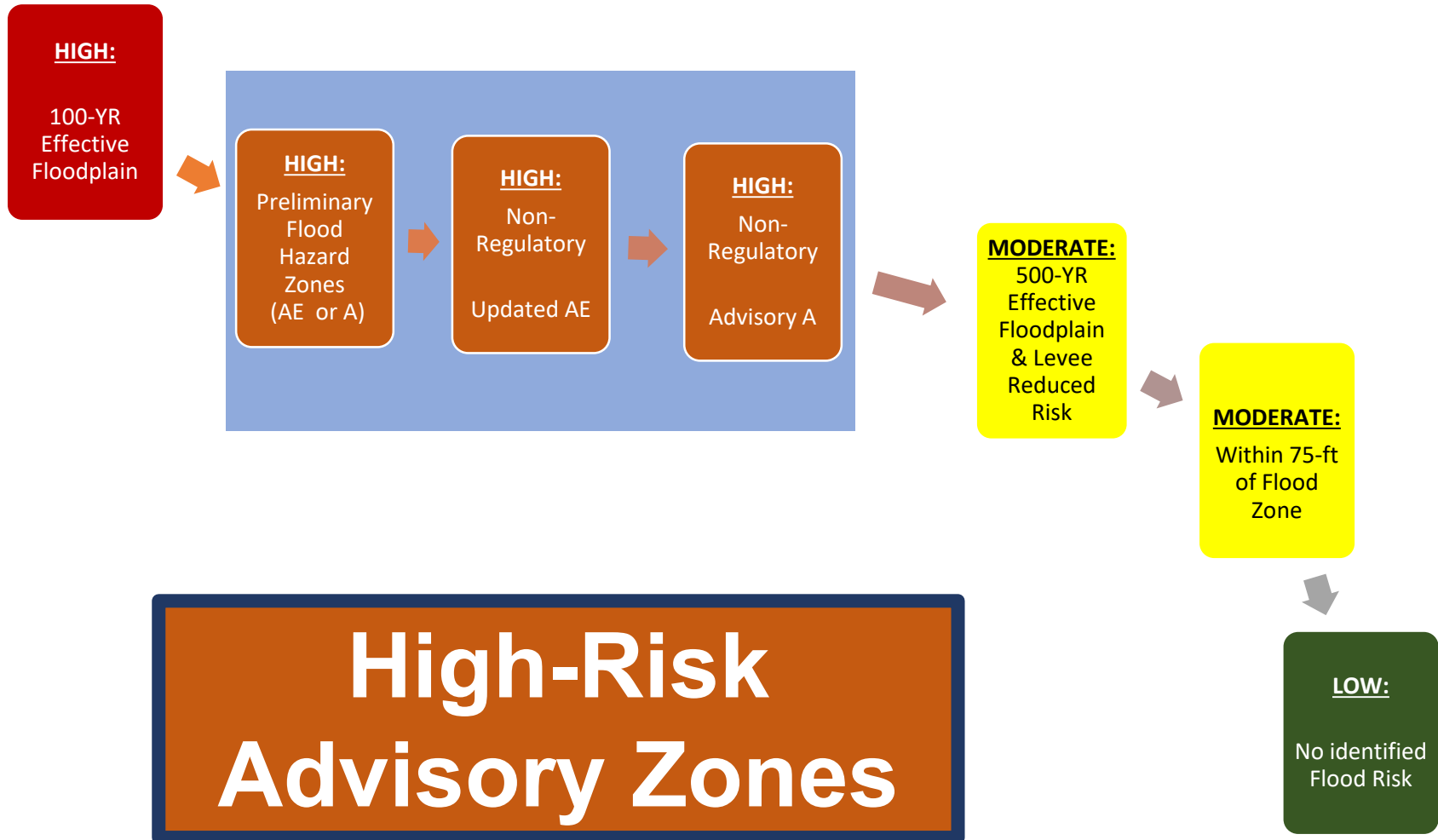


# WV Flood Tool

4/10/2020 Update



# WV Flood Map Revisions

A major driver for flood map revisions in West Virginia is new Light Detection and Ranging (LiDAR) elevation data that allows for a dramatic increase in the accuracy of flood hazard mapping. This new high-resolution topography supports 1-foot contours and 1-meter digital elevation models. Ongoing flood studies in West Virginia are categorized as FEMA-Initiated or State-Initiated Studies.

**FEMA-Initiated Studies:** A FEMA-initiated study or restudy revises some or all of a community's effective flood map, resulting in both regulatory and flood risk products. FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) program provides communities with flood risk information that is used for developing regulatory and flood risk products. Once the new regulatory flood maps are finalized, a community has six months to adopt the map revisions in their local floodplain ordinance. For example, the 2016 Flood Study used new topography and high-water marks to create detailed flood studies with regulatory products for eight stream reaches in Greenbrier, Kanawha, Monroe, Nicholas, Summers, and Webster counties.

**State-Initiated Studies:** State-initiated map revisions, typically through the FEMA's CTP Initiative, are smaller-scale studies limited in size and scope. State flood mapping initiatives incorporate new topography with hydrology and hydraulics (H&H) models to generate high-risk advisory flood zone data. This includes the statewide map initiative of Approximate A Zones using engineering analyses to produce new floodplain boundaries, Advisory Flood Heights (Advisory BFEs) and flood depth grids for streams draining a minimum two-square mile watershed area. The advisory flood height values should be used with caution for sites in proximity to hydraulic structures (bridges/culverts/dams) or near the confluence of a larger stream. Another statewide map initiative involves the redelineation of AE Zones to produce high-risk advisory flood zones, non-restudy BFE and water depth grids. Redelineation is the method of updating effective flood hazard boundaries to match updated topographic data based on the computed water surface elevations from effective models; no new engineering analyses are performed as part of the redelineation methodology. Importantly, State-Initiated Studies produce high-risk advisory flood hazard information that will likely be incorporated into future effective regulatory or community identified floodplains.

# Map Revisions → High Risk Advisory Zones

Advisory Flood Zone	Map Revision Type	Initiated	Applicable Zones
<b>Preliminary NFHL or DFIRM</b>	Risk MAP Restudy or Study	FEMA	A and AE Zones
<b>Advisory A</b>	AFH Model-Backed Studies*	State CTP	Approximate A Zone
<b>Updated AE</b>	Non-Restudy Redelineation*	State CTP	AE Zone

\* May include Advisory Zones outside of official FIRM

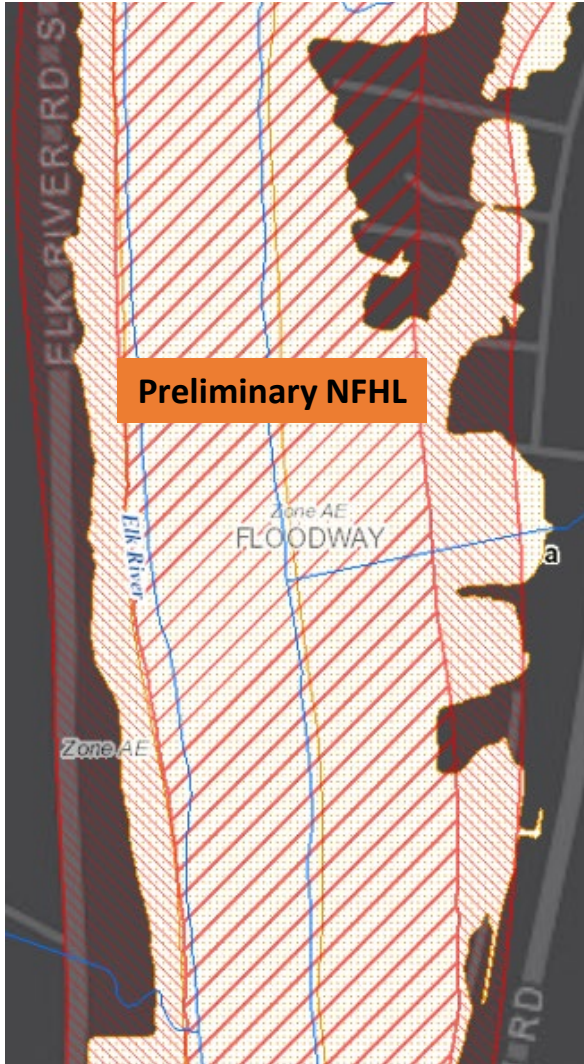
High-Risk Advisory Zone Flood Products:

(1) Advisory Floodplain Boundary, (2) Flood Height Grid, (3) Flood Depth Grid

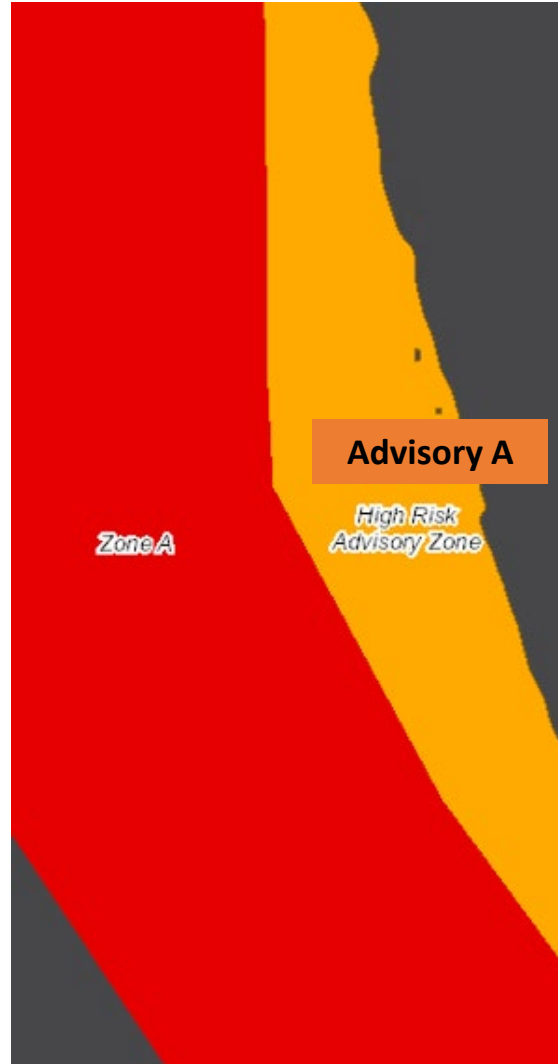
# High Risk Advisory Zones

**High-Risk Advisory Zones:** High-risk advisory zones – **Preliminary NFHL, Advisory A, or Updated AE** – are non-regulatory 1%-annual-chance flood zones represented as orange-colored flood zones in the WV Flood Tool. These advisory flood zones are generated from new model-backed flood studies or from redelineation mapping. Redelineation is the method of updating effective flood hazard boundaries to match updated topographic data based on the computed water surface elevations from effective models. The public should be informed that these non-regulatory zones will most likely become effective when new Flood Insurance Rate Maps (FIRM) are published, and thus any development in these zones should be regulated to the same standards as effective high-risk flood zones. In local floodplain ordinances, communities may choose to adopt high-risk advisory zones as "community-identified floodplains" and regulated the same as the Special Flood Hazard Area of the official Flood Insurance Rate Map (FIRM). Besides showing flood prone areas that are likely to be "mapped into the SFHA" in a future FEMA Flood Restudy, the high-risk advisory zones are also beneficial in identifying Letters of Map Amendment (LOMAs) for structures or property that should be "removed from the SFHA."

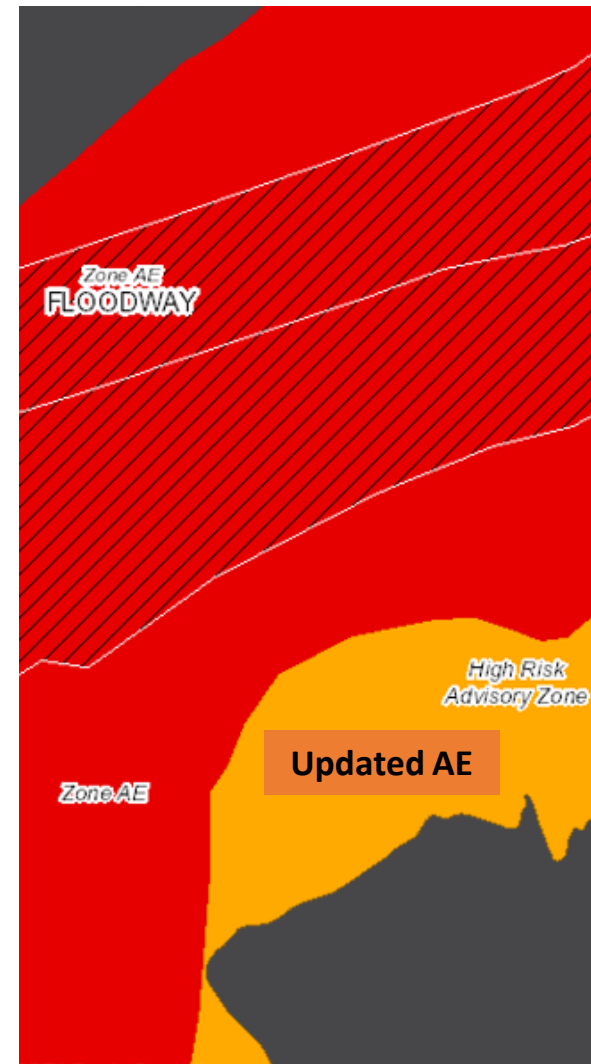
# High Risk Advisory Zones



Preliminary NFHL



Advisory A



Updated AE

# Preliminary NFHL

The screenshot displays the WV Flood Tool interface. At the top, the logo reads "WV Flood Tool" with the tagline "Remember: When In Doubt, It's Not Out!". The interface includes a navigation bar with "Public", "Expert", and "Risk MAP" tabs. Below this is a "Layers" panel with various flood hazard layers, including "PRIMARY FLOOD HAZARD LAYERS" and "PRELIMINARY FLOOD HAZARD LAYERS". The "Preliminary Floodplain" layer is highlighted in yellow. A central map shows a flood zone with red diagonal hatching, labeled "Preliminary NFHL". A blue circle on the map indicates a specific location. To the right, a "Flood Hazard Area" information panel provides details such as "Flood Zone: Preliminary Flood Zone", "Stream: Elk River", and "Watershed (HUC8): Elk (5050007)". The panel also lists FEMA's Flood Map (54039C0290E), Map Effective Date (2/6/2008), and other technical data. A search bar at the top allows for address input, and a "Tools" panel on the right offers various map interaction options.

**Preliminary NFHL Flood Zone:** Preliminary FEMA National Flood Hazard Layers (NFHL) pending to become effective on updated Flood Insurance Rate Maps (FIRMs)

# Advisory A

The screenshot displays the WV Flood Tool interface. At the top, there is a navigation bar with 'About', 'Help', and 'Home' links. Below this is a search bar and a 'Tools' section. The main map area shows a flood hazard map with a red 'Zone A' and a yellow 'High Risk Advisory Zone'. A blue circle on the map indicates the location of 'Advisory A'. The left sidebar contains a 'Layers' panel with various flood hazard layers, including 'PRIMARY FLOOD HAZARD LAYERS' and 'PRELIMINARY FLOOD HAZARD LAYERS'. The right sidebar shows metadata for the selected location, including 'Flood Hazard Area', 'Flood Zone', 'Stream', 'Watershed', 'FEMA's Flood Map', 'Map Effective Date', 'Contacts', 'Flood Height', 'Water Depth', 'HEC-RAS Model', 'Flood Profile', 'Community', 'Location', 'Elevation', 'Address', and 'Parcel'.

**WV Flood Tool**  
Remember: When In Doubt, It's Not Out!

Views: Public | Expert | Risk MAP | Layers: Flood | Reference | Basemaps | Search: e.g., 123 street name, city, state, zip | Tools: [Icons]

**Layers Panel:**

- PRIMARY FLOOD HAZARD LAYERS
  - 100-year High Risk Hazard
  - 500-year / Moderate Risk
  - Base Flood Elevations
  - Cross-Sections
  - LOMA
  - LOMA Verified
  - LOMR
  - Effective FIRM Panel Index
  - Stream Lines and Names
- PRELIMINARY FLOOD HAZARD LAYERS
  - Water Depth (HEC-RAS)-50
  - Elevation Certificates
- OTHER FLOOD ZONE SYMBOLOGY
  - PUBLIC View: Flood Zones
  - NFHL Viewer: Flood Zones\*
- MISCELLANEOUS LAYERS
  - \* indicates that data is external web service

[Show Legend](#)

**Metadata Panel:**

- Flood Hazard Area: Location is WITHIN an advisory floodplain but NOT a FEMA 100-year effective floodplain. [More Info](#)
- Flood Zone: Advisory A (Advisory Flood Heights available)
- Stream: Hopewell Run
- Watershed (HUC8): Conococheague-Opequon (2070004)
- FEMA's Flood Map: 54039C0290E [Download] [Share]
- Map Effective Date: 12/18/2009
- Contacts: Jefferson
- Flood Height: About 450 ft (AFH) [More Info](#)
- Water Depth: About 0.8 ft (Source: HEC-RAS)
- HEC-RAS Model: HopewellRun [Download All Models]
- Flood Profile: N/A
- Community: Jefferson County
  - CID: 540065
  - CRS Class: 6
- Location (lat, long): (39.357221, -77.933949)
- Location (UTM 17N): (4360903, 764180)
- External Viewers: [Icons]
- Elevation: About 449 ft (Source: FEMA 2012)
- Address: 264 HATCHERY RD, KEARNEYSVILLE, WV, 25430
- Parcel: 19-07-0007-0007-0001 | [Assessment](#) [Warning]
- Flood Risk Information [Related Resources](#)
  - [Flood Risk Assessment](#)
  - [3D Flood Visualization](#)

**Advisory A Flood Zone:** A model-backed Approximate A Zone is determined by using hydrology and hydraulics (H&H) analysis and the best available elevation data. Water Depth and Water Surface Elevation Grids are also companion products of Advisory A Zones.

# Updated AE

The screenshot displays the WV Flood Tool interface. The top navigation bar includes 'Public', 'Expert', and 'Risk MAP' views. The 'Layers' panel on the left shows various flood hazard layers, with '100-year High Risk Hazard' and 'PUBLIC View: Flood Zones' checked. The main map area shows a cross-section of a floodplain with 'Zone AE' and 'Zone AE FLOODWAY' labels. A blue circle highlights a specific location on the map, with an orange box labeled 'Updated AE' pointing to it. The right-hand information panel provides details for the selected location, including flood height, water depth, and FEMA map information.

**WV Flood Tool**  
Remember: When In Doubt, It's Not Out!

Views: Public | **Expert** | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address: e.g., 123 street name, city, state, zip

Tools: [Map Tools]

**PRIMARY FLOOD HAZARD LAYERS**

- 100-year High Risk Hazard
- 500-year / Moderate Risk
- Base Flood Elevations
- Cross-Sections
- LOMA
- LOMA Verified
- LOMR
- Effective FIRM Panel Index
- Stream Lines and Names

**PRELIMINARY FLOOD HAZARD LAYERS**

- Water Depth (HEC-RAS)-5
- Elevation Certificates

**OTHER FLOOD ZONE SYMBOLOGY**

- PUBLIC View: Flood Zones
- NFHL Viewer: Flood Zones\*

**MISCELLANEOUS LAYERS**

\* indicates that data is external web service  
[Show Legend](#)

**Updated AE**

High Risk Advisory Zone

Zone AE

Zone AE FLOODWAY

Zone AE FLOODWAY

**Flood Hazard Area:** Location is **WITHIN** an updated detailed floodplain boundary but **NOT** a FEMA 100-year effective floodplain. [More Info](#)

**Flood Zone:** Updated AE Floodplain Boundary

**Stream:** Opequon Creek

**Watershed (HUC8):** Conococheague-Opequon (2070004)

**FEMA's Flood Map:** 54039C0290E [Download](#) [Share](#)

**Map Effective Date:** 7/7/2009

**Contacts:** Berkeley

**Flood Height:** 410 ft (BFE - Non-Restudy) [More Info](#)

**Water Depth:** About 4.8 ft (Source: HEC-RAS)

**HEC-RAS Model:** N/A [All Models](#)

**Flood Profile:** N/A

**Community:** Berkeley County

**CID:** 540282 **CRS Class:** 7

**Location (lat, long):** (39.367681, -77.960522)

**Location (UTM 17N):** (4361987, 761851)

**External Viewers:** [Icons]

**Elevation:** About 405 ft (Source: FEMA 2012)

**Address:** N/A

**Parcel:** 02-01-0020-0009-0000 | [Assessment](#) [Warning](#)

**Flood Risk Information** [Related Resources](#)

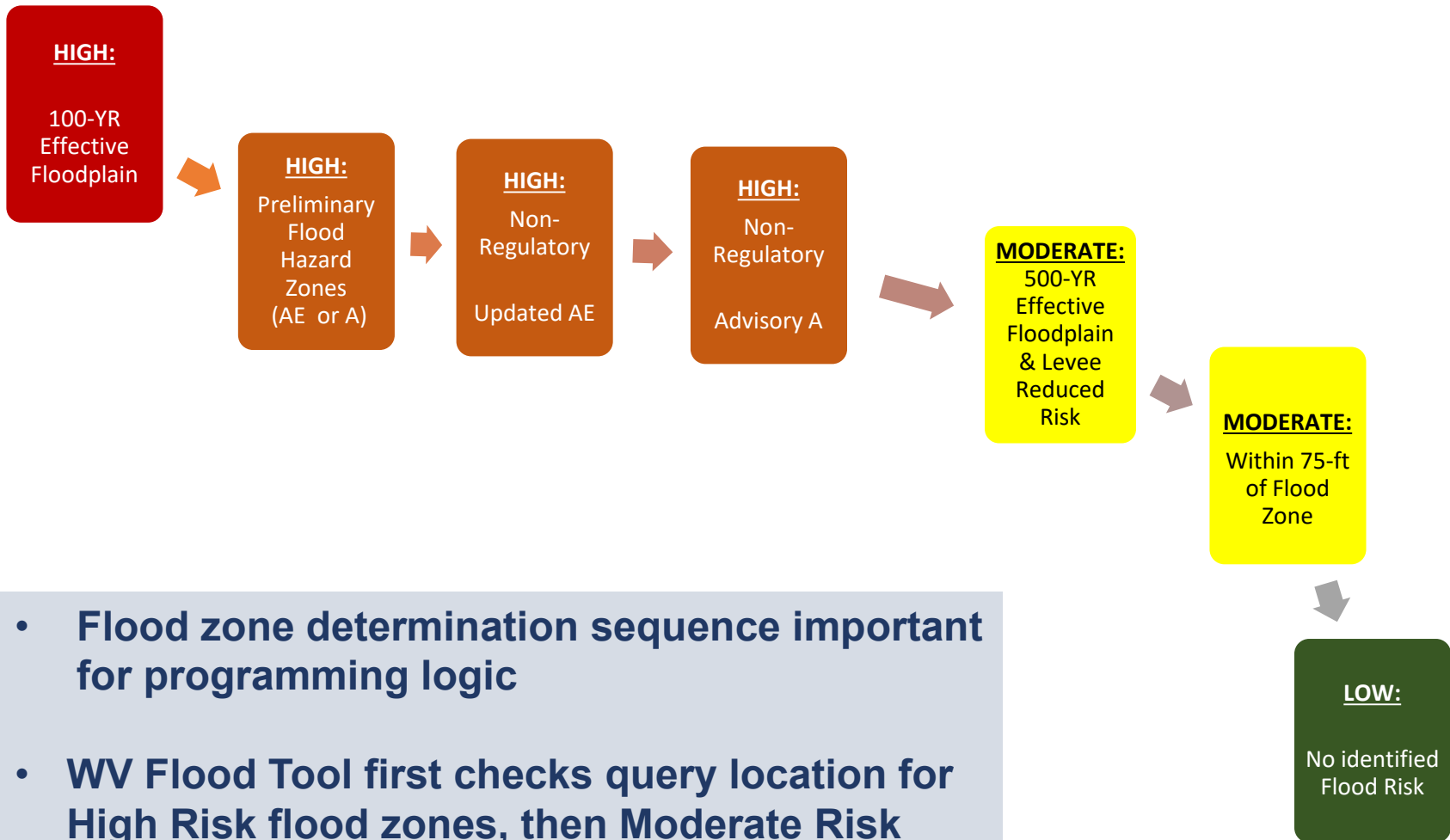
**Flood Risk Assessment:** N/A

**3D Flood Visualization:** [View](#)

**Updated AE Floodplain Boundary:** A Non-Restudy where AE Zones undergo redelineation, a method of updating effective flood hazard boundaries to match updated topographic data based on the computed water surface elevations from effective models. Advisory AE Zones outside the SFHA are high-risk, non-regulatory flood zones.



# Flood Zone Determination Sequence



- Flood zone determination sequence important for programming logic
- WV Flood Tool first checks query location for High Risk flood zones, then Moderate Risk flood zones.

# Flood Zone: < zone designation >

Status #	Flood Risk Zone Designation	Message	Floodplain Type Label	WSEL Grid	Flood Degree Risk	Color Warning Status
1	AE, AH (5), AO (2)	Location is WITHIN the FEMA 100-year floodplain.	Effective 100 yr Zone AE, AH, AO	BFE-R or BFE-NR	High	Red
2	AE (Floodway)	Location is WITHIN the FEMA 100-year floodplain and floodway.	Effective 100 yr Zone AE, AH, AO - Floodway	BFE-R or BFE-NR	High	Red
3	A	Location is WITHIN the FEMA 100-year floodplain.	Effective 100 yr Zone A	< None >	High	Red
4	A (Advisory A)	Location is WITHIN the FEMA 100-year floodplain. Advisory Flood Heights available.	Effective 100 yr Zone A <i>and</i> Advisory Zone A	AFH	High	Red
5	Preliminary Flood Zone	Location is WITHIN an updated FEMA 100-year flood hazard zone. The flood zone is preliminary and under review to become effective.	Preliminary 100 yr Zone AE	< None >	High	Orange
6	Preliminary Flood Zone (Floodway)	Location is WITHIN an updated FEMA 100-year flood hazard zone and floodway. The flood zone is preliminary and under review to become effective.	Preliminary 100 yr Zone AE - Floodway	< None >	High	Orange
7	Updated AE Floodplain Bdry.	Location is WITHIN an updated detailed floodplain boundary but NOT a FEMA 100-year effective floodplain.	Updated Zone AE	BFE-NR	High	Orange
8	Advisory A	Location is WITHIN an advisory floodplain but NOT a FEMA 100-year effective floodplain.	Advisory Zone A	AFH	High	Orange
9	Shaded X (500-YR Flood)	Location is WITHIN a moderate flood risk hazard such as a FEMA 500-year floodplain.	Zone X - 0.2 PCT ANNUAL CHANCE FLOOD HAZARD	< None >	Moderate	Yellow
10	X (Levee Protected)	Location is PROTECTED by a levee from a 100-year flood	Zone X - AREA WITH REDUCED FLOOD RISK DUE TO LEVEE	< None >	Moderate	Yellow
11	Near Flood Zone	Location is NOT WITHIN identified flood hazard area, but within 75 feet of an identified flood hazard area.	<i>Separate Buffer Layer</i>	< None >	Moderate	Yellow
12	Out of Flood Zone	Location is NOT WITHIN any identified flood hazard area. Unmapped flood hazard areas may be present.	<i>No Record Found</i>	< None >	Low	Green

Three Degrees of Risk: High, Moderate, Low. Four Warning Status Colors: In 100-YR Effective Floodplains (red), Preliminary Flood Zones and non-regulatory Advisory A/Updated AE Floodplains (orange), moderate risk or close to high risk zones (yellow), low risk (green). The query consists of stacked floodplain boundary layers (see next slide)

# Flood Height Grids

Gridded Flood Height	Source	Applicable Zones
<b>BFE Restudy</b>	Risk MAP Studies or Physical Map Revisions (PMR)	A and AE Zones
<b>BFE Non-Restudy</b>	Updated AE Redelineation*	AE Zone
<b>Advisory Flood Heights (AFH)</b>	AFH Model-Backed Studies*	Approximate A Zone

\* May include Advisory BFEs redelineated outside of official FIRM

***3 Sources for Water Surface Elevation Grids:  
AFH, BFE Restudy, BFE Non-Restudy***

# Flood Height: < Value >

Status #	Flood Height Designation	Flood Zones	Message for FLOOD HEIGHT:	Source Message on Query Panel	More Info Link on Flood Query Results Panel
1	<b>Base Flood Elevation (Restudy)</b> BFE Grid	<b>AE Zones</b> Flood Zone Statuses 1 & 2	< value> ft.  (Display Float)	(BFE Restudy)	<p><b>Advisory Flood Heights (AFH) for Approximate A Zones:</b> CAUTION CAUTION!! The advisory flood height should be used with caution in the proximity of a culvert, bridge, flood control structure or other impoundment since stream crossings were not included in the hydraulic analyses for approximate floodplains. Also, if the site is close to the confluence with a larger stream, compare the advisory flood height at the location of interest to the advisory flood height or Base Flood Elevation on the larger stream to determine whether the site is within the backwater influence of the larger stream. More information:  <a href="http://www.mapwv.gov/flood/content/documents/AFHhandout.pdf">http://www.mapwv.gov/flood/content/documents/AFHhandout.pdf</a></p> <p><b>Restudy and Non-Restudy AE Zones:</b> To validate base flood elevations refer to the Flood Profiles and Flood Elevation Tables in the FIS Report.</p> <p><b>Vertical Datum:</b> The vertical datum of all flood height values in West Virginia is NAVD 88 except for McDowell county is NGVD 29.</p>
2	<b>Base Flood Elevation (Non-Restudy)</b> Updated AE Grid	<b>AE Zones</b> Flood Zone Statuses 1, 2, 7	< value> ft.  (Display Integer)	(BFE Non-Restudy)	
3	<b>Base Flood Elevation (Non-Restudy)</b>	<b>AE Zones</b> Flood Zone Statuses 1 & 2	<i>no value</i>	Refer to FIS report for BFE	
4	<b>Advisory Flood Height</b> AFH Grid	<b>A Zones</b> Flood Zone Statuses 4 & 8 (Refer to Flood Zone Slide)	About < value> ft.	(AFH)	
5	<b>No Flood Height Information</b>	Flood Zone Statuses 3, 5, 6, 9, 10, 11, 12	<i>no value</i>	N/A	

Invisible Composite Query Rasters for flood height values of Water Surface Elevation Level (WSEL) layers: (1) *Advisory Flood Height* WSEL AFH Grid (WSEL\_1PCT\_AFH\_5ft); (2) *Restudy* WSEL BFE Grid (WSEL\_1PCT\_BFE\_1m); *Updated AE* (WSEL\_1PCT\_Update\_AE)

# Flood Height Grids

**Advisory Flood Heights**

**(Advisory A BFEs)**

# Advisory Flood Heights (AFH) Status

## WSEL and Depth Grid Resolution

(1) QL2 Lidar Counties: Morgan, Berkeley, Jefferson, Summers, Monroe

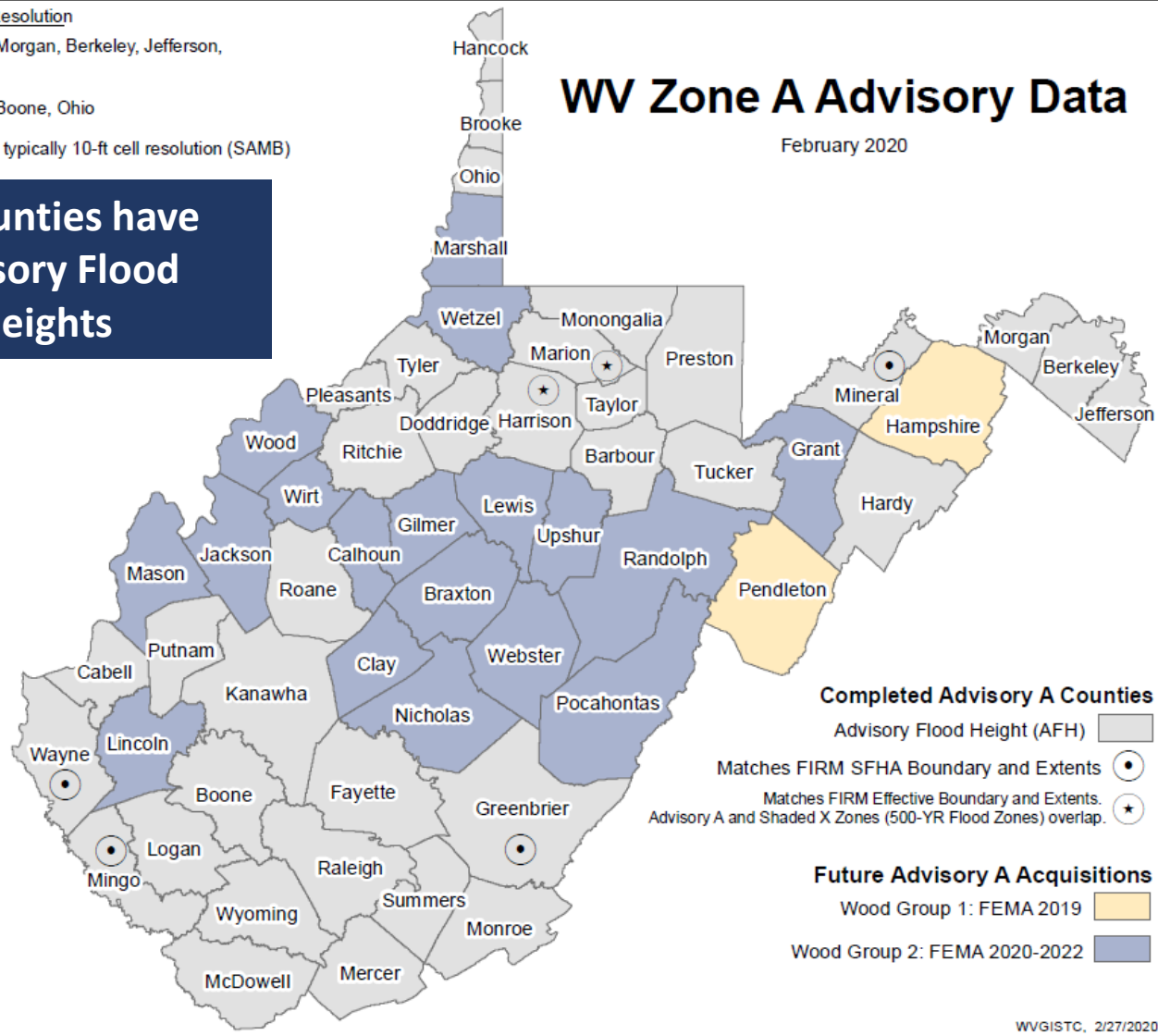
(2) QL3 Lidar Counties: Boone, Ohio

(3) All other counties are typically 10-ft cell resolution (SAMB)

**35 Counties have  
Advisory Flood  
Heights**

## WV Zone A Advisory Data

February 2020



WVGISTC, 2/27/2020

AFH Handout: <https://www.mapwv.gov/flood/content/documents/AFHhandout.pdf>

# Advisory Flood Heights (AFH)

**WV Flood Tool**  
Remember: When In Doubt, It's Not Out!

Views: Public Expert **Risk MAP** | Layers: Flood Reference Basemaps | Search: Address e.g., 123 street name, city, state, zip | Tools: [Icons]

**Parcel ID: 33-01-0010-0033-0000**

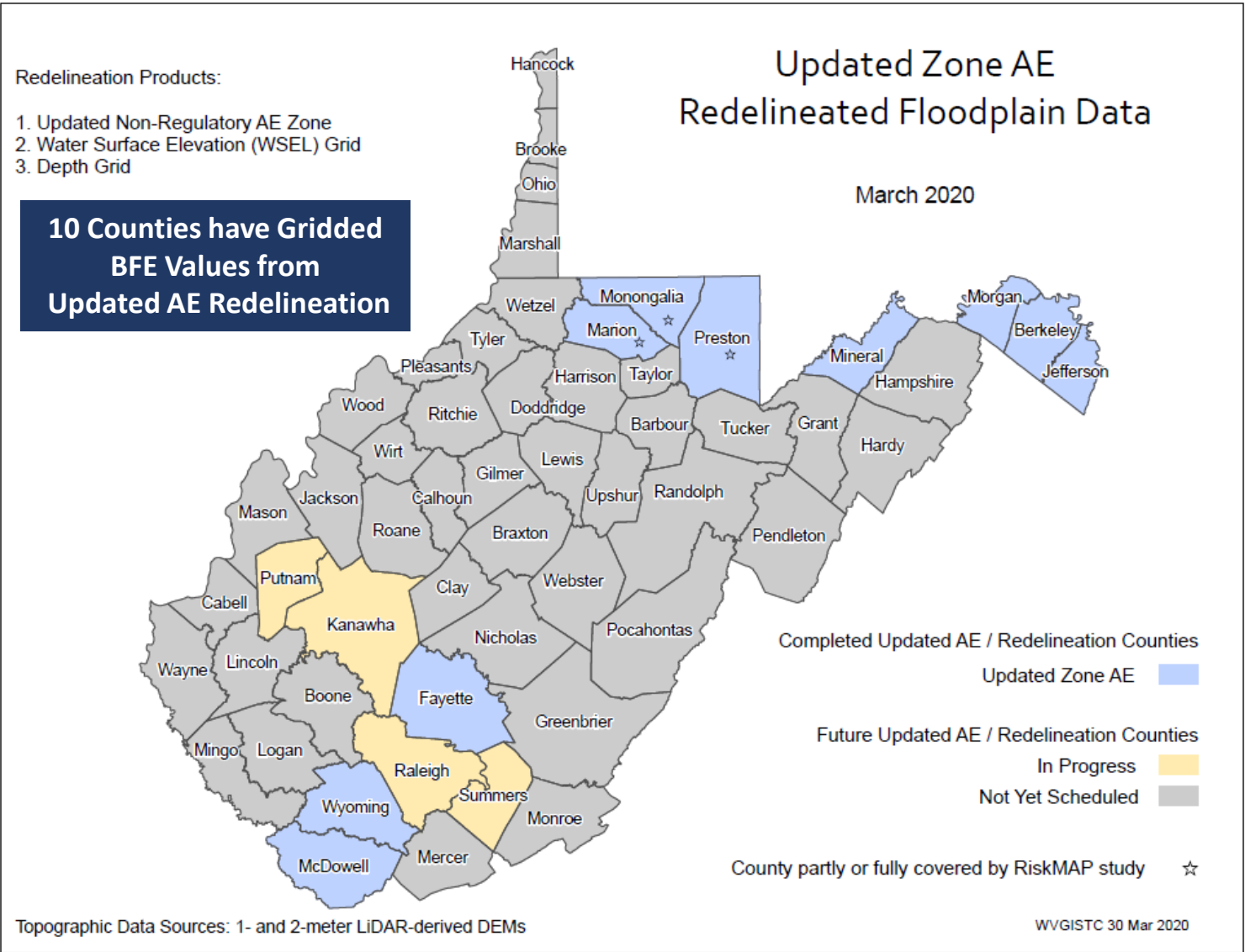
<https://www.mapwv.gov/flood/map/?wkid=102100&x=-8698746&y=4815674&l=12&v=2>

**Hide**

- Flood Hazard Area: Location is **WITHIN** an advisory floodplain but **NOT** a FEMA 100-year effective floodplain. [More Info](#)
- Flood Zone: Advisory A
- Stream: Swim Run
- Watershed (HUC8): Conococheague-Opequon (2070004)
- FEMA Issued Flood Map: 54065C0070E [Download](#) [Share](#)
- Map Effective Date: 9/25/2009
- Contacts: Morgan
- Flood Height: About 506 ft (Source: AFH) [More Info](#)
- Water Depth: About 1.5 ft (Source: HEC-RAS)
- HEC-RAS Model: Swim Run [All Models](#)
- Community: Morgan County  
CID: 540144 CRS Class: 9
- Location (long, lat): (-78.142112, 39.653195)  
Location (UTM 17N): (745197, 4393170)
- External Viewers: [Map](#) [Image](#) [Twitter](#) [Facebook](#)
- Elevation: About 503 ft (Source: FEMA 2012)
- Address: multiple addresses
- Parcel ID:  33-01-0010-0033-0000 [Disclaimer](#)
- Flood Risk Information [Related Resources](#)
  - Flood Risk Assessment: N/A
  - 3D Flood Visualization

Structure is **WITHIN** an **Advisory A Floodplain** but **NOT** a FEMA 100-year effective floodplain. Parcel ID 33-01-0010-0033-0000 in Morgan County, WV.

# Updated AE Redelineation Counties





# Flood Heights: BFE Non-Restudy

**Flood Query Panel**

**Flood Hazard Area:** Location is **WITHIN** the FEMA 100-year floodplain and floodway.

**Flood Zone:** AE (Floodway)

**Stream:** Opequon Creek

**Watershed (HUC8):** Conococheague-Opequon (2070004)

**FEMA's Flood Map:** [54003C0160E](#) [NFHL](#)

**Map Effective Date:** 7/7/2009

**Contacts:** [Berkeley](#)

**Flood Height:** **370 ft (BFE - Non-Restudy)** [More Info](#)

**Water Depth:** About 13.2 ft (Source: HEC-RAS)

**HEC-RAS Model:** N/A [All Models](#)

**Flood Profile:** [54003\\_015](#)

**Community:** Berkeley County

**CID:** 540282 **CRS Class:** 7

**Location (long, lat):** (-77.928365, 39.446075)

**Location (UTM 17N):** (764325, 4370783)

**External Viewers:** [Google Maps](#) [ArcGIS](#) [Bing](#) [Mapbox](#)

**Elevation:** About 356 ft (Source: [FEMA 2012](#))

**Address:** [multiple addresses](#)

**Parcel:** [02-01-0006-0032-0000](#) | [Assessment](#) [Warning](#)

**Flood Risk Information** [Related Resources](#)

[Flood Risk Assessment](#)

[3D Flood Visualization](#)

**NFHL X-Section Popup Window**

Cross-Sections: 369.5

DFIRM_ID	54003C
VERSION_ID	1.1.1.0
XS_LN_ID	54003C_798
WTR_NM	OPEQUON CREEK
STREAM_STN	47640
START_ID	54003C_6
XS_LTR	AS
XS_LN_TYP	LETTERED, MAPPED
<b>WSEL_REG</b>	<b>369.5</b>
STRMBED_EL	
LEN_UNIT	Feet

[Zoom to](#)

## FLOOD HEIGHTS

Non-Restudy Base Flood Elevation Heights displayed in Flood Results Query Panel. Integer values displayed.

**Source:** Flood Heights created from Updated AE Redelineation using new topography

**Coverage includes Berkeley & Morgan Counties**

# Flood Heights: BFE Non-Restudy (Cont.)

The screenshot displays the WV Flood Tool interface. At the top, there is a navigation bar with 'Public', 'Expert', and 'Risk MAP' tabs. A 'Flood Query Panel' is overlaid on the right side of the map, providing detailed information about the selected flood hazard area. A 'NFHL X-Section Popup Window' is also visible, showing a table of cross-section data for station 1232.5. The map shows a flood hazard area with a 'High Risk Advisory Zone' and a stream labeled 'Clear Fork'.

**Flood Query Panel**

Flood Hazard Area: Location is WITHIN an updated detailed floodplain boundary but NOT a FEMA 100-year effective floodplain. [More Info](#)

Flood Zone: Updated AE Floodplain Boundary

Stream: Clear Fork

Watershed (HUC8): Upper Guyandotte (5070101)

FEMA's Flood Map: [54109C0141D](#) [Download](#) [Share](#) **NFHL**

Map Effective Date: 5/16/2006

Contacts: [Wyoming](#)

**Flood Height**: **1232 ft** (BFE - Non-Restudy) [More Info](#)

Water Depth: About 0.3 ft (Source: HEC-RAS)

HEC-RAS Model: N/A [All Models](#)

Flood Profile: N/A

Community: Wyoming County

CID: 540217 CRS Class: 10

Location (lat, long): (37.685309, -81.660017)

Location (UTM 17N): (4171104, 441806)

External Viewers: [Map](#) [Image](#) [Twitter](#) [Facebook](#)

Elevation: About 1231 ft (Source: WVDEP 2010-11)

Address: N/A

Parcel: [55-07-0003-0081-0000](#) | [Assessment](#) [Warning](#)

Flood Risk Information [Related Resources](#)

Flood Risk Assessment: N/A

[3D Flood Visualization](#)

**Cross-Sections: 1232.5**

DFIRM_ID	54109C
VERSION_ID	1.1.1.0
XS_LN_ID	54109C_1760
WTR_NM	CLEAR FORK
STREAM_STN	23518
START_ID	54109C_5
XS_LTR	AD
XS_LN_TYP	LETTERED, MAPPED
<b>WSEL_REG</b>	<b>1232.5</b>
STRMBED_EL	-8888
LEN_UNIT	Feet
Zoom to	

## FLOOD HEIGHTS

Non-Restudy  
Base Flood  
Elevation Heights  
displayed in  
Flood Query  
Results Panel.  
Integer values  
displayed.

**Source:** Flood  
Heights created  
from Updated AE  
Redelineation using  
new topography

**Coverage includes  
McDowell &  
Wyoming Counties**

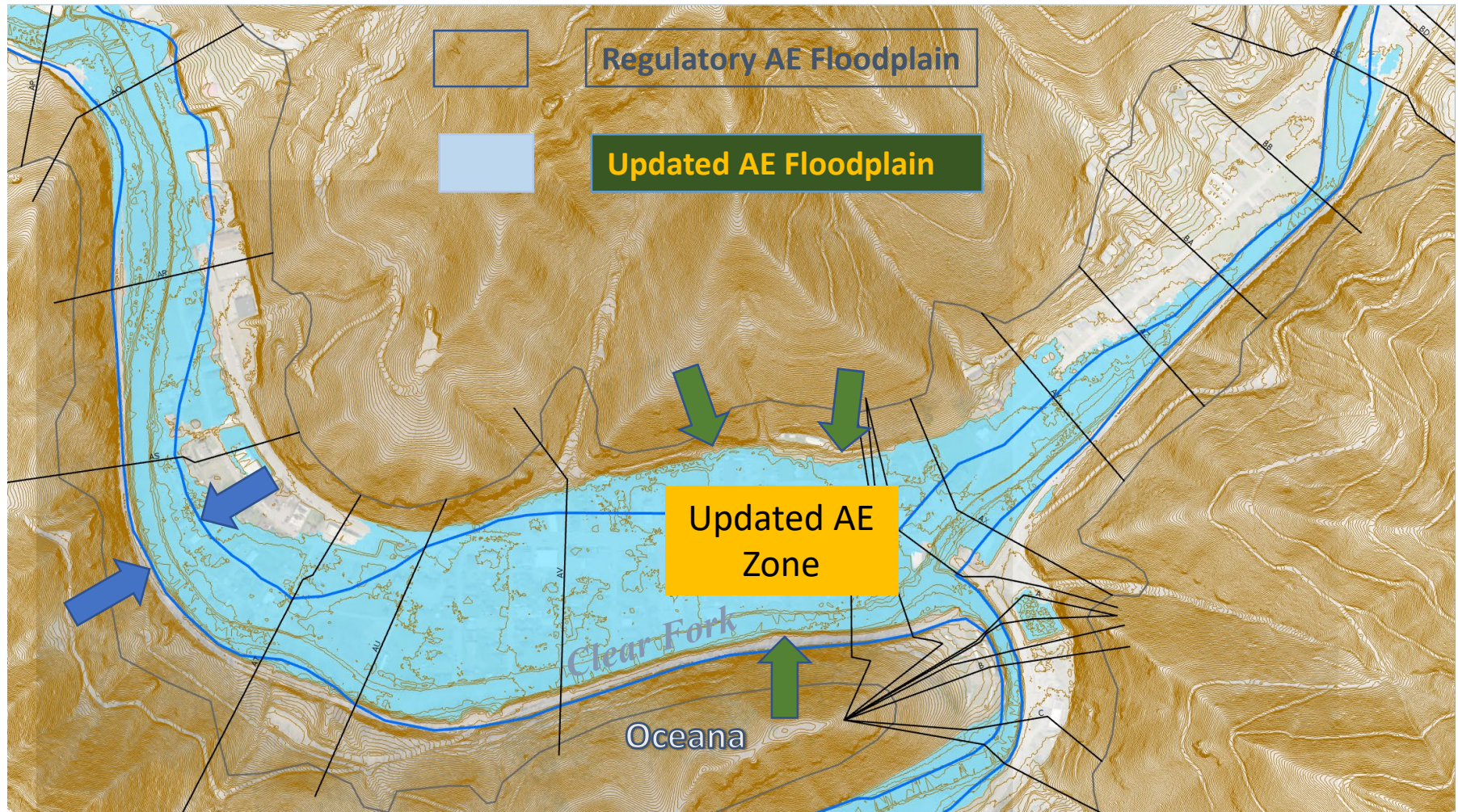
# Flood Height Grids

**Updated AE**

**(Non-Restudy BFEs)**

# Updated AE Floodplain Boundaries - Example

## Redelineated Floodplain Using New Topo

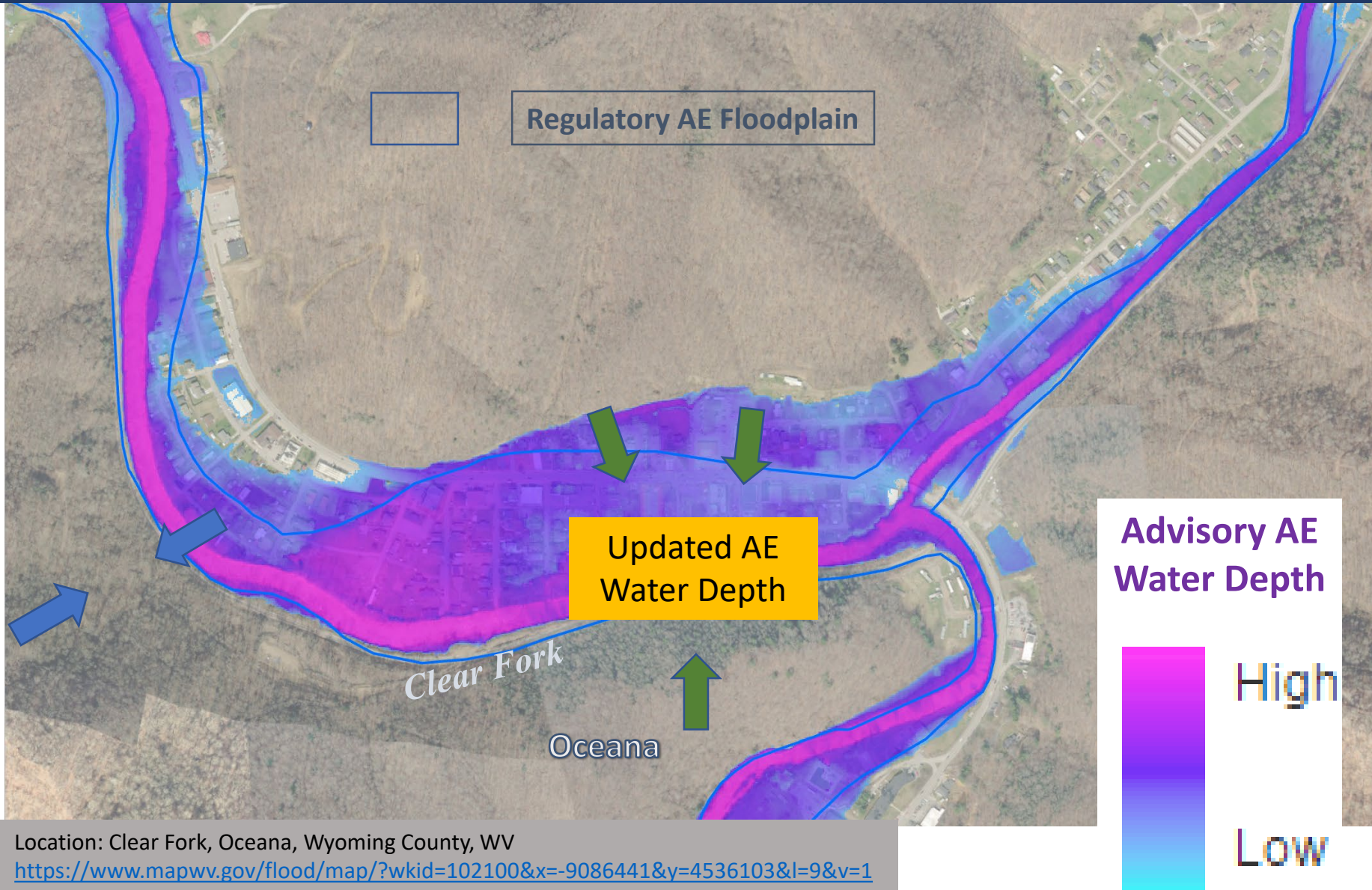


Location: Clear Fork, Oceana, Wyoming County, WV

Objective: Zone AE Floodplain Redelineation and Flood Risk Products using existing LiDAR-derived elevation data

<https://www.mapwv.gov/flood/map/?wkid=102100&x=-9086441&y=4536103&l=9&v=1>

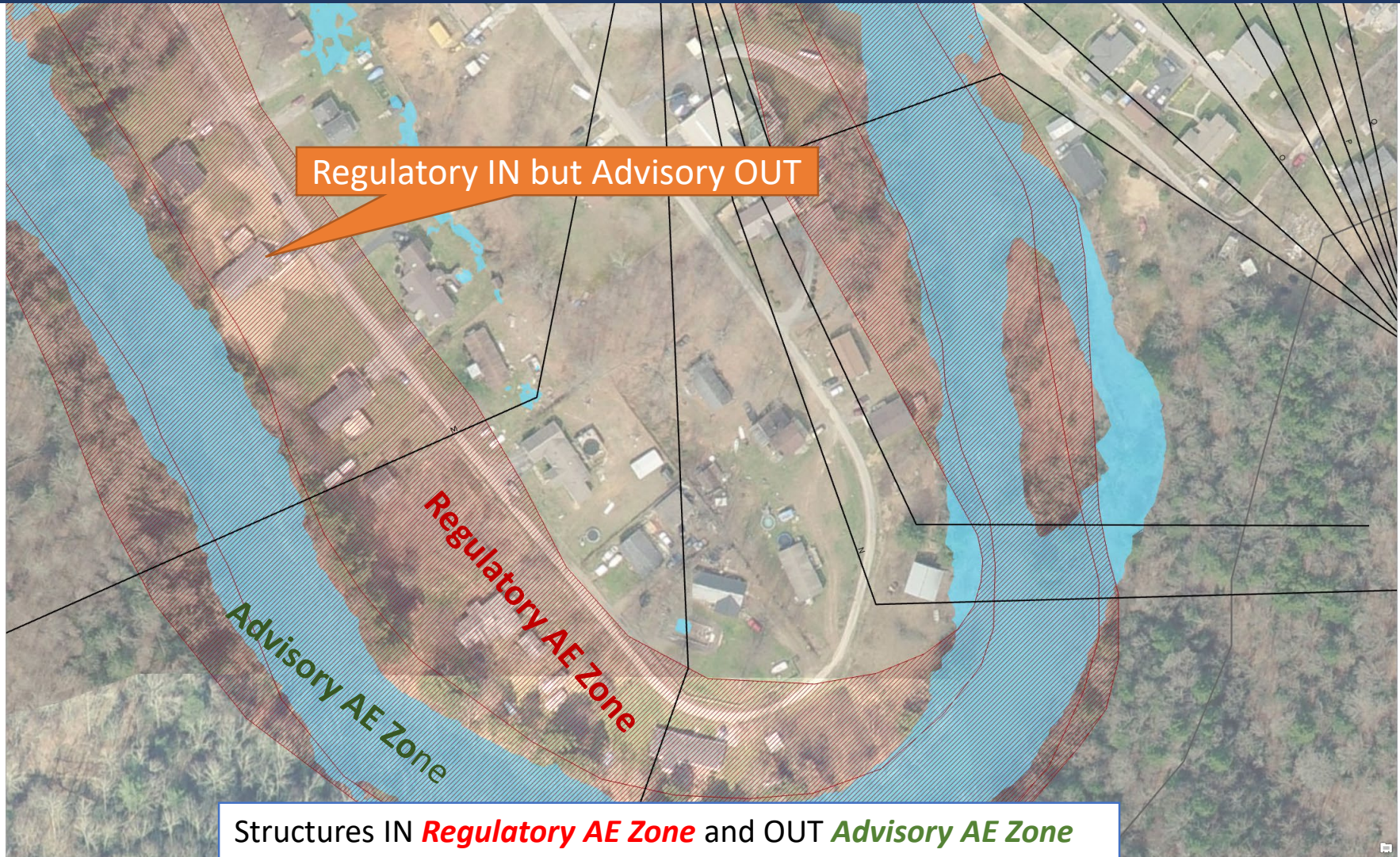
# Updated AE Floodplain Boundary - Depth Grid



Location: Clear Fork, Oceana, Wyoming County, WV

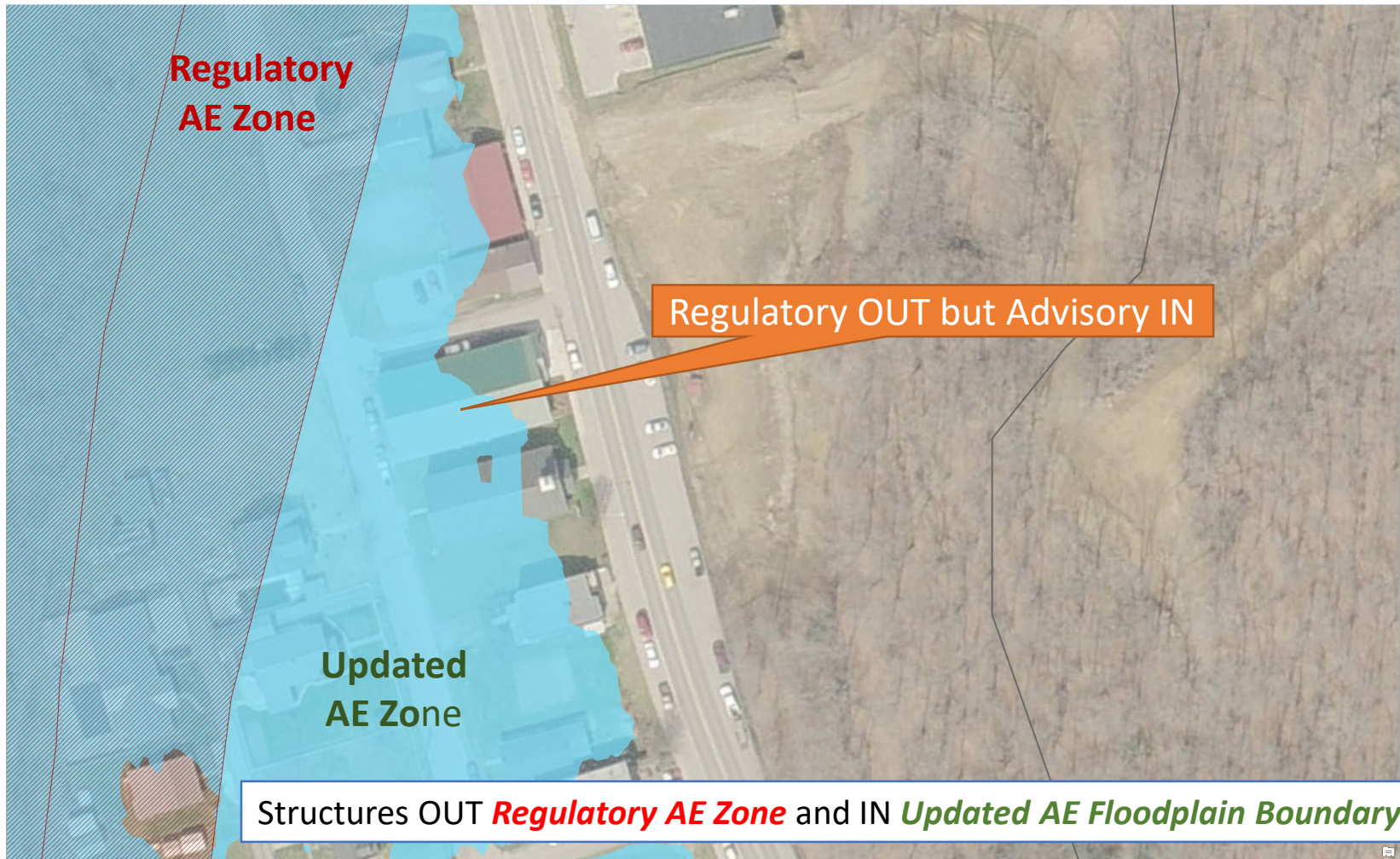
<https://www.mapwv.gov/flood/map/?wkid=102100&x=-9086441&y=4536103&l=9&v=1>

# Advisory AE Determinations



**What do you tell the public?** Acquire an elevation certificate and use the Updated AE Floodplain Boundary information to request a LOMA to amend the effective NFIP map.

# Updated AE Floodplain Boundaries



**What do you tell the public?** Updated AE floodplain boundary information indicates a flood hazard area and will likely be incorporated into future effective NFIP maps. New development should not occur in updated floodplains without a detailed study to show development reasonably safe from flooding. Recommend purchasing flood insurance for existing structures.

# Flood Height Grids

**Preliminary NFHL or DFIRM**

**(Restudy BFEs)**



# Flood Heights: BFE Restudy

## FLOOD HEIGHTS

Restudy Base Flood Elevation Heights displayed in Flood Results Query Panel. Fractional values displayed to tenth of decimal.

**Source:** FEMA RiskMAP Restudies

**Coverage:** Upper Monongahela Watershed (Select Streams)

**RiskMAP Upper Mon. Watershed**

### Flood Query Panel

100-year floodplain and floodway.  
**Flood Zone:** AE (Floodway)  
**Stream:** Deckers Creek  
**Watershed (HUC8):** Upper Monongahela (5020003)

**FEMA's Flood Map:** 54061C0114F [NFHL](#)  
**Map Effective Date:** 4/5/2019  
**Contacts:** Monongalia

**Flood Height:** 815.2 ft (BFE – Restudy) [More Info](#)  
**Water Depth:** About 11.5 ft (Source: HEC-RAS)  
**HEC-RAS Model:** N/A [All Models](#)

**Flood Profile:** 54061\_005

**Community:** City of Morgantown  
**CID:** 540141 **CRS Class:** 10

**Location (long, lat):** (-79.953462, 39.628911)  
**Location (UTM 17N):** (589815, 4387094)

**External Viewers:** [Map](#) [Google Earth](#) [Blender](#) [3D](#)

**Elevation:** About 804 ft (Source: WVU 2017)

**Address:** 63 DECKER AVE, MORGANTOWN, WV, 26501  
**Parcel:** 31-10-0029-0166-0001 | [Assessment](#)

**Flood Risk Information** [Related Resources](#)  
Flood Risk Assessment: N/A  
[3D Flood Visualization](#)

### NFHL X-Section Popup Window

Cross-Sections: 815.24

DFIRM_ID	54061C
VERSION_ID	2.3.3.3
XS_LN_ID	54061C_18301
WTR_NM	Deckers Creek
STREAM_STN	3081.75
START_ID	54061C_101
XS_LTR	F
XS_LN_TYP	LETTERED, MAPPED
WSEL_REG	815.24
STRMBED_EL	799.02
LEN_UNIT	Feet

[Zoom to](#)

# High-Risk Advisory Zones

**Outreach Information**

**Buildings – Future Map  
Conditions**

# Buildings – Future Map Conditions

**WV Flood Tool**

[About](#) [Help](#) [Home](#)

Public Expert **Risk MAP**

 Risk  Reference  Basemaps
 
Address

Floodplain Type

- ★ Floodway
- Non-Regulatory
- ⬡ Regulatory & Non-Regulatory
- ⬡ Regulatory

Property Type

- C** Commercial
- R** Residential
- O** Other

**BUILDING-LEVEL RISK: 100-YEAR FLOOD**

- Future Map Conditions**
- LOMA Verified
- Building Exposure Cost
- New Development & Basement
- Building Damage Loss Estimate

**CRITICAL INFRASTRUCTURE**

**HIGH WATER MARKS & STREAM GAGES**

**OTHER NATURAL HAZARDS**

**FLOOD DEPTH**

**OPEN SPACE PRESERVED (CRS Credits)**

**PRIMARY FLOOD HAZARD LAYERS**

**PRELIMINARY FLOOD HAZARD LAYERS**

**OTHER FLOOD ZONE SYMBOLOGY**

**MISCELLANEOUS LAYERS**

\* indicates that data is from FEMA

[Show Legend](#)

**High Risk Non-Regulatory**

- Preliminary Studies
- Advisory A Zones
- Updated AE Zones

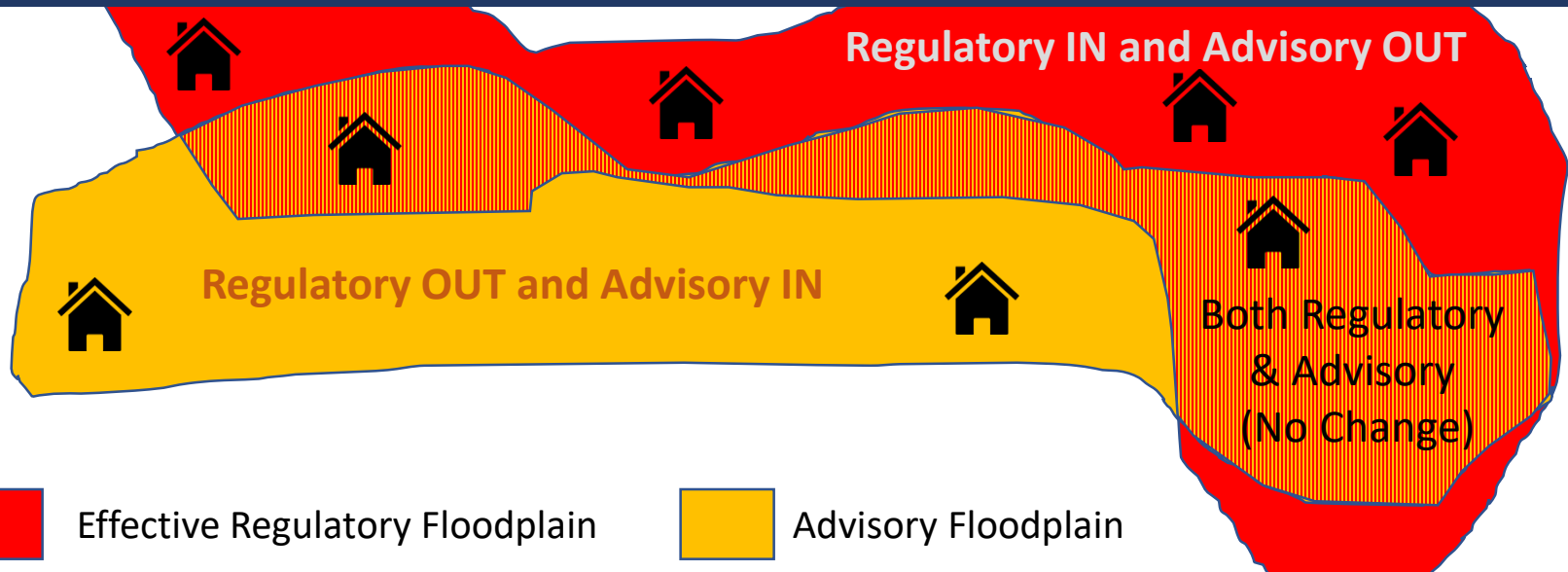
Regulatory Floodway

No Change

Mapped IN SFHA

Mapped Out of SFHA

# Advisory Zones – Outreach Information



Union	Meaning	Building Changes	Area Changes
No Change	IN both Regulatory and Advisory	2	11 m <sup>2</sup>
Advisory Only	Regulatory OUT and Advisory IN	2	13 m <sup>2</sup>
Regulatory Only	Regulatory IN and Advisory OUT	4	21 m <sup>2</sup>

County	Name	Advisory Only	Regulatory Only	Advisory & regulatory	SUM regulatory
54009C	Brooke	73	1710	87	1797
54011C	Cabell	64	2492	85	2577

*The geographic union of Regulatory and Advisory Floodplains generates a change polygon for flood risk analysis by area. Subsequently the union polygon can be intersected with site-specific structures to analyze the impact of the Advisory Floodplain changes to the Regulatory Floodplain.*

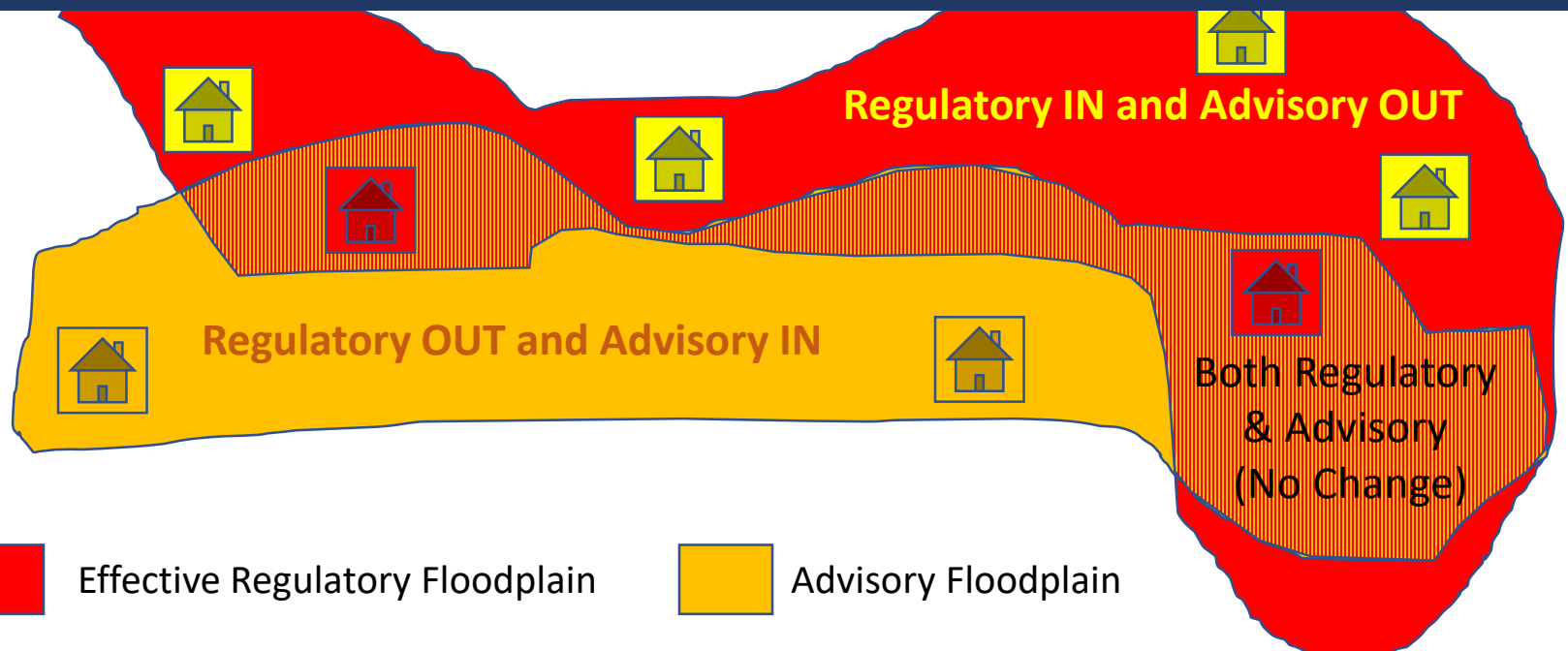
# Advisory Zones – What is the message for property owners??



- **Regulatory In but Advisory Out (Lower Flood Risk)** – Property owners are not at the highest risk to a 1% Annual Chance Flood but still recommend flood insurance. Owners can acquire an elevation certificate and use the advisory base flood elevation to **acquire a LOMA** and lower NFIP insurance rates. **Yellow** warning color indicates **Moderate Flood Risk**.







- **Regulatory Out but Advisory In (Higher Flood Risk)** – Advisory information indicates a flood hazard area and will be incorporated into future effective regulatory or community identified floodplains. Floodplain managers should recommend property owners of existing structures in Advisory Floodplains that they are at high risk of a 1% Annual Chance Flood and recommend a Preferred Risk Flood Insurance Policy. New development should not occur in Advisory Floodplains without a detailed study to show development is reasonably safe from flooding. **Orange** warning color indicates **High Flood Risk**.



# Buildings – Future Map Conditions

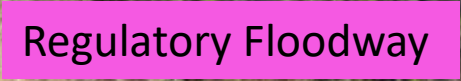


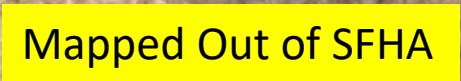
Near Matoaka in Mercer County

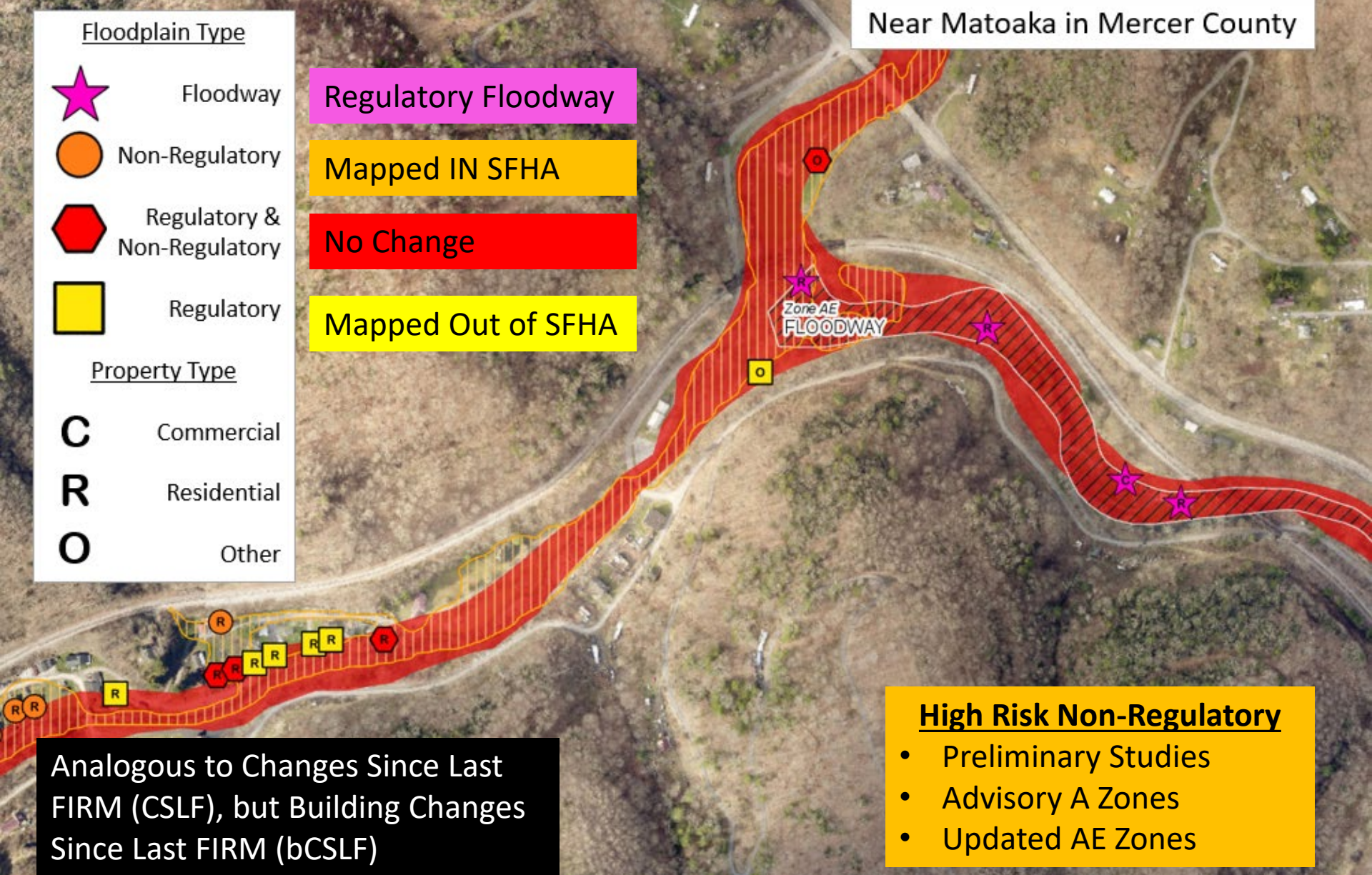
Floodplain Type

-  Floodway
-  Non-Regulatory
-  Regulatory & Non-Regulatory
-  Regulatory

Property Type

- C** Commercial
- R** Residential
- O** Other

-  Regulatory Floodway
-  Mapped IN SFHA
-  No Change
-  Mapped Out of SFHA



Analogous to Changes Since Last FIRM (CSLF), but Building Changes Since Last FIRM (bCSLF)

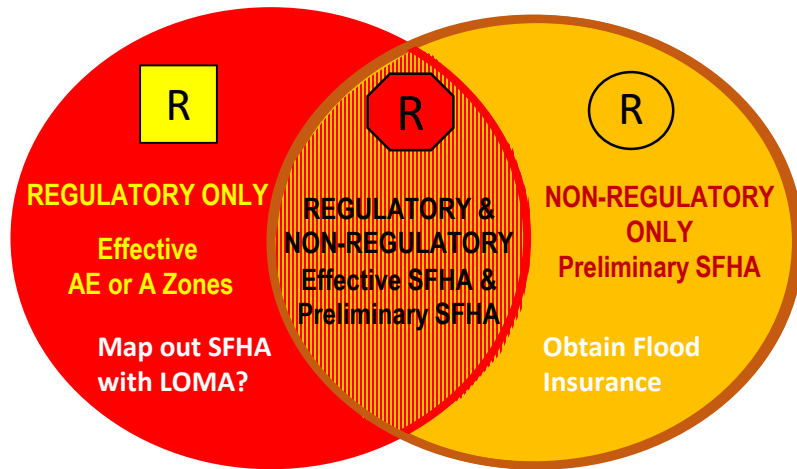
**High Risk Non-Regulatory**

- Preliminary Studies
- Advisory A Zones
- Updated AE Zones

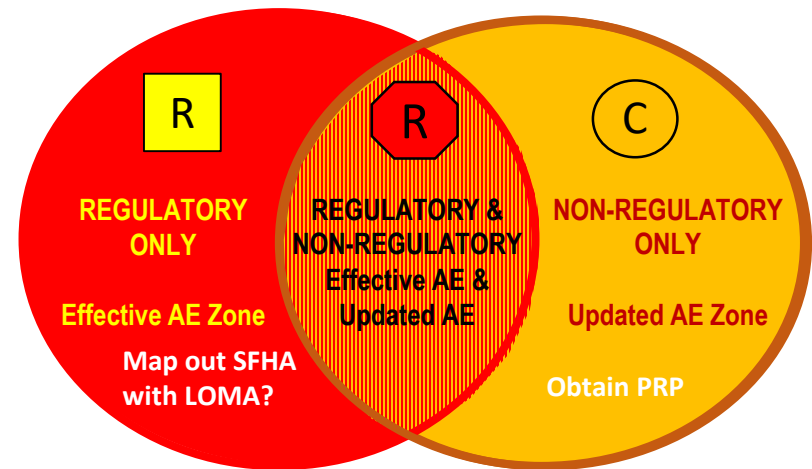
# Buildings – Future Map Conditions

Regulatory / Non-Regulatory / Floodway

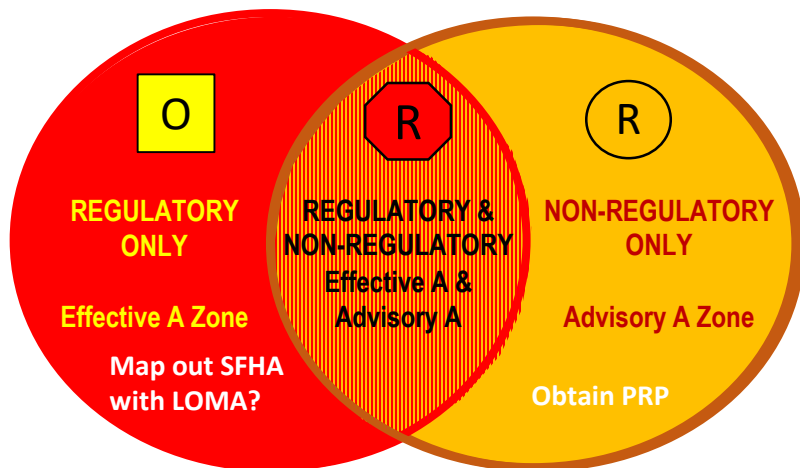
## Effective SFHA versus Preliminary SFHA



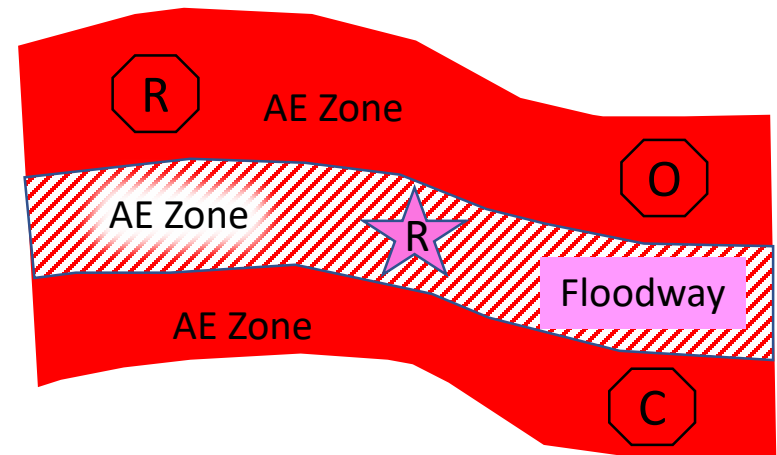
## Effective AE Zone versus Updated AE Zone



## Effective A Zone versus Advisory A Zone







## Effective AE versus Floodway AE



# Buildings – Future Map Conditions

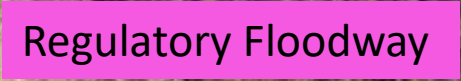


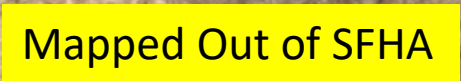
Near Matoaka in Mercer County

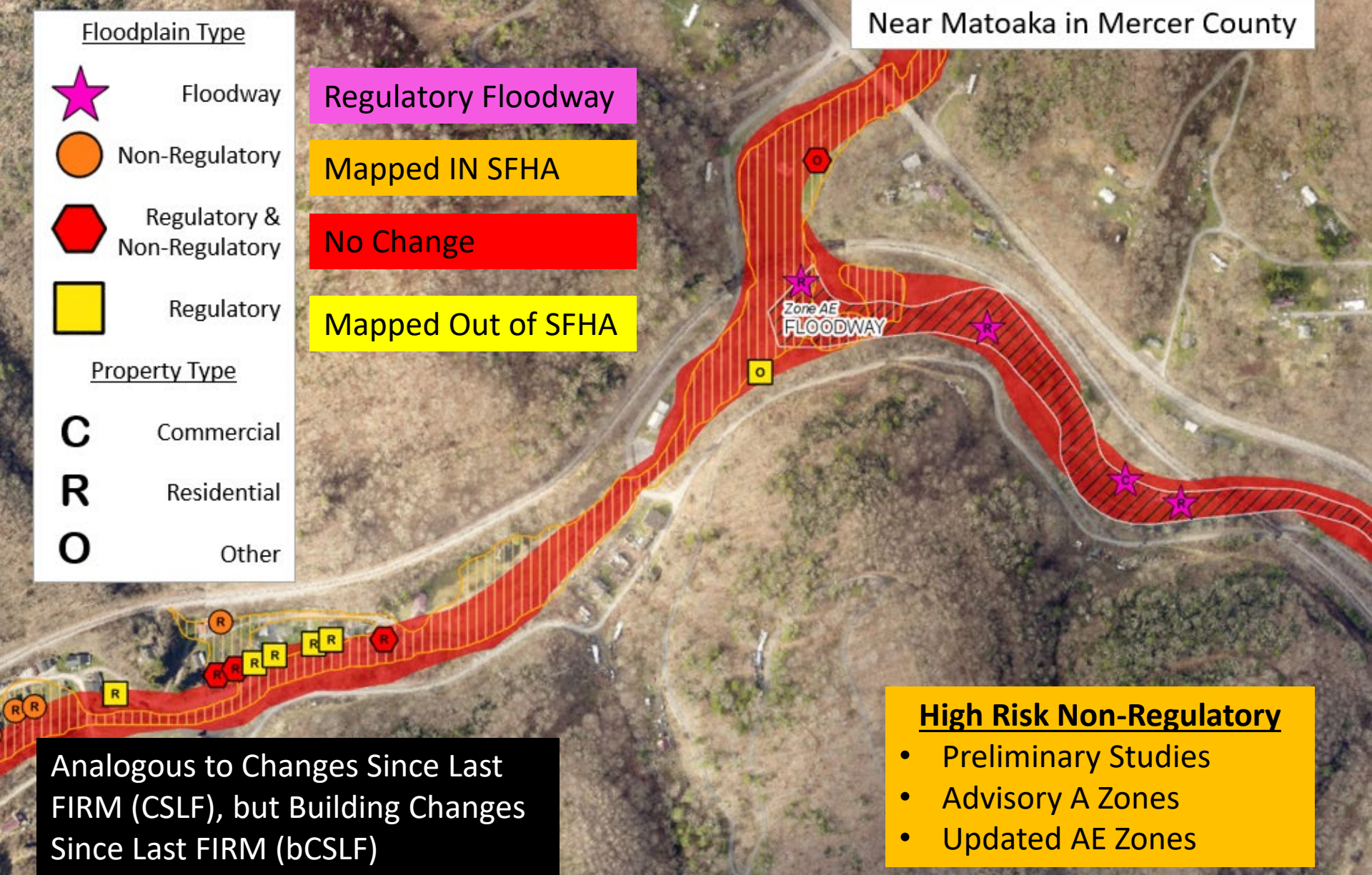
Floodplain Type

-  Floodway
-  Non-Regulatory
-  Regulatory & Non-Regulatory
-  Regulatory

Property Type

- C** Commercial
- R** Residential
- O** Other

-  Regulatory Floodway
-  Mapped IN SFHA
-  No Change
-  Mapped Out of SFHA



Analogous to Changes Since Last FIRM (CSLF), but Building Changes Since Last FIRM (bCSLF)

**High Risk Non-Regulatory**

- Preliminary Studies
- Advisory A Zones
- Updated AE Zones



# Outreach: Property Mapped **into** Future SFHA

**High-Risk Advisory A or AE Zones. High-risk advisory flood hazard information from State-Initiated Studies that will likely be incorporated into future effective regulatory or community identified floodplains.**

## **Property Mapped into Future SFHA or Community Identified Floodplain**

- ❑ A state-based flood map study indicates that this parcel or building(s) within the parcel has been mapped into a High-Risk Advisory Zone. This property is at high risk of a 1% annual (100-Year) chance flood event
- ❑ A mapped High-Risk Advisory Zone (orange color on WV Flood Tool) denotes a flood hazard area that will likely be incorporated into future effective FIRM maps. New development should not occur in updated floodplains without a detailed study to show the development reasonably safe from flooding.
- ❑ The local floodplain management regulations required by the NFIP apply only in SFHAs. However, communities may regulate development in areas of high-risk outside the SFHA. Should a community want to regulate development beyond the FIRM, then a community may formally adopt High-Risk Advisory Zones as a “community identified floodplain” in its local floodplain ordinance.
- ❑ Most homeowner’s insurance policies do not provide coverage for damage due to flooding. Contact your insurance agent to learn about lower-cost “Preferred Risk Policy (PRP)” options offered by the NFIP for properties being mapped into higher-risk flood hazard areas. When a property’s flood zone changes from a non–Special Flood Hazard Zone (SFHA) to an SFHA as a result of a FIRM update, then the property owner will have to follow the guidelines of a Standard Flood Insurance Policy (SFIP). Mortgage-backed loans for properties within regulatory SFHA are required by federal law to carry flood insurance. For more information on flood insurance, visit the National Flood Insurance Program’s website, [www.floodsmart.gov](http://www.floodsmart.gov).

***Flood Insurance Outreach Information to Property Owners for pending Flood Zone Change or Future Map Condition***

# Outreach: Property Mapped **out** Future SFHA

**High-Risk Advisory A or AE Zones.** High-risk advisory flood hazard information from State-Initiated Studies that will likely be incorporated into future effective regulatory or community identified floodplains.

## **Property Owners Mapped out of Future SFHA or Community Identified Floodplain**

- A state-based flood map study indicates that this parcel or building(s) within the parcel has been mapped out of a High-Risk Advisory Zone and may qualify for a Letter of Map Amendment (LOMA).
- The [Online LOMC](#) web application allows homeowners or their designated representatives to easily request a Letter of Map Change (LOMC). Use this site if your property was inadvertently included in a flood zone, or if the addition of fill elevated your property so that it is above the flood zone. Use the WV Flood Tool to provide supporting documents including LiDAR-based elevation information if a field survey (Elevation Certificate) is not required.
- A LOMA with a REMOVAL determination status will map the parcel or building out of the Special Flood Hazard Area (SFHA) and into a lower risk zone, shown on the FIRM as "X". If you have a mortgage from a federally regulated lender, you will no longer be required by federal law to maintain flood insurance.
- It is important to know that many flood claims are made by property owners located outside the high-risk flood zone and that the issuance of a LOMC does not mean the structure or property is safe from all flooding. Floods greater than the 1-percent-annual-chance event (100-year flood) can, and do, occur. Therefore, because flooding also occurs in areas of moderate or minimal flood risk, FEMA recommends flood insurance coverage, even if it is not required by law or a lender.
- While flood insurance becomes optional, maintaining coverage is recommended as the flood risk has only been reduced, not removed. Lower cost flood insurance from the National Flood Insurance Program (NFIP) is available in low- to moderate-risk areas and you may also qualify for the even lower cost Preferred Risk Policy (PRP). Contact your insurance agent to learn more about how to convert to the PRP. For more information on flood insurance, visit [www.floodsmart.gov](http://www.floodsmart.gov).

# Water Depth: about <<value>>

Water Depth	Message	Sources
Water Depth:	About << value >> ft.	<ul style="list-style-type: none"><li>• Model-Backed Depth Grids: Engineering Studies using modeling software like HEC-RAS:<ul style="list-style-type: none"><li>○ Risk MAP Restudy (Effective and Preliminary)</li><li>○ Non-Restudy Updated AE Zones</li><li>○ Advisory Flood Heights (Approximate A Zones)</li></ul></li><li>• Other Depth Grids<ul style="list-style-type: none"><li>○ HAZUS generated</li><li>○ USGS Inundation Layers</li></ul></li></ul>

A statewide “composite” Flood Risk Assessment Depth Grid is created from model-backed *effective* and *advisory* depth grids at a 5-foot cell resolution.

Water Depth Grids are a *flood risk assessment* product – *not a flood regulatory* product. Water depths are important for flood loss damages and by flood visualizations of site-specific structures.

Depth grids a source of credits for CRS communities.

See FEMA’s Flood Risk Assessment Guidance (May 2016) for guidance on composite depth grids:

[https://www.fema.gov/media-library-data/1469146645661-31ad3f73def7066084e7ac5bfa145949/Flood\\_Risk\\_Assessment\\_Guidance\\_May\\_2016.pdf](https://www.fema.gov/media-library-data/1469146645661-31ad3f73def7066084e7ac5bfa145949/Flood_Risk_Assessment_Guidance_May_2016.pdf)