**Scope of Work Narrative**

# ASSESSMENT OF NEEDS AND PROBLEMS

Flooding is among the most devastating natural disasters in the United States, causing billions of dollars in damages annually and endangering lives and communities. While coastal flooding often dominates headlines, rural, inland areas face significant and unique challenges when it comes to flood risks and resilience. Like many communities and regions across the Commonwealth, increasing flooding events are having devastating impacts on communities in the Southwest region of Virginia where the impact of flooding is compounded by geographic, economic, and social factors. Specifically, in Southwest Virginia, particularly Wise County, flooding has far-reaching impacts that extend beyond local concerns such as public safety, roads, community livability, and economic viability; they also disrupt vital regional and statewide economic and transportation corridors, underscoring the urgent need for enhanced flood resilience in the region. All these make flood resilience a pressing issue for the region.

## Geographic and Environmental Factors

Southwest Virginia, including Wise County, is characterized by its mountainous terrain, steep slopes, and narrow river valleys. These features make the region particularly susceptible to flash flooding. Intense rainfall events, often associated with storms, can quickly overwhelm streams and rivers, causing water levels to rise rapidly. The area’s geology, dominated by impermeable rock and clay-rich soils, further exacerbates flooding by limiting the natural absorption of water. As a result, runoff is accelerated, increasing the likelihood and severity of flood events. Moreover, the region’s legacy of coal mining has had a lasting impact on the landscape and hydrology. Decades of mining have altered natural drainage patterns, weakened soil stability, and left behind abandoned mine lands that contribute to surface water management challenges. When combined with deforestation and other land-use changes, these factors have increased the frequency and intensity of flooding in the region.

In addition, long-term climate stressors cannot be ignored. For a region like Wise County, where the existing infrastructure is not equipped to handle extreme events, increased precipitation will likely lead to more frequent and intense flash floods, putting additional strain on already vulnerable communities.

## Economic Challenges

Rural areas, including Wise County, face significant economic constraints that hinder their ability to address flood risks. The region is undergoing an economic transition due to the downturn of the coal industry, which was once the economic backbone of the area. While this shift presents opportunities for diversification and growth, it has also resulted in job losses, population decline, and reduced tax revenues, creating challenges in allocating resources for infrastructure improvements and flood mitigation efforts. Flooding exacerbates these economic challenges by damaging critical infrastructure such as roads, bridges, and utilities. Many of these structures are aging and not designed to withstand the increasing intensity of flood events. The cost of repairing and upgrading infrastructure is often beyond the budgetary capabilities of rural counties, leaving communities vulnerable to repeated flood damage.

In addition, flooding can disrupt local businesses and agricultural operations, which are key components of the region’s economy. Farms located in flood-prone areas may lose crops and livestock, while businesses may face prolonged closures due to water damage. These economic disruptions further weaken the financial resilience of the community, creating a cycle of vulnerability that is difficult to break.

## Social Vulnerabilities

The social fabric of rural communities like those in Wise County adds another layer of complexity to flood resilience. Many residents in these areas face socioeconomic challenges, including low-income levels, high rates of unemployment, and limited access to healthcare and education. These factors make it more difficult for individuals and families to recover from flood events. Housing in rural areas often includes older homes that are more susceptible to flood damage. Many residents lack flood insurance, either because it is not available in their area or because it is prohibitively expensive. As a result, families bear the full financial burden of rebuilding and repairing after a flood, which can push them further into poverty. Transportation and access to emergency services are additional challenges. The mountainous terrain and dispersed population make it difficult to maintain roadways and ensure quick access to emergency services during flood events. Washed-out roads and bridges can isolate communities, delaying response times and increasing the risk to life and property.

A map of the united states

Description automatically generated

Figure 1. Census Block Group-level Social Vulnerability Index score adopted from VFRIS

## Forced Migration and Community Displacement

Flooding in rural areas also contributes to forced migration and community displacement. As flood events become more frequent and severe, some families and businesses may choose to leave the area altogether. This trend is particularly concerning in regions like Wise County, where population decline is already a significant issue. The loss of residents further erodes the tax base, making it even more difficult for local governments to invest in resilience efforts. Displacement can also disrupt the social networks that are a hallmark of rural communities. These networks play a critical role in disaster response and recovery, providing informal support systems for those affected by flooding. When residents are forced to relocate, the loss of these connections can weaken the community’s overall resilience.

**The Need for a Resilience Plan**

Responding to and planning for growing flood risks is difficult for any community. These challenges are especially acute for low-income, historically disadvantaged, and underserved communities, where assessing flood risks using the best available science and adequately mitigating them through structural and non-structural measures is challenging due to limited technical and financial resources. For Wise County, developing a Flood Resilience Plan is critical to addressing these challenges effectively. A resilience plan provides a strategic framework for identifying flood risks, prioritizing mitigation projects, and coordinating efforts across jurisdictions. It ensures that communities can access vital state and federal funding opportunities, such as the Virginia DCR Community Flood Preparedness Fund (CFPF). Notably, having an approved resilience plan is a prerequisite for Wise County to apply for CFPF "Project" type grants, which can provide the necessary financial support for major flood risk mitigation strategies and projects. By adopting a resilience plan, Wise County can enhance its ability to protect lives, infrastructure, and economic assets while building a more sustainable and secure future for its residents.

# GOALS AND OBJECTIVES

**The primary goal of this project is to develop a comprehensive Flood Resilience plan for Wise County.** In doing so, we will leverage our initial scoping and benchmarking effort that was conducted for the LENOWISCO PDC region as part of a Phase 2 CFPF Capacity Building and Planning (referred to “LENOWISCO Project” hereafter). Specific objectives include:

a) Establishing an Advisory Committee: We will form an advisory committee consisting of local government officials and stakeholders to guide the development of the Flood Resilience Plan. This committee will ensure that the plan reflects local needs, priorities, and insights.

b) Developing a Preliminary Resilience Plan: Within six months, we will create a preliminary Flood Resilience Plan that adheres to the requirements outlined in Appendix F of the CFPF manual. This plan will:

* Be project-based, focusing on flood control and resilience strategies.
* Incorporate nature-based infrastructure to the maximum extent possible.
* Address flood resilience needs of all parts of the locality, regardless of socioeconomics or race, and include underserved populations.
* Identify and address all flooding in the community, including outside Special Flood Hazard Areas (SFHAs), and document repetitive and severe repetitive loss properties.
* Include equitable property acquisition and relocation strategies where applicable, ensuring acquired lands remain as permanent open space.
* Provide a strategy for debris management.
* Outline administrative procedures for substantial development and improvement within SFHAs.
* Coordinate with other local and inter-jurisdictional projects, plans, and activities, while articulating a clear timeline for implementation.
* Incorporate the best available science, including considerations for climate change, sea level rise, and storm surge, as well as current flood maps.

c) Stakeholder and Public Engagement: We will facilitate a series of community engagement activities to gather feedback from stakeholders and the public. This feedback will be instrumental in shaping the Flood Resilience Plan to address community-specific concerns and priorities.

d) Refining and Finalizing the Plan: Over the following 12 months, we will refine the preliminary plan based on feedback and identify specific projects targeting areas of high flood risk. This iterative process will ensure that the final Flood Resilience Plan is actionable, inclusive, and aligned with the region’s long-term flood resilience goals.

As part of this project, we also aim to enhance local capacity through targeted training and education efforts. Specifically:

* One additional County staff member will obtain certification in floodplain management through the Association of State Floodplain Managers within 24 months of the CFPF award. This certification will strengthen the County’s technical expertise in managing flood risks and implementing mitigation strategies.
* County staff will receive training in resilience planning by participating in relevant courses or conferences, whether in-person or virtual, as opportunities become available. These efforts will build staff capacity to lead ongoing resilience initiatives and foster a culture of proactive flood management.
* We will collaborate with the Advisory Committee to develop and utilize educational and public outreach materials during community engagement activities. These materials will raise awareness of flood risks, inform residents about resilience strategies, and encourage active community participation in the planning process.

By investing in training and public education, we aim to empower Wise County’s local government and residents with the knowledge and tools needed to create a more resilient and prepared community.

# WORK PLAN

## Major Activities and Tasks:

* Formation of the Advisory Committee and stakeholder group.
* Conducting initial scoping and data collection on flood risks and community vulnerabilities.
* Developing a preliminary Flood Resilience Plan that meets the DCR requirements outlined in Appendix F of the CFPF Manual. In developing the plan, we will leverage the preliminary analysis conducted and the evaluation methodology developed in the LENOWISCO PDC project.
* Organizing and hosting community engagement activities to gather public and stakeholder input.
* Refining the plan based on feedback and finalizing project-based mitigation strategies.
* Certifying County staff in floodplain management and providing resilience planning training.

## Responsible Parties:

* **University of Virginia Team**: Lead technical analyses, facilitate community engagement, draft the resilience plan, and provide training. The UVA Team will include two units: Department of Civil and Environmental Engineering of the School of Engineering and Applied Science ([Dr. Shafiee-Jood](https://engineering.virginia.edu/faculty/majid-shafiee-jood) and [Dr. Teresa Culver](https://engineering.virginia.edu/faculty/teresa-b-culver)) and the Department of Urban and Environmental Planning at the UVA School of Architecture ([Dr. Bev Wilson](https://www.arch.virginia.edu/people/bev-wilson))
* **Advisory Committee**: Guide the planning process, ensure alignment with local priorities, and assist in community outreach.
* **County Staff**: Support data collection, attend training sessions, and assist in implementing outreach activities.

## Timeframe:

* Months 1-2: Form Advisory Committee and begin scoping and data collection.
* Months 3-6: Draft and deliver the preliminary Flood Resilience Plan.
* Months 7-18: Host community engagement events, refine the plan, and finalize project-based strategies.
* Months 6-18: Certify staff, complete training, and integrate plan components into local policies.

## Required Partners:

Local government officials from Wise County, the City of Norton, and the participating towns will play a pivotal role in the formation of the advisory committee. This committee may also include key local stakeholders to ensure the Flood Resilience Plan reflects the needs and priorities of the entire community. These partnerships will facilitate coordination, provide critical insights, and guide the planning process.

For our community engagement workshops, which will be public facing, we will reach out to a wide range of stakeholders to gather diverse perspectives and foster inclusive participation. These stakeholders include residents, property owners, students, and business owners. Additionally, we will engage locally active nonprofit organizations whose contributions will ensure the engagement process is comprehensive, inclusive, and informed by expertise across sectors.

## Deliverables:

* Preliminary Flood Resilience Plan (Month 6).
* Finalized Flood Resilience Plan with prioritized projects and implementation timeline (Month 18).
* Educational materials and engagement summaries.
* Certification of County staff in floodplain management.

## Maintenance and Sustainability:

The Flood Resilience Plan will be maintained and updated periodically by County staff to incorporate new data and policies, ensuring its relevance and effectiveness over time. To sustain the project after the agreement period, County staff will continue to receive training and participate in relevant conferences and workshops, building their capacity to lead resilience initiatives and adapt to emerging challenges. Partnerships established during the project will foster ongoing collaboration with state agencies, local stakeholders, and nonprofit organizations, enabling the County to identify and secure funding for future resilience initiatives. By integrating the plan into local policies and leveraging community engagement outcomes, Wise County will ensure the plan's long-term viability and its role as a foundational tool for enhancing flood resilience.

# EVALUATION

Indicators of Success:  
Short-term success will be measured by the on-time and within-budget development and local adoption of a comprehensive Flood Resilience Plan for Wise County within 18 months of the CFPF award. This plan will include a targeted and comprehensive approach to flood mitigation, preparedness, and resilience, meeting the requirements outlined in the CFPF manual. Long-term success will be demonstrated by the certification of at least one County staff member as a Certified Floodplain Manager, with potential additional training in stormwater management and erosion and sediment control. These certifications will equip staff to apply for future resilience project implementation funding and manage regulatory inspections, erosion and sediment control plans, and stormwater management plans effectively.

Data Collection and Usage:  
Data will be collected on flood risks, community vulnerabilities, and available and missing resources across Wise County. This includes tracking repetitive loss properties, identifying underserved areas, and compiling public feedback from community engagement activities. This data will inform the development of the resilience plan and provide a foundation for monitoring the effectiveness of implemented strategies. Additionally, progress in staff certifications and training will be tracked to evaluate capacity-building outcomes.

Cost Effectiveness Evaluation:  
Cost effectiveness will be evaluated by comparing the financial investment in this planning phase with the expected long-term outcomes, such as securing additional funding for implementation projects and reducing future flood-related damages. Regional-level coordination through the LENOWISCO PDC will bring economies of scale, enabling shared strategies and resources to reduce costs associated with resilience plan implementation across multiple localities. Identifying resource gaps and developing solutions that benefit multiple communities will further enhance cost efficiency.

Products, Services, and Outreach Efforts:  
Key deliverables will include the finalized Flood Resilience Plan, certification of County staff, educational materials, and engagement summaries from public outreach activities. Success will be measured through the quality and timeliness of these deliverables, as well as the level of stakeholder and public engagement. The effectiveness of outreach efforts will be assessed by the number of participants in engagement activities and the incorporation of diverse community input into the final plan.

Project Monitoring Plan:  
Progress will be monitored through regular check-ins with the Advisory Committee, quarterly progress reports, and internal project management tools to ensure activities remain on schedule and within budget. Milestones, such as the completion of the preliminary plan, stakeholder engagement events, and staff certifications, will be used to track progress. Any delays or challenges will be addressed through adaptive management strategies, including reallocating resources or adjusting timelines as needed, to ensure the project meets its objectives and delivers high-quality outcomes.

Sustainability and Continuity:  
The resilience plan will be designed to be a living document, updated periodically by County staff to incorporate new data, policies, and climate projections. Staff training and certifications will ensure sustained capacity to lead future initiatives, while regional coordination through the LENOWISCO PDC will facilitate ongoing collaboration and resource-sharing. Additionally, the partnerships and insights developed during this project will position Wise County to secure additional funding for long-term implementation of flood resilience strategies.