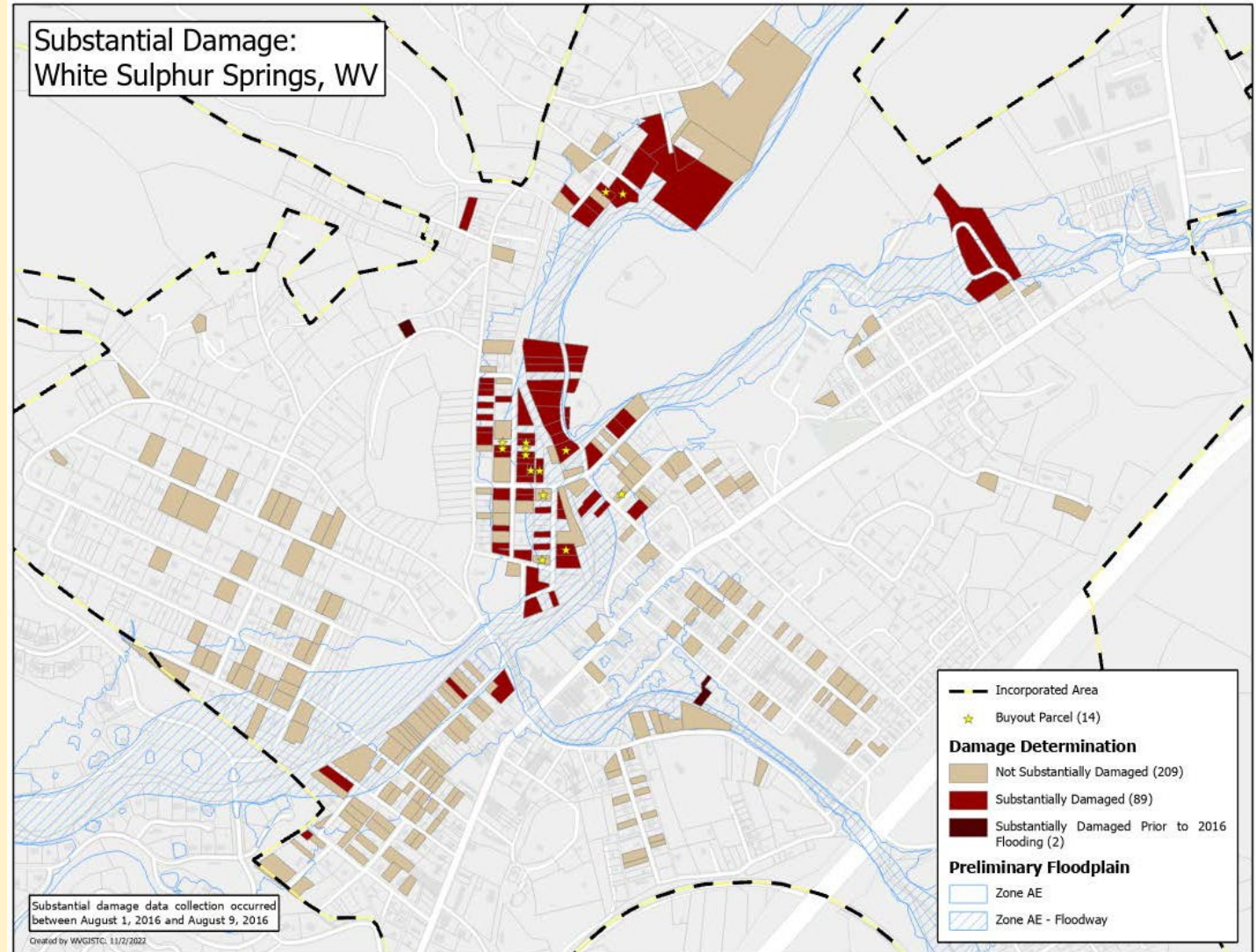
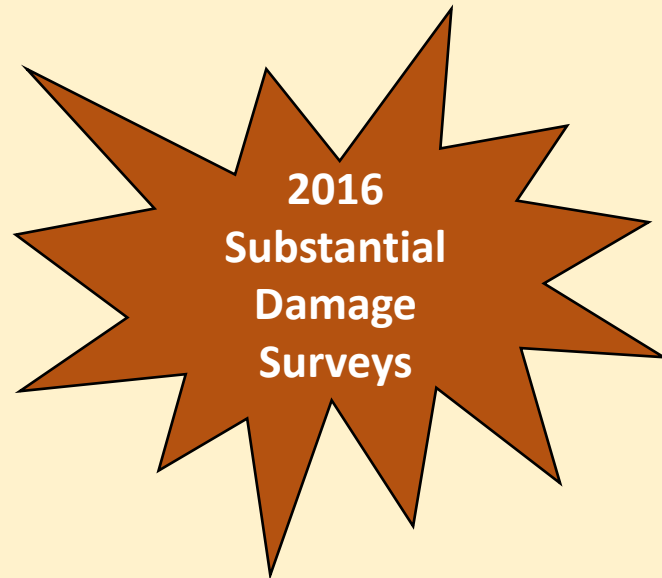
## Rationale:

Substantial damage: Equal to or greater than 50% of the structure market value before flooding  
Moderate damage: Between 10% and 50% of the structure market value before flooding

## Findings:

### White Sulphur Springs

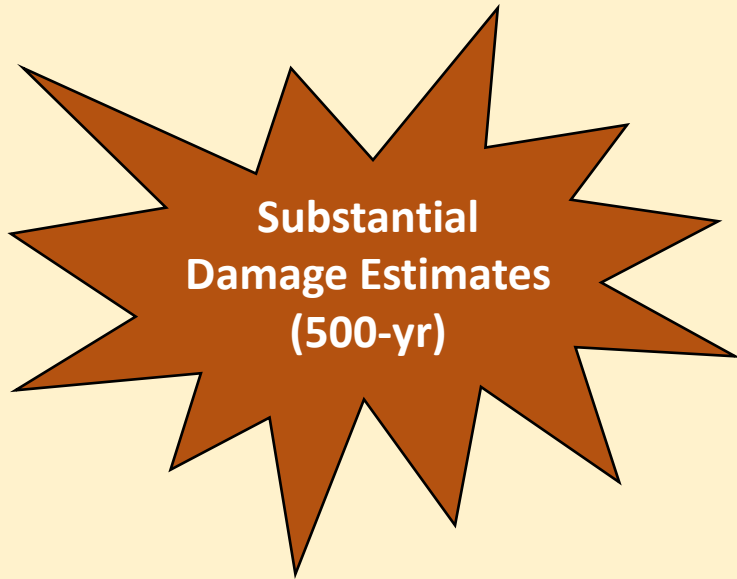
89 substantial &  
98 moderate damages by the 2016 flood



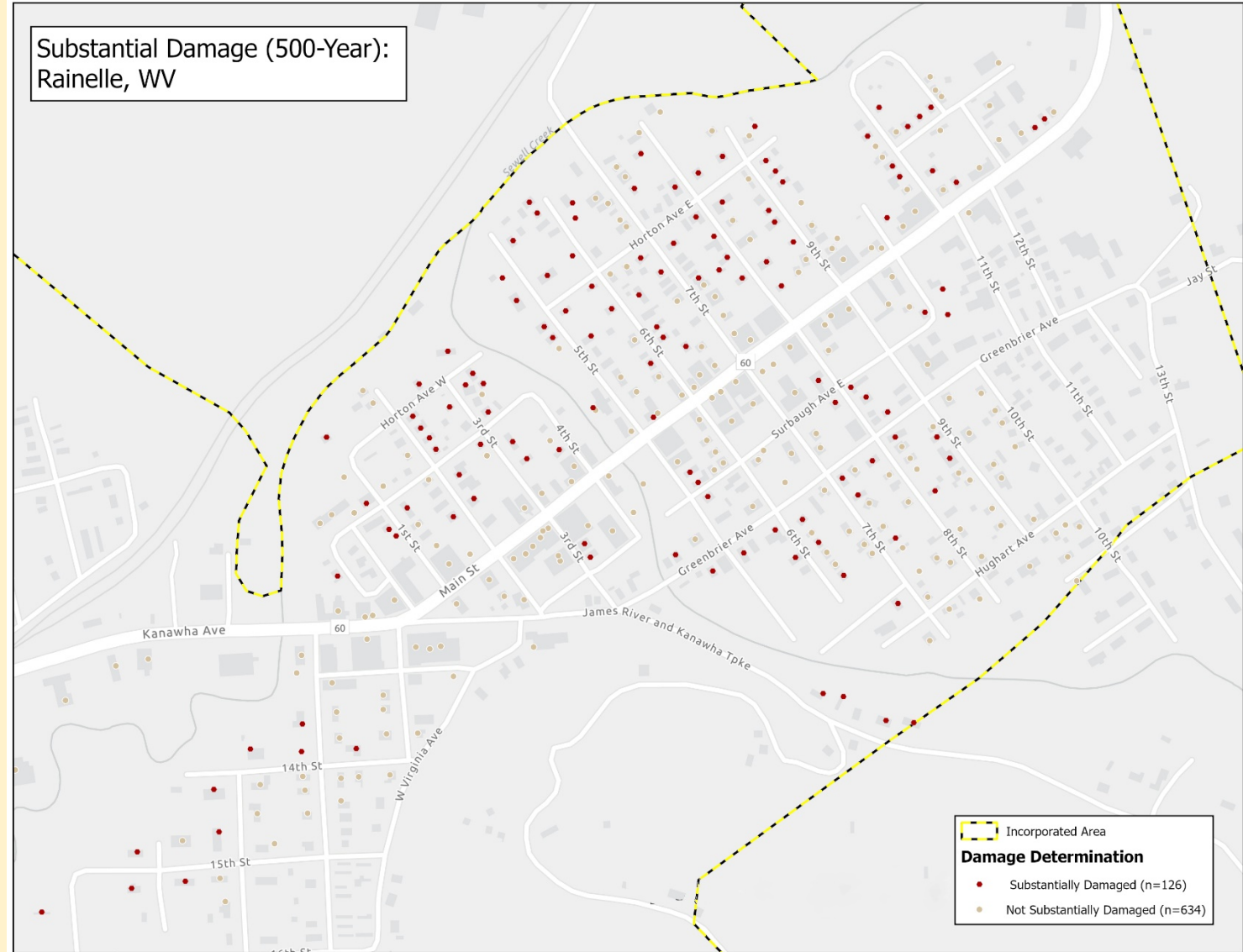
# Substantial Damage (by 500-Year flood)

## Rainelle

126 estimated substantial damages



**User Survey**  
44% experienced complete  
destruction of their residences  
by 2016 flood



## Recommendations:

Priority for risk communications and flood reduction efforts

# Building Debris Removal

## Rationale:

A significant costly problem for recovery after floods

## Findings:

**White Sulphur Springs:** 450 ton

**Rainelle:** 809 ton

Median for all incorporated areas in the state: 165 ton



Image courtesy of CNN at <https://www.cnn.com/2016/06/24/us/west-virginia-flooding-deaths/index.html>



Image courtesy of Keep-N-up W/Jones', clipped from a video at <https://www.youtube.com/watch?v=BCoNA2szDok>

## Recommendations:

Estimates should be incorporated into debris removal plans

# Displaced Population & Short-Term Shelter Needs

## Rationale:

Short-term displacement estimates due to damage to residential units or inundation blocking access can indicate evacuation needs; A percentage of displaced people in need of shelters

## Findings:

### Displacement Estimates

**White Sulphur Springs:** 17% of the community population (n=462, Rank: 17<sup>th</sup>)

**Rainelle:** 36% of the community population (n= 487, Rank: 16<sup>th</sup>)

Average ratio in all incorporated areas in the state: 13%

### Shelter Needs

**White Sulphur Springs:** 23% of the displaced population; (n=104, Rank: 18<sup>th</sup>)

**Rainelle:** 25% of the displaced population; (n= 123, Rank: 14<sup>th</sup>)

Average ratio in all incorporated areas in the state: 24%



Rainelle, 2016



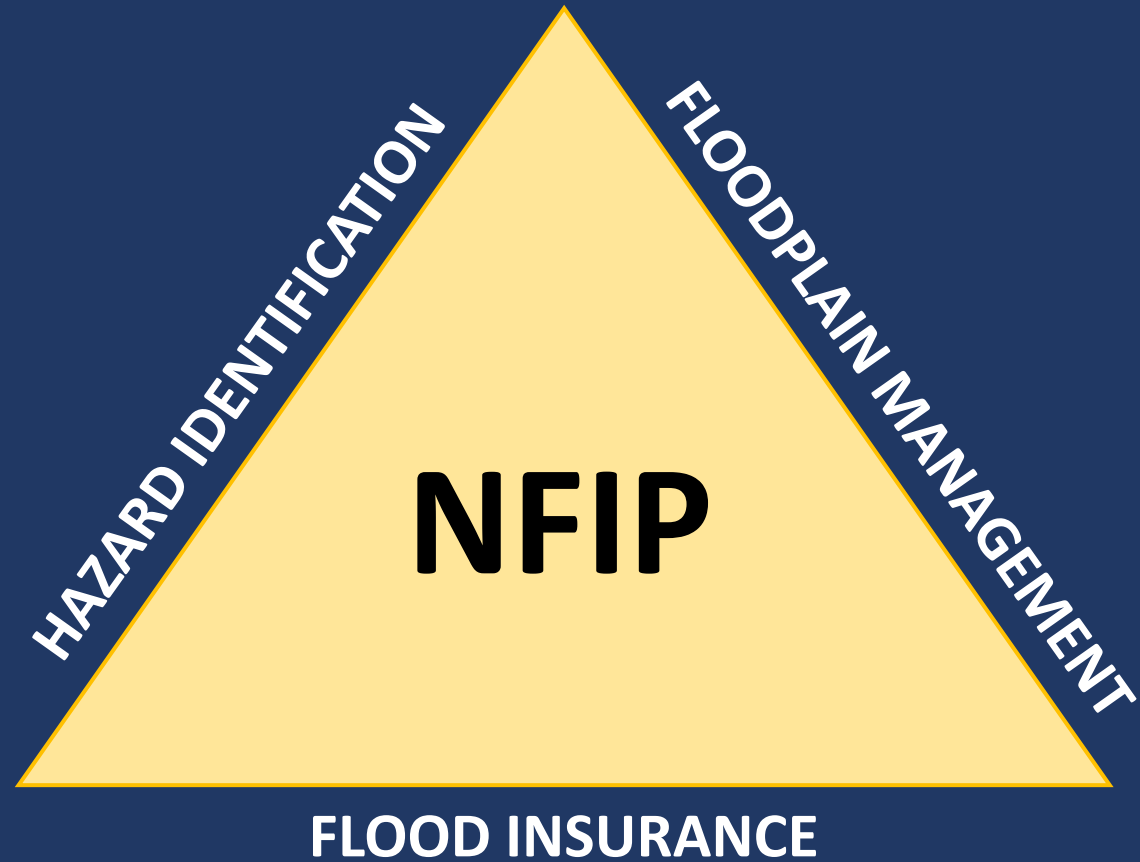
Image courtesy of The Register Herald at [https://www.register-herald.com/flood/gallery-rainelle-flood-of-2016/collection\\_59999528-56d8-11e7-9c45-5b4aa2a44464.html](https://www.register-herald.com/flood/gallery-rainelle-flood-of-2016/collection_59999528-56d8-11e7-9c45-5b4aa2a44464.html)

## Recommendations:

Estimates should be incorporated into disaster emergency and evacuation plans.

Development of pet-friendly shelters in safe areas

# Flood Mitigation



# Elevated Structures to Design Flood Elevation (DFE)

## Rationale:

How communities have applied flood adaptive measures in response to major flood events

DFE: 100-Year or Base Flood Elevation (BFE) + 2 feet

## Findings:

**White Sulphur Springs:** 59% of residential structures in 100-year floodplain elevated to DFE (n=217, res./non-res.)

**Rainelle:** 35% of residential structures in 100-year floodplain elevated to DFE (n=87, res./non-res.)

Mitigation  
Reconstruction



Building ID: 13-13-0001-0069-0000\_108

[Flood Tool Link](#)



Building ID: 13-17-0008-0152-0000\_195

[Flood Tool Link](#)

Examples of Mitigation Reconstruction

# Elevated Still At Risk

First Floor Height BELOW: FEMA/FSF 0.2-percent chance (500-yr) floods



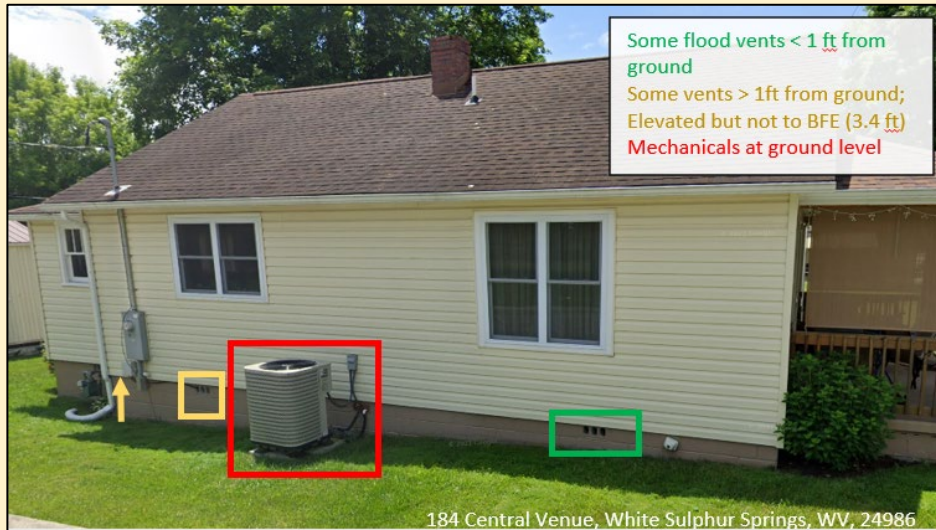
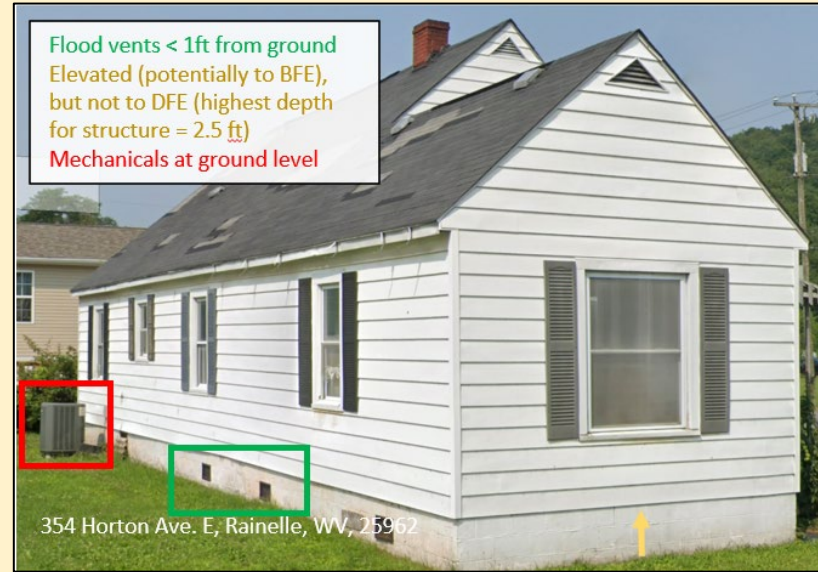
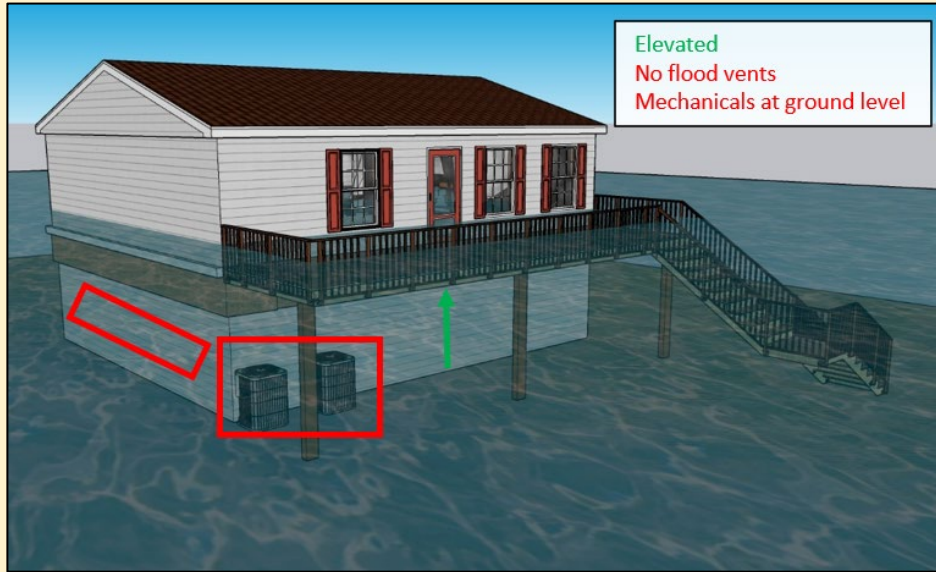
12.2' (FSF 0.2% / 500-Yr)

9.9' (FEMA; 0.2% / 500-Yr)

6.5' (2016 High Water)

3.9' (FEMA 1% / 100-Yr)

# Partial Mitigation Examples



## Recommendations:

65% of the residential structures in Rainelle and 41% of the structures in White Sulphur Springs should be elevated above the base flood elevation, especially substantially damaged buildings



# Floodplain Building Value Recovery after 2016

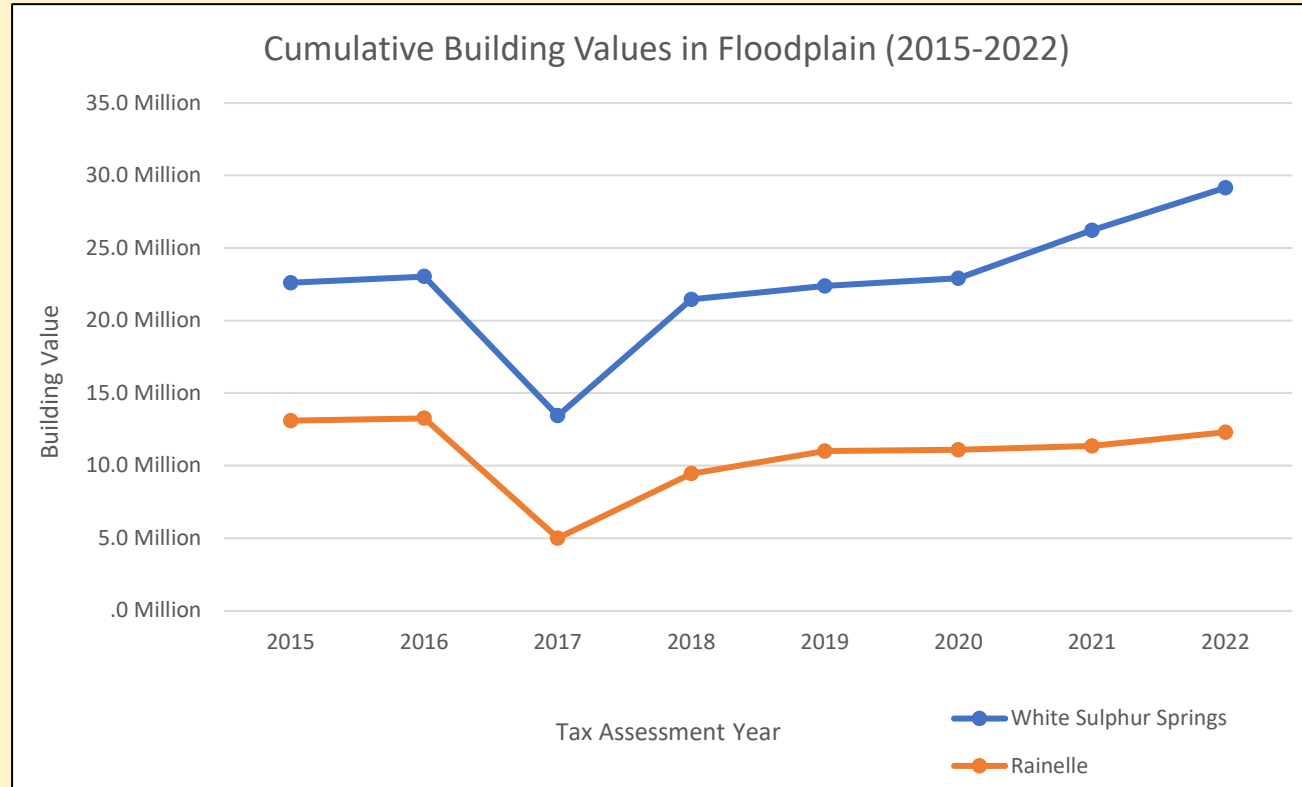
## Rationale:

Net cumulative tax assessment of floodplain building values pre- and post-disaster indicating community's recovery and resiliency to future floods

## Findings:

**White Sulphur Springs:** Net Value 2016-2022 Tax Assessment Value: + \$6.1M

**Rainelle:** Net Value 2016-2022 Tax Assessment Value: - \$1.0M



COMMUNITY	2015	2016	2017	2018	2019	2020	2021	2022
Rainelle (n=326)	13.1 Million	<b>13.3 Million</b>	5.0 Million	9.4 Million	11.0 Million	11.1 Million	11.3 Million	12.3 Million
White Sulphur Springs (n=409)	22.6 Million	<b>23.0 Million</b>	13.4 Million	21.5 Million	22.4 Million	22.9 Million	26.2 Million	29.2 Million

# Open Space Preservation (OSP)

## Rationale:

Restoring floodplains to their natural functions of slowing down runoff and storing floodwater

## Findings:

**White Sulphur Springs:** 2.6% of the high-risk floodplain (SFHA); 5 acres

**Rainelle:** 4.5% of the high-risk floodplain (SFHA); 3 acres

Average ratio for all incorporated areas in the state: 5%



White Sulphur Springs



## Recommendations:

Planning and Investing in development of green spaces in floodplains by consolidating deed-restricted buyout parcels to restore floodplains to their natural state

# Loss Avoidance

## Rationale:

Difference between loss estimates for buildings with a first-floor height of 1 ft and elevated to DFE or removed entirely;  
The losses avoided by federally funded riverine flood mitigation projects far exceeds the money spent (7x return on investment)\*

## Findings:

**White Sulphur Springs: \$2.6M**

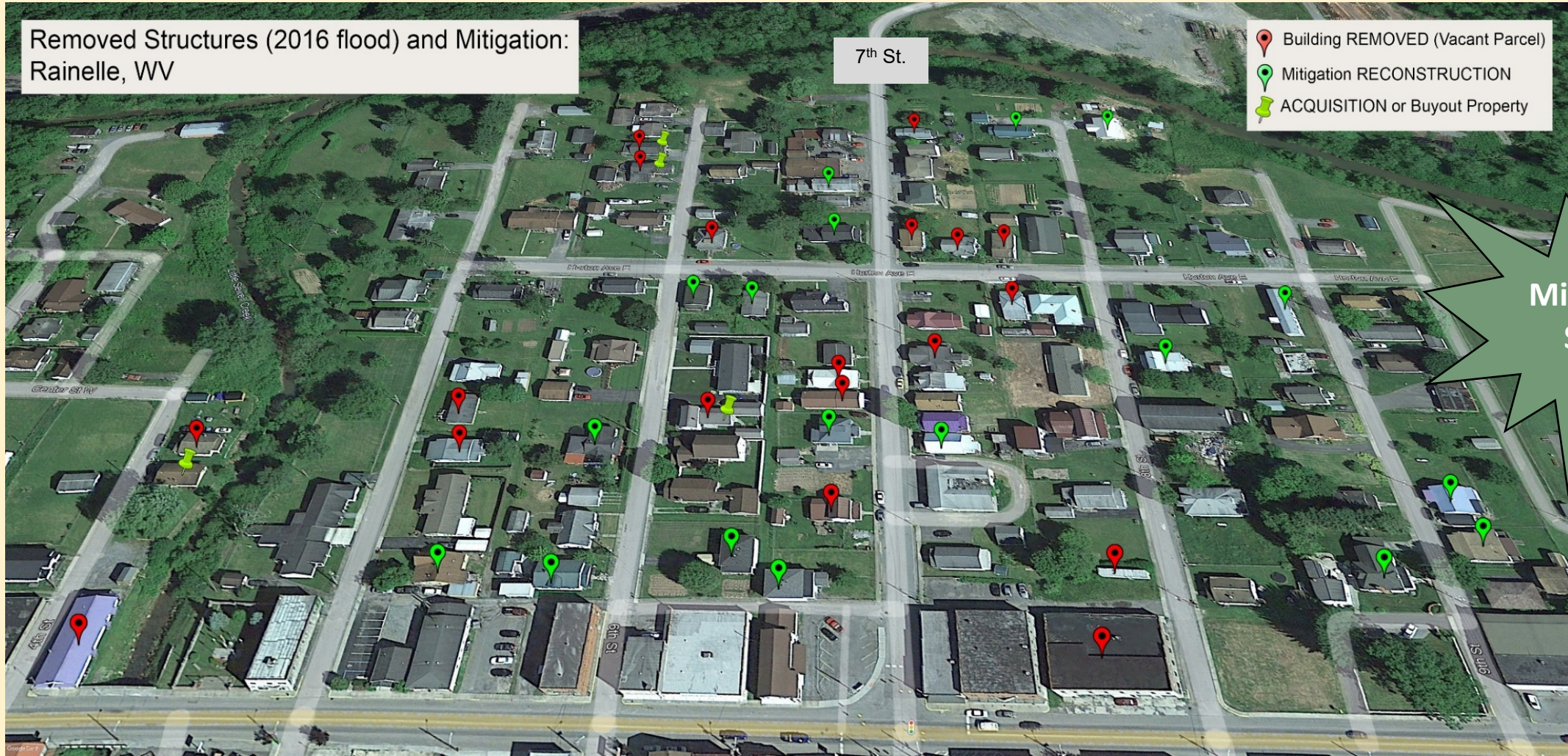


\*FEMA. "Natural Hazard Mitigation Saves Interim Report"

# Loss Avoidance...

Rainelle: \$2.3M

Removed Structures (2016 flood) and Mitigation:  
Rainelle, WV



Mitigation  
Saves

## Recommendations:

Mitigation efforts of elevating buildings above the base flood and buyouts should be considered as investment not cost

# Flood Insurance

## Rationale:

Reducing financial risk and allowing homeowners and businesses to protect themselves and recover more quickly after a flood

## Findings:

**White Sulphur Springs:** 16% of the primary structures in the high-risk floodplain; 67 policies in force (2023)

**Rainelle:** 11% of the primary structures in the high-risk floodplain; 36 policies in force (2023)

National average ratio: 30%

23% of the insurance claims of the 2016 event in the affected counties were outside the SFHA; Had to apply for FEMA's Individual Assistance (IA) program providing a small amount of grant funding

### User Survey

84% knew that their residences were in a flood zone before the 2016 flood

### User Survey

46% of the participants didn't purchase flood insurance, although are very concerned about the next major flood



Flood Insurance

## Recommendations:

Risk communication with community residents and encouraging to buy flood insurance even not in the high-risk zones;

Consult with floodsmart.gov "Buying a Policy" <https://www.floodsmart.gov/flood-insurance>

# Areas of Mitigation Interest (AoMI)

## Rationale:

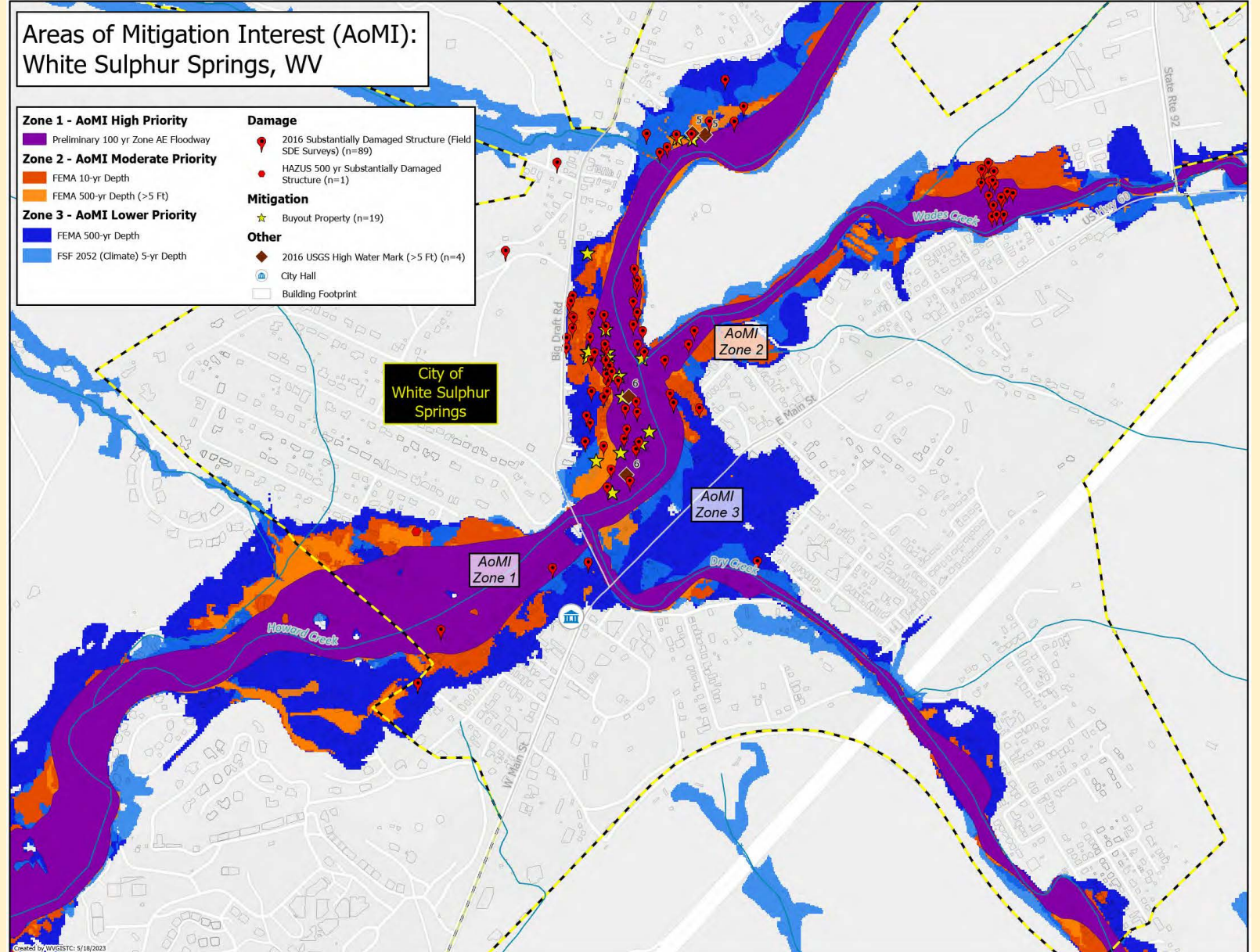
Identifying priority zones for mitigation:



Priority Zone	Criteria	Rationale
Highest	Regulatory Floodway on FEMA flood maps effective July 5, 2023	Highest flood depths and flow velocities. Subject to frequent, recurrent flooding (1 in 25 yr). Development severely restricted
Moderate	FEMA 25-yr Flood Depth	Area subject to frequent flooding (1 in 25 yr) from smaller storms
	FEMA 500-yr Flood Depth > 8 ft. (Rainelle) and > 5 ft. (White Sulphur Springs)	Area subject to high flood inundation depths from larger storms (1 in 500 yr)
Lower	FEMA 500-yr Flood Depth	Area vulnerable to 0.2% (1 in 500 yr) major flood event
	First Street Foundation's 5-yr climate model for the year 2052	Area vulnerable to frequent 1 in 5 year frequent flooding typically along smaller tributaries or unstudied streams
<p><b>Supplemental Criteria for Zone Definitions.</b> High and Moderate zonal boundary definitions supplemented High Water Marks &gt; 5 ft., Repetitive Loss Area, Substantial Damaged Structures (survey or models), Elevated Structures, and Buyout / Community-Owned Parcels for Open Space Preservation.</p> <p><b>Vulnerable Structures.</b> Structures more vulnerable to flood damage are mobile homes or buildings with subgrade basements. Structures not elevated to the Design Flood Elevation (Base Flood Elevation plus 2-feet freeboard) are more vulnerable to flooding.</p>		

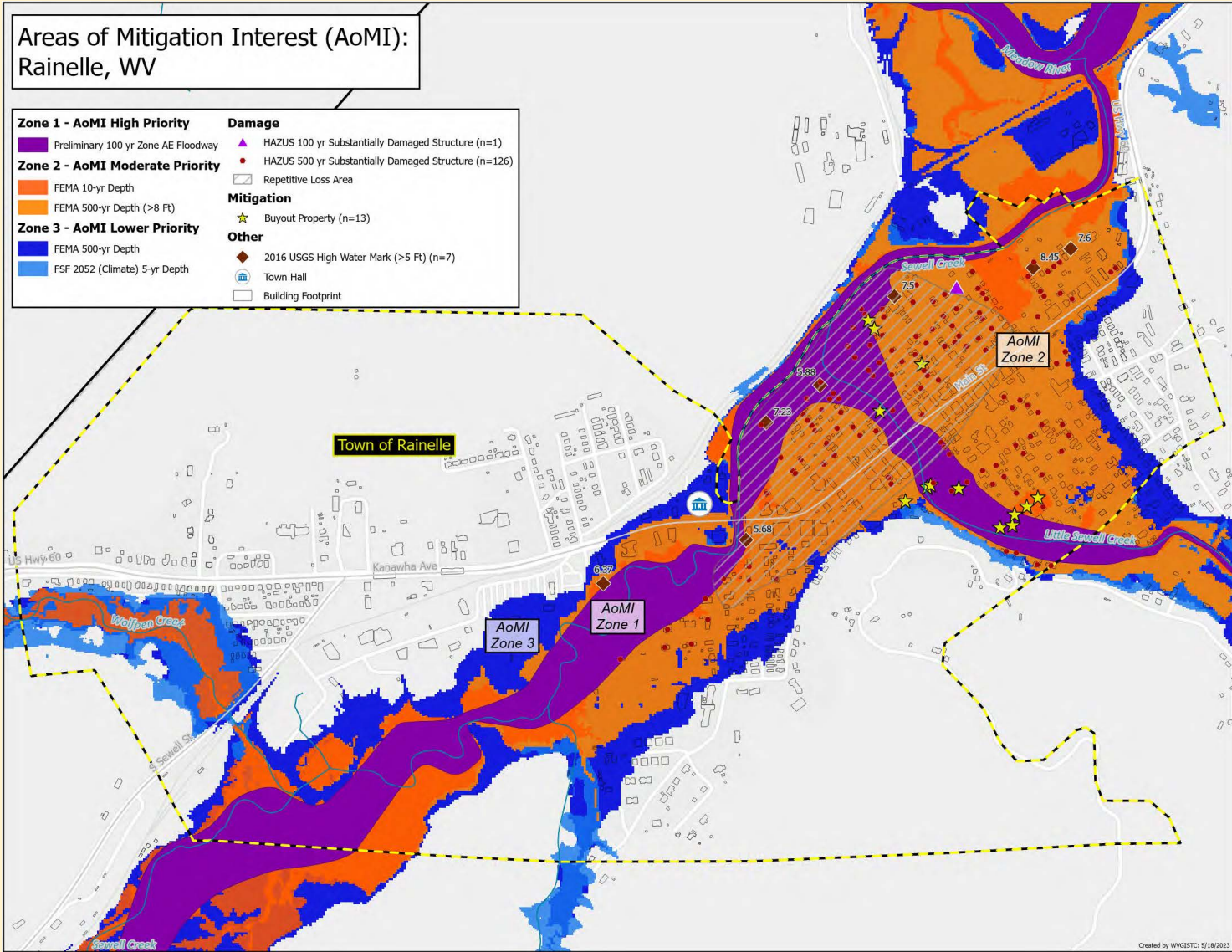
# Areas of Mitigation Interest (AoMI)...

## Findings: White Sulphur Springs



# Areas of Mitigation Interest (AoMI)...

## Rainelle



### Recommendations:

Mitigation plans should correspond to the AoMI priorities



# Planning for Floodplain Management

## Pre-Disaster Planning Risk Communication

Ensure the public is informed of the risk in your community

## Community Rating System (CRS)

Participate in CRS, a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP).

## Flood Warning Systems

## Outreach / Community Engagement

- Substantial Damage Estimate (SDE)
- Letters of Future Map Conditions



## Example of “Mapped In” Letters, White Sulphur Springs



May 22, 2023

Attention: Owner, ALLEN VALERIE S  
130 HOKE LANE,  
WHITE SULPHUR, WV 24986

Subject: NEW FEMA FLOOD MAPS SHOW YOUR PROPERTY IS IN HIGH-RISK FLOODPLAIN,  
Building ID: 13-17-0005-0016-0000\_130

Dear ALLEN VALERIE S,

Flooding can be the most frequent and costly disaster in a community, as it is in our state and nation. The likelihood of inland and riverine flooding changes over time due to erosion, changing land use, changing weather patterns, and other factors. The risk for flooding can vary within the same neighborhood and even between adjacent properties, but nobody is exempt from flood risk – where it can rain, it can flood. Knowing your flood risk is the first step to flood protection.

A multi-year project to re-examine City of White Sulphur Springs's flood zones and develop detailed digital flood hazard maps has been completed. The new maps, also known as Flood Insurance Rate Maps (FIRMs), were recently released for public view. The new maps reflect current flood risk based on the latest data and a more accurate understanding of our area's topography. As a result, you and other property owners throughout Greenbrier County will have up-to-date, internet-accessible information about flood risk to your property.

### How will the flood map changes affect you?

Based on the new maps, your property is being mapped into a higher risk flood zone, known as the Special Flood Hazard Area (SFHA). If you have a mortgage from a federally regulated lender and your property is in the SFHA, then you are required by Federal law to carry flood insurance when these flood maps are put into effect. We recommend that you use this time to contact your insurance agent to get the most favorable rate and learn about options offered by the National Flood Insurance Program (NFIP) for properties being mapped into higher risk areas for the first time.

If you do not have a mortgage, you are still strongly recommended to purchase flood insurance. Over the life of a 30-year loan, you are about three times more likely to have a flood in your home than a fire, and most homeowners' insurance policies do not provide coverage for damage due to flooding.

If you do not currently carry flood insurance, your insurance company/agent should be able to provide you with a premium quote just by answering a few simple questions. To learn more about flood insurance rates and what options are available to you, please visit <http://www.floodsmart.gov> or call 1-877-336-2627 for more information.

### How do I view the flood maps?

The maps that were recently released are still preliminary, which means they provide an early look at a property's projected flood risk. You can determine where your property falls on the preliminary maps online by visiting the WV Flood Tool (<https://mapwv.gov/flood/>) and entering your address in the search bar. Or you can use the direct link to your property provided below.

Whether or not your property falls within a flood zone, it is important to use this time to understand your flood risk and research your flood insurance options. Once FEMA considers the preliminary maps final, they will become effective, which means they will be used to determine your property's flood risk as well as flood insurance requirements.

### Property Identification:

Physical Address: 130 HOKE LN, WHITE SULPHUR SPRINGS, WV, 24986

Parcel ID: 13-17-0005-0016-0000

Building ID: 13-17-0005-0016-0000\_130

WV Flood Tool Link: <https://www.mapwv.gov/flood/map/?v=2&pid=13-17-0005-0016-0000>

Flood Source: Howard Creek

Flood Zone: Preliminary AE Floodway: No

### What is the map update timeline?

The preliminary maps, which show an early look at a property's projected flood risk, were released to Greenbrier County on 9/30/2021. Following the release, FEMA and its partners held a meeting with Greenbrier County to discuss how the preliminary maps will affect property owners. After that meeting, a 90 day appeal period started on 5/13/2022 and ended on 8/11/2022. During this period, Greenbrier County had the opportunity to submit appeals, supported by engineering data, related to discrepancies in the flood hazard data that they noticed in the preliminary flood maps. Now that the appeal period has passed, FEMA and its partners will finalize the maps. FEMA notified the community on 1/5/2023 that the maps shall be considered final through a Letter of Final Determination (LFD), and that the community has six (6) months from the LFD date or 7/5/2023 until the final flood maps are used to determine flood insurance requirements and building and development regulations.

### Why are these maps important to you?

These flood hazard maps are important tools for protecting lives and property in City of White Sulphur Springs. The flood maps help business owners and residents make informed decisions about personal safety and financial protection. These maps also allow community planners, local officials, engineers, builders, and others to make determinations about where and how new structures and developments should be built.

### Whom to contact with questions?

Please contact our office or coordinate directly with the White Sulphur Springs Floodplain Manager, located in City Hall @ 304-646-0121.

Sincerely,

Bo Belshee

White Sulphur Springs Floodplain Manager

White Sulphur Springs City Hall

589 Main St West

White Sulphur Springs, WV 24986

304-647-0121

wsszoning@wsspd.net

# Planning for Floodplain Management...

## Example of “Mapped In Floodway” Letters, White Sulphur Springs



May 22, 2023

Attention: Owner, ACTION REMODELING & HANDYMAN SERVICES LLC  
182 MASON DR,  
LEWISBURG, WV 24901

Subject: NEW FEMA FLOOD MAPS SHOW YOUR PROPERTY IS IN THE FLOODWAY OF A HIGH-RISK FLOODPLAIN, Building ID: 13-17-0008-0195-0000\_140

Dear ACTION REMODELING & HANDYMAN SERVICES LLC,

Flooding can be the most frequent and costly disaster in a community, as it is in our state and nation. The likelihood of inland and riverine flooding changes over time due to erosion, changing land use, changing weather patterns, and other factors. The risk for flooding can vary within the same neighborhood and even between adjacent properties, but nobody is exempt from flood risk – where it can rain, it can flood. Knowing your flood risk is the first step to flood protection.

A multi-year project to re-examine City of White Sulphur Springs's flood zones and develop detailed digital flood hazard maps has been completed. The new maps, also known as Flood Insurance Rate Maps (FIRMs), were recently released for public view. The new maps reflect current flood risk based on the latest data and a more accurate understanding of our area's topography. As a result, you and other property owners throughout Greenbrier County will have up-to-date, Internet-accessible information about flood risk to your property.

#### How will the flood map changes affect you?

Based on the new maps, your property is being mapped into a much higher risk flood zone of the Special Flood Hazard Area (SFHA), known as the Regulatory Floodway, or the main channel of the river or stream where floodwaters are likely the deepest and with the highest velocities. 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 your proposed project won't increase flood levels.

If you have a mortgage from a federally regulated lender and your property is in the SFHA, then you are required by Federal law to carry flood insurance when these flood maps are put into effect. We recommend that you use this time to contact your insurance agent to get the most favorable rate and learn about options offered by the National Flood Insurance Program (NFIP) for properties being mapped into higher risk areas for the first time.

If you do not have a mortgage, you are still strongly recommended to purchase flood insurance. Over the life of a 30-year loan, you are about three times more likely to have a flood in your home than a fire, and most homeowners' insurance policies do not provide coverage for damage due to flooding.

If you do not currently carry flood insurance, your insurance company/agent should be able to provide you with a premium quote just by answering a few simple questions. To learn more about flood insurance rates and what options are available to you, please visit <http://www.floodsmart.gov> or call 1-877-336-2627 for more information.

#### How do I view the flood maps?

The maps that were recently released are still preliminary, which means they provide an early look at a property's projected flood risk. You can determine where your property falls on the preliminary maps online by visiting the WV Flood Tool (<https://mapwv.gov/flood>) and entering your address in the search bar. Or you can use the direct link to your property provided below.

Whether or not your property falls within a flood zone, it is important to use this time to understand your flood risk and research your flood insurance options. Once FEMA considers the preliminary maps final, they will become effective, which means they will be used to determine your property's flood risk as well as flood insurance requirements.

#### Property Identification:

Physical Address: 140 PATTERSON ST, WHITE SULPHUR SPRINGS, WV, 24986  
Parcel ID: 13-17-0008-0195-0000  
Building ID: 13-17-0008-0195-0000\_140  
WV Flood Tool Link: <https://www.mapwv.gov/flood/map/?v=2&pid=13-17-0008-0195-0000>  
Flood Source: Howard Creek  
Flood Zone: Preliminary AE Floodway: Yes

#### What is the map update timeline?

The preliminary maps, which show an early look at a property's projected flood risk, were released to Greenbrier County on 9/30/2021. Following the release, FEMA and its partners held a meeting with Greenbrier County to discuss how the preliminary maps will affect property owners. After that meeting, a 90 day appeal period started on 5/13/2022 and ended on 8/11/2022. During this period, Greenbrier County had the opportunity to submit appeals, supported by engineering data, related to discrepancies in the flood hazard data that they noticed in the preliminary flood maps. Now that the appeal period has passed, FEMA and its partners will finalize the maps. FEMA notified the community on 1/5/2023 that the maps shall be considered final through a Letter of Final Determination (LFD), and that the community has six (6) months from the LFD date or 7/5/2023 until the final flood maps are used to determine the flood insurance mandatory purchase requirement as well as “No Rise-No Impact” engineering studies for building and development regulations.

#### Why are these maps important to you?

These flood hazard maps are important tools for protecting lives and property in City of White Sulphur Springs. The flood maps help business owners and residents make informed decisions about personal safety and financial protection. These maps also allow community planners, local officials, engineers, builders, and others to make determinations about where and how new structures and developments should be built.

#### Whom to contact with questions?

Please contact our office or coordinate directly with the White Sulphur Springs Floodplain Manager, located in City Hall @ 304-646-0121.

Sincerely,  
Bo Belshee  
White Sulphur Springs Floodplain Manager  
White Sulphur Springs City Hall  
589 Main St West  
White Sulphur Springs, WV 24986  
304-647-0121  
wsszoning@wsspd.net

# Planning for Floodplain Management...

## Example of “Mapped Out” Letters, White Sulphur Springs



May 22, 2023

Attention: Owner, ALDERMAN APRIL L  
665 TUCKAHOE RD,  
WHITE SULPHUR, WV 24986

Subject: NEW FEMA FLOOD MAPS SHOW YOUR PROPERTY IS NO LONGER IN HIGH-RISK FLOODPLAIN,  
Building ID: 13-17-0012-0292-0000\_665

Dear ALDERMAN APRIL L,

Flooding can be the most frequent and costly disaster in a community, as it is in our state and nation. The likelihood of inland and riverine flooding changes over time due to erosion, changing land use, changing weather patterns, and other factors. The risk for flooding can vary within the same neighborhood and even between adjacent properties, but nobody is exempt from flood risk – where it can rain, it can flood. Knowing your flood risk is the first step to flood protection.

A multi-year project to re-examine City of White Sulphur Springs’s flood zones and develop detailed digital flood hazard maps has been completed. The new maps, also known as Flood Insurance Rate Maps (FIRMs), were recently released for public view. The new maps reflect current flood risk based on the latest data and a more accurate understanding of our area’s topography. As a result, you and other property owners throughout Greenbrier County will have up-to-date, Internet-accessible information about flood risk to your property.

#### How will the flood map changes affect you?

Based on the new maps, your property is no longer considered to be located within the high-risk flood zone, also known as the Special Flood Hazard Area (SFHA), for purposes of determining the mandatory purchase of flood insurance. While the purchase of flood insurance is not required for structures outside of this area, we strongly recommend you maintain flood insurance coverage, since the risk of flooding has not been removed.

If you do not currently carry flood insurance, your insurance company/agent should be able to provide you with a premium quote just by answering a few simple questions. Please visit <http://www.floodsmart.gov> or call 1-877-336-2627 for more information.

#### How do I view the flood maps?

The maps that were recently released are still preliminary, which means they provide an early look at a property’s projected flood risk. You can determine where your property falls on the preliminary maps online by visiting the WV Flood Tool (<https://mapwv.gov/flood>) and entering your address in the search bar. Or you can use the direct link to your property provided below.

Whether or not your property falls within a flood zone, it is important to use this time to understand your flood risk and research your flood insurance options. Once FEMA considers the preliminary maps final, they will become effective, which means they will be used to determine your property’s flood risk as well as flood insurance requirements.

#### Property Identification:

Physical Address: 665 TUCKAHOE RD, WHITE SULPHUR SPRINGS, WV, 24986  
Parcel ID: 13-17-0012-0292-0000  
Building ID: 13-17-0012-0292-0000\_665  
WV Flood Tool Link: <https://www.mapwv.gov/flood/map/?v=2&pid=13-17-0012-0292-0000>  
Flood Source: Dry Creek

#### What is the map update timeline?

The preliminary maps, which show an early look at a property’s projected flood risk, were released to Greenbrier County on 9/30/2021. Following the release, FEMA and its partners held a meeting with Greenbrier County to discuss how the preliminary maps will affect property owners. After that meeting, a 90 day appeal period started on 5/13/2022 and ended on 8/11/2022. During this period, Greenbrier County had the opportunity to submit appeals, supported by engineering data, related to discrepancies in the flood hazard data that they noticed in the preliminary flood maps. Now that the appeal period has passed, FEMA and its partners will finalize the maps. FEMA notified the community on 1/5/2023 that the maps shall be considered final through a Letter of Final Determination (LFD), and that the community has six (6) months from the LFD date or 7/5/2023 until the final flood maps are used to determine the flood insurance mandatory purchase requirement and for building and development regulations.

#### Whom to contact with questions?

Please contact our office or coordinate directly with the White Sulphur Springs Floodplain Manager, located in City Hall @ 304-646-0121.

Sincerely,

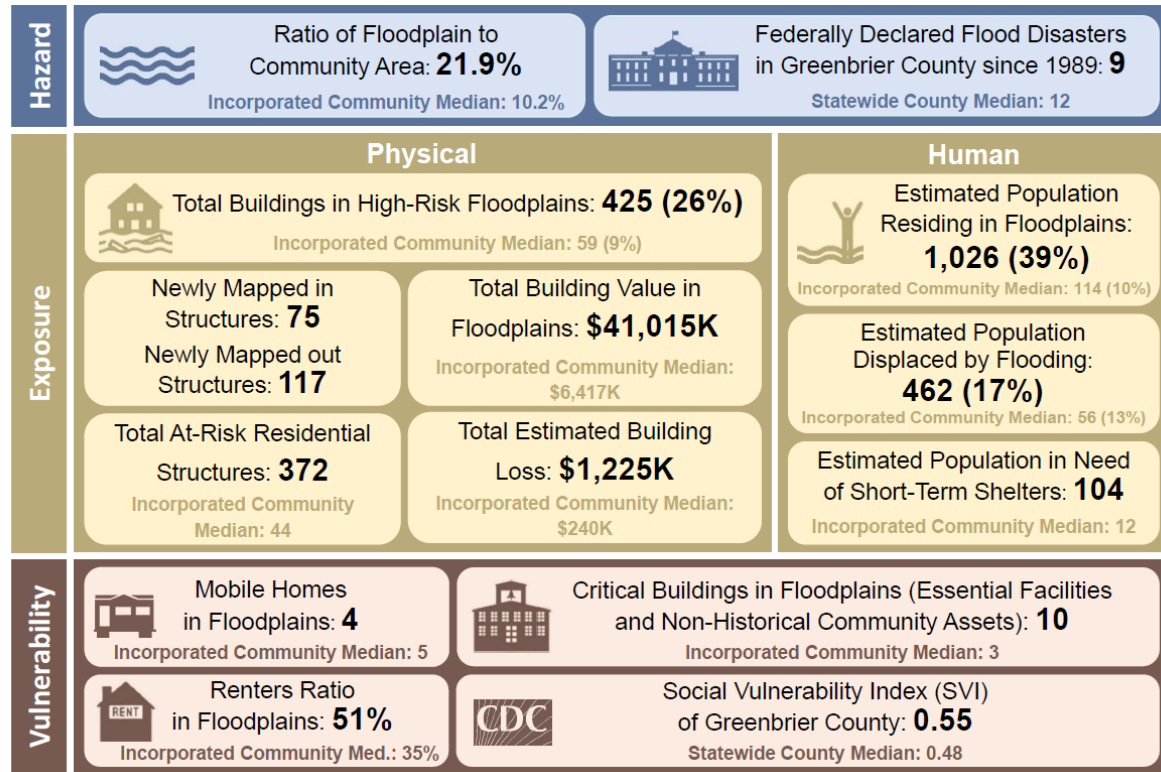
Bo Belshee  
White Sulphur Springs Floodplain Manager  
White Sulphur Springs City Hall  
589 Main St West  
White Sulphur Springs, WV 24986  
304-647-0121  
wsszoning@wssspd.net

# Planning for Floodplain Management...

Risk & Mitigation Dashboards,  
White Sulphur Springs

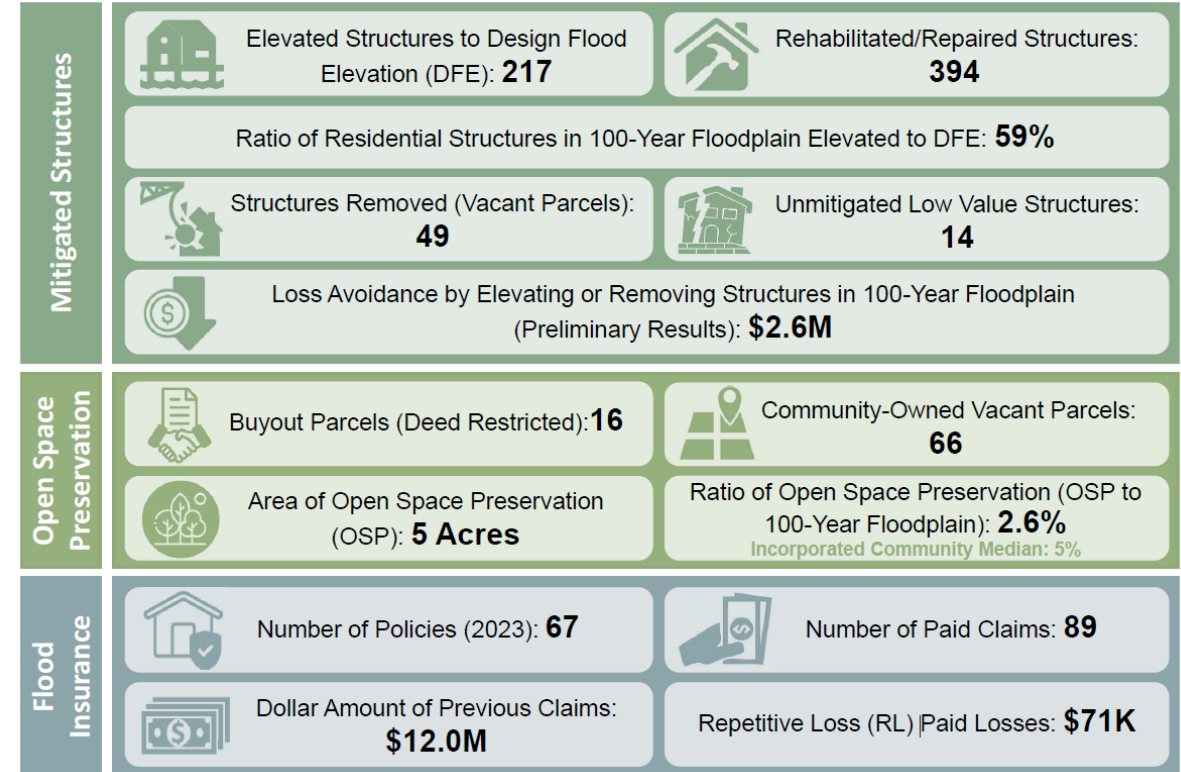
## White Sulphur Springs, Flood Risk Summary

The information below includes estimates derived from the BLRA as of May 2023.  
The demographic information is based on the Census Bureau's American Community Survey (ACS) 5-year estimates of 2017.



## White Sulphur Springs, Flood Mitigation Summary

The information below includes estimates derived from the BLRA as of May 2023.  
The flood insurance information is based on the FEMA's Community Engagement Prioritization (CEP) of 2019.

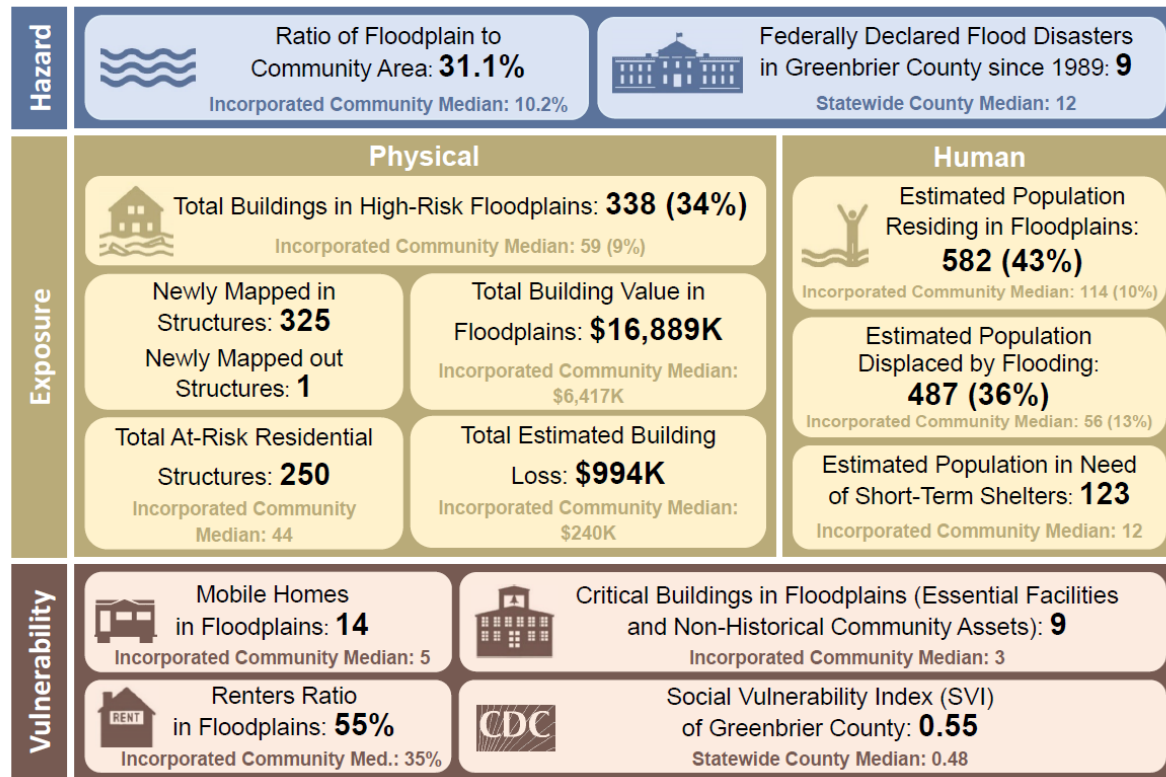


# Planning for Floodplain Management...

Risk & Mitigation Dashboards,  
Rainelle

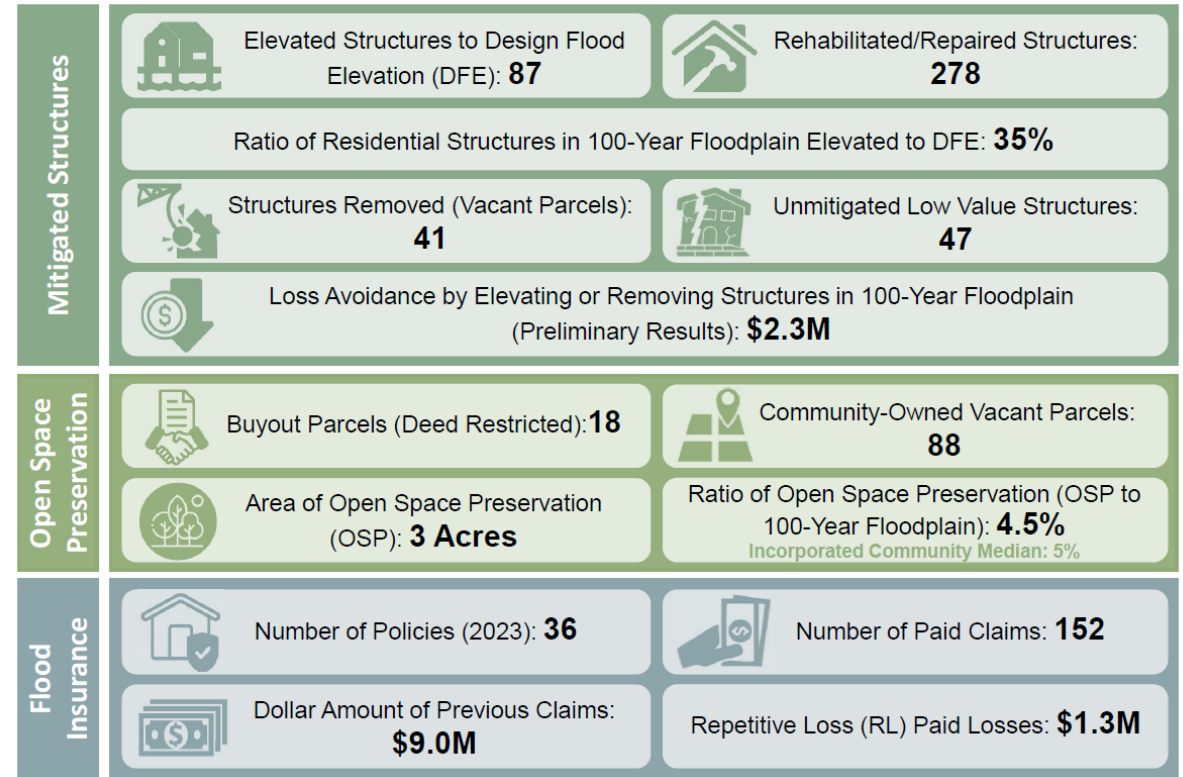
## Rainelle, Flood Risk Summary

The information below includes estimates derived from the BLRA as of May 2023.  
The demographic information is based on the Census Bureau's American Community Survey (ACS) 5-year estimates of 2017.



## Rainelle, Flood Mitigation Summary

The information below includes estimates derived from the BLRA as of May 2023.  
The flood insurance information is based on the FEMA's Community Engagement Prioritization (CEP) of 2019.



# Resources

- Federal Emergency Management Agency (FEMA). *Understanding flood dangers in central West Virginia: Lessons learned from the June 2016 flood.* [https://www.fema.gov/sites/default/files/documents/Region\\_III\\_WV\\_FloodReport.pdf](https://www.fema.gov/sites/default/files/documents/Region_III_WV_FloodReport.pdf)
- Federal Emergency Management Agency (FEMA). *What to do before a flood.* <https://www.floodsmart.gov/first-prepare-flooding>
- Federal Emergency Management Agency (FEMA). *Reducing Flood Risk to Residential Buildings That Cannot Be Elevated.* [https://www.fema.gov/sites/default/files/2020-07/fema\\_P1037\\_reducing\\_flood\\_risk\\_residential\\_buildings\\_cannot\\_be\\_elevated\\_2015.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_P1037_reducing_flood_risk_residential_buildings_cannot_be_elevated_2015.pdf)
- Federal Emergency Management Agency (FEMA). *Natural Hazard Mitigation Saves Interim Report.* [https://www.fema.gov/sites/default/files/2020-07/fema\\_mitsaves-factsheet\\_2018.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_mitsaves-factsheet_2018.pdf)
- West Virginia GIS Tech Center. *WV Flood Tool.* <http://www.mapwv.gov/flood/>