3785 - Flood Monitoring and Early-Warning Study for Wise County

Application Details

Funding Opportunity:

3294-Virginia Community Flood Preparedness Fund - Study Grants - CY25 Round 6

Funding Opportunity Due Date:	Dec 1, 2025 11:59 PM
Program Area:	Virginia Community Flood Preparedness Fund
Status:	Under Review
Stage:	Final Application
Initial Submit Date:	Nov 25, 2025 3:59 PM
Initially Submitted By:	Jessica Swinney
Last Submit Date:	
Last Submitted By:	

Contact Information

Primary Contact Information

Active User*:	Yes
Type:	External User
Name*:	Mrs. (Salutation) Jessica (First Name) Middle Name Swinney (Last Name)
Title:	
Email*:	gio@wisecounty.org
Address*:	206 E Main St Wise (City) Virginia (State/Province) 24293 (Postal Code/Zip)
Phone*:	276-219-1393 Ext. Phone ###-###-####
Fax:	###-###-####
Comments:	

Organization Information

Status*: Approved

Name*: County of Wise, VA

Organization Type*: Local Government

Tax ID*: 546001688

Unique Entity Identifier (UEI)*: 195

Organization Website:

Address*: 206 E Main St Rm 210

PO Box 570

Wise (City) Virginia (State/Province) 24293- (Postal Code/Zip)

Phone*: 276-328-7110 Ext.
###-###-####

Fax: ###-###-####

Benefactor:

Vendor ID:

Comments:

VCFPF Applicant Information

Project Description

Name of Local Government*: County of Wise

Your locality's CID number can be found at the following link: Community Status Book Report

NFIP/DCR Community Identification Number (CID)*: 510174

If a state or federally recognized Indian tribe,

Name of Tribe: Jessica Swinney

Authorized Individual*: Michael (First Name) Hatfield (Last Name)

Mailing Address*: 206 E Main St
Address Line 1

PO Box 570
Address Line 2

Wise (City) Virginia (State) 24293 (Zip Code)

Telephone Number*: 276-328-2321

Cell Phone Number*: 276-393-5411

Email*: hatfield_m@wisecountyva.gov

Is the contact person different than the authorized individual?

Contact Person*: Yes

Contact: Jessica Swinney
First Name Last Name

206 E Main St
Address Line 1

Address Line 2

Wise Virginia 24293
City State Zip Code

Telephone Number: 276-219-1393

Cell Phone Number: 276-219-1793

Email Address: gio@wisecounty.org

Enter a description of the project for which you are applying to this funding opportunity

Project Description*:

This study will provide Wise County with a defensible and data-driven roadmap for improving early warning capability, this project reduces uncertainty for emergency managers, strengthens protection for vulnerable communities, and lays the foundation for future structural mitigation and funding applications. The study supports both local and statewide resilience priorities and ensures that Wise County can make informed decisions in the face of increasingly frequent and destructive flood events.

Low-income geographic area means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Is the proposal in this application intended to benefit a low-income geographic area as defined above?

Benefit a low-income geographic area*: Yes

Information regarding your census block(s) can be found at census.gov

Census Block(s) Where Project will Occur*:

511959314002 511959314003 511959315003 511959307001 511959315004 511959313002 511959312002 511959310

Is Project Located in an NFIP Participating Community?*: Yes

Is Project Located in a Special Flood Hazard Area?*: Yes

Flood Zone(s) (if applicable):

Flood Insurance Rate Map Number(s) (if applicable):

Eligibility - Round 4

Eligibility

Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?

Local Government*: Yes

Yes - Eligible for consideration

No - Not eligible for consideration

If the applicant is not a town, city, or county, are letters of support from all affected local governments included in this application?

Letters of Support*: Yes

Yes - Eligible for consideration

No - Not eligible for consideration

Has this or any portion of this project been included in any application or program previously funded by the Department?

Previously Funded*: No

Yes - Not eligible for consideration

No - Eligible for consideration

Has the applicant provided evidence of an ability to provide the required matching funds?

Evidence of Match Funds*: Yes

Yes - Eligible for consideration

No - Not eligible for consideration

N/A - Match not required

Scope of Work - Studies - Round 4

Scope of Work

Upload your Scope of Work

Please refer to Part IV, Section B. of the grant manual for guidance on how to create your scope of work

Scope of Work*: ScopeOfWorkNarrative.pdf

Comments:

Budget Narrative

Budget Narrative Attachment*: Budget Narrative.pdf

Comments:

Scoring Criteria for Studies - Round 4

Scoring

Revising floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan.

Revising Floodplain Ordinances*: No
Select

Creating tools or applications to identify, aggregate, or display information on flood risk or creating a crowd-sourced mapping platform that gathers data points about real-time flooding. This could include a locally or regionally based web-based mapping product that allows local residents to better understand their flood risk.

Mapping Platform*: No
Select

Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA).

Hydrologic and Hydraulic Studies*: No
Select

Funding of studies of statewide and regional significance and proposals will be considered for the studies listed below - Up to 45 points

Studies and Data Collection of Statewide and Regional Significance Scoring:

Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis. (45)

Regional relative sea level rise projections for use in determining future impacts. (45)

Vulnerability analysis either statewide or regionally to state transportation, water supply, water treatment, impounding structures, or other significant and vital infrastructure from flooding. (45)

Flash flood studies and modeling in riverine regions of the state. (45)

Statewide or regional stream gauge monitoring to include expansion of existing gauge networks. (45)

New or updated delineations of areas of recurrent flooding, stormwater flooding, and storm surge vulnerability in coastal areas that include projections for future conditions based on sea level rise, more intense rainfall events, or other relevant flood risk factors. (45)

Regional flood studies in riverine communities that may include watershed scale evaluation, updated estimates of rainfall intensity, or other information. (45)

Regional hydrologic and hydraulic studies of floodplains. (45)

Studies of potential land use strategies that could be implemented by a local government to reduce or mitigate damage from coastal or riverine flooding. (40)

Other proposals that will significantly improve protection from flooding on a statewide or regional basis (35)

Studies and Data Collection of Statewide and Regional Significance*:

Statewide or regional stream gauge monitoring to include expansion of existing gauge networks

Is the project area socially vulnerable? (based on ADAPT Virginia's Social Vulnerability Index Score)

Social Vulnerability Scoring:

Very High Social Vulnerability (More than 1.5)

High Social Vulnerability (1.0 to 1.5)

Moderate Social Vulnerability (0.0 to 1.0)

Low Social Vulnerability (-1.0 to 0.0)

Very Low Social Vulnerability (Less than -1.0)

Socially Vulnerable*: High Social Vulnerability

Is the proposed project part of an effort to join or remedy the community's probation or suspension from the NFIP?

NFIP*: No

Is the proposed project in a low-income geographic area as defined below?

"Low-income geographic area" means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Low-Income Geographic Area*: Yes

Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs.
Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?

Reduction of Nutrient and Sediment Pollution*: No

Comments:

Scope of Work Supporting Information - Studies

Scope of Work Supporting Information

Is the proposed study a new study or updates on a prior study?

New or Updated Study*: New Study

Describe the relationship of the study to the local government's needs for flood prevention and protection, equity, community improvement, identification of nature-based solutions or other priorities contained in this manual

Relationship of Study to Priorities Contained in this Manual*:

In many parts of the county, rainfall can transition to roadway inundation in minutes, leaving little time for emergency response or public warning. These risks are compounded by uneven sensor coverage, communication challenges during storms, and the difficulty of monitoring high-risk transportation corridors, isolated communities, school bus routes, and low-water crossings. As an underserved locality with limited early-warning resources, Wise County requires a clear, data-driven plan to understand where existing monitoring is vulnerable, where new sensors are most urgently needed, and how enhanced information can reduce loss of life, property damage, and emergency response burden.

This study will develop a comprehensive early-warning planning framework tailored to Wise County's terrain, infrastructure, and community needs. The goals are threefold: (1) evaluate the operational reliability of existing Virginia Flood Monitoring System (VFMS) sensors in the county and identify the factors that lead to outages, data gaps, or reduced performance during severe weather; (2) develop a risk-based sensor siting and expansion plan that identifies the most effective locations for new sensors based on flood exposure, historic impacts, transportation vulnerability, population risk, and input from local partners; and (3) conduct an economic value-of-information analysis to quantify how existing and future sensors support public safety, reduce emergency response costs, decrease road-closure durations, and improve Wise County's long-term resilience. The study will be conducted in partnership with the Wise County Emergency Management Office, VDEM's Flood Intel Unit, the regional VDOT office, first responders, town governments, and community stakeholders.

The study will produce a set of practical and actionable outputs that Wise County can immediately use to strengthen its flood resilience. These include reliability scorecards for every existing sensor in the county, a

prioritized list of recommended locations for new sensors supported by clear justification, and an economic assessment quantifying the public-safety and community benefits of an expanded early-warning network. These products will provide Wise County with a defensible basis for future investments, guide upgrades to its flood warning system, and directly support ongoing hazard mitigation and resilience planning efforts. Beyond Wise County, the findings will offer a replicable framework for the Commonwealth.

Describe the qualifications of the individuals or organizations charged with conducting the study or the elements of any request for proposal that define those qualifications

Qualifications of Individuals
Conducting Study*:

This proposed project will be conducted by a core team of UVA researchers who are well-versed in flood monitoring, sensor reliability analysis, geospatial flood risk assessment, hydrologic modeling, and decision-support for hazard preparedness. The team brings extensive experience working with rural and underserved communities in Appalachia and coastal Virginia, and has a strong record of translating advanced technical analysis into actionable strategies that support local government resilience planning. Their combined expertise ensures that the project will deliver a rigorous assessment of monitoring performance, a defensible siting framework, and an economic valuation approach that can be incorporated into long-term planning for Wise County.

All three members of the UVA team, Dr. Majid Shafiee-Jood, Dr. Jonathan Goodall, and Dr. Negin Alemazkoor, are faculty in the Department of Civil and Environmental Engineering at the University of Virginia's School of Engineering and Applied Science. The project will be led by Dr. Shafiee-Jood who specializes in flood risk assessment, natural hazards, water resources engineering, decision-making under uncertainty, community-engaged flood resilience research. He previously served as a technical lead in the CFPF Round 2 LENOWISCO PDC capacity planning project, and has spent the past two years working closely with Wise County on multiple research efforts and grant proposals. His ongoing collaboration with the County positions him to ensure that the study responds directly to local needs and supports long-term resilience goals.

Wise County and UVA have an active working relationship through two CFPF Round 5 grants awarded to the County in late 2025: one to develop a countywide Flood Resilience Plan and one to conduct a detailed hydrologic and hydraulic flood modeling study. The UVA team is supporting both projects, which began in October 2025, and the Round 6 study is designed to complement and strengthen these ongoing efforts by addressing the monitoring and early-warning components that are not covered in the existing awards. The continuity of collaboration ensures seamless integration of analytical findings, consistent engagement with County staff and regional partners, and an efficient, well-coordinated approach to Wise County's broader resilience goals.

Describe the expected use of the study results in the context of the local resilience plan or, in the case of regional plans, how the study improves any regional approach

Expected use of Study Results*:

UVA will prepare a suite of detailed, professionally formatted deliverables that Wise County can incorporate into its resilience planning, apply in future grant submissions, or use as part of internal operations.

The Sensor Reliability Assessment Report (Task 1) will present a comprehensive analysis of the performance of existing flood sensors in Wise County, including quantitative findings and stakeholder-informed interpretations. Each sensor will be accompanied by a reliability scorecard summarizing operational performance, vulnerabilities, and recommendations. The report will contextualize sensor reliability within Wise County's early-warning needs and identify actionable
next steps.

The Sensor Siting and Expansion Framework (Task 2) will be delivered as a standalone planning document accompanied by maps, geospatial layers, and detailed narrative justifications. The document will describe the siting methodology, summarize stakeholder input, explain risk-based prioritization criteria, and provide clear guidance on where new sensors should be installed. The framework will be suitable for inclusion in CFPF, FEMA BRIC, and other funding applications.

The Economic Value-of-Information Assessment Report (Task 3) will quantify the public-safety, operational, and

economic benefits of improved flood monitoring in Wise County. It will present findings in a clear, accessible format and include both retrospective and prospective valuation. This document will support Wise County's financial justification for investments in monitoring infrastructure.
Finally, UVA will prepare an Integrated Final Report that synthesizes the findings from all tasks into a cohesive, actionable document. This consolidated report will serve as the primary reference for Wise County's early-warning strategy moving forward. UVA will also prepare presentation materials to support communication with county officials, state agencies, and community stakeholders.

If applicable, describe how the study may improve Virginia's flood protection and prevention abilities in a statewide context (type N/A if not applicable)

Statewide Improvements*:

A systematic reliability assessment of existing Virginia Flood Monitoring System (VFMS) sensors in Wise County will help refine FIU's performance evaluation methods and support more accurate benefit-cost assessments for current and future installations. The risk-based sensor siting framework will provide a replicable model that FIU can use when planning targeted VFMS expansion in other underserved or high-risk regions across Virginia. Additionally, the value-of-information analysis will serve as a proof of concept for quantifying the benefits of flood intelligence in terms of improved response, reduced damages, and enhanced public safety. By piloting these approaches in one of Virginia's most flood-prone mountain communities, the study will offer transferable tools and methodologies that can strengthen the VFMS network statewide and support FIU's long-term strategy for building an equitable, high-performance flood monitoring system.

Provide a list of repetitive and/or severe repetitive loss properties. Do not provide the addresses for the properties, but include an exact number of repetitive and/or severe repetitive loss structures within the project area

Repetitive Loss and/or Severe Repetitive Loss Properties*: Supporting Information.pdf

Describe the residential and commercial structures impacted by this project, including how they contribute to the community such as historic, economic, or social value. Provide an exact number of these structures in the project area

Residential and/or Commercial Structures*:

Tacoma Area: Residential 355, Commercial 72 Town of Wise: Residential 196, Commercial 32 Town of Pound: Residential 65, Commercial 148

If there are critical facilities/infrastructure within the project area, describe each facility

Critical Facilities/Infrastructure*:

Tel-Com Inc. Cellular tower Coeburn Mountain water tank and pump Wise Town Hall Lake Street Cellular Tower Pound Post Office Pound Fire Department Pound Town Hall

Budget

Budget Summary

Grant Matching Requirement*:

LOW INCOME - Flood Prevention and Protection Studies - Fund 90%/Match 10%

Is a match waiver being requested?

Match Waiver Request *: No

Note: Only low-income communities are eligible for a match waiver

I certify that my project is in a low-income geographic area:	Yes
Total Project Amount (Request + Match)*:	$417,611.00 **This amount should equal the sum of your request and match figures
REQUIRED Match Percentage Amount:	$41,761.10

BUDGET TOTALS

Before submitting your application be sure that you meet the match requirements for your project type.

Match Percentage:

10.48%
Verify that your match percentage matches your required match percentage amount above.

Total Requested Fund Amount:	$373,850.00
Total Match Amount:	$43,761.00
TOTAL:	$417,611.00

Personnel

Description	Requested Fund Amount	Match Amount Match Source
No Data for Table		

Fringe Benefits

Description	Requested Fund Amount	Match Amount Match Source
No Data for Table		

Travel

Description	Requested Fund Amount	Match Amount Match Source
No Data for Table		

Equipment

Description	Requested Fund Amount	Match Amount Match Source
No Data for Table		

Supplies

Description	Requested Fund Amount	Match Amount Match Source
No Data for Table		

Construction

Description	Requested Fund Amount	Match Amount Match Source

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Contracts

Description	Requested Fund Amount	Match Amount	Match Source
UVA Consulting Contract	$373,850.00	$43,761.00	Consultant In-kind services
	$373,850.00	**$43,761.00**	

Pre-Award and Startup Costs

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Other Direct Costs

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Supporting Documentation

Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		Maps	Supporting Information.pdf	pdf	455 KB	11/25/2025 03:49 PM
FIRMette of the project area(s) (Projects/Studies)		FIRMettes	Supporting Information.pdf	pdf	455 KB	11/25/2025 03:50 PM
Historic flood damage data and/or images (Projects/Studies)		Historical Flood Evidence and Photos	RecentFloods.pdf	pdf	5 MB	11/25/2025 03:50 PM
A link to or a copy of the current floodplain ordinance		Links to Floodplain Ordinances	Appendix C_item4.pdf	pdf	104 KB	11/25/2025 01:33 PM
Maintenance and management plan for project						
A link to or a copy of the current hazard mitigation plan		LENOWISCO Hazard Mitigation Plan Links	LENOWISCO Hazard Mitigation Plan Links.pdf	pdf	62 KB	11/25/2025 01:31 PM

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
A link to or a copy of the current comprehensive plan		Comprehensive Plan Links	Appendix C_item6.pdf	pdf	105 KB	11/25/2025 01:31 PM
Social vulnerability index score(s) for the project area		Social Vulnerability Index	Wise County Social Vulnerability Index Score.pdf	pdf	181 KB	11/25/2025 01:32 PM
Authorization to request funding from the Fund from governing body or chief executive of the local government		Wise County Authorization	Wise County Authorization Flood Monitoring and Early Warning Study.pdf	pdf	645 KB	11/25/2025 03:50 PM
Signed pledge agreement from each contributing organization		UVA Proposal	V2 RV FP00428843 Full Proposal-signed .pdf	pdf	1 MB	11/25/2025 03:51 PM
Maintenance Plan						
Benefit-cost analysis must be submitted with project applications over $2,000,000. in lieu of using the FEMA benefit-cost analysis tool, applicants may submit a narrative to describe in detail the cost benefits and value. The narrative must explicitly indicate the risk reduction benefits of a flood mitigation project and compares those benefits to its cost-effectiveness.						
Benefit Cost Analysis						
Other Relevant Attachments		Abstract	CFPF_Round6_Abstract.pdf	pdf	88 KB	11/25/2025 03:52 PM

Letters of Support

Description	File Name	Type	Size	Upload Date
VDEM Support Letter	VDEM Support Letter-Wise Co-UVA CFPF Round 6.pdf	pdf	280 KB	11/25/2025 01:34 PM