WV Flood Tool Reference Layers

Reference Layers

Elevation

Aerial Imagery

E-911 Addresses

Parcels / Assessment Records

Building Footprints

4/8/2020 Update

Flood Tool Reference Layers

Elevation

WV Flood Tool Updates

Elevation

- Grant, Hampshire, Hardy, Mineral, Pendleton, Mercer; partial coverage Lincoln, Mason, Putnam, Wayne Counties
 - 2017-18 FEMA-Purchased LiDAR
 - 1-foot contours; 1-meter resolution Digital Elevation Model (DEM)

Berkeley and Morgan Counties

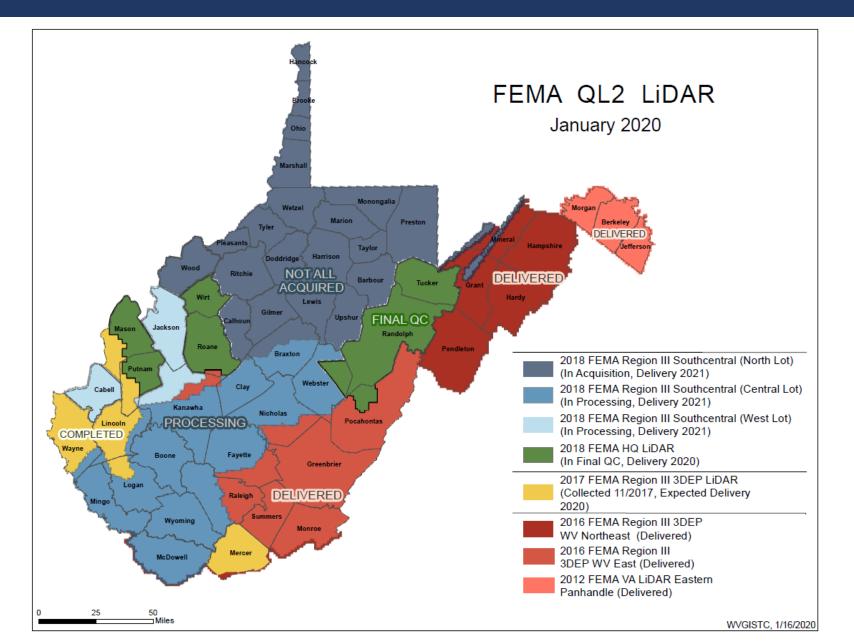
 Created 2-foot contours from 2012 FEMA-Purchased LiDAR DEM and published to WV Flood Tool

Logan County

- o 2018 County-Purchased LiDAR
- Published 1-foot resolution DEM to WV Flood Tool
- Published new statewide DEM and Hillshade Grids to Flood Tool
- Updated Source Elevation Metadata

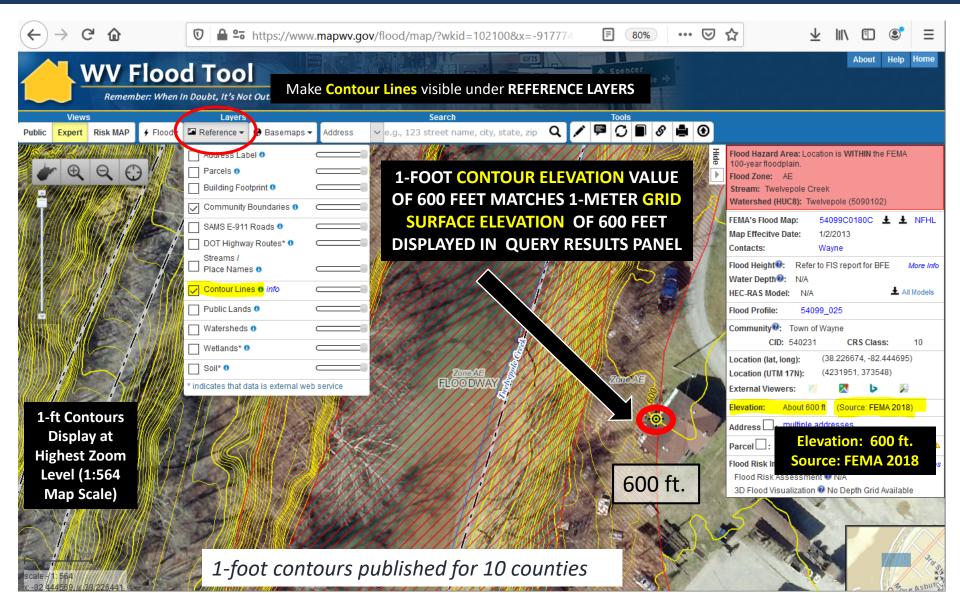
https://www.mapwv.gov/floodtest/docs/WV_FloodTool_ElevationSource_Metadata.pdf

FEMA Purchased LiDAR Coverage



Ground Elevation: 1-ft. Contours

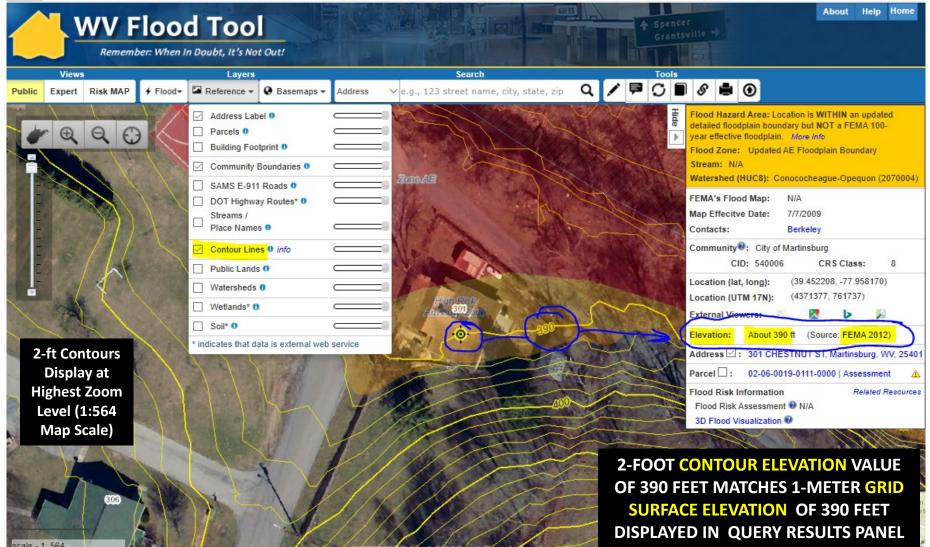
nttps://www.mapwv.gov/flood/map/?wkid=102100&x=-9177701&y=4611497&l=13&v=2



FEMA LiDAR-Derived Products: 1-M DEM and 1-Foot Contours

Elevation: 2-ft. Contour Creation

2-foot contours created for Berkeley and Morgan Counties

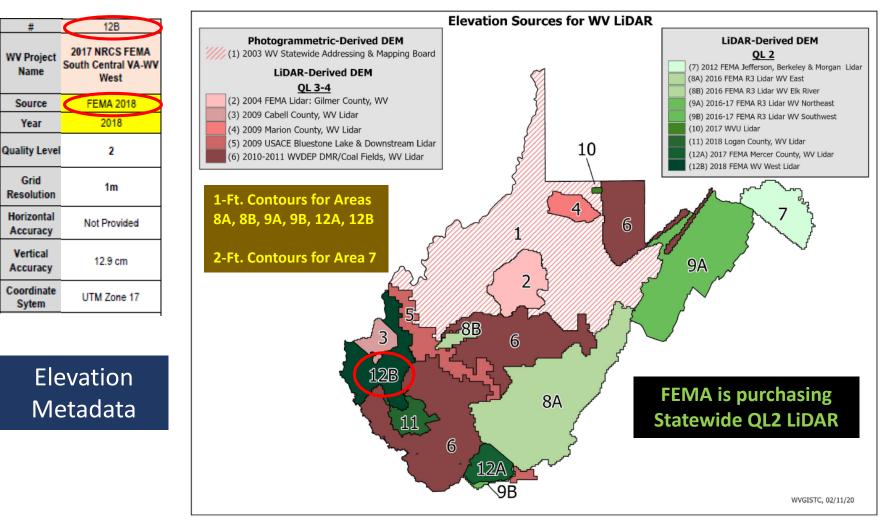


x: -77.958288, y: 39.451884

@WVGISTC-Leat-Off Mixed-Resolution Imagery

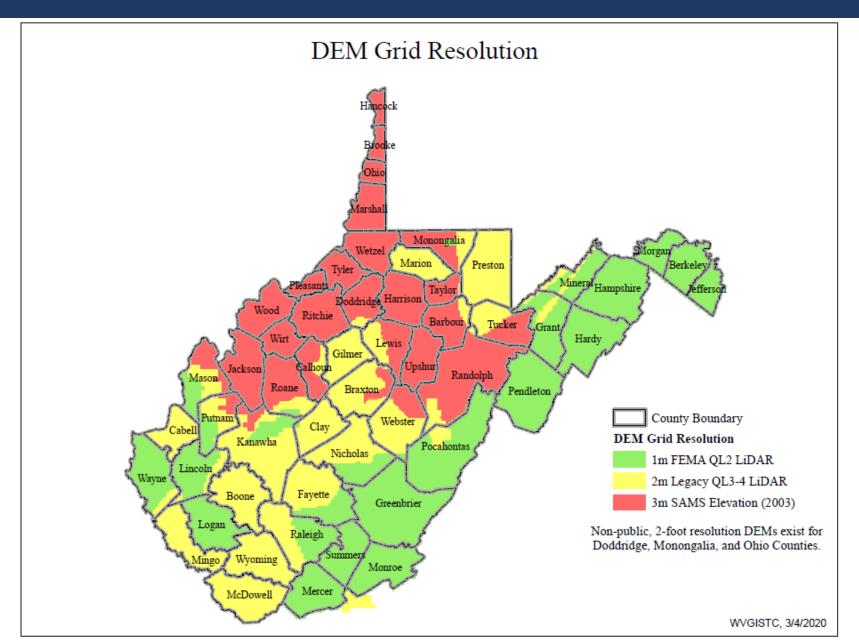
Elevation Data Sources

Source Graphic



WV Elevation Source Listing and Graphic: https://www.mapwv.gov/floodtest/docs/WV_FloodTool_ElevationSource_Metadata.pdf

DEM Grid Resolution



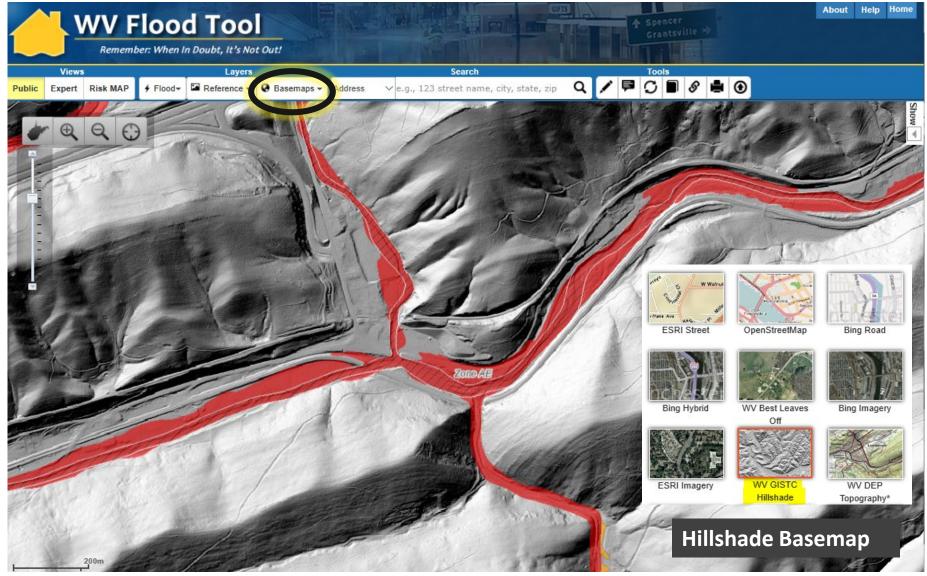
Statewide Elevation Layers

Elevation Grids, Hillshade Grids, Contours, **used** for Flood Depths, Imagery Orthorectification

Layer	Source	Coverage
SAMB	2003 SAMB, 3-meter, 10-foot contours	Statewide
Lidar	Lidar, 2-foot or 1-foot contours	Select Areas
SA	V DEP MB-Lidar Ishade	

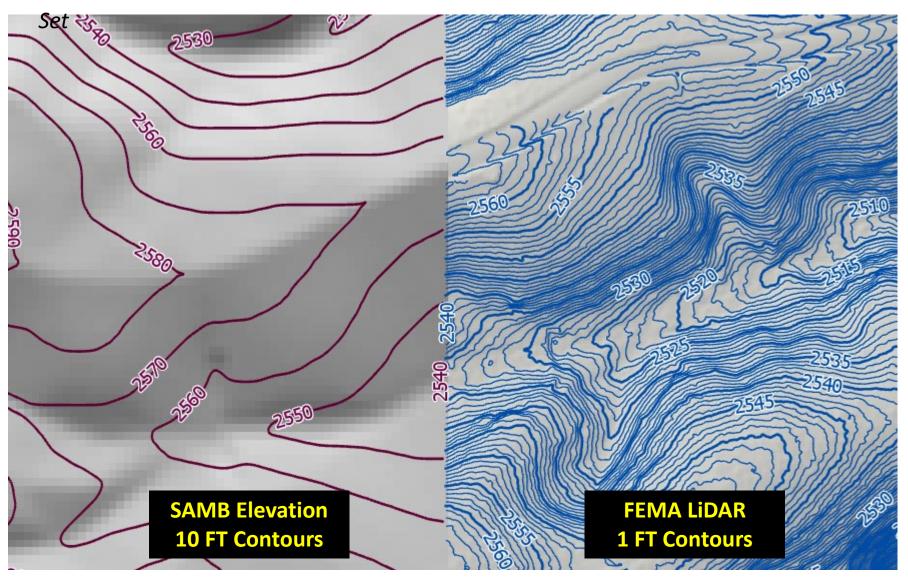
Statewide Hillshade Basemap Product

A hillshade is a grayscale 3D representation of the surface



High Resolution Contours

New FEMA LiDAR-Derived Contours are **10x** better than 2003 Statewide Elevation Data



Flood Tool Reference Layers

Aerial Imagery

WV Flood Tool Updates

New Aerial Imagery

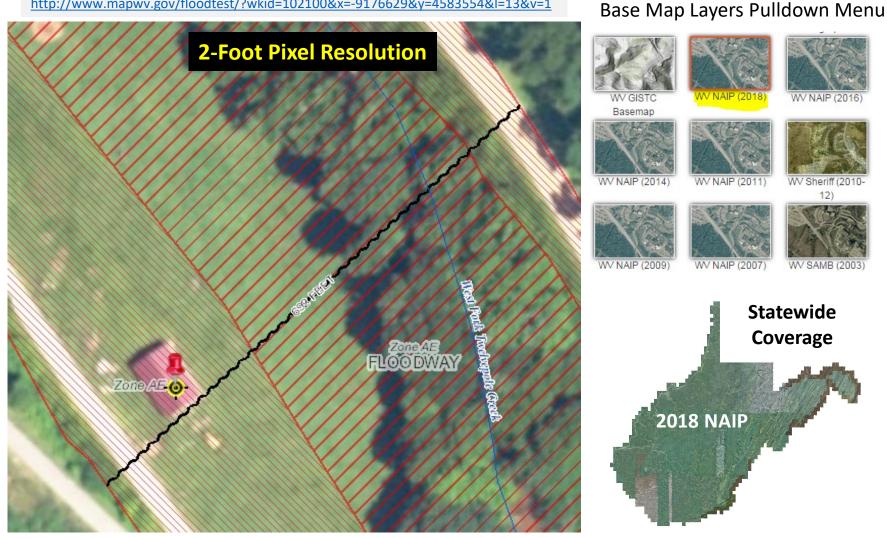
- 2018 USDA National Agriculture Imagery Program (NAIP) 2-ft pixel resolution. Statewide Coverage.
- **2019 County Leaf-Of Aerial Imagery** Typically 4-inch pixel resolution. 20 Counties.
- Over 20 counties have tapped into the State Aerial Imagery Contract supported by the Hazard Mitigation Grant for the acquisition of 2019-20 imagery.

Imagery can vary greatly in resolution. Pixel resolution refers to the actual distance on the ground that each pixel represents in the orthophotography. For example, four-inch pixel resolution means that each pixel in the image covers four inches on the ground.

New 2018 NAIP Aerial Imagery

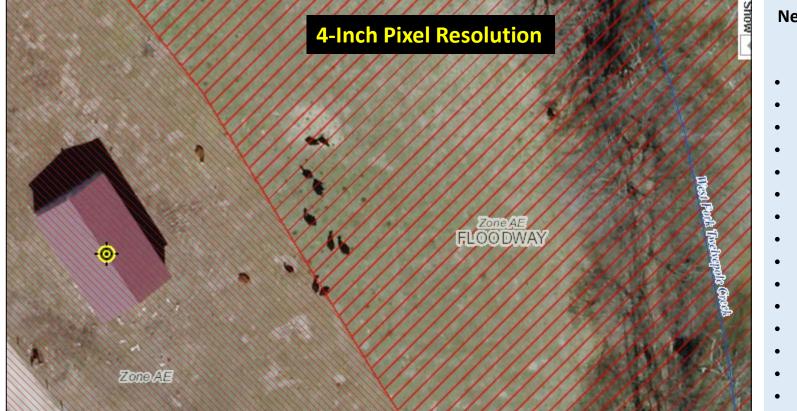
Choose WV NAIP (2018) from

http://www.mapwv.gov/floodtest/?wkid=102100&x=-9176629&y=4583554&l=13&v=1



New 2019 Leaf-Off Aerial Imagery

http://www.mapwv.gov/floodtest/?wkid=102100&x=-9176629&y=4583554&l=13&v=1



Choose WV Best Leaves Off Base Map

Off



W Best Leaves



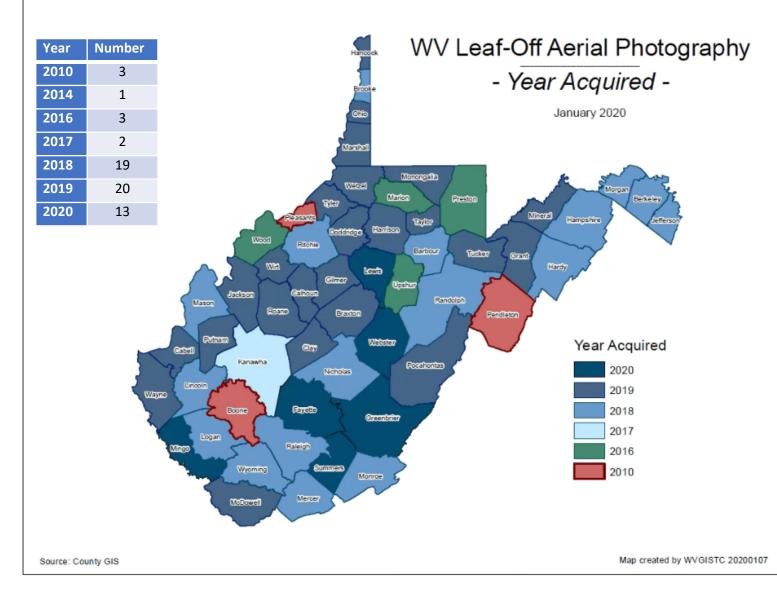
Bing Imagery

Cows in the Floodway West Fork Twelvepole Creek, Wayne County

New 2019 Imagery on Flood Tool

- Braxton
- Cabell
- Calhoun
- Clay
- Doddridge
- Gilmer
- Harrison
- Jackson
- Marshall
- Monongalia
- Ohio
- Pocahontas
- Putnam
- Roane
- Taylor
- Tucker
- Tyler
- Wayne
- Wetzel
- Wirt

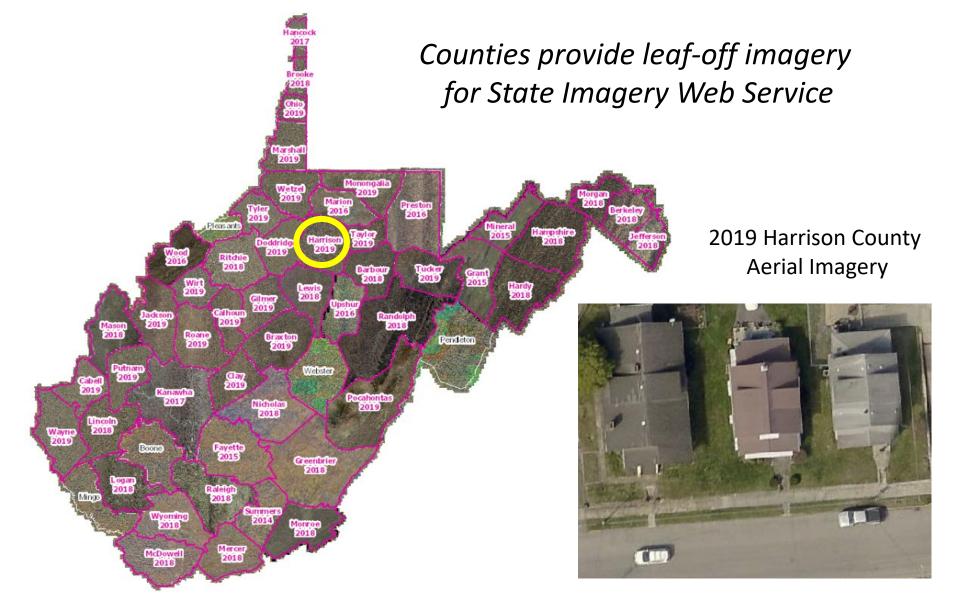
County Aerial Imagery (2020)



Ideally, leafoff 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/Imagery_BaseMaps_EarthCover/wv_imagery_WVGISTC_leaf_off_mosaic/MapServer



Flood Tool Reference Layers

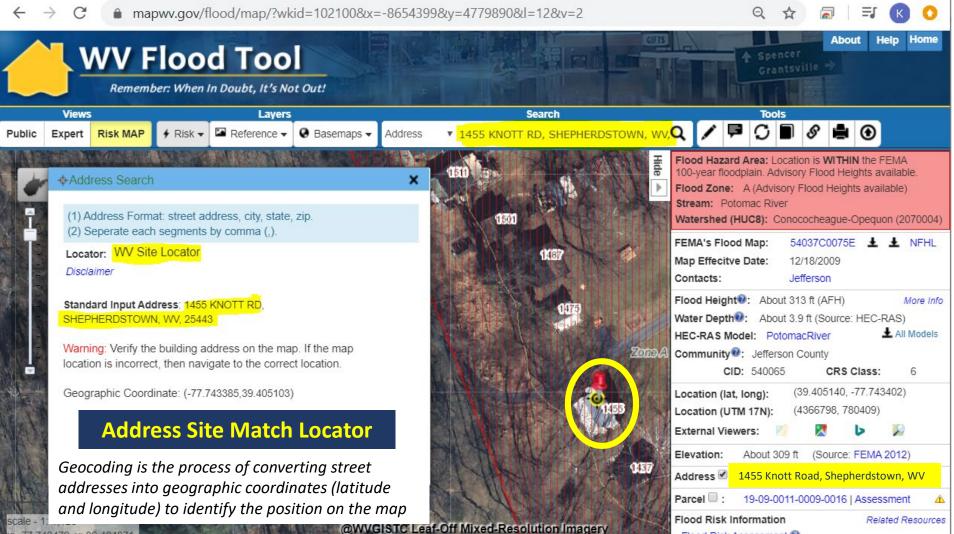
E-911 Addresses

E-911 Addresses

- Address Matching Geocoding Services: Updated geocoding services of WV Flood Tool from new Statewide Addressing and Mapping Files
- Community Addressing Projects: Incorporated new addresses from Hazard Mitigation Grant Addressing Projects
- **Building Identifier:** The E-911 <u>Address Number</u>, combined with the Parcel Identifier, forms the Building Identifier for identifying structures for flood risk assessments, building pictures, LOMAs, Elevation Certificates, etc.

E-911 Addresses

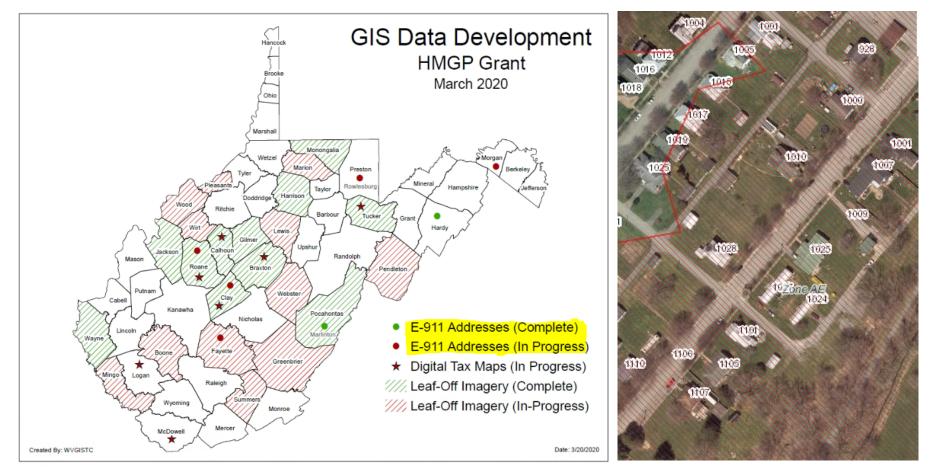
Address Match Locators Updated on WV Flood Tool



Flood Risk Assessment @

E-911 Addresses

Improved Addresses Uploaded to WV Flood Tool



HMGP Addressing Improvement Projects

Marlinton, WV

Flood Tool Reference Layers

Parcels / Assessment Records

WV Flood Tool Updates

Parcels / Assessment Records

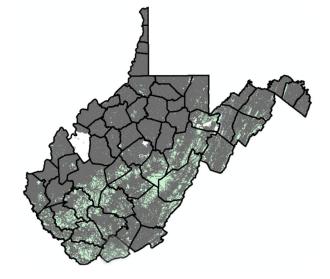
- Tax Year 2019 Parcels and Assessment Records: Updated Flood Tool with 1.4 million tax parcel and assessment records for Tax Year 2018.
- Parcel Assessment Reports: Updated Parcel Web Reports including building sketch diagrams.
- **Building Identifier:** The <u>Parcel Identifier</u>, combined with the E-911 Address Number, forms the Building Identifier for identifying structures for flood risk assessments, building pictures, LOMAs, Elevation Certificates, etc.

Statewide Digital Parcel File



2013 WEST VIRGINIA STATEWIDE STANDARD HAZARD MITIGATION PLAN UPDATE

ID	Description	Priority <i>(H</i> , 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.	IH	DHSEM, WVGISTC	Agency budget			All, except Dam & Levee

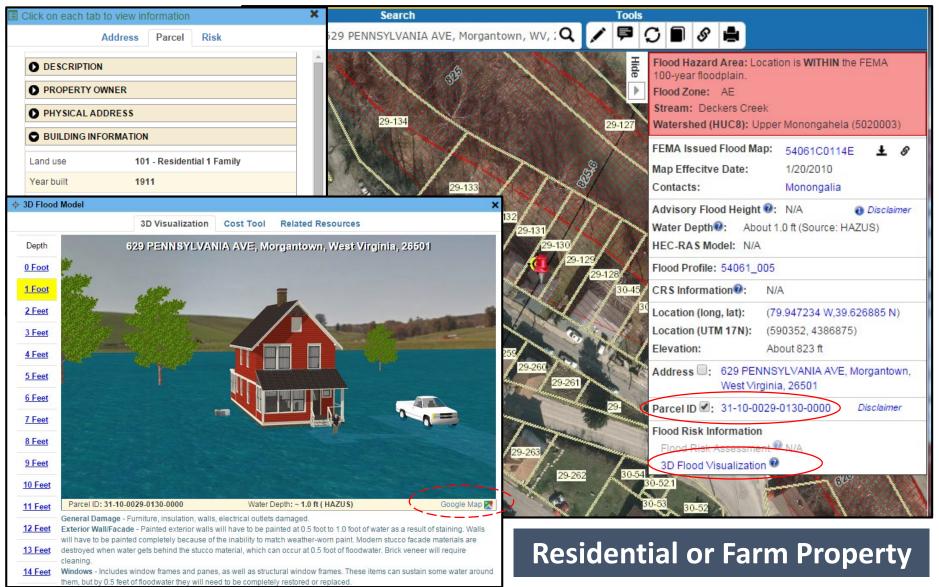


High Priority of 2013 State Hazard Mitigation Plan

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



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)	Cusith John		
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	С		
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.mapwy.gov/flood/map/?v=0&pid=31-14_0031-0101_0000



14 East Annliances - Most annlicances (refrigerator stove dishwasher washer driver) are a total loss between 1 0 and 2 0 feet of wate



	2
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

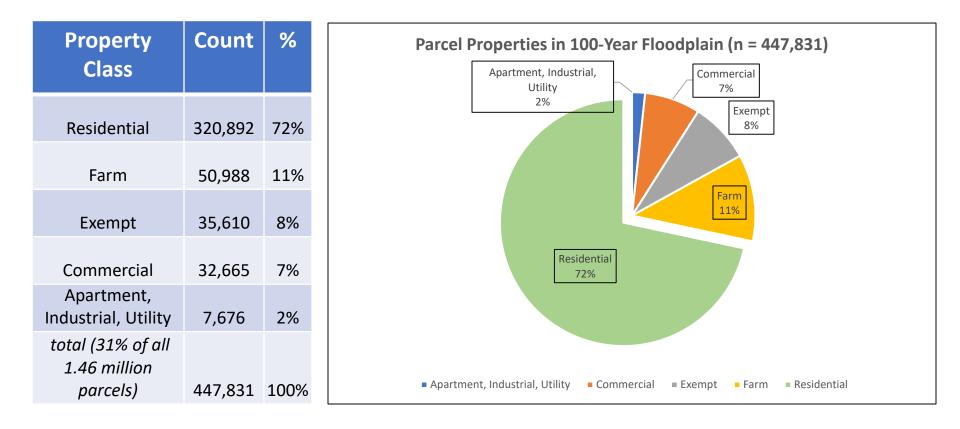
Total Property Parcels

West Virginia Parcel Property Class Breakdown for Tax Year 2017 (Computed from statewide parcel file that is 95% complete)

Code*	Property Class	# of Parcels	Percent (%)	
R	Residential	1,164,470	79.61%	
F	Farm	121,384	8.30%	
А	Apartment	3,222	0.22%	
С	Commercial	65,784	4.50%	
	Industrial	3,105	0.21%	
Х	Exempt	97,773	6.68%	
U	Utility	192	0.01%	
Other	Not classified	6,837	0.47%	
		1,462,767	100.00%	
	Property Parcels intersecting 100-YR floodplain	447,831	31%	

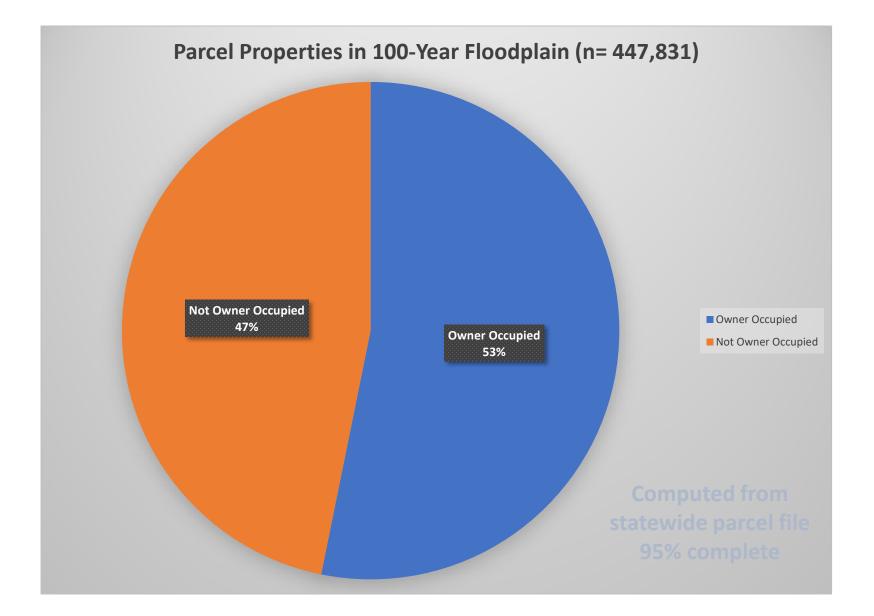
Assessment records are important for **building inventories** and are used to estimate the total building exposure (\$) and building loss (\$) for multi-hazards. Often building inventories and corresponding loss estimates are organized by **property class**.

Parcels in 100-YR Floodplain

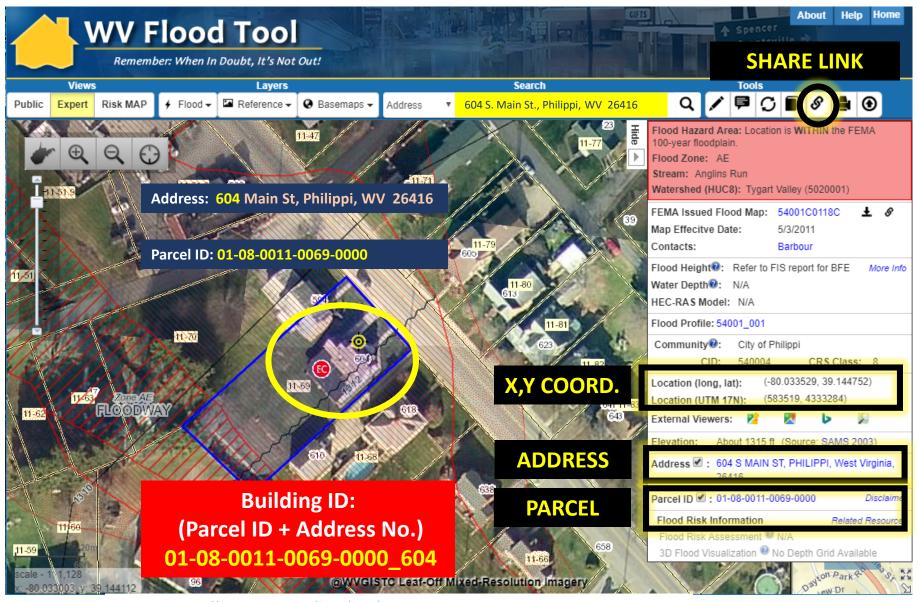


Computed from statewide parcel file 95% complete An estimated **450,000 property parcels** or 31% of total 1.46 million statewide parcels intersect the 100-YR floodplain (Tax Year 2017) A more detailed sitespecific building analysis is needed statewide

Parcels in 100-YR Floodplain



Property Identification – Bldg. ID

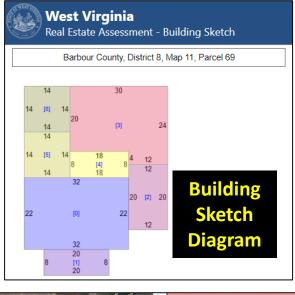


Share Link: https://www.mapwv.gov/flood/map/?wkid=102100&x=-8909292&y=4742427&l=12&v=1

Property Parcels and Assessment Reports

E-911 and County Assessor report location at 604 S Main Street

WV Real Estate Assessment Data					Ano			
About New Se	arch Structure	Drawing						
Parcel ID Root PID		-0069-0000 06900000000	Tax Year	2019	County	Barbour	Date	3/25/2020
Property Owner a	nd Mailing A	ddress						
Owner(s)								
Mailing Address	645 MAPLE	645 MAPLE AVE, PHILIPPI, WV 26416						
Property Location								
Physical Address	604 S MAIN	N ST						
E-911 Address	604 S MAIN	N ST PHILIPPI WV	/ 26416			Dropo	ctv	
Parcel ID	01-08-001	1-0069-0000				Prope	L Y	
County	1 - Barbou	r				Assessm	nent	
District	8 - Philippi	Corp						
Map	0011	(Click for PDF ta:	x map)			Repo	rt	
Parcel No.	0069					Repo		
Parcel Suffix	0000							
Map View Link	https://mag	pwv.gov/parcel/?	pid=01-0	8-0011-00	69-0000			
General Informati	on							
Tax Book /	Deeded	Calculated						
Class Page	Acres	Acres	Legal [Descriptio	n			
4 460 / 231	0.405	0.405 0.42 PT OF LOT 6, PARCEL, STRICKLER						
		0.42						
Cost Value				А	ppraisal Val	ue		
Dwelling Value	\$65,700			La	nd Appraisal	\$8,300		
Other Bldg/Yard Valu	es \$0			В	uilding Apprai	sal \$65,700		
Commercial Value				Тс	tal Appraisal	\$74,000		
Building Informat	on							
Property Class	R - Reside	ntial						
Land Use 101 - Residential 1 Family								
Sum of Structure Area								
# of Buildings (Cards)	.,							
							Square	<u> </u>
Year				Ext	terior		Footag	
Card Built Storie	s CG	Architectural	Style		Vall	Basement Type	(SFLA	
1 1946 2	2P	Convention	nal	В	rick	Part	1,75	\$65,700
							1,75	





Share Link: https://mapwv.gov/Assessment/Detail/?PID=0108001100690000000

Property Parcels

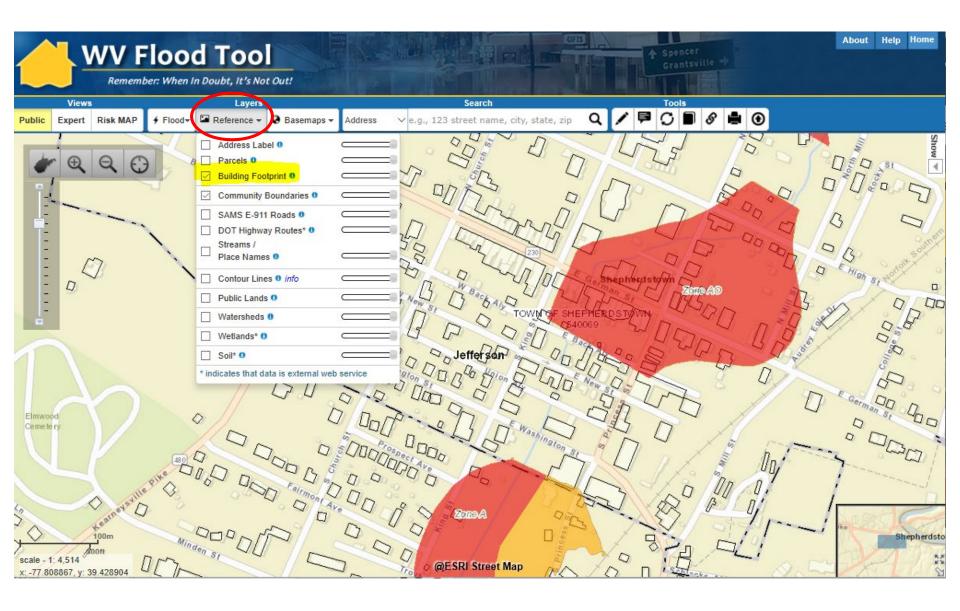
Web Assessment Reports

- Ownership
- Building Identification
- Building Characteristics
- Building Sketch Diagrams
- Outbuildings
- Cost Values
- Land Use
- Tax Class (Owner Occupied)
- Parcel History (15 years)

Flood Tool Reference Layers

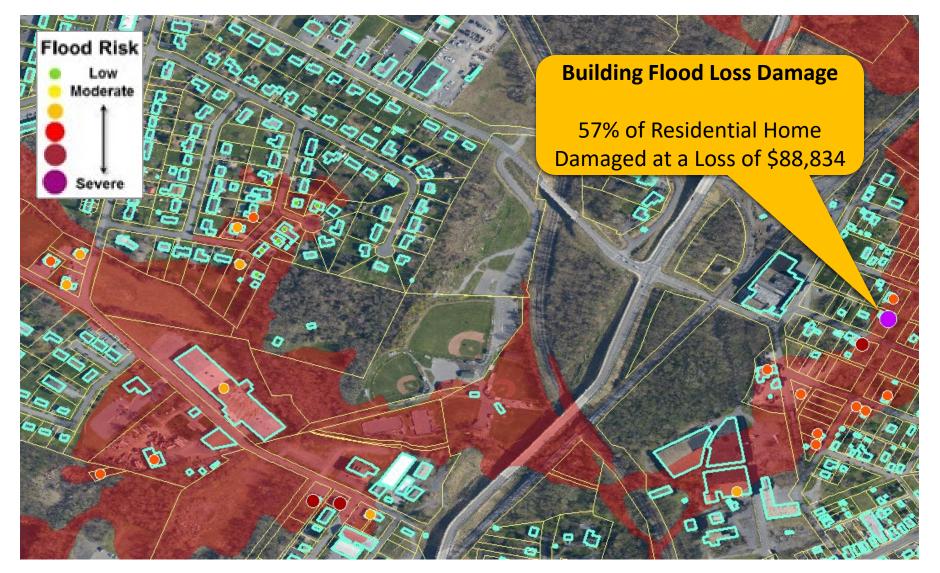
Building Footprints

Building Footprints



Building Footprints

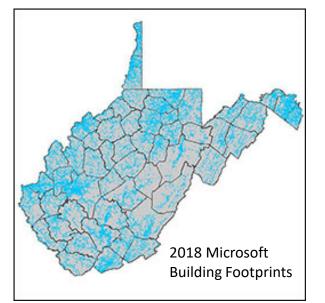
Building footprints can enhance flood risk assessment maps



Building Footprints

Statewide building footprint reference layer created from best available sources

Layer	Source	Coverage	
2003 SAMB	2003 2-ft. resolution leaf-off imagery, Statewide Addressing & Mapping Board (large buildings only)	Statewide	
Counties	6" or better leaf-off imagery	Select Counties	
2018 Microsoft Building Footprints	Statewide dataset contains 1,020,048 building footprints generated by Microsoft in 2018. The building footprint extraction was done in two stages: semantic segmentation, recognition of building pixels on aerial images, and polygonization, converting of building pixels to polygons.	Statewide	



How are BUILDING FOOTPRINTS beneficial?

- Improves the locational pin-pointing of structures for multi-hazard assessments
- Enhances visual representation of structures on 2D flood risk maps
- Necessary for 3D flood visualization models
 - Building footprints extruded to known heights
 - Beneficial to communicating flood risk to communities

Buildings in Floodplain

	# of Structures	Percent (%)
Addressable Structures	1,010,819	91%
Non-Addressable Structures	101,928	9%
total	1,112,747	100%
Buildings in Effective 100-YR floodplains	99,520	9%
Buildings in 100-YR floodplains		
(Effective and Advisory A/Updated AE)	106,967	10%
Buildings in 100-YR and 500-YR floodplains	159,804	14%

- An estimated **100,000** buildings or 9% of all statewide 1.1 million buildings are within the effective 100-YR floodplain.
- An estimated **160,000** buildings or 14% of all statewide 1.1 million buildings are within the 100-YR and 500-YR floodplains.

2018 Data Source: Statewide Addressing and Mapping System (SAMS). Some counties track non-addressable structures in the floodplain while other counties do not.

A more detailed site-specific building analysis is needed statewide

Unique Spatial Identifiers

Building and Parcel Identifiers

Building Unique Identifier

Parcel	01-08-0011-0069-0000		
	01 - 08 - 0011 - 0069 - 0000 County District Map Parcel Suffix		
Address	604 S Main St, Philippi, West Virginia, 26416		

Building Identifier 01-08-0011-0069-0000_604

