# West Virginia Flood Tool
Advisory Flood Height (AFH) data

Expert View

"Improves accuracy and efficiency of floodplain management and permitting decisions"

This Fact Sheet provides information on the Advisory Flood Height (AFH) data which is available on the West Virginia Flood Tool (www.mapwv.gov/flood) for multiple counties.

The data has been developed to provide stakeholders (developers, surveyors, homeowners, floodplain managers, planners, engineers, etc.) with readily accessible flood elevations and depths in areas where that data was not previously available.
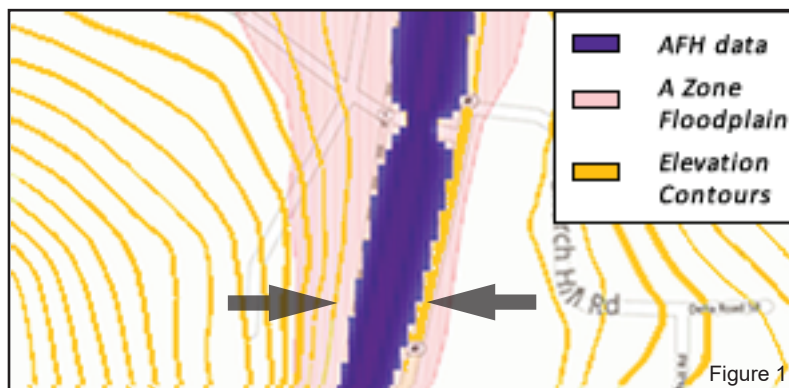
Figure 1

(Figure 1) AFH data better correlates with elevation data as show here comparing floodplain and elevation contours.

AFH Terminology

Advisory Flood Height

The Advisory Flood Height (AFH) is analogous to the flood water surface elevation (WSEL) used in Effective FIRM detailed study areas, and represents the elevation above sea level of the surface of the 1% annual chance or regulatory flood in newly modeled areas of approximate study (Zone A). AFH data are Esri GRID format raster data, the values of which are returned in the results panel when the Flood Tool map is queried. The AFH value for a given location serves as a surrogate base flood elevation (BFE) when the latter is not available. AFH data are subject to limitations as discussed elsewhere in this document.

Advisory Flood Depth

The Depth raster data is displayed in the Flood Tool using a blue gradient to indicate the depth of the 1% annual chance flood. Depth values are reported in the results panel, along with flood zone, county, stream name and other information, when the map is queried. These depth values represent the difference between the Advisory Flood Height (flood water surface) and the ground elevation from the digital elevation model (DEM). Note that the model DEM may not match the ground reference DEM used in the Flood Tool, and differences in elevation values between the model and reference data sets occur in some areas. It may be not possible to obtain an exact flood height (elevation or AFH) by adding flood depth to displayed ground elevation. Advisory Flood Depth data in the Flood Tool should be used as a general guide or visual aid. It should not be used for making flood calculations.

AFH Benefits Summary

Improved approximate floodplain geometry

➤ Boundaries align with best available terrain data (2003 SAMB 3M DEM or better)
➤ Resolves legacy WV DFIRM conversion issues where outdated approximate floodplain boundaries don't match terrain (elevation)

Expanded coverage of flood prone areas

➤ Floodplains developed for all streams draining at least 2 square miles
➤ Communicates real risks in areas not mapped in Effective FIRMs/DFIRMs

Updated Flood Models for floodplain determinations

➤ USGS regression equations used to compute discharges
➤ Geo-referenced HEC-RAS models support AFHs
➤ AFHs support LOMA determinations
➤ Improves accuracy and efficiency of floodplain management and permitting decisions

Enhanced utility of and/or access to datasets

➤ Access via http://www.mapwv.gov/flood
➤ Depth and water surface information available
➤ Models can be upgraded to FEMA detailed studies
➤ HecRas models avaliable for download

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FEMA

AFH Availability

AFH data is currently available in 37 West Virginia Counties. Remaining counties may be added in the future depending on the availability of funding. Refer to Figure 2 for a map of counties which currently have AFH data available. While the revised floodplain delineations associated with AFH development are anticipated to be incorporated into pending/updated Digital Flood Insurance Rate Maps (DFIRM) as best available data, they may not align with current effective DFIRM approximate flood hazard boundaries. Instead, they serve as a supplemental resource for stakeholders to assess and mitigate against the risk of flooding.
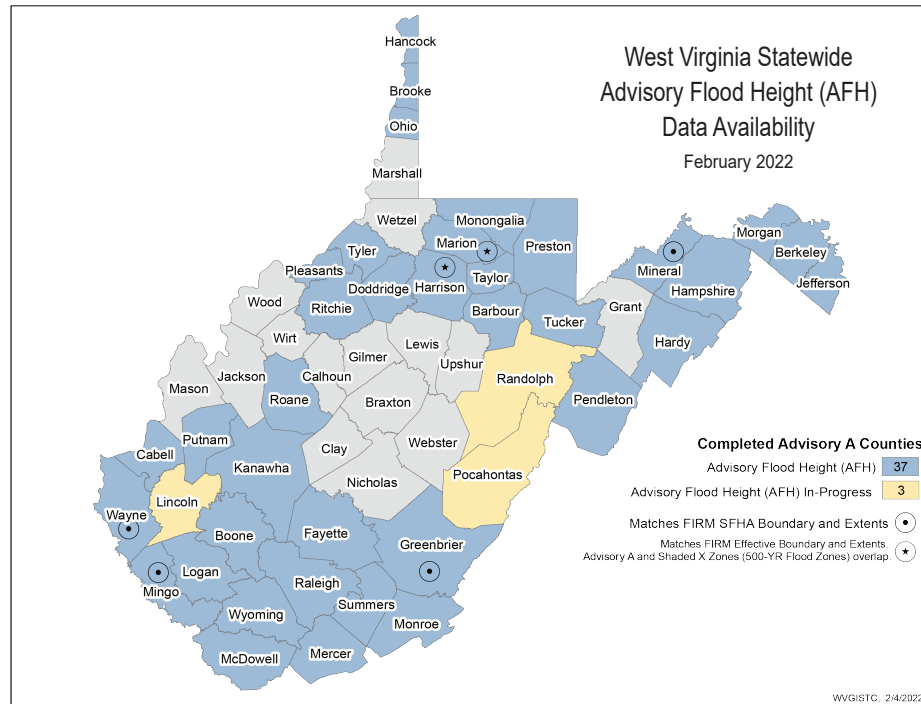

Figure 2

AFH Data Accuracy

The Advisory Flood Height (AFH) floodplains used in the Flood Tool were created using established methods and data, and mimic, in batch pre-processed form, the process used by FEMA for making elevation determinations in support of Letter of Map Amendment (LOMA) processing. All floodplains developed to FEMA standards, whether they are created using methods of detailed or approximate study, are actuarial insurance instruments depicting the horizontal and vertical extent of the 1% annual chance (100-year) flood. AFH data, like the BFEs generated in detailed studies, are not supplied with a range of error but are used as the best available depiction of the elevation and depth of the 1% annual chance flood.

AFH Limitations

➤ No hydraulic structures (bridges/culverts/dams) considered – AFH's may be inaccurate near structures

➤ No reservoir routing/attenuation of flood discharges incorporated

➤ AFHs do not support BFEs on FEMA FIRMs

➤ No channel/bathymetric survey data included

➤ Floodplain boundaries associated with AFHs may not align with DFIRM approximate floodplains