Building Exposure
White Sulphur Springs and Rainelle

Category	Exposure Indicator	White Sulphur Springs	Rainelle	Ratio* in WV Incorporated Areas (2021)
Buildings by Flood Zone (Count & Value)	Total Primary Building Count in Floodplain	**425** (Rank***: 12th)	**338** (Rank: 18th)	59 (Median)
	Building Ratio b/w Floodplain & Community Total	**26%**	**34%**	9%
	Total Primary Building Value in Floodplain of Community	**$41.02M** (Rank: 16th)	**$16.89M**	$6.42M (Median)
	Median Building Value in Floodplain	**$49K**	**$38K**	$42K
	Building Count in Floodway** (High Velocity)	**105** (Rank: 6th)	**47** (Rank: 18th)	12 (Avg.)
	Percent of SFHA Buildings in Floodway (High Velocity & Depth)	**25%**	**14%**	8%

Building Exposure
White Sulphur Springs and Rainelle

Category	Exposure Indicator	White Sulphur Springs	Rainelle	Ratio* in WV Incorporated Areas (2021)
Future Map Conditions	New Maps: Bldgs. "Mapped In" SFHA	**75** (Rank: 11th)	**325** (Rank: 3rd)	19 (Avg.)
	New Maps: Bldgs. % Count "Mapped In" SFHA	**18%**	**96%**	14%
	New Maps: Bldgs. "Mapped In" Floodway	**14**	**38**	97
	New Maps: Bldgs. Mapped from SFHA to Floodway	**40**	**0**	93
	New Maps: Bldgs. "Mapped Out" SFHA	**117** (Rank: 8th)	**1**	19 (Avg.)
	New Maps: Bldgs. % Count "Mapped Out" SFHA	**28%**	**0%**	14%

Building Exposure
White Sulphur Springs and Rainelle

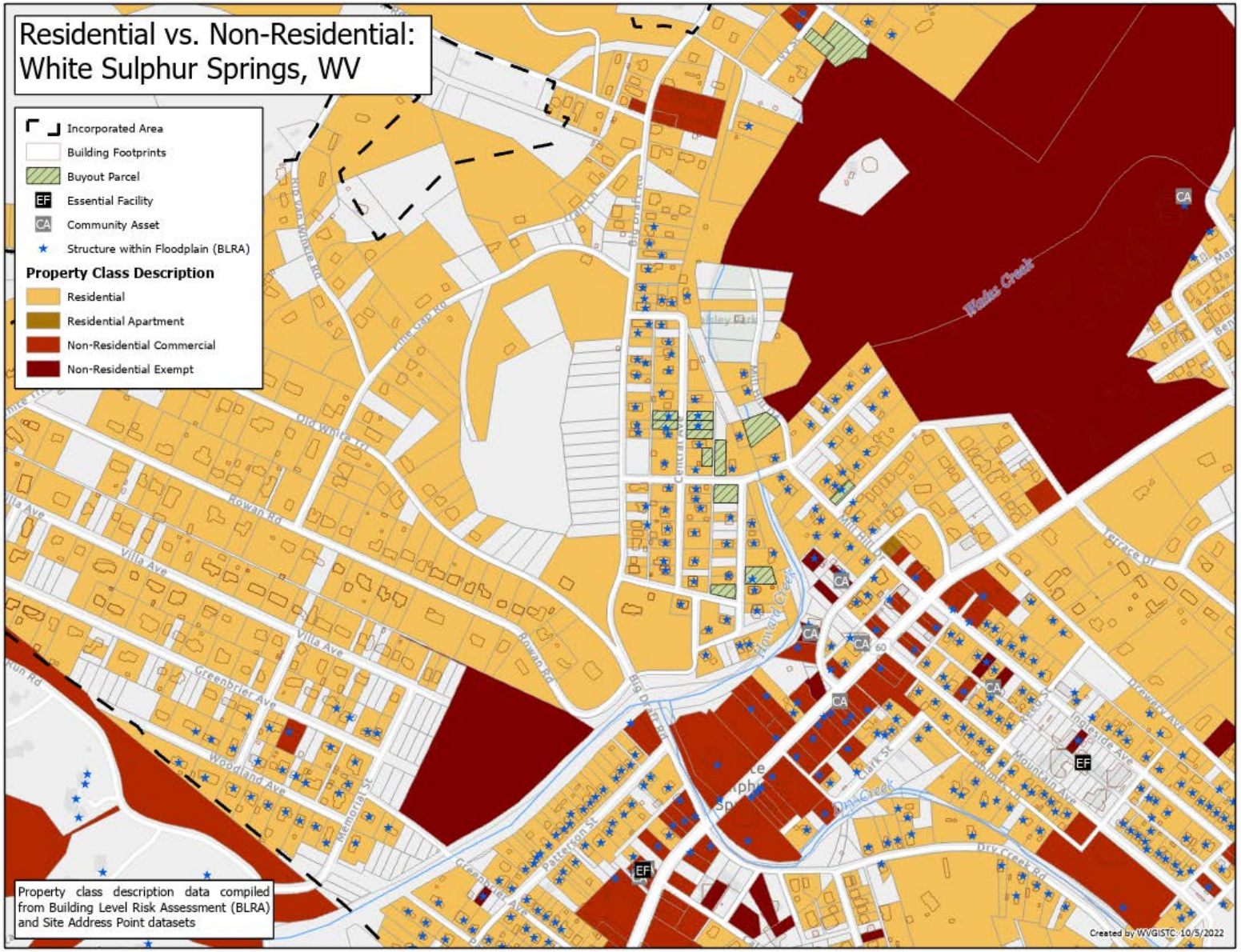
Category	Exposure Indicator	White Sulphur Springs	Rainelle	Ratio* in WV Incorporated Areas (2021)
Building Ownership	Owner Occupied Residential Buildings in Floodplain	208	153	65%
	Percent Owner Occupied Residential Buildings in Floodplain	49%	45%	
Building Occupancy and Value	Residential Building Count in Floodplain	372 (Rank: 12th)	250	44
	Percent Count Residential Building in Floodplain	88%	74%	81%
	Non-Residential Building Count in Floodplain	53	88 (Rank: 11th)	12
	Percent Count Non-Residential Bldgs. in Floodplain	12%	26%	19%
	Residential Building Value in Floodplain	$20.45M (Rank: 16th)	$9.29M	$2.11M
	Percent Residential Value in Floodplain	50%	55%	31%
	Non-Residential Building Value in Floodplain	$20.56M	$7.60M	$2.99M
	Percent Non-Residential Value in Floodplain	50%	45%	69%
	Mobile Homes in Floodplain	4	14	5
	Percent Mobile Homes in Residential Buildings in Floodplain	1%	4%	11%

Building Exposure / Physical Vulnerability
White Sulphur Springs and Rainelle

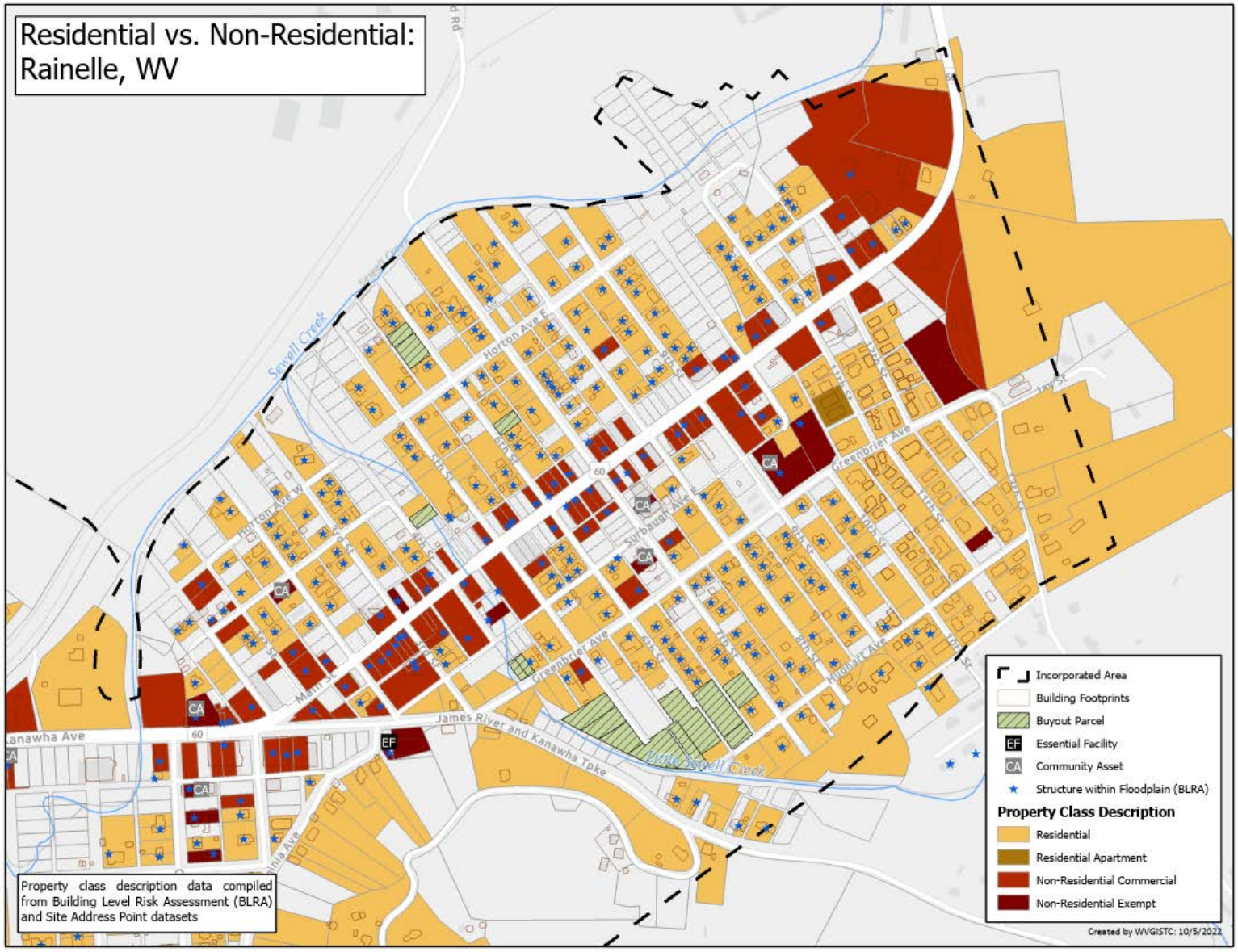
Category	Exposure Indicator	White Sulphur Springs	Rainelle	Median & Ratio in WV Incorporated Areas (2021)
Building Year Construction/ FIRM Status	Median Construction Year in Floodplain	**1940**	**1950**	1947
	% Pre-FIRM Structures (includes "unknown")	**88%** Before 8/1/1978	**77%** Before 11/19/1987	77%
	% Post-FIRM Structures (also "mapped-in SFHA" Post-FIRM structures regulated to Pre-FIRM)	**12%** After 8/1/1978	**23%** Before 11/19/1987	13%
Physical Structural Vulnerability (Basements, Stories, & Value)	Primary Buildings with Basements in Floodplain	**93**	**27**	37%
	Percent Count Buildings with Basements in Floodplain	**22%**	**8%**	
	One-Story Residential Buildings in Floodplain	**336**	**292**	69%
	Percent Count One-Story Residential Buildings in Floodplain	**79%**	**86%**	
	Red Tag: Dilapidated/Vacant Residential & Commercial Buildings	**20**	**56**	6
	Percent Low Valued (Red Tag) Structures	**5%**	**17%**	4%

* For numbers and dollar values, used median, or average where the median was zero or too low, of the state's 213 incorporated areas
** Based on the floodway maps of 2023
*** Ranks mentioned based on the BLRA data of April 2022 where the community is among the top 20 incorporated areas in WV
The red texts show large difference, to the risk side, from the state ratios.
The green texts show large difference, to the resilience side, from the state ratios.

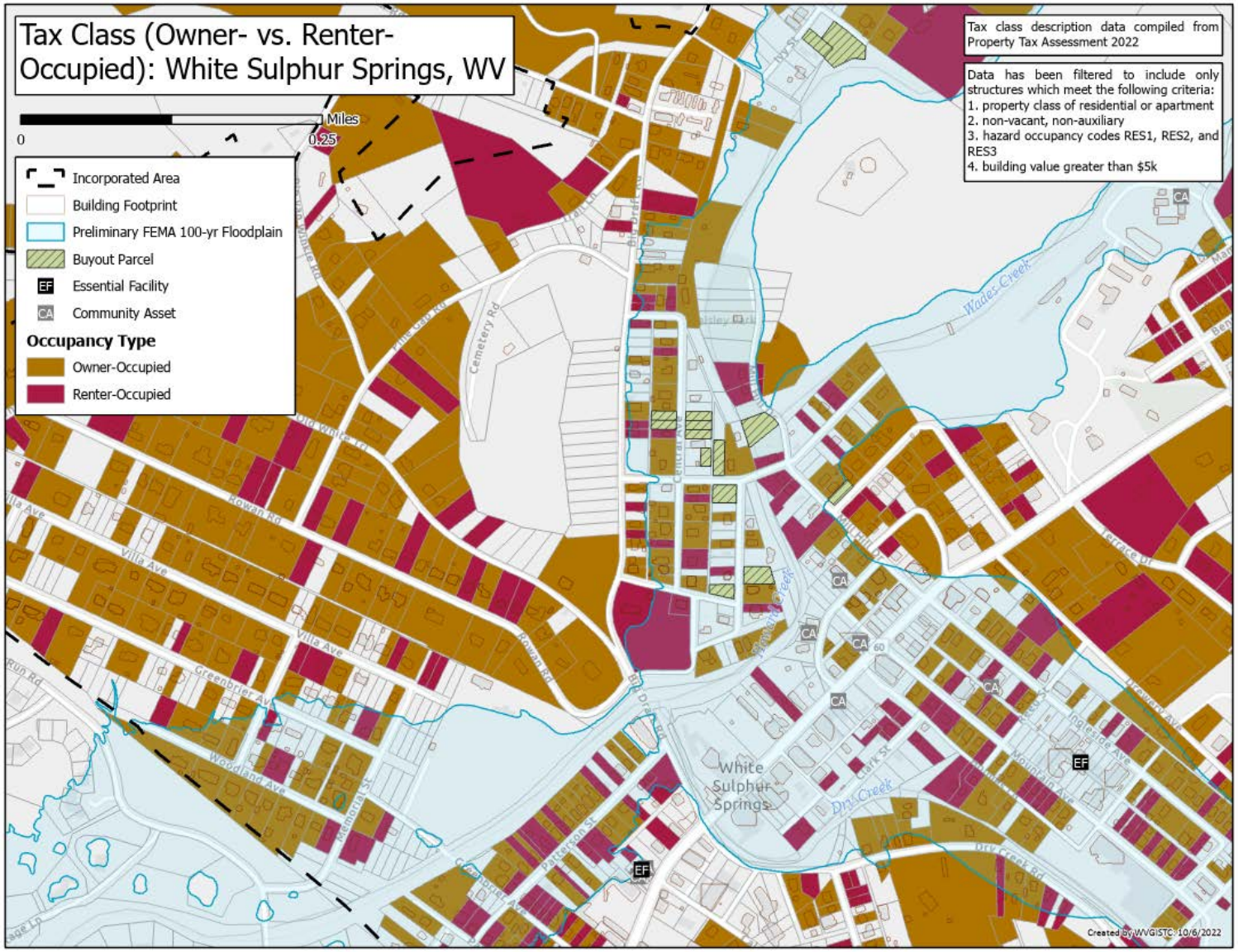
Residential vs. Non-Residential Parcels
White Sulphur Springs



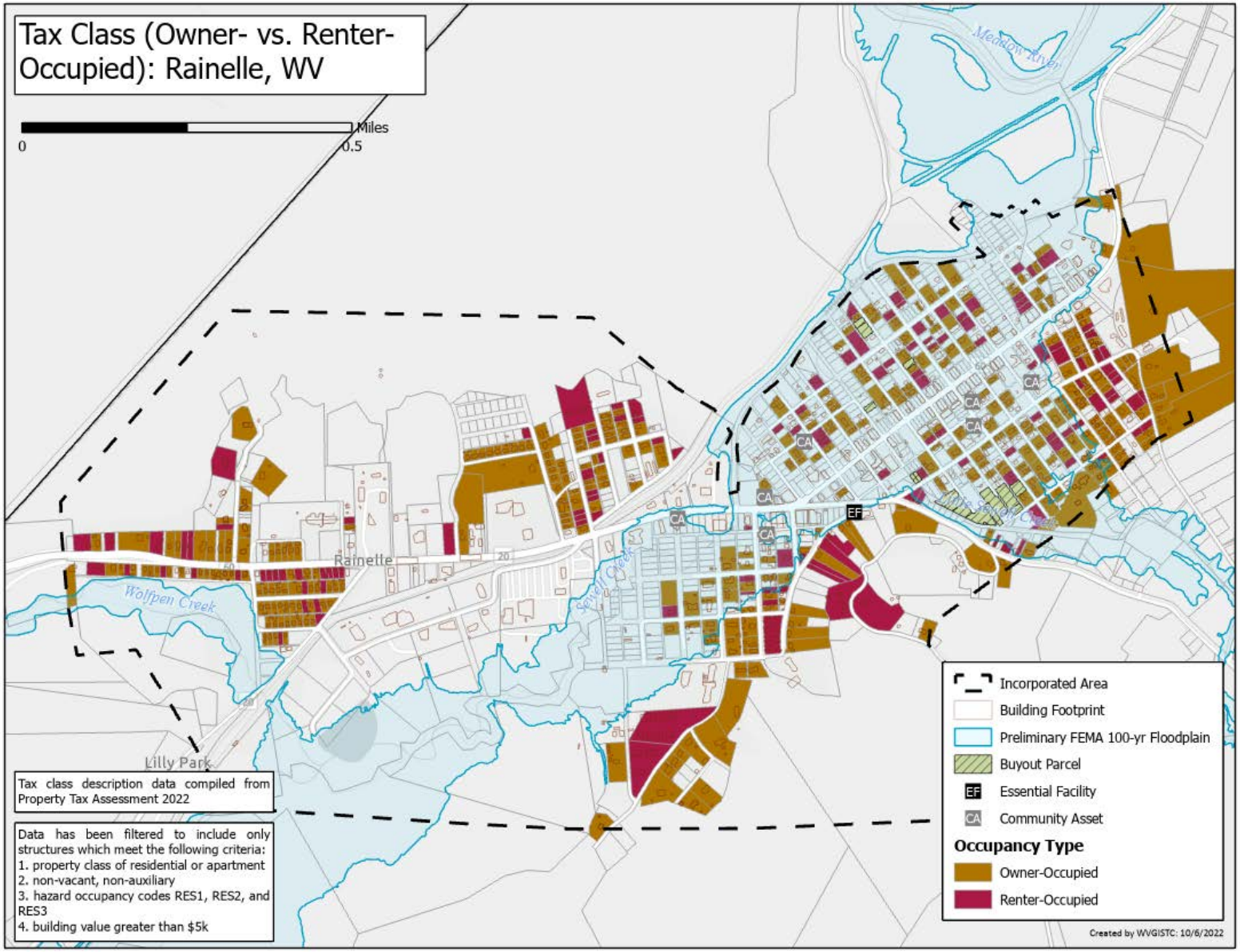
Residential vs. Non-Residential Parcels
Rainelle



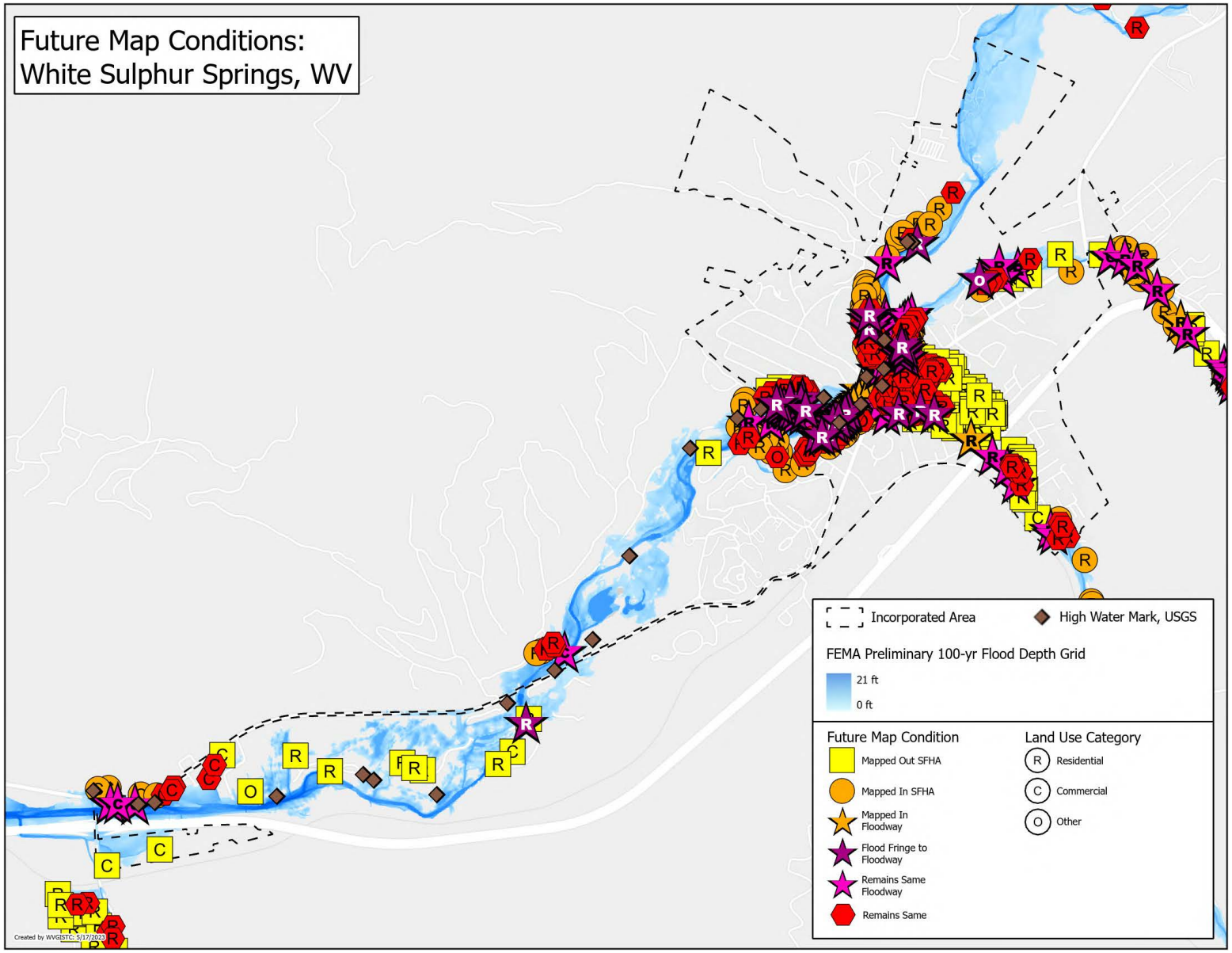
Tax Class, Owner- vs. Renter-Occupied Parcels
White Sulphur Springs



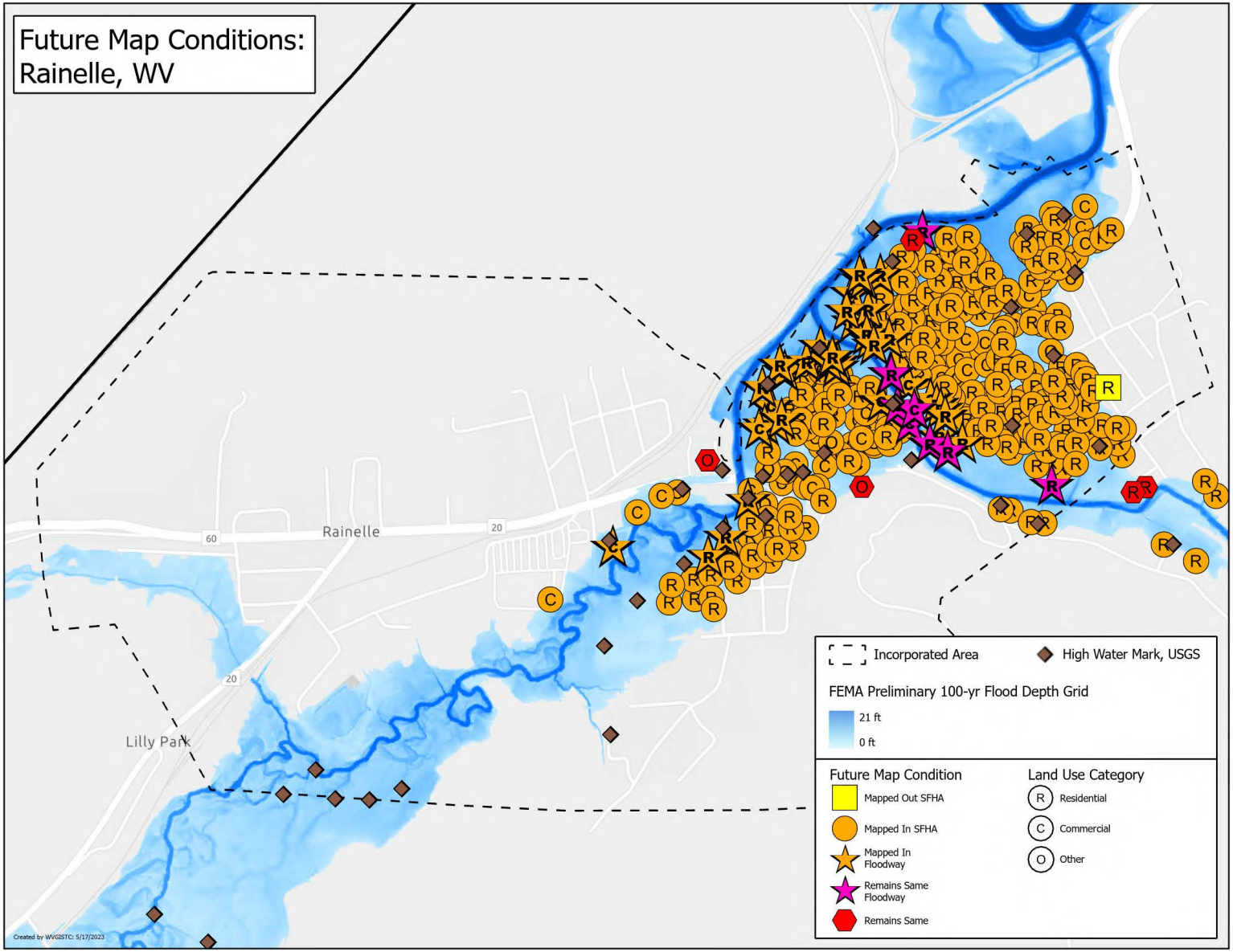
Tax Class, Owner- vs. Renter-Occupied Parcels Rainelle



Building Exposure, Future Map Conditions
White Sulphur Springs



Building Exposure, Future Map Conditions
Rainelle



Building Exposure, High-Value Structures
White Sulphur Springs

Highest Value:

Building ID: 13-17-0009-0342-0000_150 (WSS Elementary)
Hazard Occupancy Class: EDU1 (School)
FIRM Status: Post-FIRM (2003)
Appraised Value: $8,542,982
Flood Tool Link (New flood study mapped-out SFHA)

Highest Residential (RESx) Value:

Building ID: 13-17-0011-0246-0000_559
Hazard Occupancy Class: RES4 (Hotel/Motel - Low Rise)
FIRM Status: Pre-FIRM (1951)
Appraised Value: $254,400
Flood Tool Link (New flood study mapped-in SFHA)

Highest Apartment Building Value:

Building ID: 13-17-0009-0054-0001_767
Hazard Occupancy Class: RES3B (Multi-Family 3-4 Units)
FIRM Status: Pre-FIRM (1950)
Appraised Value: $227,600
Flood Tool Link

Highest Single-Family Value:

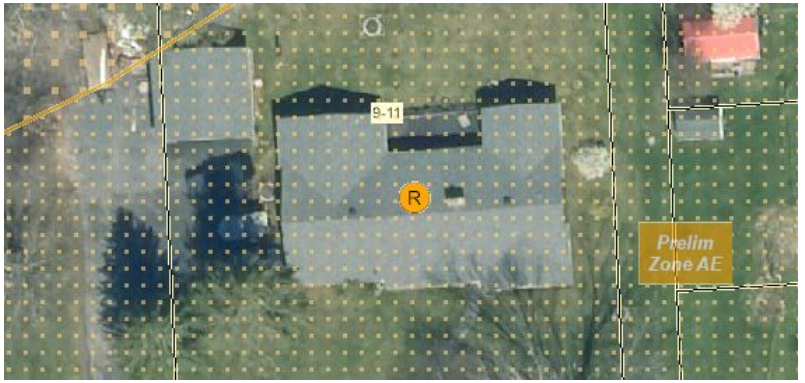
Building ID: 13-17-0008-0523-0000_192
Hazard Occupancy Class: RES1 (Residential 1 Family)
FIRM Status: Post-FIRM (1993)
Appraised Value: $192,700
Flood Tool Link

Building Exposure, High-Value Structures
Rainelle

Highest Value:

Building ID: 13-13-0004-0194-0000_506
Hazard Occupancy Class: COM1
FIRM Status: Post-FIRM (1994)
regulated to Pre-FIRM
Appraised Value: $1,443,900
Flood Tool Link (New flood study mapped-in SFHA)

Highest Residential (RESx) Value:



Building ID: 13-13-0009-0011-0000_242
Hazard Occupancy Class: RES1 (Residential 1 Family)
FIRM Status: Pre-FIRM (1967)
Appraised Value: $107,400
Flood Tool Link (New flood study mapped-in SFHA)

Highest Apartment Building Value:

Building ID: 13-13-0005-0341-0000_249
Hazard Occupancy Class: RES3B (Multi-Family 3-4 Units)
FIRM Status: Pre-FIRM (1960)
Appraised Value: $63,900
Flood Tool Link (New flood study mapped-in SFHA)

Examples of Low Valued Structures in Floodplain
White Sulphur Springs

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

Flood Tool Link

Examples of Low Valued Structures in Floodplain Rainelle

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

Flood Tool Link

Building ID: 13-13-0001-0127-0000_178

Flood Tool Link

Significant Structures Exposure
White Sulphur Springs and Rainelle

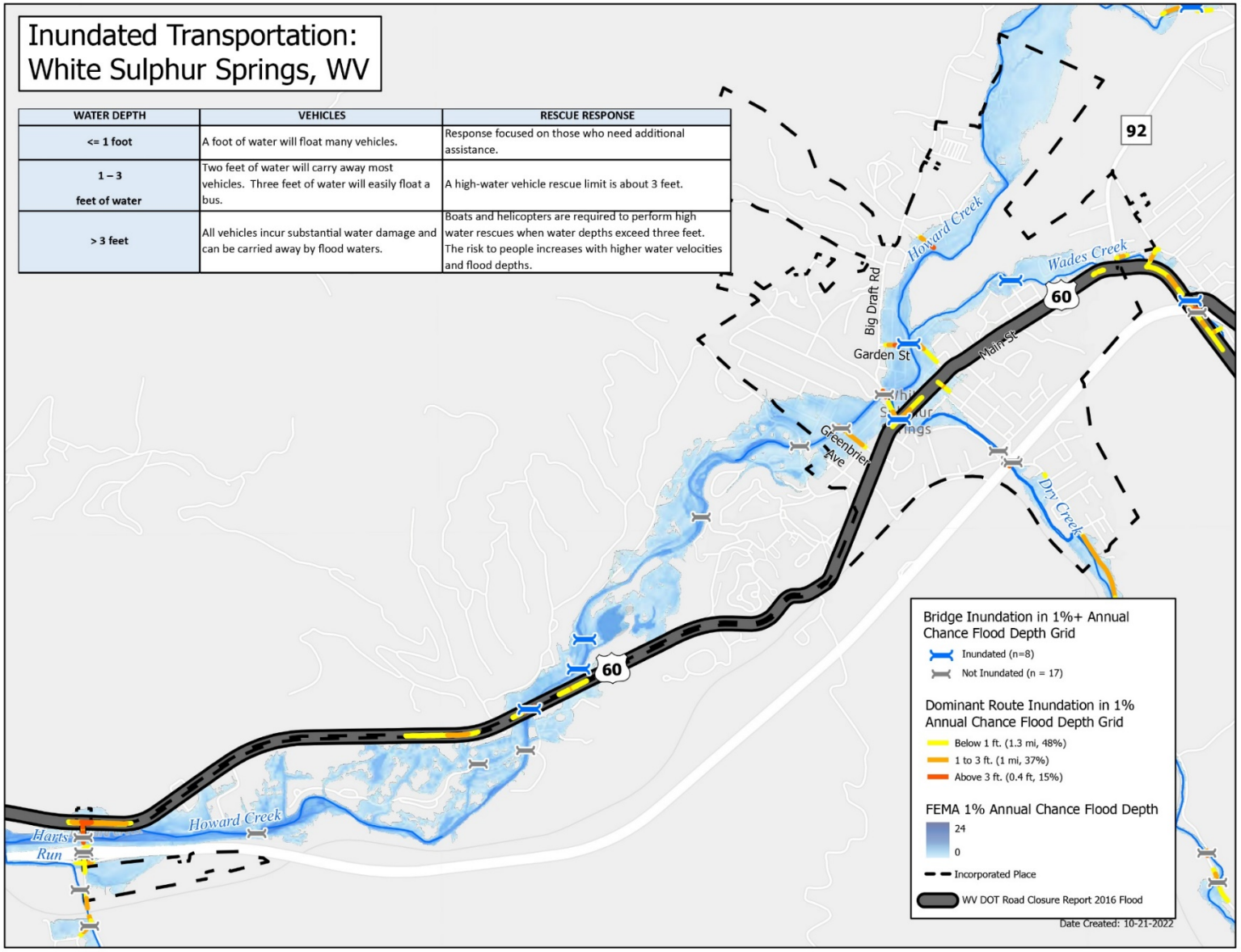
Category	Exposure Indicator	White Sulphur Springs	Rainelle	Average in WV Incorporated Areas (2021)
Significant Structures (Critical Infrastructure Count)	Number of Essential Facilities in the Moderate Risk 0.2%-Annual-Chance Floodplain	**2**	**2**	2
	Number of Community Assets (Non-Historical) in the High-Risk 1%-Annual-Chance Floodplain	**8**	**7**	3

The red texts show large difference, to the risk side, from the state ratios.

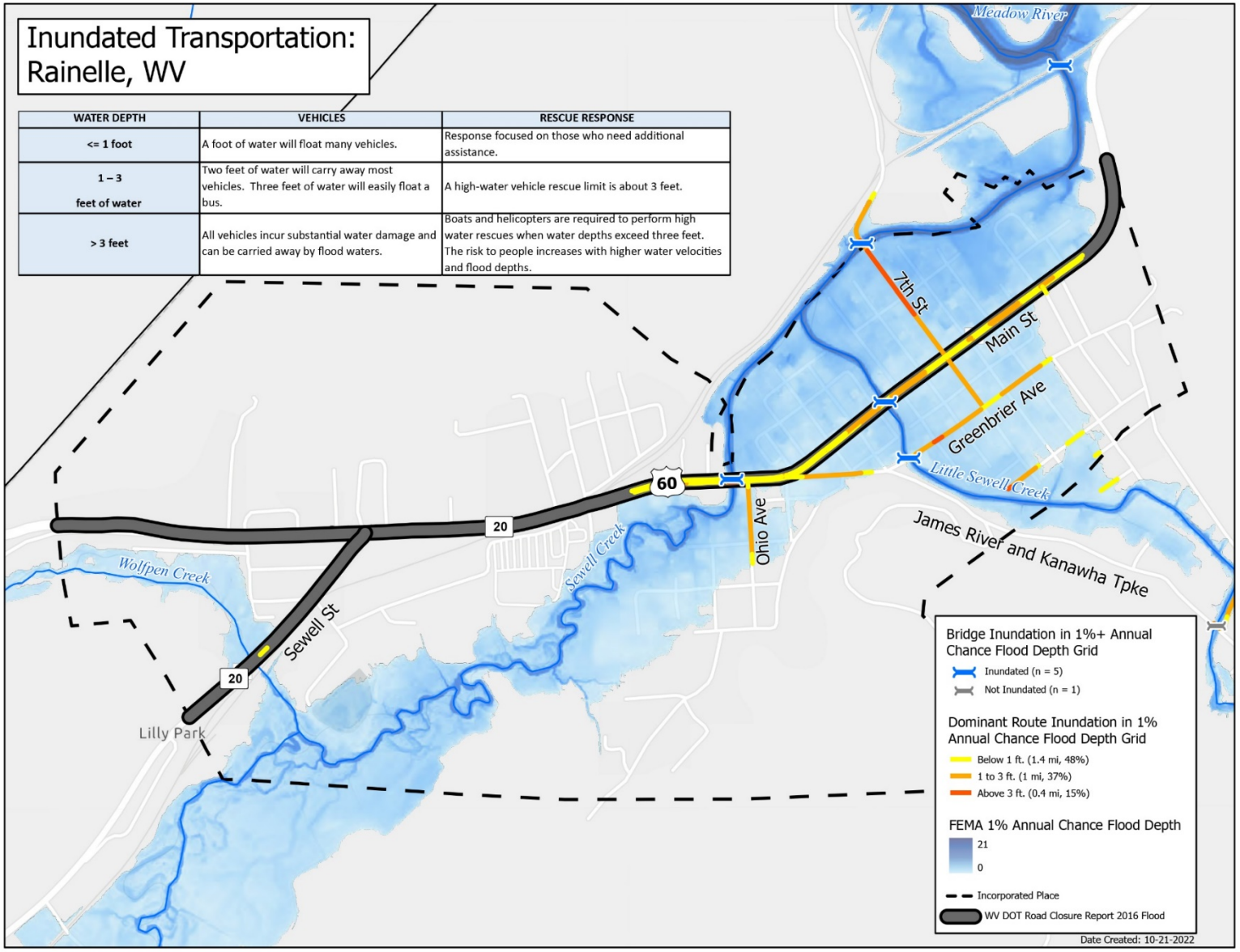
White Sulphur Springs National Fish Hatchery:
Building ID: 13-17-0009-0206-0000_1087
Hazard occupancy Class: GOV1 (Government, Federal)
FIRM Status: Post-FIRM
Appraised Value: $425,073 (Highest in significant structures)
Flood Tool Link

Church of God in Rainelle:
Building ID: 13-13-0005-0366-0000_373
Hazard occupancy Class: REL1 (Religious)
FIRM Status: Post-FIRM regulated to Pre-FIRM
Appraised Value: $435,000 (Highest in significant structures)
Flood Tool Link

Infrastructure Exposure, Inundated Transportation White Sulphur Springs



Infrastructure Exposure, Inundated Transportation Rainelle



Human Exposure
White Sulphur Springs and Rainelle

Category	Exposure Indicator	White Sulphur Springs	Rainelle	Median & Ratio in WV Incorporated Areas (2021)
Human Exposure	Estimated Population Residing in High-Risk Flood Zones	**1026**	**582**	114
	Percentage of Population Residing in High-Risk Flood Zones	**39%**	**43%**	10%

The red texts show large difference, to the risk side, from the state ratios.

Criteria, Rationale, and Data Sources

Exposure Indicator	Criteria	Rationale	Data Source
Total Primary Building Count in Floodplain	All primary insurable structures in the Special Flood Hazard Area (SFHA)* or 100-year floodplain	Higher number of buildings in the floodplain indicates higher physical and human exposure and flood risk in a community.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
Building Ratio b/w Floodplain & Community Total	Ratio of the primary buildings in the floodplain to all E911 addresses in community		BLRA of 5/9/2023 (based on 2022 tax assessment) & E911 Addresses from Statewide Addressing and Mapping System (SAMS) 2021
Total Primary Building Value in Floodplain of Community	Sum & median appraised values of all primary structures in floodplains	Higher building values increase substantial damage thresholds and mitigation reconstruction costs.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
Median Building Value in Floodplain			
Building Count in Floodway (High Velocity & Depth)	Primary buildings intersecting either floodways of 2012 or 2023 (effective or advisory)	Buildings in the main floodway channel of the river or stream, or close to the flood source, will be subject to the greatest flood depths, highest velocities, and greatest debris potential.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
Percent of SFHA Buildings in Floodway (High Velocity & Depth)			
New Maps: Bldgs. "Mapped In" SFHA	Primary buildings that most likely will be included in the SFHA when future FEMA Restudies are done and new FIRMs become effective.	Communities should review all "mapped-in" structures. Homeowners are at higher risk to flooding and should be contacted about Flood Insurance Preferred Risk Policies and other potential mitigation measures.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
New Maps: Bldgs. % Count "Mapped In" SFHA			
New Maps: Bldgs. "Mapped In" Floodway	Primary buildings that will be included in the floodways of the new restudy maps	Structures residing in the floodway are subject to stricter engineering development standards and should be a priority for mitigation efforts.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
New Maps: Bldgs. Mapped from SFHA to Floodway	Primary buildings already included in the effective SFHA that will be included in the floodways of the new maps		
New Maps: Bldgs. "Mapped Out" SFHA	Primary buildings no longer located within the high-risk flood zones of 2023	The flood risk has only been reduced, not removed and flood insurance coverage is still recommended.	BLRA of 5/9/2023 (based on 2022 tax assessment) & FEMA FIRM (2012 & 2022)
New Maps: Bldgs. % Count "Mapped Out" SFHA			

* SFHA includes both the high-risk effective and advisory 1%-annual chance floodplains.

Criteria, Rationale, and Data Sources…

Exposure Indicator	Criteria	Rationale	Data Source
Owner Occupied Residential Buildings in Floodplain	Residential buildings occupied by owners (tax class 2)	Renters may not have flood insurance and be at higher risk. Renters may have less long-term commitment to the community.	BLRA of 5/9/2023 (based on 2022 tax assessment)
Percent Owner Occupied Residential Buildings in Floodplain			
Residential Building Count in Floodplain	Count/percent count of all residential primary buildings (RESx) in floodplains	The specified residential/non-residential occupancy class according to structure use or structure type is an important requirement for multiple flood reduction programs, activities, and products. Residential buildings in floodplains indicate higher human loss and economic risk for households.	BLRA of 5/9/2023 (based on 2022 tax assessment), occupancy classes
Percent Count Residential Building in Floodplain			
Non-Residential Building Count in Floodplain	Count/percent count of all non-residential primary buildings (not RESx) in floodplains	Many of non-residential buildings have high replace values. Damages to such buildings can interrupt businesses in communities. Flood mitigation of such structures (e.g., elevating) is much more difficult.	BLRA of 5/9/2023 (based on 2022 tax assessment), occupancy classes
Percent Count Non-Residential Bldgs. in Floodplain			
Residential Value in Floodplain	Value/percent value of all residential primary buildings (RESx) in floodplains	Same as above (Residential Count)	BLRA of 5/9/2023 (based on 2022 tax assessment), occupancy classes
Percent Residential Value in Floodplain			
Non-Residential Value in Floodplain	Value/percent value of all non-residential primary buildings (not RESx) in floodplains	Same as above (Non-Residential Count)	BLRA of 5/9/2023 (based on 2022 tax assessment), occupancy classes
Percent Non-Residential Value in Floodplain			
Mobile Homes in Floodplain	Residential manufactured buildings (RES2) in floodplains	Light-weight manufactured homes are not designed for withstanding floods and are more vulnerable to flood damage.	BLRA of 5/9/2023 (based on 2022 tax assessment), occupancy classes
Percent Mobile Homes in Residential Buildings in Floodplain			

Criteria, Rationale, and Data Sources…

Exposure Indicator	Criteria	Rationale	Data Source
Median Construction Year in Floodplain	The median construction year of all buildings in floodplains of the community	The building year can show the structure age as an indicator of quality of the foundation and other elements. It can show if the structure was constructed before or after the FIRM date of community.	BLRA of 5/9/2023 (based on 2022 tax assessment) building year
% Pre-FIRM Structures (includes "unknown")	Percentage of primary structures constructed before the community's initial FIRM date (WSS: 8/1/1978; Rainelle: 11/19/1987)	Post-FIRM structures should be built according to the floodplain development standards set forth in the local floodplain management ordinance.	FIRM date & 2022 tax assessment building year
% Post-FIRM Structures (also "mapped-in SFHA" Post-FIRM structures regulated to Pre-FIRM)	Percentage of primary structures constructed after the community's initial FIRM date (WSS: 8/1/1978; Rainelle: 11/19/1987)		
Primary Buildings with Basements in Floodplain	All primary buildings with full or partial basements in floodplains. In addition to subgrade basements, may also include walkout basement enclosures that should be corrected using elevation certificates, buildings pictures, or field verification	Any area of a building having its floor below ground level (subgrade) is much more vulnerable to floods.	BLRA of 5/9/2023 (based on 2022 tax assessment) foundation type
Percent Count Buildings with Basements in Floodplain			
One-Story Residential Buildings in Floodplain	All residential buildings (including mobile homes) in one story	Residents of one-story buildings cannot go to the higher elevations in their places while flooding. The ratio of flood damage to the total replace cost is usually higher in a one-story building as most of its parts are exposed to floods.	BLRA of 5/9/2023 (based on 2022 tax assessment) stories
Percent Count One-Story Residential Buildings in Floodplain			
Red Tag: Dilapidated/Vacant Residential & Commercial Buildings	Number of dilapidated or vacant Residential & Commercial Buildings with low values	Building quality is the product of the construction conditions and maintenance state. Buildings of low quality and vacant structures cannot withstand flooding adequately and are more vulnerable to it.	BLRA of 5/9/2023 (based on 2022 tax assessment) land use & value, building pictures
Percent Low Valued (Red Tag) Structures			

Criteria, Rationale, and Data Sources…

Exposure Indicator	Criteria	Rationale	Data Source
Number of Essential Facilities in the Moderate Risk 0.2%-Annual-Chance Floodplain	Schools, hospitals, nursing homes, police stations, fire department buildings, & E-911 emergency operations centers in the 500-year floodplains	Hospitals and nursing homes with immobile patients or residents are particularly vulnerable to floods. Schools are usually used as shelters while flooding. Communities should develop emergency plans to continue to provide emergency services during the flood. If a critical facility must be in a floodplain, then it should be provided with a higher level of protection so that it can continue to function and provide services after the flood.	BLRA of 5/9/2023 (based on 2022 tax assessment), Emergency Management Division, Department of Education, USA Reference, & Department of Transportation
Number of Community Assets (Non-Historical) in the High-Risk 1%-Annual-Chance Floodplain	Utilities (water, sewage, gas, electric, or phone), post-secondary educational facilities, facilities providing emergency medical response (EMS), government buildings providing public services, & facilities hosting religious services in the 100-year floodplains (SFHA)	Many of those buildings such as churches are usually used as emergency shelters while flooding. Malfunction of utilities while flooding can damage community lifeline systems of Safety and Security, Water, Shelter, Health and Medical, and Energy . A hazard vulnerability analysis of community assets should be conducted by floodplain managers and risk planners to develop mitigation strategies for these assets.	BLRA of 5/9/2023 (based on 2022 tax assessment), Reference USA, Homeland Infrastructure Foundation-Level DATA, WV Water Development Authority, WV Infrastructure Jobs Development Council, WV Division of Natural Resources, & community feedback
Estimated Population Residing in High-Risk Flood Zones	Population estimates are calculated at the building level by multiplying the Hazus defined residential occupancy class units (source tax assessment database) by average household size (source Census).	More people residing in floodplains means higher human exposure to floods causing higher human loss.	BLRA of 5/9/2023 (based on 2022 tax assessment) and average household size from Census ACS 2017
Percentage of Population Residing in High Risk Flood Zones			