

Update West Virginia's Floodplain Maps to Reduce the Financial and Personal Toll Posed by Flooding

Executive Summary

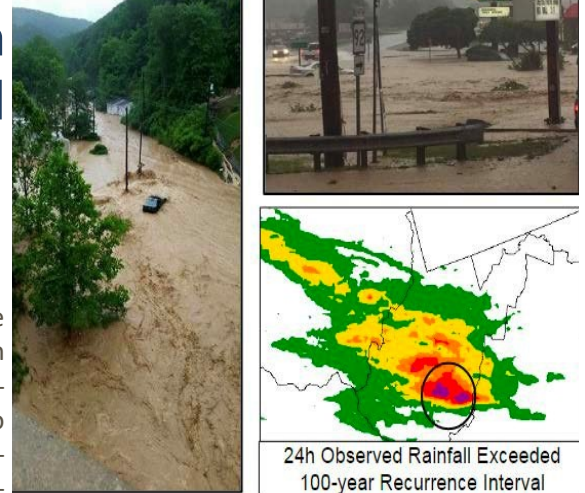
West Virginians face increased personal and financial risk from flood events due to inaccurate Federal Emergency Management Association (FEMA) floodplain maps. Due to this inaccuracy, West Virginians may not know they are in a floodplain so that they are unaware they are at personal risk if flooding occurs and do not purchase flood insurance coverage. West Virginia policymakers should partner with FEMA to update floodplain maps to incorporate both existing and projected extreme rainfall data to better inform citizens of flood risk.

Introduction

West Virginia has a long history of extreme rainfall leading to flooding events. According to West Virginia's 2018 [Statewide Standard Hazard Mitigation Plan Update](#), all counties in West Virginia were ranked as having a high level of risk for flooding.

When flooding events do occur, the financial, social, and human toll are significant. As the frequency of extreme rainfall events increases due to climate change, the risk from flooding in West Virginia is predicted to be as high as that in coastal areas.

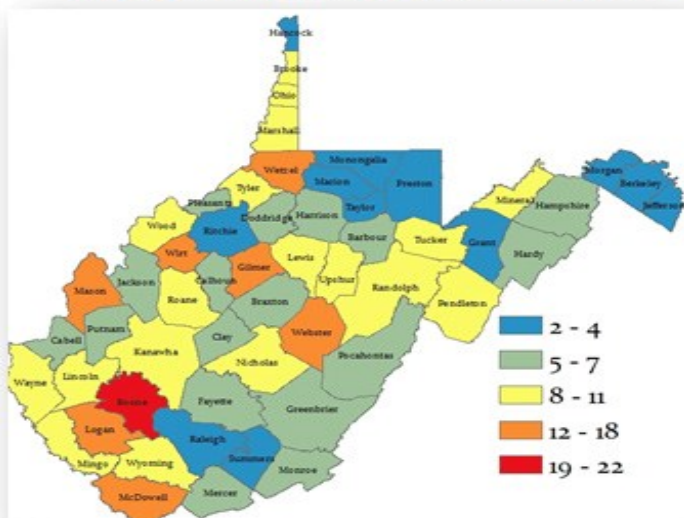
FEMA's current floodplain maps are based on historical data rather than potential future climate impacts. These maps indicate that [almost 100,000 housing units](#) in West Virginia are in floodplains. However, this number can be deceiving because many areas affected by past flooding have been located outside of the mapped floodplain and therefore many homeowners did not have flood insurance--even though they were eligible for this insurance.



Key Messages and Recommendations

- Inadequate and inaccurate FEMA floodplain maps for West Virginia, put homeowners and businesses at risk since not all homeowners who need insurance know that they should obtain it
- Only 16% of particularly vulnerable structures are covered by flood insurance
- West Virginia's policymakers can partner with FEMA to reconstruct and update its floodplain maps to incorporate both existing and projected extreme rainfall data. This would allow citizens and government entities to better prepare for current and projected increased incidences of flooding due to climate change by improving flood insurance and infrastructure investments.

% population living in 100-yr FP



Source: [Percent of West Virginia Population Living in 100 Year Floodplain](#). (Professor Nicholas Zegre) (2021)

Outdated Flood Maps and Inadequate Flood Insurance in West Virginia

Many homeowners do not realize that their homes can be flooded even if they live outside a FEMA floodplain. Because of this mistaken assumption, many eligible homeowners do not purchase flood insurance. This is true not only in West Virginia but nationwide. [According to one study](#),

the total US population exposed to serious flooding is 2.6–3.1 times higher than previous estimates, and . . . nearly 41 million Americans live within the 1% annual exceedance probability floodplain (compared to only 13 million when calculated using FEMA flood maps). We find that population and GDP growth alone are expected to lead to significant future increases in exposure, and this change may be exacerbated in the future by climate change.

What Can Be Done?

According to West Virginia’s 2018 Statewide Standard Hazard Mitigation Plan Update, only 16% of the 99,520 to 159,804 structures in Special Flood Hazard Areas (SFHA) have flood insurance. The number of homes with flood insurance is significantly lower in rural communities with 500 or fewer homes in the Special Flood Hazard Area (SFHA) and communities where less than 50% of the homes are in the SFHA. What steps can West Virginia policymakers take to reduce the personal and financial risk posed by floods to West Virginians?

- **West Virginia’s policymakers can partner with FEMA to reconstruct and update its floodplain maps to incorporate both existing and projected extreme rainfall data.** This would allow citizens and government entities to better prepare for current and projected increased incidences of flooding due to climate change by improving flood insurance and infrastructure investments.
- **Policymakers could request that the USACE study the potential effects of climate change on existing local flood protection projects (e.g., levees and floodwalls).** West Virginia communities can leverage existing USACE authorities to reduce flood risk through technical assistance, such as modeling flood risk or implementing structural and non-structural flood management measures.
- **Policymakers could consider voluntary buyouts of frequently flooded properties in anticipation of future flooding events, not only after flooding events occur.** In the past, buy-out programs occurred in Elkins, West Virginia, allowing residents in floodplain areas to move out of the area. This occurred when both Tucker and Randolph counties received Presidential disaster declarations after repeated flooding. According to the 2018 West Virginia State Hazard Mitigation Plan: “the acquisition demolition program has been so successful that communities now equate mitigation to ‘buy out’ and that has become the new normal.”

For More Information: This policy brief, written by Rachel Yesenchak, West Virginia University PhD Candidate, is based on a policymaker guide entitled *Waters of West Virginia: A Science and Technology Policy Perspective*, published under West Virginia University’s [Bridge Initiative in Science and Technology Policy, Leadership, and Communications](#).

The Bridge Initiative identifies challenges and opportunities facing West Virginia and provides a bridge between the science and technology expertise of WVU faculty and staff and West Virginia’s national, state, and local policymakers. In our work, we gather the views of stakeholders throughout the state to ensure we are making recommendations that serve the needs of West Virginians. To see the full policymaker guide, go to <https://scitechpolicy.wvu.edu>.

Photo Credit: [National Weather Service](#), The Historic and Devastating Floods of June 23rd 2016, West Virginia

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