



Impact of CFPF Funding on Buchanan County

After severe flooding in 2021 and 2022, Buchanan County applied for and received grant funding from the Community Flood Preparedness Fund to develop a Flood Resiliency Plan.

As climate change continues to unfold, extreme weather events are becoming more and more likely. One such extreme weather event that has increased is extreme precipitation, which often leads to flooding. Extreme flooding has detrimental impacts on communities, especially low-income ones. Flooding can lead to loss of life, property and infrastructure damage, water contamination, and more. And flooding does not only impact coastal communities: inland communities also experience sudden and dangerous flooding.

Building Flood Resilience in Buchanan County

Buchanan County is one of the inland communities that has experienced increased flooding in recent history. Located in southwestern Virginia, Buchanan County is 508 square miles and has a population of just over 20,000, according to the 2020 census. Also according to the census, the median household income in Buchanan is \$37,093, and 23.9% of residents live below the poverty line. The county has two aspects that make it prone to intense damage from flooding: its history of mining and its v-shaped valleys. Because Buchanan County is former coal country, it experienced deforestation and soil instability that leads to flood waters moving faster and more dangerously. This issue is amplified by the county's v-valleys with steep terrain gradients that further accelerate precipitation. This combination makes flooding in Buchanan County faster, more forceful, and more dangerous.

On July 13th, 2022, the county experienced a flood that destroyed 22 homes and 3 businesses, as well as severely damaged 77 others. This flooding event occurred less than a year after a flooding event caused by a depression system resulting from Hurricane Ida. On August 31st, 2021, flash flooding and mudslides destroyed 20 homes and killed one resident. These flooding events and the damage caused by them demonstrate a gap in flood preparedness in Buchanan County. Yet, the county does not have the money or manpower to directly address such a large need. Luckily, for communities like Buchanan that lack the funding to improve flood preparedness measures, assistance exists in the form of the Community Flood Preparedness Fund (CFPF).

The CFPF is a fund managed by the Virginia Department of Conservation and Recreation that provides grant funding to communities to "reduce the impacts of flooding, including flooding driven by climate change." This fund, financed by carbon credits from the Regional Greenhouse Gas Initiative, enables local governments to assess flooding threats, build infrastructure, and train and hire employees to be more prepared for future flooding events. Buchanan applied for and received \$387,500 from the CFPF.

In their application, Buchanan County detailed a plan to identify the most vulnerable and most impacted flooding hotspots, what partner companies they would work with to investigate solutions, and what stakeholders they would consult with to ensure the project was feasible, effective, and desirable for all. One of the partner companies is Resource Environmental Solutions (RES), the largest ecological restoration company in the country. As of January 2023, they were in the process of drafting a Flood Resilience Plan for the county.

Up to this point, RES, as well as environmental assessment firm First Earth and Stantec, have helped lead the assessment process. Using county data, they have worked to assess the risk, capacity, and potential risk reductions for Buchanan County. In aiding Buchanan County in applying for the grant, they identified six sites that, when experiencing extreme flooding, chronically interrupt essential services (like fire stations or water sanitation stations) to the rest of the county. These sites, identified as Buchanan's largest risk sites, are what the Flood Resilience Plan will focus on enhancing and protecting.

As for the capacity, the two firms found instantly that Buchanan County did not have the public funding or personnel to address flooding on its own. This was a large factor that led them to seek funding from the CFPF: without the Fund, Buchanan County never would have been able to begin to address the flooding that impacts the lives of thousands of residents at a rapidly increasing rate.

As for the measures that RES and First Earth are considering to aid Buchanan County with flood resilience, the two consulting groups focus on nature-based solutions. These are solutions that have "green design," or designs that reduce the negative effects of construction and upkeep on human health and the environment. This is because nature-based designs will not only protect the vulnerable population and environments within Buchanan County, but also score more highly and therefore make proposals more likely to be funded by the CFPF. The primary goals of these nature-based solutions are to reduce harm caused by floods, not to assist those in the community who have already suffered from floods.

Tactics to address future flooding include creating floodplains, slowing river velocities, and potentially buying residents out of homes in direct danger. The latter is the least preferred of potential solutions. Some more specific measures to accomplish these goals include expanding culverts, removing debris from previous flood events, and creating water storage and diversion for incoming flood waters.

At the first two public meetings the county hosted to gain input from residents on these projects, Buchanan representatives learned that residents supported the plans. Generally, though, people were wanting to know where they could receive assistance from previous floods. Assistance does exist from state-level funding for these residents, but not from the CFPF. If anything, though, this feedback demonstrates the necessity of preventing future floods so that residents are not left with worries about financial assistance for damages ever again.

Yet luckily, Buchanan County is very close to having its first draft of the Flood Resilience Plan ready to share with the public. By the end of January 2023, RES and First Earth will be ready to share their findings from combing through county flood damage and environmental planning data to make recommendations for exactly what prevention solutions to pursue. At that point, the project team will solicit public comments to improve the draft plan. Once the project team has addressed all concerns from the public comments, they will finalize the plan and submit it to the Virginia Department of Conservation and Recreation to attain more funding. Ideally, if the CFPF is still in operation at that point, Buchanan County can be awarded more funding to execute on their finalized Flood Resilience Plan. At that point, the county could begin constructions, excavation, and implementation for whatever ideal solutions they were able to find because of the initial funding received from the CFPF to make the community safer for all residents.

Without the CFPF, the planning department of Buchanan County would not have the money or manpower to make the county a safe place against flooding for its residents. The CFPF enabled the county to hire top professionals from the environmental consulting field to help address the life-threatening and recurring problem of intense flood events. Now, the county understands the problem and the impacts it has on its residents in a way it could not afford to before. With this first round of funding, Buchanan County is in the process of creating a truly meaningful and effective Flood Resilience Plan. And, if the CFPF continues to be an available resource, they can execute on that plan and save homes, businesses, and families in the future. The CFPF has enabled Buchanan County, and many others, to begin the process of saving lives.

Bibliography:

<https://www.epa.gov/climate-indicators/weather-climate#:~:text=Rising%20global%20average%20temperature%20is,with%20human%2Dinduced%20climate%20change>

<https://www.epa.gov/climate-indicators/climate-change-indicators-heavy-precipitation>

<https://ecology.wa.gov/Air-Climate/Responding-to-climate-change/Flood-impacts#:~:text=The%20adverse%20effects%20of%20flooding,closures%2C%20erosion%2C%20and%20landslide%20risks>

<https://www.census.gov/quickfacts/buchanancountyvirginia>

<https://www.wdbj7.com/2022/07/15/least-22-homes-destroyed-buchanan-county-flooding/>

<https://www.wjhl.com/news/local/update-1-killed-in-buchanan-county-floods/?ipid=promo-link-block1>

<https://www.dcr.virginia.gov/dam-safety-and-floodplains/dsfpm-cfpf>

<https://www.thoughtco.com/what-is-green-architecture-and-green-design-177955>

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