

# 3769 - City of Richmond - Southside Stormwater Modeling Study

## Application Details

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**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:** Dec 1, 2025 9:50 PM

**Initially Submitted By:** John Murphy

**Last Submit Date:**

**Last Submitted By:**

## Contact Information

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### Primary Contact Information

**Active User\*:** Yes

**Type:** External User

**Name\*:** Mr. John Patrick Murphy  
Salutation First Name Middle Name Last Name

**Title:**

**Email\*:** johmurphy@gftinc.com

**Address\*:** 8358 Luce Court

SPRINGFIELD Virginia 22153  
City State/Province Postal Code/Zip

**Phone\*:** (571) 217-7625 Ext.

Phone  
###-###-####

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

**Comments:**

## Organization Information

**Status\*:** Approved  
**Name\*:** Gannett Fleming  
**Organization Type\*:**  
**Tax ID\*:** 25-1613591  
**Unique Entity Identifier (UEI)\*:** HLNDLH9XRTU9  
**Organization Website:** <http://www.gannettfleming.com/>  
**Address\*:** 4097 Monument Corner Dr Suite 500

Fairfa Virginia 22030-  
City State/Province Postal Code/Zip  
**Phone\*:** 703-277-9501 Ext.  
###-###-####  
**Fax:** ###-###-####

**Benefactor:**

**Vendor ID:**

**Comments:**

## VCFPF Applicant Information

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### *Project Description*

**Name of Local Government\*:** City of Richmond

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

**NFIP/DCR Community** 510129

**Identification Number (CID)\*:**

If a state or federally recognized Indian tribe,

**Name of Tribe:**

**Authorized Individual\*:** William Boston  
First Name Last Name

**Mailing Address\*:** 1801 Commerce Road  
Address Line 1

Address Line 2

Richmond Virginia 23224  
City State Zip Code

**Telephone Number\*:** 804-646-8161

**Cell Phone Number\*:** 804-229-8949

**Email\*:** william.boston2@rva.gov

Is the contact person different than the authorized individual?

**Contact Person\*:** No

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

**Project Description\*:**

The City of Richmond - Southside Stormwater Modeling Study intends to create 1-D and 2-D PCSWMM models of the Reedy Creek, Broad Rock Creek, and Grindall Creek watersheds (total of 11.73 square miles) in the southside of Richmond. The post-processing results will be evaluated, and project alternative analyses will be performed for each priority flooding issue area. Final project recommendations will be made for each identified priority flooding issue area.

**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\*:**

Census Tracts\*: 51760071002, 51760060502, 51760060900, 51760060501, 51760070803, 11 others

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

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

**Flood Zone(s) (if applicable):** Zones A, AE

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

5101290019E, 5101290038E, 5101290057E, 5101290076E, 5101290077E, 5101290081E

## Eligibility - Round 4

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### ***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\*:** N/A  
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

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### ***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\*:** CID510129\_CityOfRichmond\_CFPF-2\_SOWNarrative.pdf

#### **Comments:**

CID510129\_CityOfRichmond\_CFPF-2\_SOWNarrative

### ***Budget Narrative***

**Budget Narrative Attachment\*:** CID510129\_CityOfRichmond\_CFPF-2\_BudgetNarrative.pdf

#### **Comments:**

CID510129\_CityOfRichmond\_CFPF-2\_BudgetNarrative

## Scoring Criteria for Studies - Round 4

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### ***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\*:** Yes  
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\*:** Regional hydrologic and hydraulic studies of floodplains

**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

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### ***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\*:**

As this study follows the DCR CFPF Round 4 and 5 Capacity Building and Planning Category projects; City of Richmond - Southside Stormwater Infrastructure Inventory Update (Phase 1), and The City of Richmond's stormwater inventory update Phase 2 (Phase 2), the City has a need to utilize the updated stormwater geodatabase to model and understand the performance of the stormwater conveyance system across the Southside of the City of Richmond in the 8th and 9th Voting Districts. With an average of 40% of stormwater assets being added across neighborhoods, the City need to identify weak points in the system. This Study will allow the City to model, identify, and prepare to enact flood reduction projects in the future on an equitable and as needed basis to protect residents, properties, and essential infrastructure. This will be the pre-work necessary for flood prevention, repetitive loss, and emergency management and safety efforts.

**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\*:**

Devin Winslow (GFT) - Devin is a Water/Wastewater Engineer and Project Manager with 7 years of experience in the industry. He has spent the majority of his career creating H&H models and is proficient in softwares such as HEC-RAS, PCSWMM, EPASWMM, and Aquaveo. Devin has worked on various scales of projects from modeling subwatersheds to modeling entire counties. Devin will be responsible for building the watershed models from the ground up.

Elizabeth (Liz) DiNatale (GFT) - Liz is a PE licensed Senior Stream Restoration Engineer with 17 years of experience. While her current role is focused in stream restoration modeling, design, and construction, she has past experience in watershed wide H&H model building with HEC-RAS, PCSWMM, and EPA SWMM. She is highly experienced with small and large riverine systems with a specialty in model calibration and validation. Liz will work on model development and model calibration and validation.

Kyle Logue (GFT) - Kyle is a PE Vice President and Water Lead with 13 years of experience in the industry. He has regional hydraulic modeling and stormwater capacity assessment experience. He will provide valuable input for model creation, calibration, validation, and characterization QA/QC.

Anjulie Cheema (GFT subconsultant) - Anjulie is a PE Lead Water Optimization Engineer with 13 years of experience. She has strong experience in H&H modeling with Infoworks CS, ICM, PCSWMM, EPASWMM, and HEC softwares. Her experience also includes building post-processing results in Python, SQL, Microsoft Access/Excel, and Tableau for data analysis and database development. She will help QA/QC model

development and build the software and dashboards to efficiently review results and possible project alternatives across the watershed and stormwater conveyance systems.

Mason Throneburg (GFT subconsultant) - Mason Throneburg is a CEO of a small data analytics firm name Confluency and has 21 years of experience as a Water Resources Engineer. He is focused on creating software that extracts value from H&H models and databases to best understand and apply results to future projects and asset management. Mason will be heavily involved in the post-processing results, evaluation, and project recommendations stages of this study.

**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 final deliverables of this study will be three PCSWMM models for the Reedy Creek, Broad Rock Creek, and Grindall Creek watersheds, all documentation of model creation, inputs, calibration, validation, and characterization to allow for this process to be clearly repeatable, and reports for each watershed with all post processing results, identified areas of flooding priority, alternatives analysis process, and final recommendations.

The expected use of these deliverables is to update the City of Richmond's Stormwater CIP Program to include priority flood reduction projects identified by the model. This will improve the regional approach to the stormwater CIP program as the project recommendations will be data driven with a focus on also prioritizing socially vulnerable communities to push forward public safety and protect public and private property.

**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\*:**

N/A

**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**      CID510129\_CityOfRichmond\_CFPF-2\_RepetitiveLoss.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\*:**

As this study covers a vast area of the southside of the City of Richmond, parcel data was used to count the number of structures covered under this study. It was assumed that one parcel has one structure resulting in a count of 9,951 structures.

The southside of Richmond included in the Reedy Creek, Broad Rock Creek, and Grindall Creek watersheds contains historically redlined neighborhoods that have remaining legacies resulting in inequity of stormwater infrastructure. These disparities in necessary stormwater infrastructure and increasingly recurrent flooding events have created a snowball effect of flooding issues throughout the area. The majority of the neighborhoods under this study are low income and socially vulnerable areas. These areas are of great social value as there are multiple low-income housing projects which house economically and socially vulnerable residents. Historically, the southside of Richmond has been inhabited and developed since America's colonial period. And the southside has been growing in population relatively linearly in the past decades increasing its economic input and output.

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

**Critical Facilities/Infrastructure\*:**

Miles J Jones Elementary School  
 Patrick Henry High School for science and art  
 Richmond High School for the arts  
 Westover Hills Elementary School  
 Cardinal Elementary School  
 JL Francis Elementary School  
 Broad Rock Elementary School  
 Westover Community Center  
 JL Francis Community Center  
 Broad Rock Community Center  
 Fire Company No. 20  
 Fire Station 23  
 Fire Station 21  
 Fire Station No. 22  
 Richmond Police Precinct 2

## Budget

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### ***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)\*:** \$1,993,287.00  
 \*\*This amount should equal the sum of your request and match figures

**REQUIRED Match Percentage Amount:** \$199,328.70

### BUDGET TOTALS

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

#### **Match Percentage:**

10.00%

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

**Total Requested Fund Amount:** \$1,793,958.00

**Total Match Amount:** \$199,329.00

**TOTAL:** \$1,993,287.00

### ***Personnel***

Description	Requested Fund Amount	Match Amount Match Source
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<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Fringe Benefits***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Travel***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Equipment***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Supplies***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Construction***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Contracts***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
PCSWMM Modeling and Post-Process Evaluation	\$1,793,958.00	\$199,329.00 City of Richmond Department of Public Utilities
	<b>\$1,793,958.00</b>	<b>\$199,329.00</b>

***Pre-Award and Startup Costs***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

***Other Direct Costs***

<b>Description</b>	<b>Requested Fund Amount</b>	<b>Match Amount Match Source</b>
	No Data for Table	

## Supporting Documentation

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### Supporting Documentation

Named Attachment	Required Description	File Name	Type	Size	Uplo Dat
Detailed map of the project area(s) (Projects/Studies)	CID510129_CityOfRichmond_CFPP-2_DetailedMap	CID510129_CityOfRichmond_CFPP-2_DetailedMap.pdf	pdf	353 KB	12/01/2020 04:21
FIRMette of the project area(s) (Projects/Studies)	CID510129_CityOfRichmond_CFPP-2_Firm	CID510129_CityOfRichmond_CFPP-2_Firm.pdf	pdf	20 MB	12/01/2020 09:21
Historic flood damage data and/or images (Projects/Studies)	CID510129_CityOfRichmond_CFPP-2_HistoricFlooding	CID510129_CityOfRichmond_CFPP-2_HistoricFlooding.pdf	pdf	2 MB	12/01/2020 09:29
A link to or a copy of the current floodplain ordinance	CID510129_CityOfRichmond_CFPP-2_FloodplainOrd	CID510129_CityOfRichmond_CFPP-2_FloodplainOrd.pdf	pdf	578 KB	12/01/2020 04:10
Maintenance and management plan for project	CID510129_CityOfRichmond_CFPP-2_MaintenanceandManagementPlan	CID510129_CityOfRichmond_CFPP-2_MMPlan.pdf	pdf	82 KB	12/01/2020 09:01
A link to or a copy of the current hazard mitigation plan	CID510129_CityOfRichmond_CFPP-2_HazardMitigationPlan	CID510129_CityOfRichmond_CFPP-2_HazardMitigationPlan.pdf	pdf	21 MB	12/01/2020 04:15
A link to or a copy of the current comprehensive plan	CID510129_CityOfRichmond_CFPP-2_ComprehensivePlan	CID510129_CityOfRichmond_CFPP-2_ComprehensivePlan.pdf	pdf	50 MB	12/01/2020 04:17
Social vulnerability index score(s) for the project area	CID510129_CityOfRichmond_CFPP-2_SVIScore	CID510129_CityOfRichmond_CFPP-2_SVIScore.pdf	pdf	3 MB	12/01/2020 04:35
Authorization to request funding from the Fund from governing body or chief executive of the local government	CID510129_CityOfRichmond_CFPP-2_MatchAuthorization	CID510129_CityOfRichmond_CFPP-2_MatchAuthorization.pdf	pdf	189 KB	12/01/2020 04:22

Named Attachment	Required Description	File Name	Type	Size	Upload Date
Signed pledge agreement from each contributing organization	CID510129_CityOfRichmond_CFPF-2_MatchAuthorization	CID510129_CityOfRichmond_CFPF-2_MatchAuthorization.pdf	pdf	189 KB	12/01/2014 04:24
Maintenance Plan	CID510129_CityOfRichmond_CFPF-2_MMPlan	CID510129_CityOfRichmond_CFPF-2_MMPlan.pdf	pdf	82 KB	12/01/2014 09:04

*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	Two relevant attachments in one document [1] Southside Stormwater Asset Inventory Data Use and Future Modeling Technical Memorandum [2] Signed by Bill Boston ? Appendix A: Application Form for grant and Loan Requests for All Categories	CID510129_CityOfRichmond_CFPF-2_Relevant.pdf	pdf	1 MB	12/01/2014 09:48
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**Letters of Support**

Description	File Name	Type	Size	Upload Date
No files attached.				