

WV Flood Tool Upgrades

www.mapWV.gov/Flood

- Flood Query Results Panel
- External Links
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- Building-Specific Risk Assessments
- 3D Flood Visualizations
- Mobile Enhancements
- Improved Data Layers
 - Flood Layers
 - Advisory Floodplains
 - Mitigated/Buyout Properties
 - Local Data (parcels, addresses, imagery, elevation)
- Other Enhancements
- Future Statewide Coverage Goals

August 2017

Flood Query Results Panel

| # | Each Location Query Answers: |
|----|------------------------------------|
| 1 | In Flood Hazard Area? In Floodway? |
| 2 | Stream name? |
| 3 | Watershed name? |
| 4 | FEMA Issued Flood Map? |
| 5 | Floodplain Manager Contact? |
| 6 | Flood Height value? |
| 7 | Water Depth value? |
| 8 | HEC-RAS Model available? |
| 9 | Flood Profile available? |
| 10 | In a CRS community? |
| 11 | Coordinate x,y location? |
| 12 | Ground elevation value? |
| 13 | Street address location? |
| 14 | Parcel ID location? |
| 15 | Flood risk assessment info? |
| 16 | 3D flood visualization? |

The screenshot shows a web application interface for flood query results. The top navigation bar includes 'About', 'Help', and 'Home' links. A search bar contains the address '256 Rodeo Drive, Martinsburg, WV'. The map displays a satellite view with a red flood hazard overlay. A red callout box labeled 'Click Here' points to a specific location on the map. The data panel on the right provides detailed information about the location, including flood hazard status, stream name, watershed, FEMA flood map, and contact information. Red callout boxes with numbers 1-16 are overlaid on the interface to highlight specific features and data points corresponding to the table on the left.

New External Links

EXTERNAL WEB LINKS

- (1) Google Street View (address required)
- (2) Zillow.com (single address required)
- (3) View FEMA Flood Map (panel ID required)
- (4) Download FEMA Flood Map (panel ID)
- (5) FEMA's National Flood Hazard Layers (NFHL) web viewer (map extent and zoom level passed as parameters)

The screenshot displays the WV Flood Tool interface. A central text box lists five external web links. The interface includes a search bar, a map of the area, and a detailed information panel on the right. The information panel contains various data points, including the address, FEMA Flood Map ID, and flood risk information. Red circles and arrows highlight the external links and the address field in the information panel.

Address: 256 RODEO DR, Martinsburg, WV, 25403

Full Address Number: 256

Address Unit Number

Full Address: 256 RODEO DR

256 Rodeo Drive

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

Flood Zone: A

Stream: DRY RUN Tributary

Watershed (HUC8): Conococheague-Opequon (207)

FEMA Issued Flood Map: 54003C0151E

Map Effective Date: 7/7/2009

Contacts: Berkeley

Advisory Flood Height: N/A

Water Depth: About 5.2 ft (Source: EQL)

HEC-RAS Model: N/A

Flood Profile: N/A

CRS Information: Berkeley County

Location (long, lat): (77.991663 W,39.483182 N)

Location (UTM 17N): (758739, 4374718)

Elevation: About 511 ft

Address: 256 RODEO DR, Martinsburg, WV, 25403

Parcel ID: 02-04-037M-0020-0000

Flood Risk Information

Flood Risk Assessment

3D Flood Visualization

External links launched from WV Flood Tool

Parcel ID Web Link: <http://www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000>

More Shared Links

www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000

Parcel ID Web Link: <http://www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000>

Remember: When In Doubt, It's Not Out!

Views: Public Expert Risk MAP
Layers: Flood Reference Basemaps
Search: Address 256 Rodeo Drive, Martinsburg, WV
Tools: [Share Link]

256 Rodeo Drive

Share Link

Share Link

Step 1: choose link type and specify the parameters.

Map Click Map Center Parcel Address

Works only when a parcel # on Flood Info panel is displayed.

Full Parcel Number: 02-04-037M-0020-0000

Step 2: Click Generate the Link button for a link, and copy/paste the link into your web browser.

<http://www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000>

Generate the link

Show helps on customizing the share link

Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.
Flood Zone: A
Stream: DRY RUN Tributary
Watershed (HUC8): Conococheague-Opequon (2070004)

FEMA Issued Flood Map: 54003C0151E
Map Effective Date: 7/7/2009
Contacts: Berkeley

Advisory Flood Height: N/A
Water Depth: About 4.4 ft (Source: EQL)
HEC-RAS Model: N/A

Flood Profile: N/A

CRS Information: Berkeley County

Location (long, lat): (77.991540 W, 39.483028 N)
Location (UTM 17N): (758751, 4374702)
Elevation: About 513 ft

Address: 256 RODEO DR, Martinsburg, WV, 25403
Parcel ID: 02-04-037M-0020-0000

Flood Risk Information
Flood Risk Assessment
3D Flood Visualization

Exchange flood info with others using various link types: (1) Map Click, (2) Map Center, (3) **Parcel ID**, (4) Address

Parcel Search

Parcel Search

Search: 256 RODEO DR, Martinsburg, WV, 25403

Search options: Address, **Parcel**, Coordinate, GIS Name, City, County, USGS Quad

Parcel Search

Search Results

Step 1: Select a county: Berkeley

Step 2: Select search type: Parcel Number

Step 3: Enter numbers in their boxes:

Choose parcel number search option: By parts Whole #

District: 4 | Hedgesville Parcel # in IAS format: 37M002000000000 Match: Exact

Search Parcel(s) Disclaimer

Parcel Search

Results

1 parcels returned. Click to zoom and check out more detailed info.

| # | Parcel | Owner | Address |
|---|-------------------|------------|--------------|
| 1 | 04 037M-0020-0000 | [REDACTED] | 256 RODEO DR |

256 RODEO DR

256 RODEO Drive

Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.
Flood Zone: A
Stream: DRY RUN Tributary
Watershed (HUC8): Conococheague-Opequon (2070004)
FEMA Issued Flood Map: 54003C0151E
Map Effective Date: 7/7/2009
Contacts: Berkeley
Advisory Flood Height: N/A
Water Depth: About 9.2 ft (Source: EQL)
HEC-RAS Model: N/A
Flood Profile: N/A
CRS Information: Berkeley County
Location (long, lat): (77.991500 W, 39.483448 N)
Location (UTM 17N): (758752, 4374748)
Elevation: About 510 ft
Address: N/A
Parcel ID: No Parcel
Flood Risk Information: Flood Risk Assessment: N/A, 3D Flood Visualization: N/A

Parcel Search for
256 Rodeo Drive

Search by:

1. Parcel Owner
2. Parcel Address
3. Parcel Number

Parcel Search Results

IAS Parcel ID:

04 37M0020000000000

GIS Parcel ID:

02-04-037M-0020-0000

Locate and zoom to parcels using various search parameters

Building-Specific Flood Risk Assessments

(Currently only Berkeley & Morgan Counties)

Web Link: <http://www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000>

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]

Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.
Flood Zone: A
Stream: DRY RUN Tributary
Watershed (HUC8): Conococheague-Opequon (2070004)

FEMA Issued Flood Map: 54003C0151E | Map Effective Date: 7/7/2009 | Contacts: Berkeley

Advisory Flood Height: N/A | Water Depth: About 3.6 ft (Source: EOL) | HEC-RAS Model: N/A | Flood Profile: N/A

CRS Information: Berkeley County
 Location (long, lat): (77.991481 W, 39.483026 N)
 Location (UTM 17N): (758756, 4374702)
 Elevation: About 513 ft

Address: 256 RODEO DR, Martinsburg, WV, 25403
 Parcel ID: 02-04-037M-0020-0000

Flood Risk Information
 Flood Risk Assessment
 3D Flood Visualization

256 Rodeo Drive

Click on each tab to view information

Address Parcel Risk

PROPERTY OWNER

PHYSICAL ADDRESS

BUILDING INFORMATION

| | |
|-----------------------------------|----------------------------|
| Land use | 101 - Residential 1 Family |
| Year built | 1995 |
| Architectural style | Colonial |
| Story height | 2 |
| Exterior wall | Aluminum |
| Total rooms | 8 |
| GRADE | B |
| Basement | Crawl |
| Sum of designated structure areas | 2512 |
| Building (card) number | 1 |
| # of main BLDGs (cards) | 1 |

Click on each tab to view information

Address Parcel Risk

BUILDING INFORMATION

| | |
|-----------------------------------|----------------------------|
| Land use | 101 - Residential 1 Family |
| Year built | 1995 |
| Architectural style | Colonial |
| Story height | 2 |
| Exterior wall | Aluminum |
| Total rooms | 8 |
| GRADE | B |
| Basement | Crawl |
| Sum of designated structure areas | 2512 |
| Building (card) number | 1 |
| # of main BLDGs (cards) | 1 |

The tax parcel centroids and associated building characteristic data (YRBLT, STYLE, STORIES, EXTWALL, GRADE, BSMT, AREASUM) from the Integrated Assessment System --along with RS Means construction cost values, flood inundation areas, and water depth inputs -- are used by Hazus Flood Model software to estimate flood damages to each structure for a riverine 1% annual flood event.

Click on **Parcel ID** (Building Info), **Flood Risk Assessment**, and **3D Flood Visualization** links in bottom right of Flood Query Results Panel

Flood Risk Assessment (Cont.)

3D Flood Model

3D Visualization Cost Tool Related Resources

256 RODEO DR, Martinsburg, WV, 25403

Depth

- 0 Foot
- 1 Foot
- 2 Feet
- 3 Feet
- 4 Feet
- 5 Feet
- 6 Feet
- 7 Feet
- 8 Feet
- 9 Feet
- 10 Feet
- 11 Feet
- 12 Feet
- 13 Feet
- 14 Feet
- 15 Feet

Parcel ID: 02-04-037M-0020-0000 Water Depth: ~ 3.6 ft (EQL) Google Map

Web Link: <http://www.mapwv.gov/flood/Map/?v=1&pid=02-04-037M-0020-0000>

12 Feet Door and Frames - Most doors in residential structures are hollow and are warped and destroyed between 0.0 and 1.0 foot of floodwater. Some would require replacement at 1.5 feet of floodwater. All doors are totaled at 4.0 feet of floodwater. Hollow metal door frames are never a total loss.

13 Feet Sheetrock/Wall Insulation/Wall Boards - Walls and insulation are damaged at the rate of 25 percent damages at 0.0 foot to 1.5 feet of floodwater, 50 percent damages at 2.0 feet, and total damages at 4.0 feet. In residential and some commercial structures, the ceiling is made of sheetrock and is a total loss at 0.5 feet of floodwater because of the absorption of water from the sheetrock and insulation in the walls. In commercial structures with a suspended ceiling, tiles are damaged at 4.0 feet of flooding, whereas the frames is not damaged because it is composed of capped aluminum.

| | Address | Parcel | Risk |
|-------------------------------|---------|-------------------|------|
| Building Replacement Cost | | \$319,878 | |
| Content Cost | | \$252,870 | |
| Building Area | | 2,512 sq ft | |
| Hazus Occupancy Code | | RES1 | |
| Number of Stories | | 2 | |
| Year Built | | 1995 | |
| Building Construction | | Wood | |
| Building Condition | | Medium | |
| Building Foundation | | Crawl | |
| First Floor Ht | | 3 ft above ground | |
| Damage Estimates (UDF) | | | |
| Building Damage Pct | | 12% | |
| Building Loss USD | | \$37,029 | |
| Content Damage Pct | | 10% | |
| Content Loss USD | | \$15,559 | |

Structure-specific (called “User-Defined Facilities”, or UDFs, in Hazus) flood risk assessments produce results and loss estimates at the building or structure level, and can often help facilitate flood risk discussions with individual home- or business-owners in a community.

Source: “Guidance for Flood Risk Analysis and Mapping, Flood Risk Assessments”

Example **flood risk assessment** information for 256 Rodeo Drive. Includes **3D flood visualization** with water depth-flood damage information for homeowner.

3D Flood Visualizations

Visualizations are easier for non-technical users to understand flood risks to their property in feet of water rather than comprehending the adjacent base flood elevation

1-Story Home

Depth: 0 Foot, 1 Foot, 2 Foot, 3 Foot, 4 Foot, 5 Foot, 6 Foot, 7 Foot, 8 Foot, 9 Foot, 10 Foot, 11 Foot, 12 Foot, 13 Foot

Parcel ID: 02-06-0006-0059-0001 Water Depth: ~ 13.4 ft (EQL)

Second Floor Damage - Similar to first floor damage

Mobile Home

Depth: 0 Foot, 1 Foot, 2 Foot, 3 Foot, 4 Foot, 5 Foot, 6 Foot, 7 Foot, 8 Foot, 9 Foot, 10 Foot, 11 Foot, 12 Foot, 13 Foot, 14 Foot, 15 Foot

Parcel ID: 33-03-001A.0022-0000 Water Depth: ~ 6.7 ft (EQL)

General Damage - Woodwork, doors, and most appliances damaged. When 2 feet of water is in the area and it is classified as a Major Emergency by the WV Division of Homeland Security and Emergency Management (DHSEM).

Appliances - Most appliances (refrigerator, stove, dishwasher, washer, dryer) are a total loss below 2.0 feet of water, especially quickly flowing flood waters, can float a larger vehicle such as a 1.5 feet can float a small vehicle.

Commercial

Depth: 0 Foot, 1 Foot, 2 Foot, 3 Foot, 4 Foot, 5 Foot, 6 Foot, 7 Foot, 8 Foot, 9 Foot, 10 Foot, 11 Foot, 12 Foot, 13 Foot, 14 Foot, 15 Foot

Parcel ID: 33-03-001A.0022-0000 Water Depth: ~ 6.7 ft (EQL)

General Damage - Woodwork, doors, and most appliances damaged. When 2 feet of water is in the area and it is classified as a Major Emergency by the WV Division of Homeland Security and Emergency Management (DHSEM).

Appliances - Most appliances (refrigerator, stove, dishwasher, washer, dryer) are a total loss below 2.0 feet of water, especially quickly flowing flood waters, can float a larger vehicle such as a 1.5 feet can float a small vehicle.

2-Story Home

Depth: 0 Foot, 1 Foot, 2 Foot, 3 Foot, 4 Foot, 5 Foot, 6 Foot, 7 Foot, 8 Foot, 9 Foot, 10 Foot, 11 Foot, 12 Foot, 13 Foot, 14 Foot, 15 Foot

Parcel ID: 02-04-027M-0126-0000 Water Depth: ~ 3.8 ft (EQL)

Door: Door is not damaged because it is composed of lapped aluminum.

Countertops - Water comes over countertops.

"The 3D visualization is really cool. Our citizen comes to the counter and says 'there is no way there can be a flood like that.' Then we show them how much water you will get in your house and how much it will cost to repair it. The 3d visual is really good! And then we like the way you can click on a parcel ID and it brings up all the information as far as property owner, tax map and parcel number, deed book, page number - everything is right there. And the building information is really good too because it tells what the structure is made of, whether it has a basement - all the information that we would have to go to another system to pull is right there." Source: 3D Flood Visualization Comment from Debbie Robinson, Kanawha County Planning and Development Office

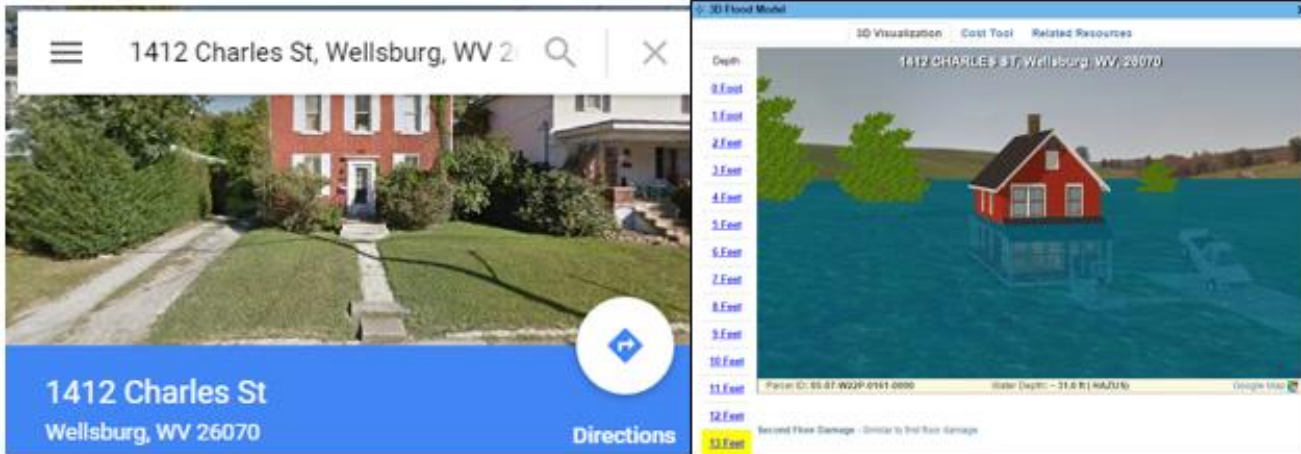
3D flood visualizations are available statewide for locations where **flood depth grids** exist. The parcel assessment data fields (land use, stories) are necessary to identify the correct property type: residential one- or two-story homes, mobile home, commercial/industrial, etc.

3D Flood Visualizations

Brooke County

<https://www.mapwv.gov/flood/map/?v=1&pid=05-07-W22P-0161-0000>

1412 Charles St, Wellsburg, WV, 26070, Parcel ID: 05-07-W22P-0161-0000



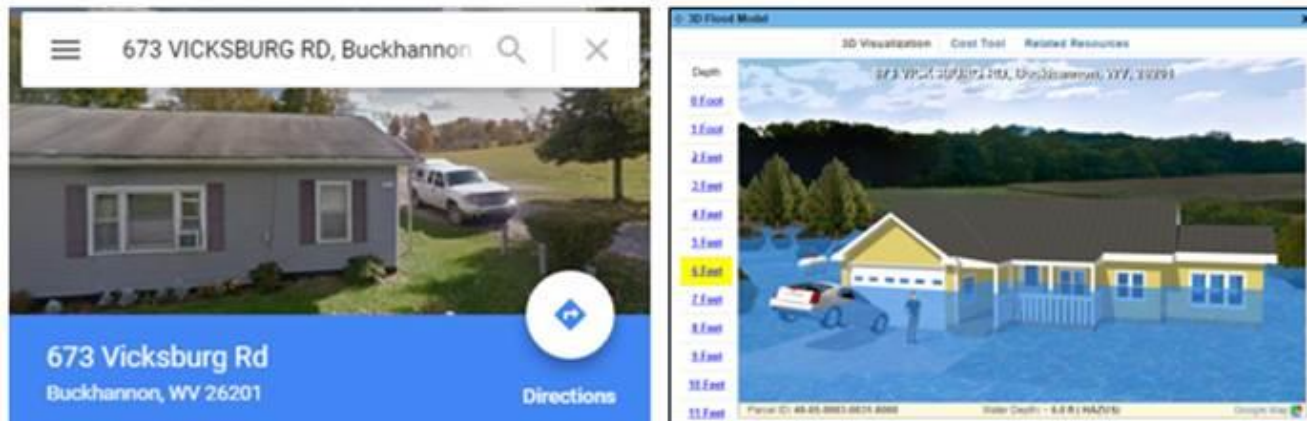
“This is the coolest thing ever....thank you!!!”

Source: 3D Flood Visualization Comment from Terri Jo Bennett, CFM, Upshur County Building Permit, Floodplain and Addressing and Mapping Coordinator

Upshur County

<https://www.mapwv.gov/flood/map/?v=0&pid=49-05-0003-0031-0000>

673 Vicksburg Rd, Buckhannon, WV, 26201, Parcel ID: 49-05-0003-0031-0000

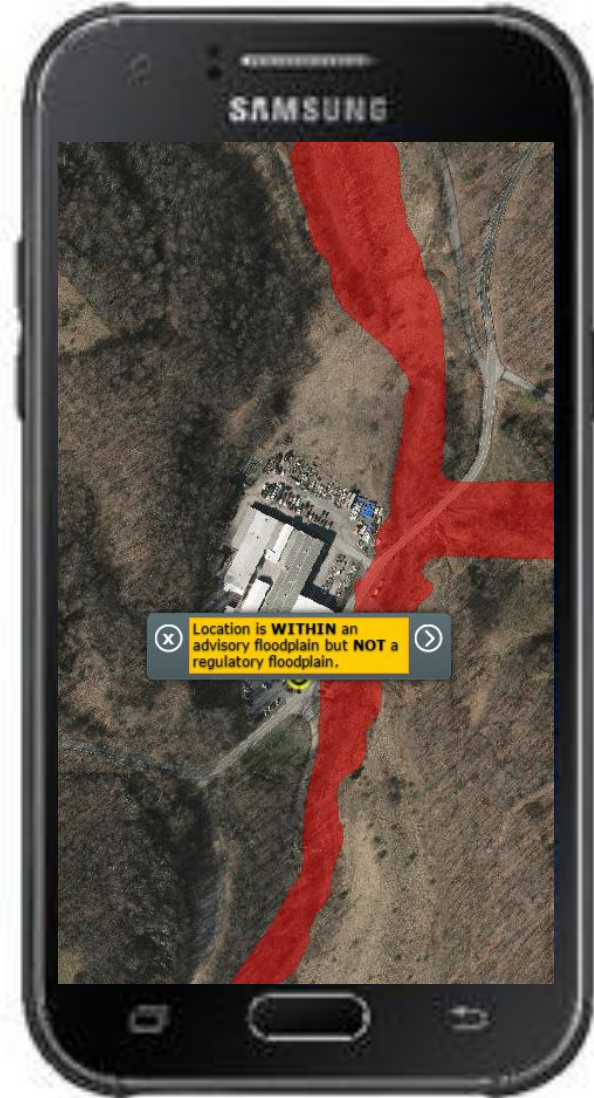


Mobile Application Enhancements

<http://www.mapwv.gov/flood/mmap/>



Added Floodway



Advisory Floodplain Notification

New Flood Layers Added

| FLOOD LAYERS | Public View <i>for general public</i> | Expert View <i>for floodplain managers</i> | RiskMAP View <i>for flood risk planning</i> |
|--|--|---|--|
| Flood Hazard Layers <ul style="list-style-type: none"> • Flood Hazard Zones • Panel Index • X-Sections • BFE's / Advisory Flood Heights • LOMAs / LOMRs* • <i>Structures, Levees, Mile Markers*</i> | <p style="text-align: center;">Yes</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> | <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> | <p style="text-align: center;">Yes</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> |
| Flood Prediction <ul style="list-style-type: none"> • <i>USGS Real-Time Stream Gages*</i> | <p style="text-align: center;">No</p> | <p style="text-align: center;">Yes</p> | <p style="text-align: center;">No</p> |
| Flood Mitigation <ul style="list-style-type: none"> • Mitigated/Buyout Properties | <p style="text-align: center;">No</p> | <p style="text-align: center;">Yes</p> | <p style="text-align: center;">Yes</p> |
| Flood Risk <ul style="list-style-type: none"> • Flood Water Depths • <i>Historical High Water Marks</i> • <i>Site-Specific Flood Risk Assessment Data</i> • Flood/Dam Inundation Maps (future) | <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> | <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">No</p> <p style="text-align: center;">No</p> | <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> <p style="text-align: center;">Yes</p> |

Italics Text = New Layers Added

* External Agency Web Map Services

New Flood Layers Added

The screenshot displays a web-based flood map interface. At the top, there are tabs for 'Public', 'Expert', and 'Risk MAP'. The 'Layers' panel on the left lists several flood-related layers, all of which are checked: Hazard Layers, FEMA LOMA*, River Mile Marker*, Levees*, General Structures*, FEMA LOMR*, High Water Marks, Real-time Stream Gage* (indicated with a diamond icon), Mitigated Properties, RiskMAP Restudy, and Water Depth (HEC-RAS). A note below the list states '* Indicates that data is external web service' and includes a 'Show Legend' link. The map itself shows a street grid in Parkersburg, WV, with various flood zones and structures. A blue callout box with a white background and black border points to a specific location on the map, labeled 'NWIS Stream Gage'. Another blue callout box with a white background and black border points to a red hatched area on the map, labeled 'Laurel Run Levee'. In the bottom left, a 'Levees: LAUREL RUN' information panel is open, displaying the following data:

| | |
|------------|-----------------------|
| DFIRM_ID | 54107C |
| VERSION_ID | 1.1.1.0 |
| LEVEE_ID | 54107C_63 |
| FC_SYS_ID | NP |
| LEVEE_NM | PARKERSBURG FLOODWALL |
| LEVEE_TYP | Levee Centerline |
| WTR_NM | LAUREL RUN |

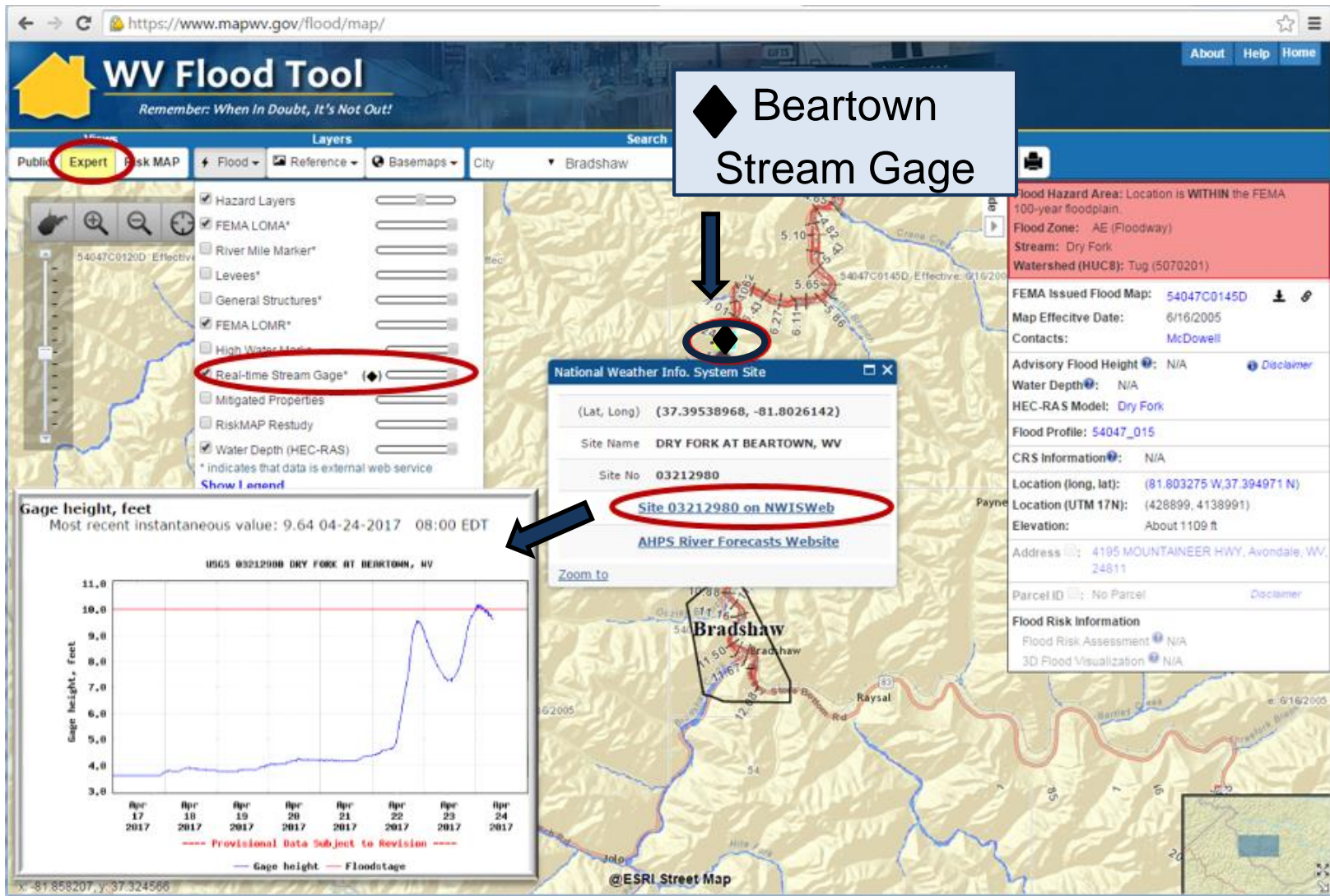
On the right side of the interface, there is a 'National Weather Info. System Site' window. It displays the following information:

- (Lat, Long) (39.2681306, -81.5637358)
- Site Name OHIO RIVER AT PARKERSBURG, WV
- Site No 03151000
- Site 03151000 on NWISWeb
- AHPS River Forecasts Website

Example: Levee structure and real-time stream gage located at Parkersburg, WV

<http://www.mapwv.gov/flood/Map/?wkid=102100&x=-9080275&y=4759882&l=8&v=1>

NWIS Stream Gage



Example: Real-Time Stream Gage ♦ Data for Dry Fork at Beartown, WV (Expert View)

<https://www.mapwv.gov/flood/map/?wkid=102100&x=-9104675&y=4491964&l=6&v=1>

Advisory Floodplains

New **advisory** flood heights, depth grids, and floodplain boundaries are being added to the WV Flood Tool and will exist for all counties in the near future

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

Views: Expert, Risk MAP, Flood, Reference, Basemaps
Layers: [dropdown]
Search: [input] owl creek road, morgantown, wv
Tools: [dropdown]

Click on each tab to view information
Address Parcel Risk

PHYSICAL ADDRESS

BUILDING INFORMATION

| | |
|----------------------|--|
| Property Class Type | I - Industrial |
| Land use | 401 - Manufacturing |
| Year built | 1976 |
| Story height | 2 |
| Exterior wall | Concrete Block |
| Construction Type | Wood frame/Joist/Beam |
| Building Grade | C |
| Basement Type | None |
| Business Living Area | 86,684 |
| # of cubic feet | 1,896,430 |
| Use Type | 43-Manufacturing, 44-Light Manufacturing, 45-Warehouse, 82-Multi-Use - Office, 84-Multi-Use - Storage, 85-Enclosure, 86-Support Area |

Advisory A

437 Goshen Road

Flood Hazard Area: Location is WITHIN an advisory floodplain but NOT a regulatory floodplain. ✓

Flood Zone: Advisory A

Stream: Booths Creek

Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54061C0240E

Map Effective Date: 1/20/2010

Contacts: Monongalia

Advisory Flood Height: About 996 ft

Water Depth: About 0.4 ft (Source: HEC-RAS)

HEC-RAS Model: Booths Creek

Flood Profile: N/A

CRS Information: N/A

Location (long, lat): (79.977896 W, 39.534745 N)

Location (UTM 17N): (587837, 4376618)

Elevation: About 996 ft

Address: 437 GOSHEN RD, MORGANTOWN, WV

Parcel ID: 31-05-0019-0046-0000

Flood Risk Information

Flood Risk Assessment: N/A

3D Flood Visualization

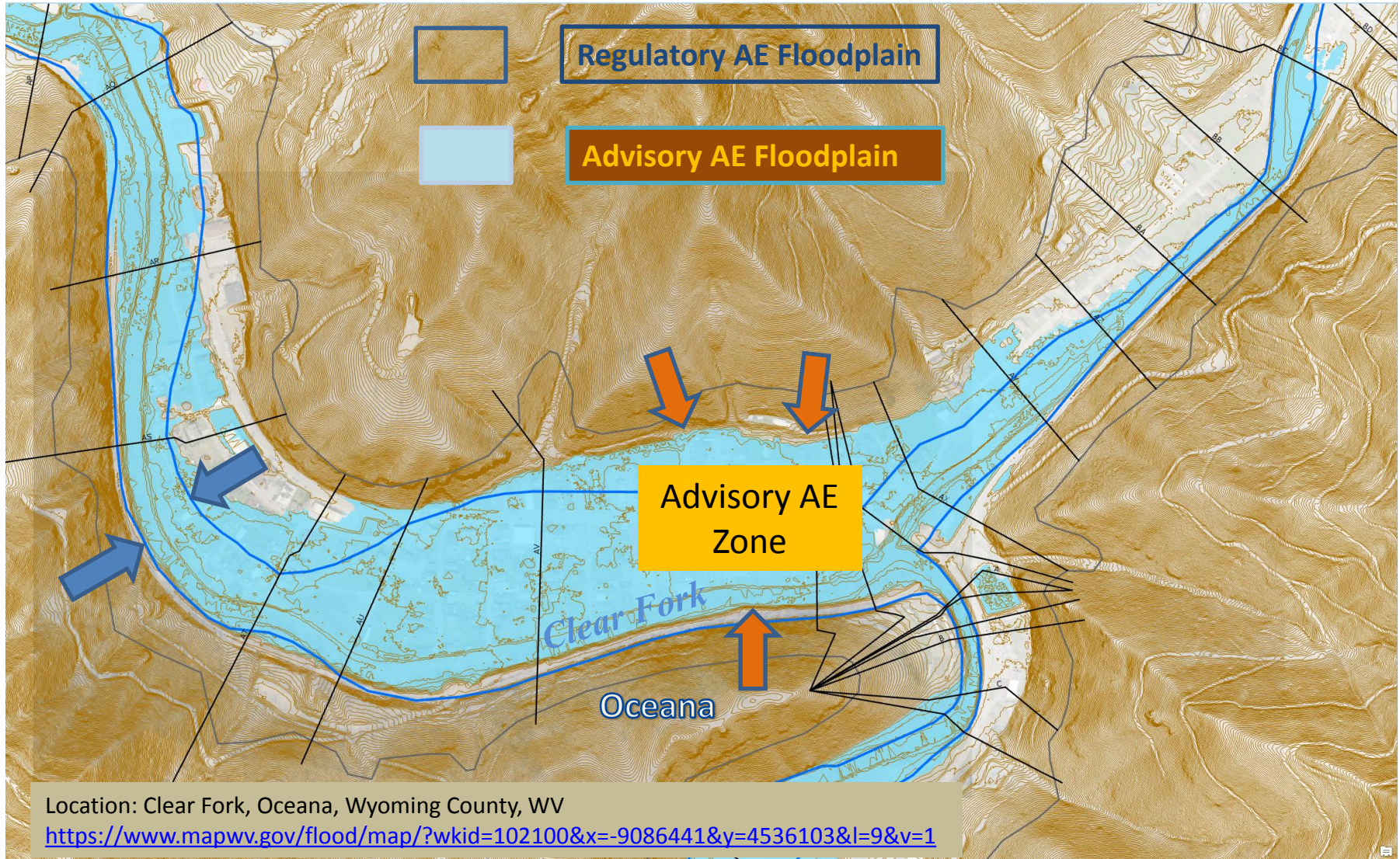
A new flood zone status (orange/mango color) has been added to the WV Flood Tool when the location is **WITHIN an advisory floodplain but NOT a regulatory floodplain**. In the example on the left note how a the Swanson Industries building is located in the new model-backed Advisory A Zone (blue water depth grid) but not the effective Approximate A Zone (red vertically hatched polygon). This example represents an **Advisory A Zone** but the same could be done for new **Advisory AE Zones** generated from re-delineated AE Non-Restudy areas using new topography.

Example: 437 Goshen Road, Morgantown, WV (Swanson Industries Plant)

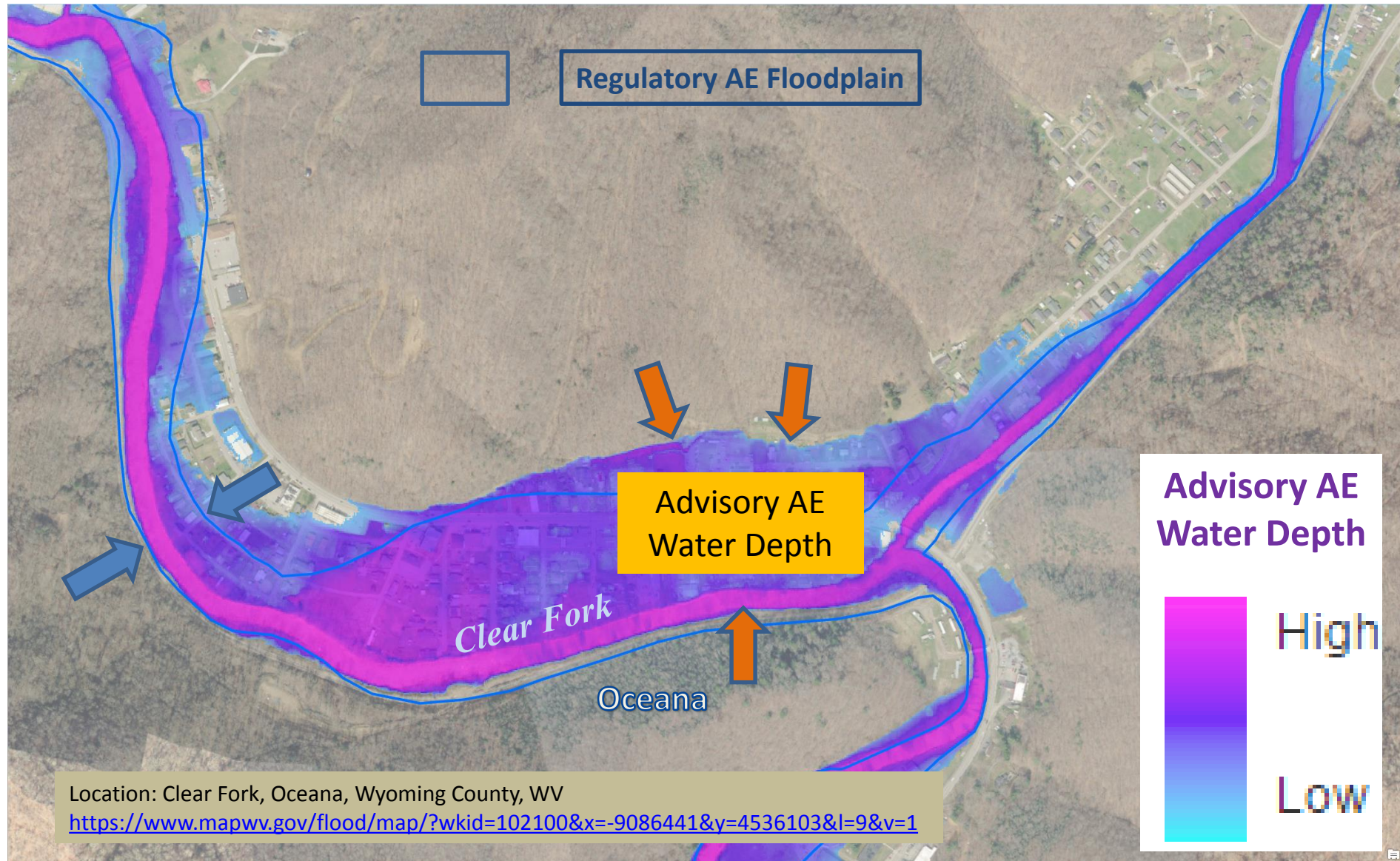
<https://www.mapwv.gov/flood/map/?wkid=102100&x=-8903099&y=4798561&l=12&v=1>

Advisory AE Floodplain

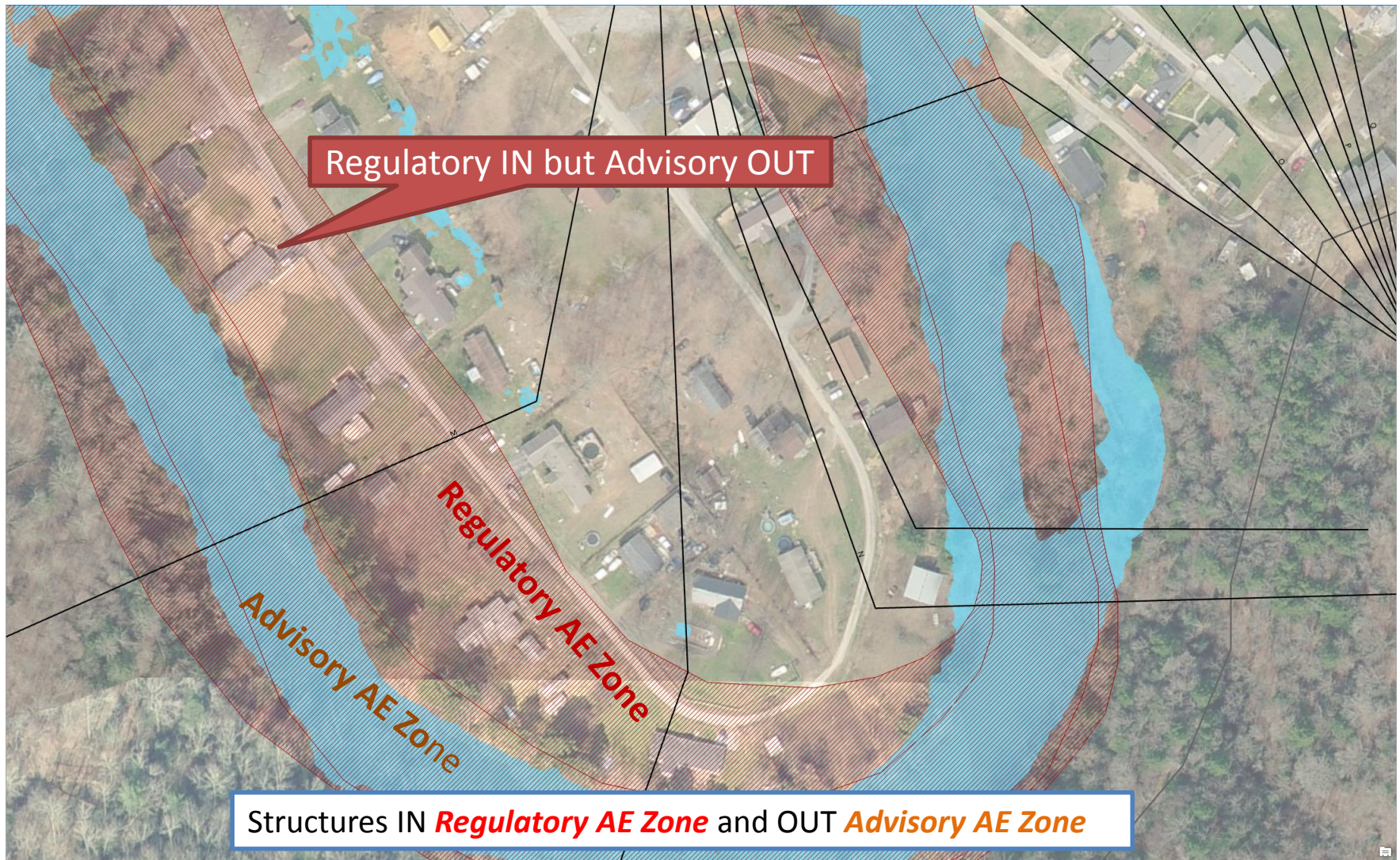
Redelineated Floodplain Using New Topo



Advisory AE Depth Grid

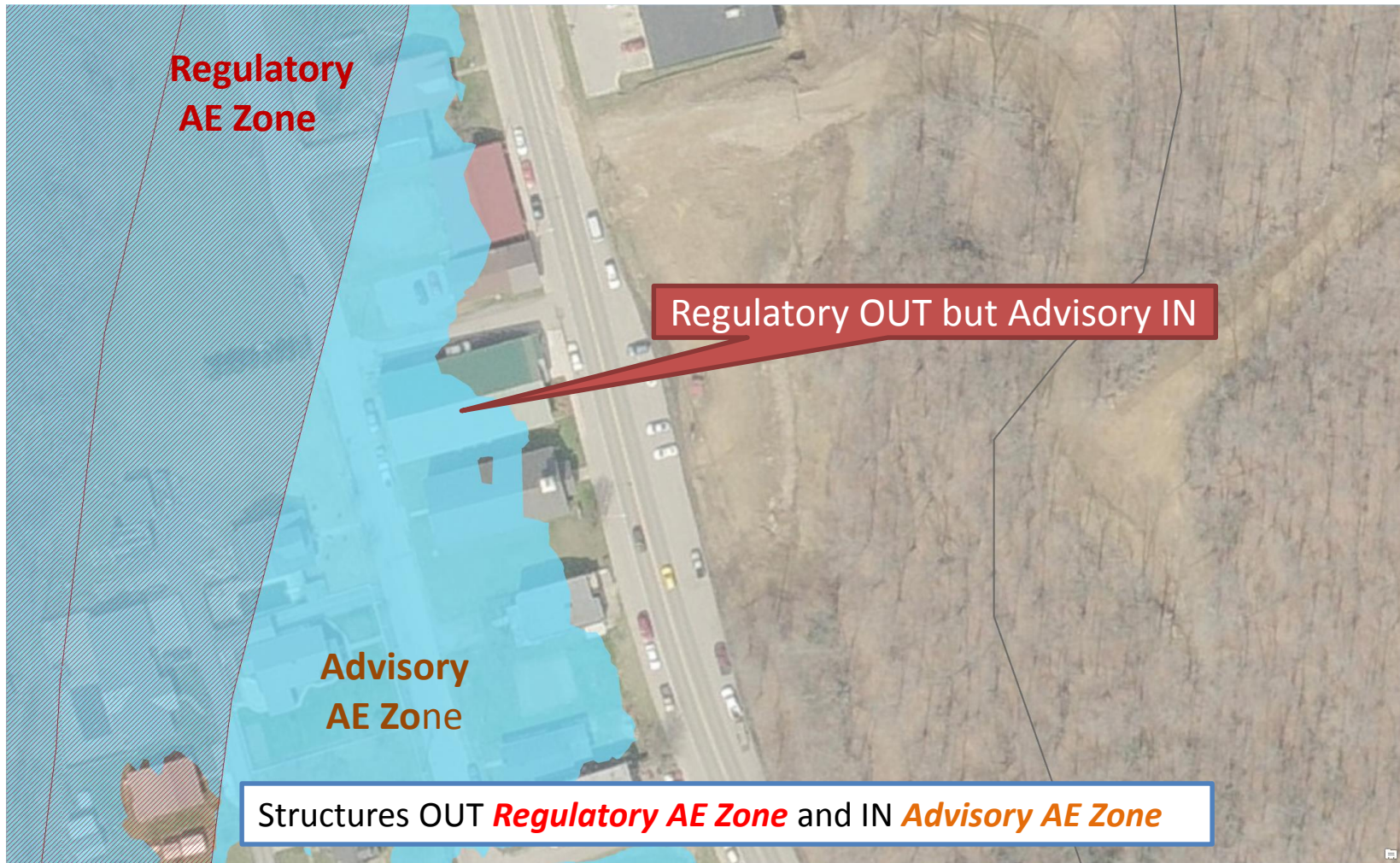


Advisory AE Determinations



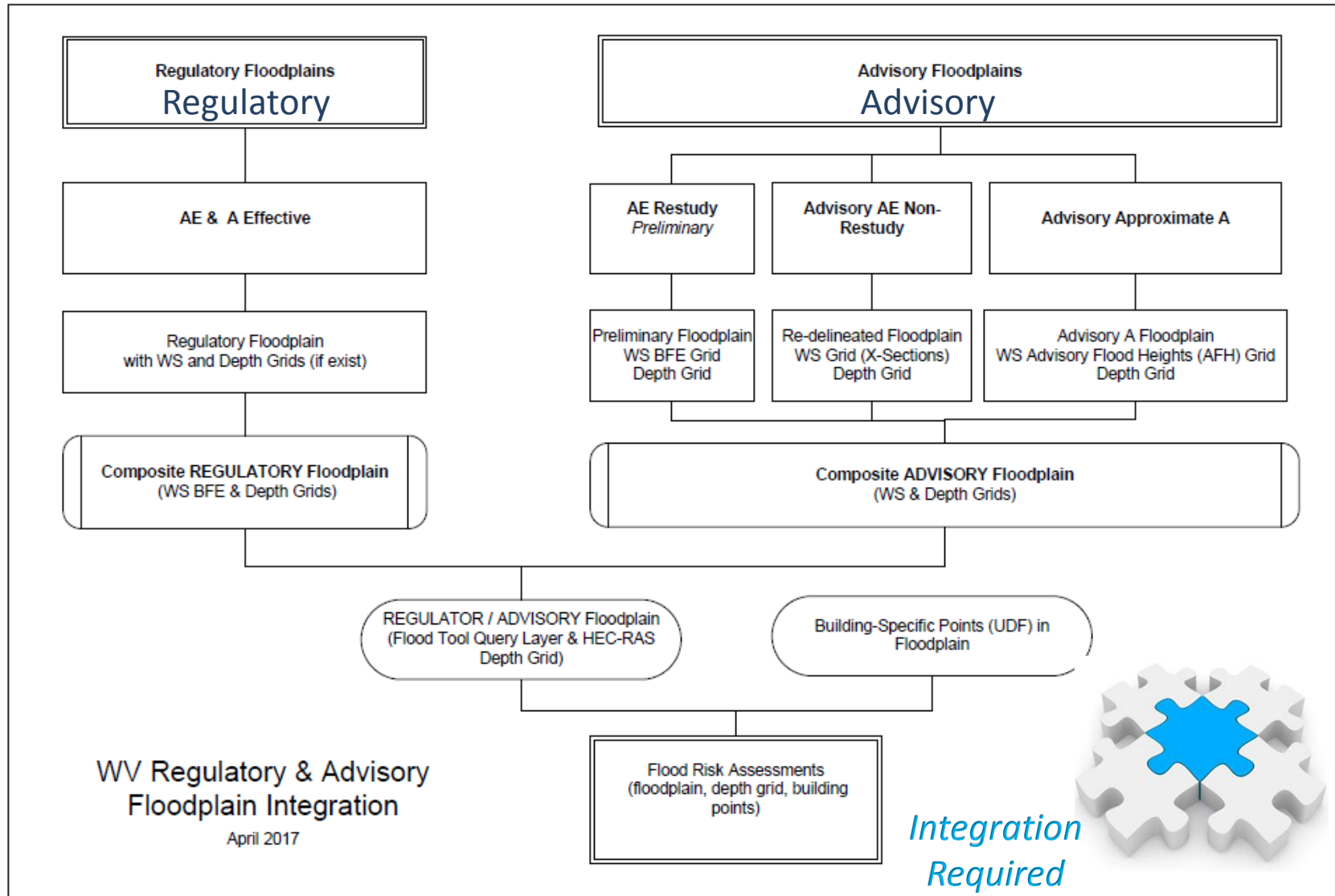
What do you tell the public? Acquire an elevation certificate and use the advisory flood elevation to request a LOMA to amend the effective NFIP map.

Advisory AE Determinations

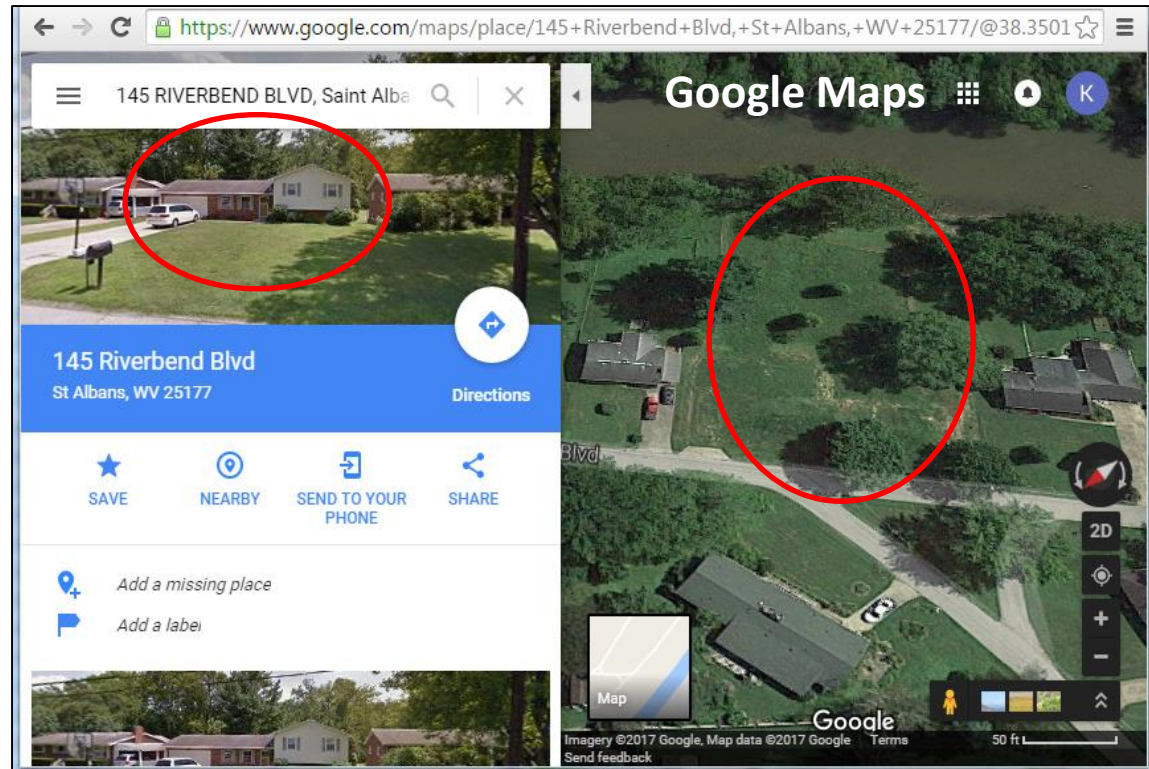


What do you tell the public? Advisory information indicates a flood hazard area and will likely be incorporated into future effective NFIP maps. New development should not occur in Advisory Floodplains without a detailed study to show development reasonably safe from flooding. Recommend purchasing flood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

Regulatory vs. Advisory Floodplains



Mitigated/Buyout Properties



Example: 145 Riverbend Blvd, Saint Albans, WV (adjacent to Coal River)

House still visible in default imagery of WV Flood Tool and Google StreetView; however, in Google Maps oblique view the structure has been removed.

<https://www.mapwv.gov/flood/map/?v=0&pid=20-16-012E-0125-0000>

Parcels link to Owner/Building Info

629 PENNSYLVANIA AVE, Morgantown, WV, 26501

<https://www.mapwv.gov/flood/map/?wkid=102100&x=-8899684&y=4811867&l=13&v=0>

The screenshot displays the WV Flood Map interface. On the left, a sidebar contains tabs for 'Address', 'Parcel', and 'Risk'. Below these are sections for 'DESCRIPTION', 'PROPERTY OWNER', 'PHYSICAL ADDRESS', and 'BUILDING INFORMATION'. The 'BUILDING INFORMATION' section shows 'Land use: 101 - Residential 1 Family' and 'Year built: 1911'. A '3D Flood Model' window is open, showing a 3D visualization of a red house and a white car in floodwater. The 'Depth' dropdown is set to '1 Foot'. Below the 3D model, the 'Parcel ID: 31-10-0029-0130-0000' and 'Water Depth: ~ 1.0 ft (HAZUS)' are displayed. A 'Google Map' link is circled in red. The main map area shows an aerial view of the property with parcel boundaries and a red pin. On the right, a 'Tools' bar and a 'Flood Hazard Area' information panel are visible. The 'Flood Hazard Area' panel includes details such as 'Location is WITHIN the FEMA 100-year floodplain', 'Flood Zone: AE', 'Stream: Deckers Creek', and 'Watershed (HUC8): Upper Monongahela (5020003)'. Other information includes 'FEMA Issued Flood Map: 54061C0114E', 'Map Effective Date: 1/20/2010', 'Contacts: Monongalia', 'Advisory Flood Height: N/A', 'Water Depth: About 1.0 ft (Source: HAZUS)', 'HEC-RAS Model: N/A', 'Flood Profile: 54061_005', 'CRS Information: N/A', 'Location (long, lat): (79.947234 W, 39.626885 N)', 'Location (UTM 17N): (590352, 4386875)', 'Elevation: About 823 ft', 'Address: 629 PENNSYLVANIA AVE, Morgantown, West Virginia, 26501', 'Parcel ID: 31-10-0029-0130-0000' (circled in red), 'Flood Risk Information: Flood Risk Assessment: N/A', and '3D Flood Visualization' (circled in red). At the bottom right, a blue banner reads 'Residential or Farm Property'.

Residential or Farm Property

Parcels link to Owner/Building Info

Residential or Farm Property

629 PENNSYLVANIA AVE, Morgantown, WV, 26501

<https://www.mapwv.gov/flood/map/?wkid=102100&x=-8899684&y=4811867&l=13&v=0>



| | |
|-----------------------------|----------------------------|
| DESCRIPTION | |
| GIS Parcel ID | 31-10-0029-0130-0000 |
| Legal Description | BL 12-1/2 LOT 10 |
| Acreage (deed) | 0.0373 |
| Tax Year | 2015 |
| Tax Class | 4 |
| Deed Book / Page | 1259 / 45 |
| | |
| PROPERTY OWNER(S) | |
| Property Owner(s) | Smith John |
| | |
| BUILDING INFORMATION | |
| Property Class Type | R- Residential |
| Land Use | 101 - Residential 1 Family |
| Year Built | 1911 |
| Architectural style | Conventional |
| Exterior Wall | Aluminum |
| Stories | 2 |
| Total Rooms | 8 |
| Building Grade | C |
| Basement Type | Full |
| Structure Area | 1,320 |
| Building (card) Number | 1 |
| # of main BLDGs (cards) | 1 |
| | |
| APPRAISED VALUES | |
| Land Appraisal | \$33,200 |
| Building Appraisal | \$29,000 |
| Total Appraisal | \$62,200 |

Parcels link to Owner/Building Info

Commercial or Industrial Property

1501 DECKERS CREEK BLVD, Morgantown, West Virginia, 26505
<https://www.mapwv.gov/flood/map/?v=0&pid=31-14-0031-0101-0000>

Depth

- 0 Foot
- 1 Foot
- 2 Foot
- 3 Foot
- 4 Foot
- 5 Foot
- 6 Foot
- 7 Foot
- 8 Foot
- 9 Foot
- 10 Foot
- 11 Foot
- 12 Foot
- 13 Foot
- 14 Foot

1501 DECKERS CREEK BLVD, Morgantown, West Virginia, 26505

Parcel ID: 31-14-0031-0101-0000 Water Depth: ~ 2.0 ft (HAZUS) Google Map

12 Foot General Damage - Woodwork, doors, and most appliances damaged. When 2 feet of water is in the living space and the walls are wet it is classified as a Major Emergency by the WV Division of Homeland Security and Emergency Management (WV DHSEM).

13 Foot Appliances - Most appliances (refrigerator, stove, dishwasher, washer, dryer) are a total loss between 1 ft and 2 ft feet of water.

14 Foot Appliances - Most appliances (refrigerator, stove, dishwasher, washer, dryer) are a total loss between 1 ft and 2 ft feet of water.

1501 Deckers Creek Blvd

| | |
|--------------------------|----------------------|
| DESCRIPTION | 84 Lumber |
| GIS Parcel ID | 31-14-0031-0101-0000 |
| Legal Description | 5.0922 AC;SABRATON |
| Acreage (deed) | 5.09 |
| Deed Book / Page | 1376 / 234 |
| PROPERTY OWNER(S) | |
| Property Owner(s) | SPIRIT SPE PORTFOLIO |

| | |
|-----------------------------|---------------------------------------|
| BUILDING INFORMATION | |
| Property Class Type | C- Commercial |
| Land Use | 373 - Retail-Single Occupancy |
| Year Built | 1994 |
| Stories | 2 |
| Exterior Wall | Brick or Stone |
| Construction Type | Pre-Engineered Steel |
| Building Grade | D+ |
| Basement Type | None |
| Business Living Area | 15,255 |
| Cubic Feet | 292,380 |
| Use Type | 34-Retail Store, 82- Multi-Use Office |

| | |
|-------------------------|-----------|
| COST VALUES | |
| Other Bldg/Yard Values | \$67,020 |
| Commercial Value | \$227,700 |
| APPRAISED VALUES | |
| Land Appraisal | \$378,800 |
| Building Appraisal | \$294,700 |
| Total Appraisal | \$673,500 |

Assessment Building Info

West Virginia Parcel Property Class Breakdown for Tax Year 2017

| Code | Property Class | # of Parcels | Percent (%) |
|-------|----------------|--------------|-------------|
| R | Residential | 1,164,470 | 79.61% |
| F | Farm | 121,384 | 8.30% |
| A | Apartment | 3,222 | 0.22% |
| C | Commercial | 65,784 | 4.50% |
| I | Industrial | 3,105 | 0.21% |
| X | Exempt | 97,773 | 6.68% |
| U | Utility | 192 | 0.01% |
| Other | Not classified | 6,837 | 0.47% |
| | | 1,462,767 | 100.00% |

*Assessment records are important for **building inventories** and are used to estimate the total building exposure (\$) and building loss (\$) for multi-hazards. Often building inventories and corresponding loss estimates are organized by **property class**.*

Addresses Link to Parcels

<https://www.mapwv.gov/flood/map/?wkid=102100&x=-8901769&y=4816526&l=13&v=0>

Parcel Building Info

| Address | Parcel | Risk |
|-----------------------------|--------------------------------------|------|
| PHYSICAL ADDRESS | | |
| BUILDING INFORMATION | | |
| Property Class Type | A - Apartment | |
| Land use | 211 - Apartment-Garden (1-3 stories) | |
| Year built | 1958 | |
| Construction Type | Wood frame/Joist/Beam | |
| Use Type | 11-Apartment | |
| # of cubic feet | 211688 | |
| # of units | 18 | |
| Story height | 2 | |
| Exterior wall | Brick or Stone | |
| GRADE | D+ | |
| Basement | First Basement | |
| Building (card) number | 1 | |
| # of main BLDGs (cards) | 4 | |

Address Search

Address Format: street address, city, state, zip.
Note: Separate each segments by comma (,).

Locator: WV Site Locator
[Disclaimer](#)

Standard Input Address: 680 KILLARNEY NoUnit, MORGANTOWN, WV 26505

1 **Site Address Match**

Geographic Coordinate: (-79.965995,39.659102)

Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.
Flood Zone: A
Stream: Burroughs Run
Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54061C0112E
Map Effective Date: 1/20/2010
Contacts: Monongalia

CRS Information: N/A
Location (long, lat): (79.965948 W,39.659095 N)
Location (UTM 17N): (588705, 4390431)
Elevation: About 995 ft

Address: multiple addresses
Parcel ID: 31-15-0054-0220-0000

Flood Risk Information
Flood Risk Assessment: N/A
3D Flood Visualization: No Depth Grid Available

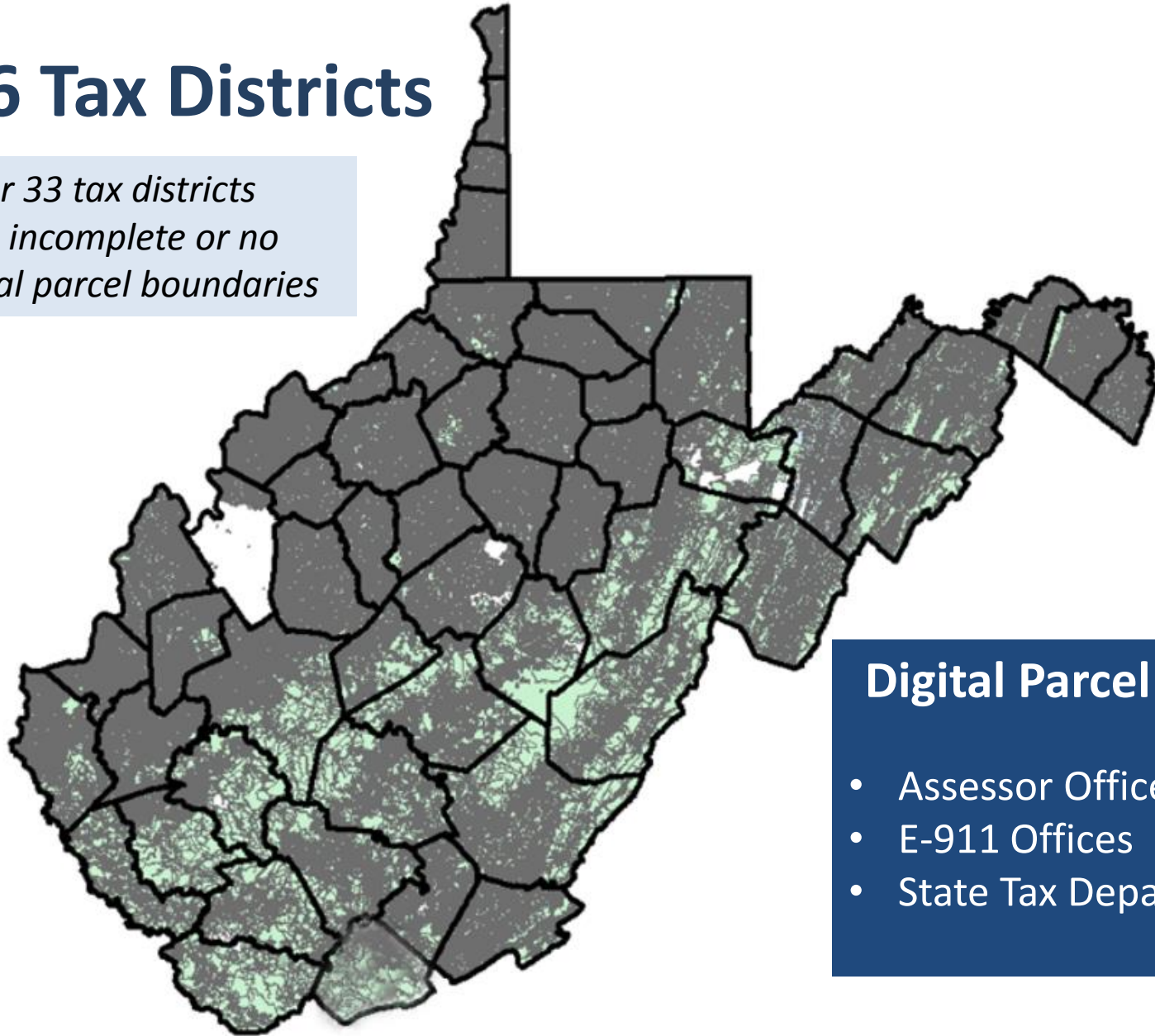
Multi-Unit Addresses

- #11: 682 KILLARNEY DR, Morgantown, West Virginia, 26505
- #13: 680 KILLARNEY DR, Morgantown, West Virginia, 26505
- #14: 680 KILLARNEY DR, Morgantown, West Virginia, 26505
- #15: 680 KILLARNEY DR, Morgantown, West Virginia, 26505
- #16: 680 KILLARNEY DR, Morgantown, West Virginia, 26505
- #17: 680 KILLARNEY DR, Morgantown, West Virginia, 26505

Statewide Digital Parcel File

606 Tax Districts

*5% or 33 tax districts
have incomplete or no
digital parcel boundaries*



Digital Parcel Sources

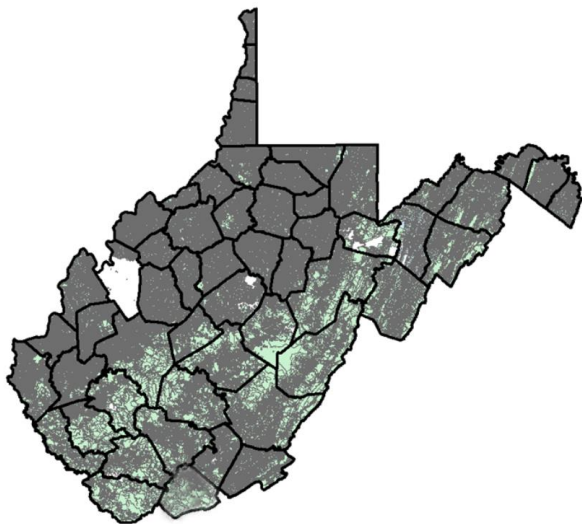
- Assessor Offices
- E-911 Offices
- State Tax Department

Statewide Digital Parcel File



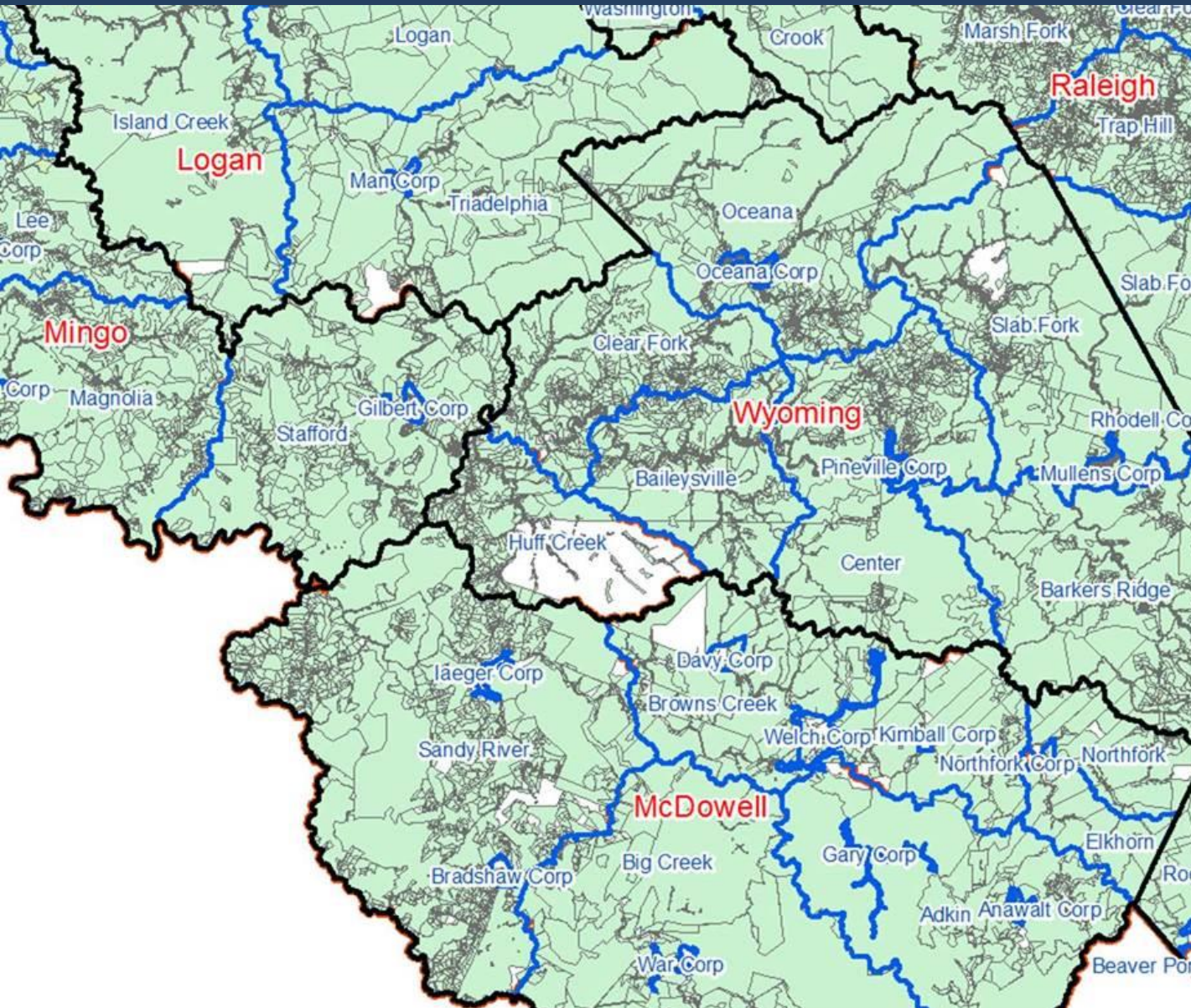
2013 WEST VIRGINIA STATEWIDE STANDARD
HAZARD MITIGATION PLAN UPDATE

| ID | Description | Priority (H, M, L) | Responsible Agency | Potential Funding Sources | Interim Measure of Success | Target Comple- tion Date | Hazard Mitigated |
|---------|---|--------------------------|-----------------------|---------------------------------|--|-----------------------------------|-------------------------|
| 2013-16 | Creation of a statewide tax parcel for use in the HIRA/THIRA. | H | DHSEM, WVGISTC | Agency budget | Develop a prototype map that would consist of a pilot study to determine what would be possible if/when data was available or created. | 2014 for pilot | All, except Dam & Levee |



**High Priority
of
2013 State Hazard Mitigation Plan**

Statewide Digital Parcel File



| # | Missing/ Obsolete Data Parcels |
|----|--------------------------------------|
| 1 | Boone |
| 2 | Braxton |
| 3 | Calhoun |
| 4 | Clay |
| 5 | Jackson |
| 6 | Logan |
| 7 | McDowell |
| 8 | Roane |
| 9 | Tucker |
| 10 | Tyler |
| 11 | Wirt |
| 12 | Wyoming |

What is the cost for
parcel conversion?

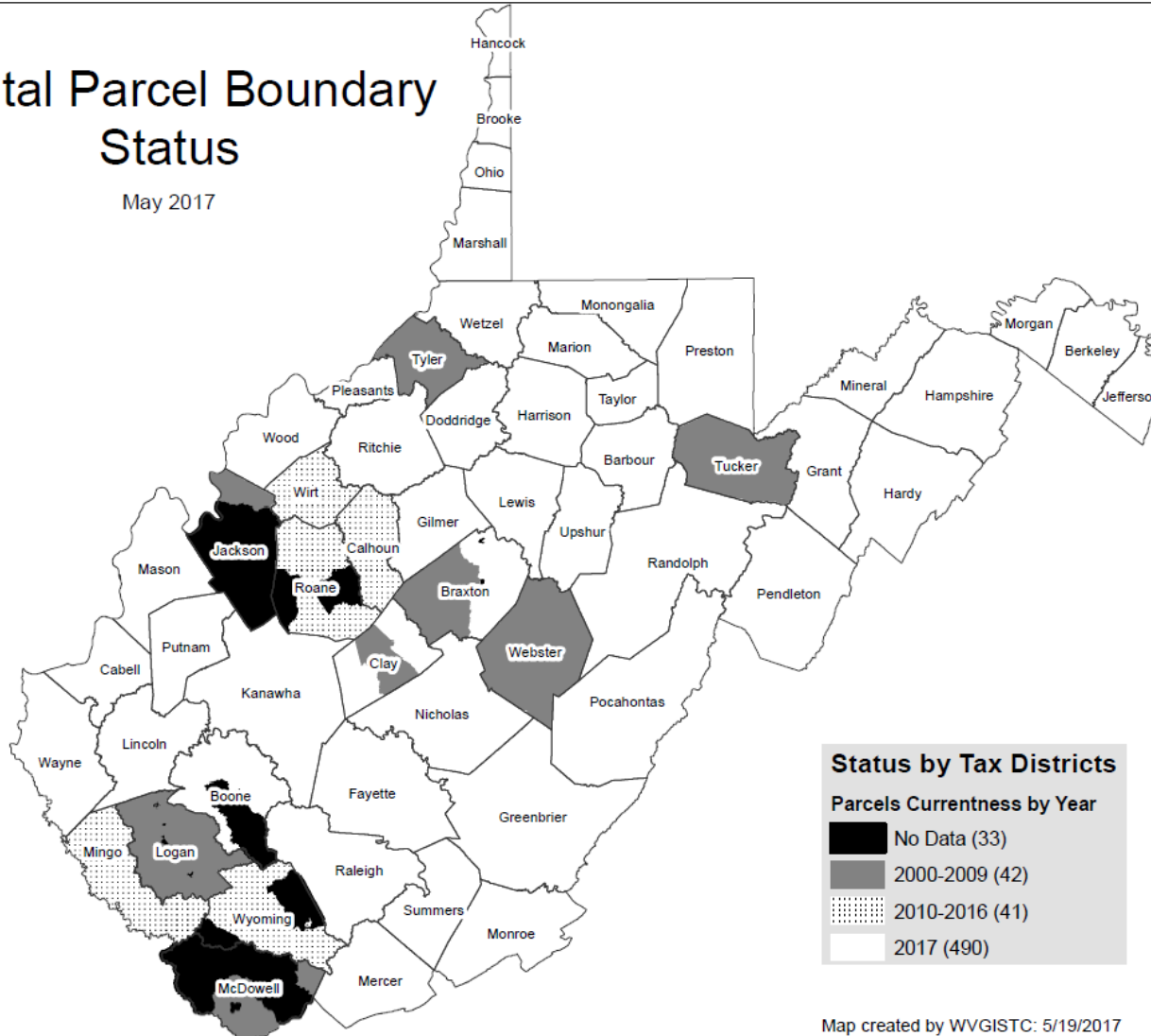
\$3.00 to \$3.50 per
parcel

Cost estimate of \$420K to achieve a current and accurate Digital Parcel Boundary file

Statewide Digital Parcel File

Digital Parcel Boundary Status

May 2017

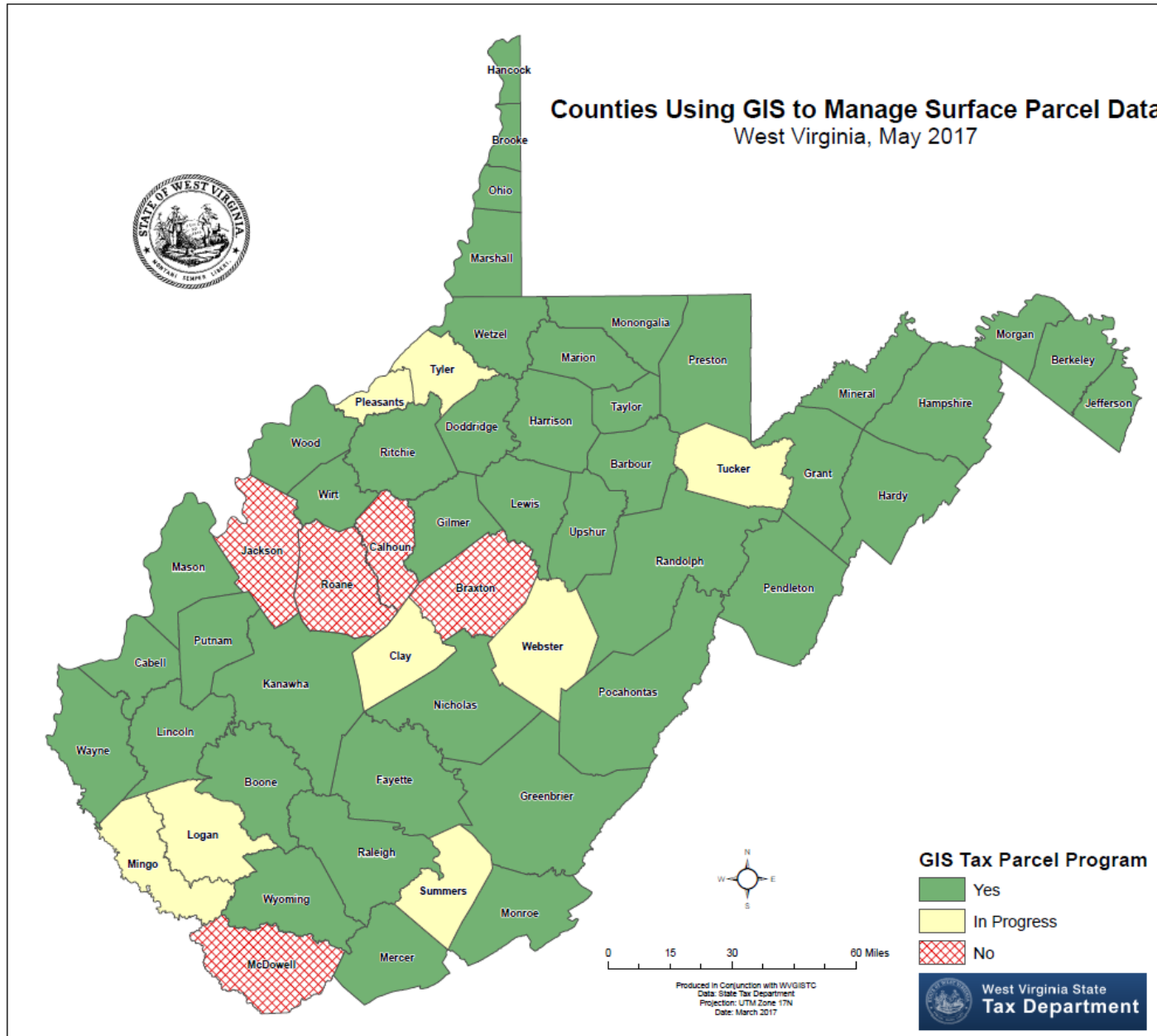


Map created by WVGISTC: 5/19/2017

| # | Missing/ Obsolete Data Parcels |
|----|--------------------------------------|
| 1 | Boone |
| 2 | Braxton |
| 3 | Calhoun |
| 4 | Clay |
| 5 | Jackson |
| 6 | Logan |
| 7 | McDowell |
| 8 | Roane |
| 9 | Tucker |
| 10 | Tyler |
| 11 | Wirt |
| 12 | Wyoming |

- Estimated cost of \$420K to achieve a current, accurate, and maintained Digital Parcel Boundary file
- SB 588 – As of July 5 will cost about \$25 instead of \$165,000 to acquire Statewide Parcel File

Counties using GIS



Paper to Digital Tax Maps

Mapper: *“I was apprehensive four years ago when our newly elected assessor decided to digitize our parcel mapping system; but with the work done by the mapping contractor then and their continual assistance today, I cannot imagine returning to the manual system.”*

Source: 2017 Tax Map Survey

MANUAL (Paper)

5 counties



TRANSITION

7 counties



DIGITAL

43 counties

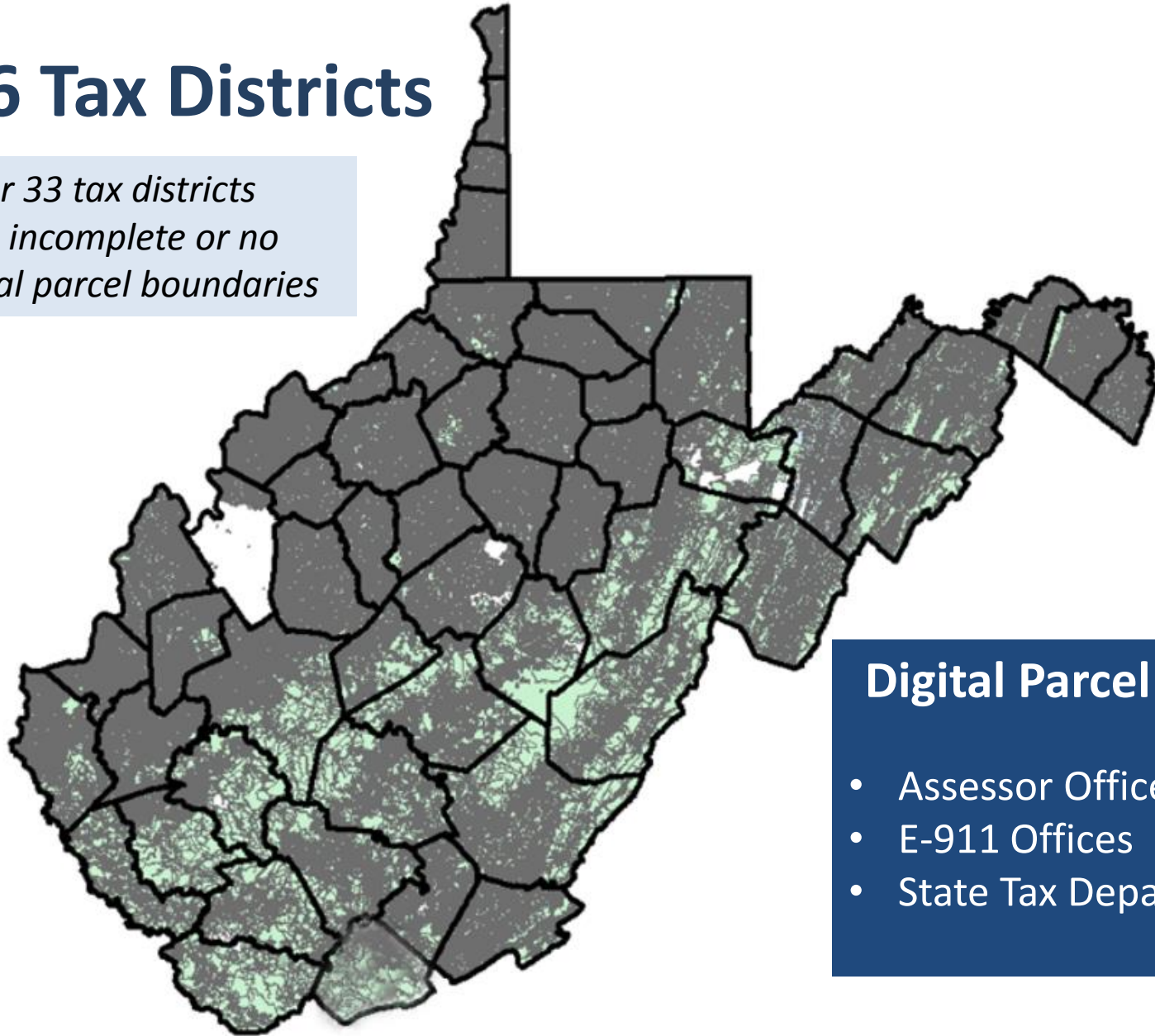


- Manual drafting of tax maps is becoming obsolete!!!
- There are no schools that teach manual drafting skills
- Manual drafting supplies are becoming scarce
- Tax Division may remove itself from drafting contract services

Statewide Digital Parcel File

606 Tax Districts

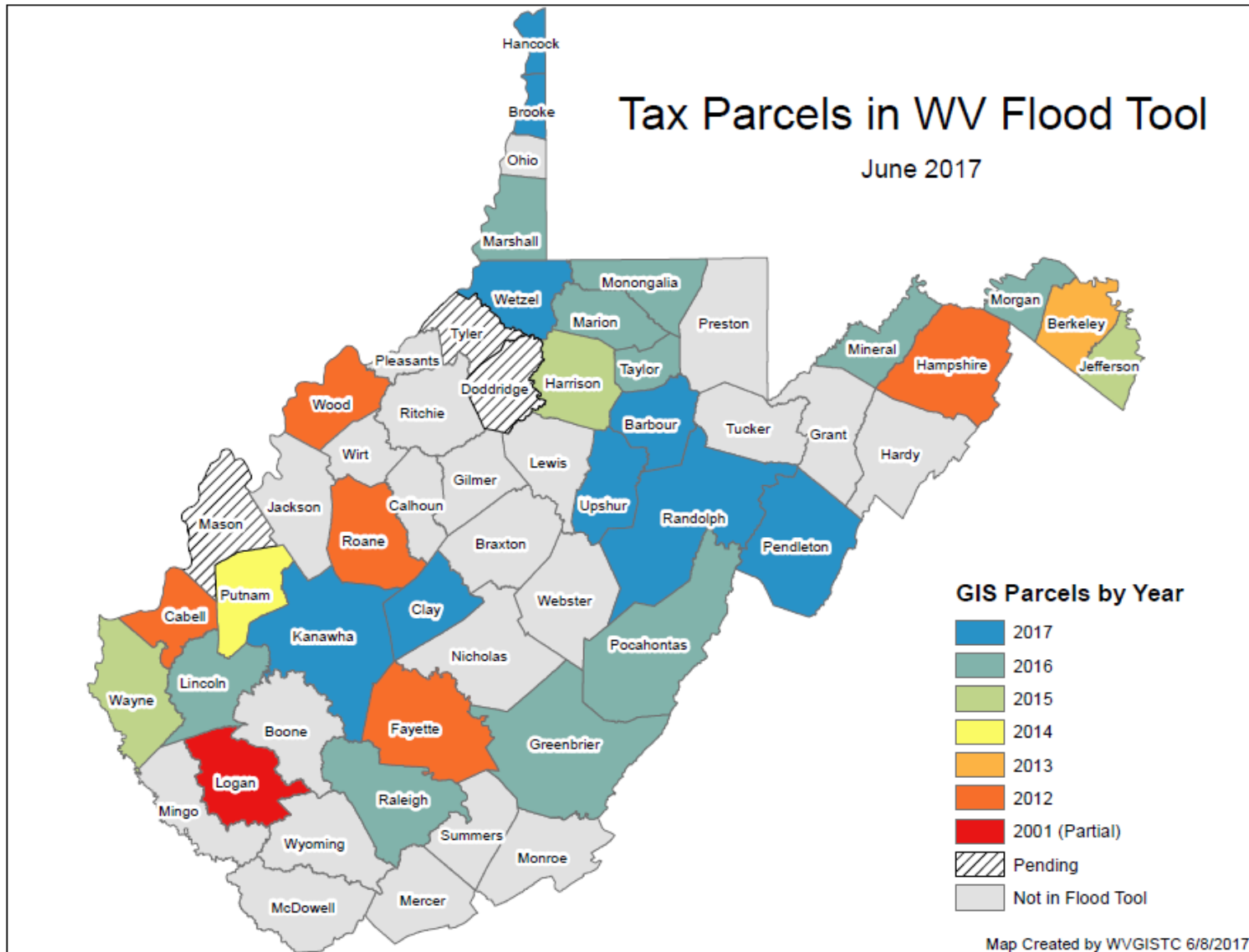
*5% or 33 tax districts
have incomplete or no
digital parcel boundaries*



Digital Parcel Sources

- Assessor Offices
- E-911 Offices
- State Tax Department

Parcels in WV Flood Tool

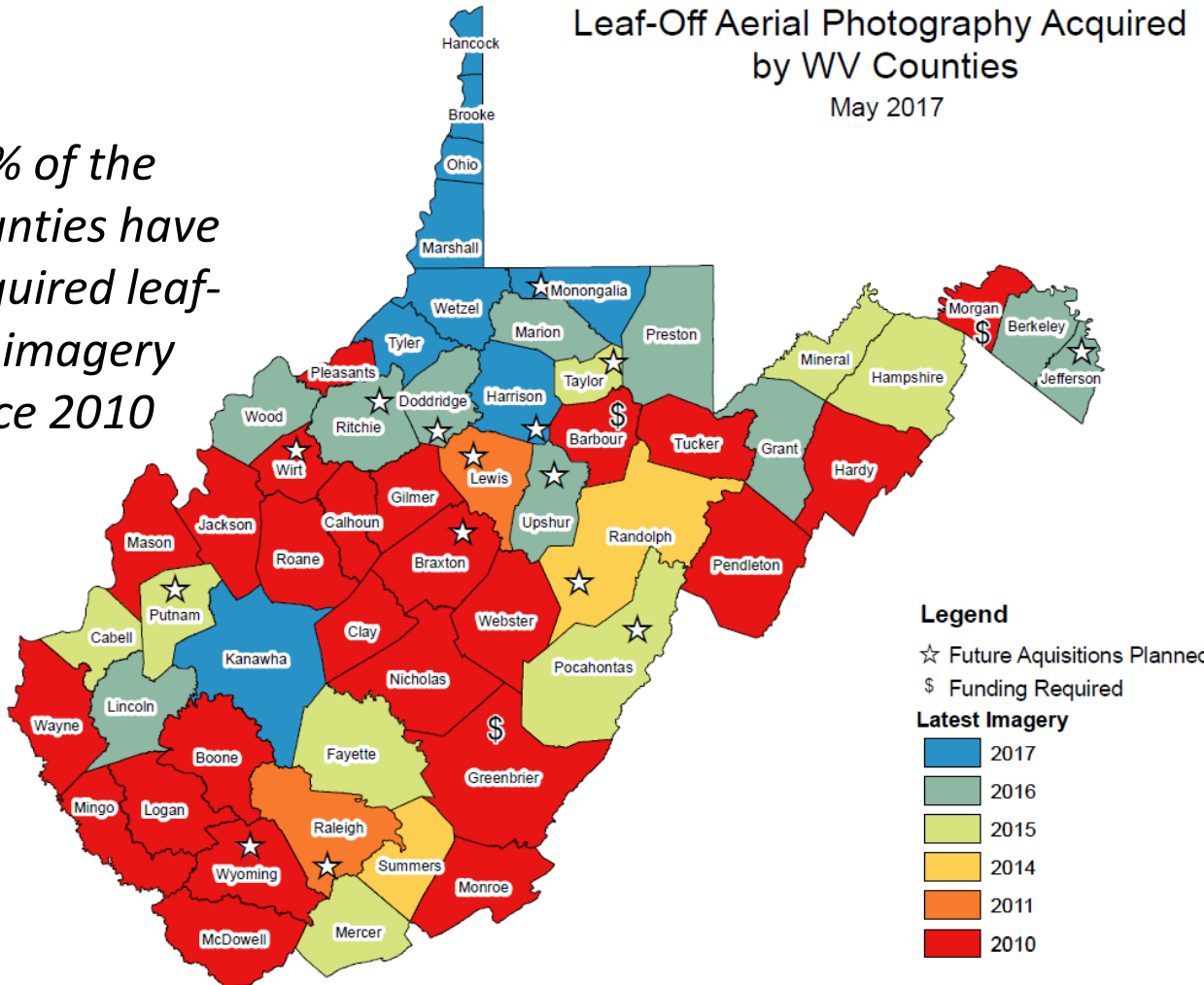


Contact your assessor about including parcels in WV Flood Tool

Aerial Imagery

55% of the counties have acquired leaf-off imagery since 2010

Leaf-Off Aerial Photography Acquired by WV Counties
May 2017



What is the cost?

\$70 per square mile for aerial imagery

Source: County GIS

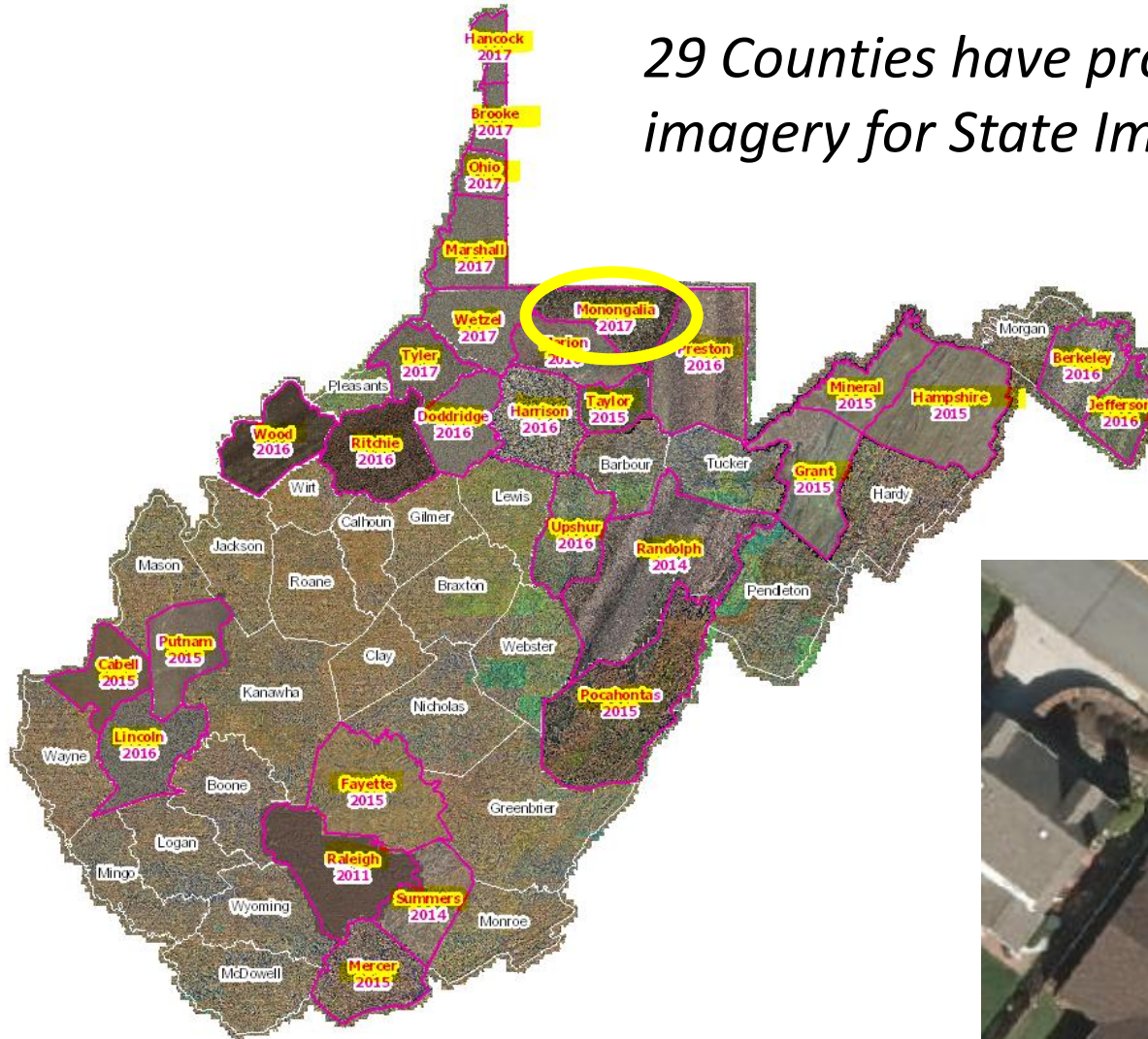
Map Created by WVGISTC: 6/2/2017

Ideally, leaf-off imagery should not be older than 5 years. Imagery is important for identifying at-risk structures and accurate disaster mapping.

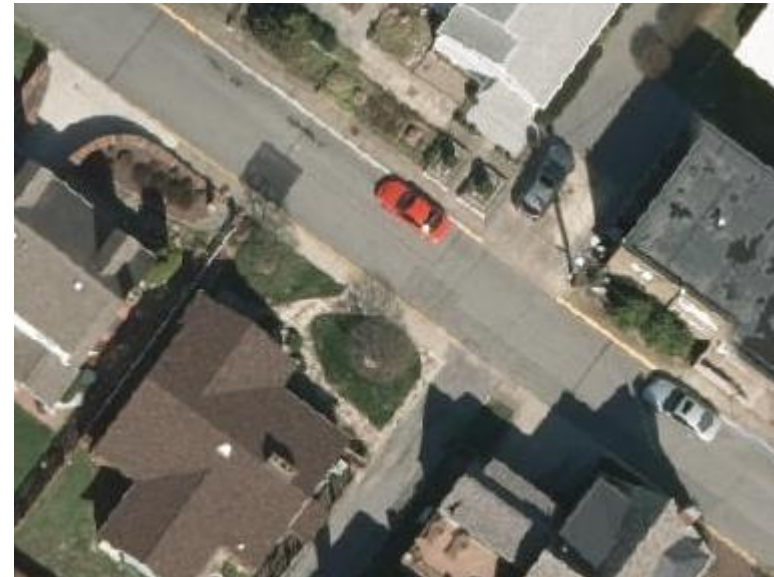
Leaf-Off Aerial Imagery Web Service

https://services.wvgis.wvu.edu/arcgis/rest/services/ImageryBaseMaps/wv_aerial_photos_mixed_resolutions_wm/MapServer?f=jsapi

29 Counties have provided leaf-off imagery for State Imagery Web Service



2017
Monongalia
County
Aerial Imagery



Aerial Imagery Costs

| Source ---> | WV Area (Sq. Miles) | | Target Counties |
|-------------------|---------------------|--------------|-----------------|
| Categories ---> | Area | % | |
| WV Totals ---> | 24,231 | \$ 1,696,200 | |
| COUNTY ↓ | | | |
| Barbour County | 343 | \$ 23,994 | \$ 23,994 |
| Berkeley County | 322 | \$ 22,513 | |
| Boone County | 503 | \$ 35,225 | \$ 35,225 |
| Braxton County | 516 | \$ 36,134 | \$ 36,134 |
| Brooke County | 92 | \$ 6,458 | |
| Cabell County | 288 | \$ 20,163 | |
| Calhoun County | 281 | \$ 19,646 | \$ 19,646 |
| Clay County | 344 | \$ 24,070 | \$ 24,070 |
| Doddridge County | 321 | \$ 22,436 | |
| Fayette County | 668 | \$ 46,788 | |
| Gilmer County | 340 | \$ 23,806 | \$ 23,806 |
| Grant County | 480 | \$ 33,616 | |
| Greenbrier County | 1,024 | \$ 71,714 | \$ 71,714 |
| Hampshire County | 645 | \$ 45,127 | |
| Hancock County | 88 | \$ 6,185 | |
| Hardy County | 585 | \$ 40,916 | \$ 40,916 |
| Harrison County | 417 | \$ 29,164 | |
| Jackson County | 472 | \$ 33,013 | \$ 33,013 |
| Jefferson County | 212 | \$ 14,811 | |
| Kanawha County | 911 | \$ 63,775 | |
| Lewis County | 390 | \$ 27,285 | \$ 27,285 |
| Lincoln County | 439 | \$ 30,703 | |
| Logan County | 456 | \$ 31,894 | \$ 31,894 |
| Marion County | 312 | \$ 21,806 | |
| Marshall County | 312 | \$ 21,854 | |



| | | | |
|-------------------|-------|-----------|-----------|
| Mason County | 445 | \$ 31,139 | \$ 31,139 |
| McDowell County | 535 | \$ 37,446 | \$ 37,446 |
| Mercer County | 421 | \$ 29,450 | |
| Mineral County | 329 | \$ 23,041 | |
| Mingo County | 424 | \$ 29,656 | \$ 29,656 |
| Monongalia County | 366 | \$ 25,614 | |
| Monroe County | 474 | \$ 33,158 | \$ 33,158 |
| Morgan County | 230 | \$ 16,078 | \$ 16,078 |
| Nicholas County | 654 | \$ 45,812 | \$ 45,812 |
| Ohio County | 109 | \$ 7,620 | |
| Pendleton County | 698 | \$ 48,875 | \$ 48,875 |
| Pleasants County | 135 | \$ 9,422 | \$ 9,422 |
| Pocahontas County | 942 | \$ 65,933 | |
| Preston County | 651 | \$ 45,602 | |
| Putnam County | 350 | \$ 24,529 | |
| Raleigh County | 609 | \$ 42,657 | \$ 42,657 |
| Randolph County | 1,040 | \$ 72,800 | |
| Ritchie County | 454 | \$ 31,753 | |
| Roane County | 484 | \$ 33,866 | \$ 33,866 |
| Summers County | 368 | \$ 25,741 | \$ 25,741 |
| Taylor County | 176 | \$ 12,299 | |
| Tucker County | 421 | \$ 29,479 | \$ 29,479 |
| Tyler County | 261 | \$ 18,250 | |
| Upshur County | 355 | \$ 24,842 | |
| Wayne County | 512 | \$ 35,856 | \$ 35,856 |
| Webster County | 556 | \$ 38,933 | \$ 38,933 |
| Wetzel County | 361 | \$ 25,297 | |
| Wirt County | 235 | \$ 16,440 | \$ 16,440 |
| Wood County | 377 | \$ 26,389 | |
| Wyoming County | 502 | \$ 35,130 | \$ 35,130 |

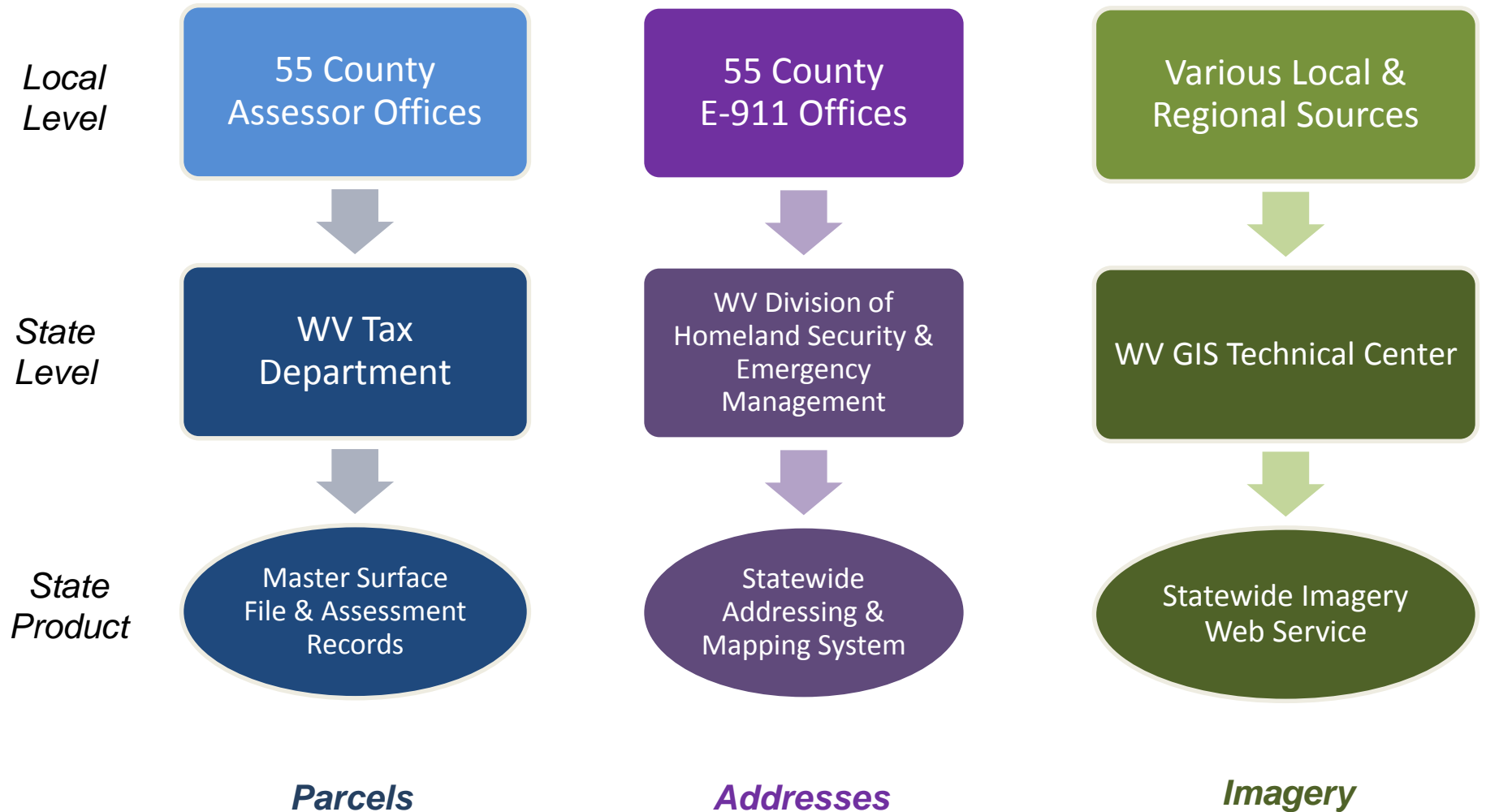
Currentness
Yellow highlighted counties indicates imagery older than 5 years.

Resolution
6-inch resolution or better

Leaf-Off
WV 3rd most forested state (78% forested)

Funding Sources
Assessor Valuation or County Commission Funds

State-Level Integration



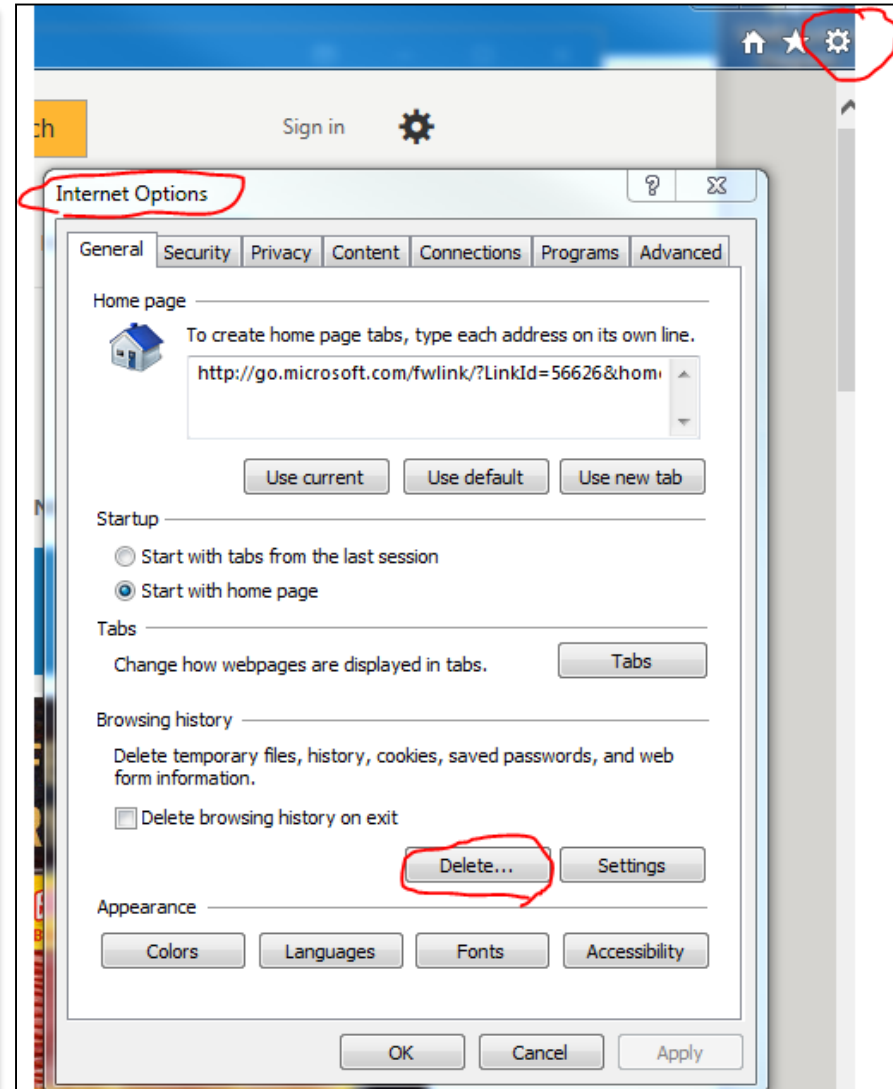
Other & Future Enhancements

- **Other Enhancements Accomplished**
 - Added Leaf-on USDA NAIP 2016 Statewide Imagery & WV DEP Hillshade
 - Best Leaf-Off imagery updated with aerial imagery from 29 counties
 - Parcels added for 36 counties, with 2 counties pledged by end of summer
 - Added Tug Fork Detailed Restudy
 - Improved Parcel ID Search tool
 - Embedded FloodSmart.gov Cost Calculator (*currently out of service due to security breach*)
 - Link to National Weather Service Advanced Hydrologic Prediction Service (AHPS)
 - Links to Flood Smart and Flood Risk Documents
 - Updated WV Address Locator Services
 - Re-programmed toolbar icons for restrictive settings on federal IE web browsers
 - Improved drawing and text markup tools
 - Update contact list of Floodplain Managers
 - Update statewide mitigated buyout properties flood layer
 - Added floodway to mobile application, updated data layers, services, flood queries
 - Added nearly 1.5 million assessor attribute records for Tax Year 2017 to include building specific information for commercial/industrial/apartment properties
- **Future Enhancements**
 - Add Upper Mon. Detailed Restudy (includes BFE grid)
 - Add new advisory floodplains and depth grids for A and AE Zones
 - Update statewide elevation grid with new lidar acquisitions
 - Acquire digital parcel and addressing layers for all counties
 - Add flood risk assessments and products for all counties
 - Improve building and essential facility inventories for risk planning
 - Incorporate 3D flood visualization models of communities (requires building footprints)
 - Add Historical Flood Inundation and Dam Break Inundation maps from external sources
 - Reclassify statewide water depth grid

Clear Browser Cache

Remember to clear browser cache to access all the current information and updates of Flood Tool

- Step 1
 - Press [Control]+[F5] on the keyboard. This is a FORCED refresh.
- Step 2
 - This process is more complicated. To do it thoroughly follow these steps.
 - close all browser windows
 - open a single browser
 - go to [Tools] on the top menu
 - select [Internet Options]
 - You will get a dialog box similar to the one shown below.
 - Press the [Delete Files] button. This should clear all the files in your browser cache.



Statewide Coverage Goals

- *In 2 years...*
 - Advisory Flood Heights (AFH) for Approximate A Zones and model Ordinance
- *In 3 years...*
 - Building-Specific Inventories
 - Site-Specific Flood Risk Assessments
 - Statewide Parcel File
 - Composite Depth Grid
 - Restudies
 - Advisory A & AE Zones



Technical Questions about Tool?

WVU GIS Technical Center

- **Eric Hopkins**

eric.hopkins@mail.wvu.edu, phone: 304-293-9463

- **Kurt Donaldson**

kurt.donaldson@mail.wvu.edu, phone: 304-293-9467