

2728 - Hampton Roads Regional Roadway Flooding Sensor Network

Application Details

Funding Opportunity:

2337-Virginia Community Flood Preparedness Fund - Study Grants - CY24 Round 5

Funding Opportunity Due Date: Jan 24, 2025 11:59 PM

Program Area: Virginia Community Flood Preparedness Fund

Status: Under Review

Stage: Final Application

Initial Submit Date: Jan 24, 2025 4:00 PM

Initially Submitted By: Benjamin McFarlane

Last Submit Date:

Last Submitted By:

Contact Information

Primary Contact Information

Active User*: Yes

Type: External User

Name*: Mr. Benjamin Middle Name McFarlane
Salutation First Name Last Name

Title: Chief Resilience Officer

Email*: bmcfarlane@hrpdcva.gov

Address*: 723 Woodlake Dr

Chesapeake Virginia 23464
City State/Province Postal Code/Zip

Phone*: (757) 420-8300 Ext.

Phone

###-###-####

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

Comments:

Organization Information

Status*: Approved

Name*: Hampton Roads Planning District Commission

Organization Type*: Local Government

Tax ID*:

Unique Entity Identifier (UEI)*:

Organization Website: rcrum@hrpdcva.gov

Address*: 723 Woodlake Drive

Chesapeake Virginia 23464
City State/Province Postal Code/Zip

Phone*: (757) 420-8300 Ext.
###-###-####

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

Benefactor:

Vendor ID:

Comments:

VCFPF Applicant Information

Project Description

Name of Local Government*: Hampton Roads Planning District Commission

Your locality's CID number can be found at the following link: [Community Status Book Report](#)

NFIP/DCR Community Identification Number (CID)*: 5123

If a state or federally recognized Indian tribe,

Name of Tribe:

Authorized Individual*: Robert Crum
First Name Last Name

Mailing Address*: 723 Woodlake Drive
Address Line 1
Address Line 2
Chesapeake Virginia 23320
City State Zip Code

Telephone Number*: 757-420-8300

Cell Phone Number*: 757-408-7479

Email*: rcrum@hrpdcva.gov

Is the contact person different than the authorized individual?

Contact Person*: Yes

Contact: Benjamin McFarlane
First Name Last Name
723 Woodlake Drive
Address Line 1
Address Line 2
Chesapeake Virginia 23320
City State Zip Code

Telephone Number: 757-420-8300

Cell Phone Number: 757-218-8930

Email Address: bmcfarlane@hrpdcva.gov

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

Project Description*:

The proposed project is an expansion of a regional network of roadway flooding sensor to provide real-time information to drivers on flooded roadways, collect ongoing data on water levels near roadways, and provide access to the data through an online portal and through an application programming interface (API). The proposed project will include approximately fifty sensors installed on roads throughout Hampton Roads and will integrate with VDEM's Virginia Flood Modeling System.

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*: Multiple - see supporting documentation

Is Project Located in an NFIP Participating Community?* Yes

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

Flood Zone(s) (if applicable): A, AE, AH, X

Flood Insurance Rate Map Number(s) (if applicable): Multiple - see supporting documentation

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*:

HRPDC Sensor Proposal - Scope of Work.pdf

Comments:

Scope of Work

Budget Narrative

Budget Narrative Attachment*:

HRPDC Sensor Proposal - Budget Narrative with Appendix B Budget Template.pdf

Comments:

Budget Narrative

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*: Yes
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

Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the following types of studies:

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.

Updating Precipitation Data and IDF Information*: No
Select

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

Projections*: No
Select

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

Vulnerability Analysis*: No
Select

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

Flash Flood Studies*: No
Select

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

Stream Gauge Monitoring*: Yes
Select

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.

Delineations of Areas of Recurrent Flooding*: No
Select

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

Regional Flood Studies*: No
Select

Regional Hydrologic and Hydraulic Studies of Floodplains

Regional Hydrologic and Hydraulic Studies of Floodplains*: No
Select

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

Potential Land Use Strategies*: No
Select

Pluvial Studies

Pluvial Studies*: No
Select

Other proposals that will significantly improve protection from flooding on a statewide or regional basis.

Other Proposals*: Yes
Select

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*: Low Social Vulnerability (-1.0 to 0.0)

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:

17 of the proposed sites are in areas with moderate social vulnerability. 2 of the proposed sites are in areas with high social vulnerability. 10 of the proposed sites are in low-income geographic areas.

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*:**

This study will fund the installation of approximately 50 roadway flooding sensors that will provide real-time and ongoing data on observed flooding to commuters, local agencies, and researchers, enabling better decisions in real time for travelers and more informed planning for decision-makers. The use of sensors in this manner supports regional and local priorities identified in the Hampton Roads Hazard Mitigation Plan (see supporting documentation). This study directly supports several of the principles of the Community Flood Preparedness Fund. By providing actual observations of flooding, it will support the use of the best available science, both at the sites in question and by providing a data record for additional research and analysis. Several of the sensors are planned to be installed in areas with low to moderate incomes, which supports the second CFPF principle. As a regional initiative, this effort will complement local and statewide efforts and provide additional support for communities in Hampton Roads without the capacity to conduct this work themselves, in addition to serving the interests of residents who live and work in different communities. Furthermore, this effort is intended to take advantage of existing contracts and infrastructure to provide a cost-effective method for alerting the public and decision-makers to roadway flooding.

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*:

The HRPDC staff working on this project have direct experience with grant management and with this type of project, having been directly involved with an earlier project funded by the Office of Local Defense Community Cooperation. This project will build on that effort and take advantage of technical and practical lessons learned to ensure improvements are made where warranted.

The contractor intended to be selected for this project currently works on related systems for several local governments in Hampton Roads as well as for the Virginia Department of Emergency Management. I

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*:

The HRPDC anticipates that this proposal will have three primary uses. First, the sensors will provide data in real-time to commuters and residents via the Waze platform and other applications. This will enable drivers to select alternate routes in the case flooding, reducing the chance of negative impacts to lives and property. Second, the information will be of use to public decision-makers, allowing them to identify needs and allocate emergency response and public works resources to address roadway flooding as it occurs. Third, this initiative will support ongoing research and analysis by providing a record of water levels at sites throughout the region. These efforts will directly support several local and regional priorities identified in the regional hazard mitigation plan, local comprehensive plans, and local resilience plans.

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*:

It is intended that this study will directly integrate with the Virginia Flood Monitoring System, which will increase the utility of that system to residents, decision-makers, and stakeholders throughout the Commonwealth. In addition, this project will serve as a model for other regions and localities interested in similar activities.

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 HRPDC Sensor Proposal - RepLoss.pdf

Repetitive Loss Properties*:

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*:

N/A

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

Critical Facilities/Infrastructure*:

N/A

Budget

Budget Summary

Grant Matching Requirement*: Flood Prevention and Protection Studies - Fund 50%/Match 50%

Is a match waiver being requested?

Match Waiver Request No

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

Total Project Amount (Request + Match)*: \$470,782.00
**This amount should equal the sum of your request and match figures

REQUIRED Match Percentage Amount: \$235,391.00

BUDGET TOTALS

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

Match Percentage:

50.00%
Verify that your match percentage matches your required match percentage amount above.

Total Requested Fund Amount: \$235,391.00
Total Match Amount: \$235,391.00
TOTAL: \$470,782.00

Personnel

Description	Requested Fund Amount	Match Amount	Match Source
Direct Personnel Charges	\$0.00	\$90,260.00	HRPDC Funds
	\$0.00	\$90,260.00	

Fringe Benefits

Description	Requested Fund Amount	Match Amount	Match Source
	\$0.00	\$71,326.00	

Description	Requested Fund Amount	Match Amount	Match Source
Fringe and Indirect Costs for HRPDC Staff	\$0.00	\$71,326.00	HRPDC Funds
	\$0.00	\$71,326.00	

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
No Data for Table			

Contracts

Description	Requested Fund Amount	Match Amount	Match Source
Contractual services for sensor acquisition, support, telemetry, and other related costs	\$235,391.00	\$73,805.00	HRPDC Funds
	\$235,391.00	\$73,805.00	

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)	Map of Proposed Sensor Locations	HRPDC Sensor Proposal - Proposed Sites.pdf	pdf	5 MB	01/23/2025 11:09 AM
FIRMette of the project area(s) (Projects/Studies)	FIRM Numbers and Census Blocks	HRPDC Sensor Proposal - FIRM Numbers and Census Blocks.pdf	pdf	21 KB	01/24/2025 03:55 PM
Historic flood damage data and/or images (Projects/Studies)					
A link to or a copy of the current floodplain ordinance					
Maintenance and management plan for project					
A link to or a copy of the current hazard mitigation plan	2022 Hampton Roads Hazard Mitigation Plan	2022 Hampton Roads Hazard Mitigation Plan PDF.pdf	pdf	28 MB	01/22/2025 07:49 PM
A link to or a copy of the current comprehensive plan					
Social vulnerability index score(s) for the project area	Map of SVI Scores for Proposed Sensor Locations	HRPDC Sensor Proposal - SVI Map.pdf	pdf	8 MB	01/23/2025 11:07 AM
Authorization to request funding from the Fund from governing body or chief executive of the local government	Letter Authorizing Request and Committing Funds from HRPDC Executive Director	012425 Letter to VA DCR RE CFPF Round 5.pdf	pdf	662 KB	01/24/2025 03:55 PM
Signed pledge agreement from each contributing organization					
Maintenance Plan	Maintenance Plan	HRPDC Sensor Proposal - Maintenance Plan.pdf	pdf	31 KB	01/24/2025 03:59 PM
<i>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.</i>					
Benefit Cost Analysis					
Other Relevant Attachments	FY 25 HRPDC Budget Summary	FY 2025 HRPDC DRAFT Budget Compendium.pdf	pdf	1 MB	01/23/2025 06:29 PM

Letters of Support

Description	File Name	Type	Size	Upload Date
HRPDC Resolution 2024-02 Authorizing Submission of Study Proposals	2024-02 HRPDC Resolution Authorizing Submission of Study Proposals to the Virginia Department of Conservation and Recreation - CFPF Studies.pdf	pdf	379 KB	01/24/2025 02:40 AM