



Impact of CFPF Funding on Christiansburg, VA

The Town of Christiansburg applied for and received grant funding from the Community Flood Preparedness Fund to develop a Flood Resiliency Plan.

As extreme weather conditions become more commonplace, it has become vital to build communities that have the tools, resources, and infrastructure to handle the higher frequency of storms. A common concern for many of these localities is the increase in extreme flooding that they have experienced recently. Frequent flooding has caused added stress to drainage systems, further damage to infrastructure, and increased risk of loss of human life. The lack of flood resilience has left homeowners increasingly anxious and angry about recurring residential flooding.

Building Environmental Resilience in Christiansburg

The Town of Christiansburg, located in Montgomery County in southwestern Virginia, is a locality that has experienced a rise in flooding in recent years. The Town covers 14.1 square miles. It has experienced rapid growth over the past three decades, growing from a population of just over 10,000 in 1980 to a population of just over 21,000 in 2010. This growth rate is over double the population growth rate for the state of Virginia. The population is projected to reach nearly 32,000 by 2040. The Town's population is 89.5% White, and the median age is 35.4 years. The median household income is \$63,934 with 12.9% of the population living in poverty. The Town sits on the Eastern Continental Divide by the Roanoke River and the New River, which make it especially vulnerable to flooding. The recurrence of high intensity storms in the past few years has further stressed the Town's drainage conveyance systems which has exposed areas beyond the pre-designated 100 year and 500 year flood zones that are susceptible to regular flooding.

During Memorial Day Weekend in 2020, the Town experienced a significant flood event which prompted Declarations of Emergency and left many residents, particularly those living on College Street, dealing with flooded yards, basements, and houses. The flooding was a main point of discussion during the Town Council meeting following the holiday with many of the citizen comments revolving around questions about what the Town's solution was for storm-water issues. Brian Hendricks, a town resident for eight years, expressed his frustration with the lack of storm-water drainage saying, "The system in place clearly can't handle what is being fed to it with disastrous consequences."

While Mayor Barber and all the council members expressed sympathy for residents affected by flooding, their temporary solutions were reactive rather than proactive flooding prevention. This Memorial Day Weekend flooding event motivated leaders in the Town to look at opportunities to receive assistance in designing for resilience. The volume of improvement projects exceeded the Town's funds, leading them to apply for a grant given by the Community Flood Preparedness Fund (CFPF) for building flood preparedness.

With the advice of a consultant and the approval of the Water Waste Committee, the Town of Christiansburg applied for the CFPF grant in November 2021. The Town requested \$37,100.25, which is 75% of the anticipated total project cost, and planned to cover the remaining 25% of the anticipated costs. It received a grant of \$44,520.30.

The application included background on the Town geography, its flooding concerns with photographs of streets, yards, and homes filled with brown water, and the areas of the Town that have already been identified as particularly vulnerable. It also detailed the Town's proposal to develop a flood resilience plan that will include sections such as Project Management, Literature Review and Gap Analysis, and their goals for the final resilience plan. It outlined a timeline for each stage of the project, named project personnel, the breakdown of costs for each section, and the Town's budget for the project.

Mike Kelley, engineering director for the Town of Christiansburg, and Justin Sinclair, assistant engineering director, both serve as project managers for the CFPF project. According to Kelley, as of January 2023 they are still in the initial stages of the project and are about half way through the first stage. Since they began, they have focused on educating their community about what a resilience plan is and why building resilience is important for the Town. Sinclair says that, to many people in the Town, the project was thought of as a capital improvement plan to address stormwater issues, so they had to take time to explain what the project would actually entail.

The Town has also begun its initial assessment and has completed about 80 percent of the Gap Analysis as of January 2023. The Gap Analysis has helped to organize the information they already know, integrate studies that have already been done, identify the areas of the Town that are facing the most flooding issues, and determine the causes of those issues. In this initial assessment, the Town has identified previously unreported areas of localized flooding. Sinclair explained that the localized flooding has been caused by various factors including development that occurred prior to the current regulations for stormwater management and the flat geography in areas on the upper part of the watershed. Through the assessment, the Town found that one of the most vulnerable areas for localized flooding sits a few hundred yards from the Eastern Continental Divide. Because of its close proximity to the continental divide, it was not previously thought about when discussing areas with stormwater issues. However, the initial assessment has led to the discovery that this flat area at the crest of a hill receives large quantities of stormwater. Another discovery that the initial assessment made was that previous unregulated growth, particularly the development of Interstate 81, has led to additional water drainage into the flat area near the continental divide. Kelley emphasized that identifying several new areas that are at risk for extreme flooding is extremely vital because homeowners in these areas are not receiving the proper flood assistance since they are not in the previously designated flood plains. Overall, so far the project has entailed mapping together various vulnerable areas, conducting studies to identify additional at risk areas, and completing some further research on areas about which they need more information and areas that likely will need added assistance.

In the coming months, the project will continue with its Gap Analysis and build resilience based on its findings. Kelley says the information already gathered suggests that most of the Town's current flood plans have been more reactive than proactive. With the CFPF funding, they want to take a more proactive approach and want to be able to build resilience while considering what the Town will need in the future with changing weather patterns and more intense storms. Kelley says that their goal with this project is to build systems today that are resilient in the future, rather than building systems that may be properly designed now but may not ultimately be resilient. The CFPF grant has given the Town of Christiansburg the opportunity to integrate previous projects and studies with the current resilience project in order to build a flood resilience plan rather than simply flood mitigation plans.

Kelley emphasized that flooding projects cannot be fixed quickly. He explained that building resilience is a years-long process that takes time to do well. He says that building resilience starts with residents bringing attention to flooding issues, then spending time to study the issues that are brought up, finding funds, then designing and constructing the flood resilience plan. He knew going into this project that they would need to be patient with it because it would take time. Kelley has found that it takes many years and funds to build environmental resilience but also highlighted that engaging in a project such as the Resilience Plan as soon as possible is extremely important for ensuring the environmental safety of the residents of the Town of Christiansburg.

Bibliography:

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