1980 - CID510154_StaffordCounty_CFPF_Resilience_Plan

Application Details

Funding Opportunity:	1446-Virginia Community Flood Preparedness Fund - Capacity Building/Planning Grants - CY23 Round 4
Funding Opportunity Due Date:	Nov 12, 2023 11:59 PM
Program Area:	Virginia Community Flood Preparedness Fund
Status:	Under Review
Stage:	Final Application
Initial Submit Date:	Nov 10, 2023 11:01 AM
Initially Submitted By:	Jonathan D'Alessandro
Last Submit Date:	
Last Submitted By:	

Contact Information

Primary Contact Information

Active User*:	Yes
Type:	External User
Name*:	Mr. (Salutation) Jonathan (First Name) J (Middle Name) D'Alessandro (Last Name)
Title:	Senior Project Manager
Email*:	jon.dalessandro@kimley-horn.com
Address*:	11400 Commerce Park Drive, Suite 400
	Reston (City) Virginia (State/Province) 20191 (Postal Code/Zip)
Phone*:	703-752-0589 Ext. (Phone ###-###-####)
Fax:	###-###-####
Comments:	

Organization Information

Status*:	Approved
Name*:	Kimley-Horn
Organization Type*:	
Tax ID*:	56-0885615
Unique Entity Identifier (UEI)*:	V8PKGG6NLKV6

Organization Website:

Address*: 421 Fayetteville Street Suite 600

Raleigh North Carolina 27601-
City State/Province Postal Code/Zip

Phone*: 919-677-2000 Ext.
###-###-####

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

Benefactor:

Vendor ID:

Comments:

VCFPF Applicant Information

Project Description

Name of Local Government*: Stafford County

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

NFIP/DCR Community Identification Number (CID)*: 510154

If a state or federally recognized Indian tribe,

Name of Tribe:

Authorized Individual*: Emily Torrey
First Name Last Name

Mailing Address*: 1300 Courthouse Road
Address Line 1

P.O. Box 339
Address Line 2

Stafford Virginia 22555
City State Zip Code

Telephone Number*: 540-658-8667

Cell Phone Number*: 540-379-6311

Email*: ETorrey@staffordcountyva.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*:

Stafford County wants to develop a Flood Resilience Plan to prepare for the increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan is intended to serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities.

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*: No

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

Census Block(s) Where Project will Occur*: County Wide

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

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

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

Flood Insurance Rate Map Number(s) (if applicable): Countywide - See Grant Application Docs

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*: 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

Scoring Criteria for Capacity Building & Planning - Round 4

Scoring

Eligible Capacity Building and Planning Activities (Select all that apply) ? Maximum 100 points. To make multiple selections, Hold CTRL and click the desired items.

Capacity Building and Planning*: Development of a new resilience plan.

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*: No

Does this project provide ?community scale? benefits?

Community Scale Benefits*: 50-100% of census block

Comments:

This project benefits the entire County. The resilience plan will be developed to focus on Countywide improvements.

Scope of Work and Budget Narrative - Capacity Building and Planning - Round 4

Scope of Work - General Information

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 Attachment*: CID510154_StaffordCounty_CFPF_ConsultantScopeforResiliencePlan.pdf

Comments:

Attached is the consultant scope of work to develop the flood resilience plan. Section A - Appendix of the Combined Grant Application Package which has been attached to this submission contains the full scope of work narrative.

Budget Narrative

Budget Narrative Attachment*: CID510154_StaffordCounty_CFPF_Section_B_Budget_Narrative_Appendix.pdf

Comments:

Attached Section B - Appendix of the Combined Grant Application Package which outlines the project budget narrative, budget narrative template, Authorization to request fund, and detailed budget and narrative for all costs.

Scope of Work Supporting Information - Capacity Building and Planning

Scope of Work Supporting Information

Describe identified resource needs including financial, human, technical assistance, and training needs

Resource need identification*:

The need to create a comprehensive plan to address current and future impacts of flooding has necessitated this request for a capacity building and planning grant to develop a Flood Resilience Plan. As part of the overall County?s capacity building and planning strategies, it was imperative to bring an expert group of consultant advisors on to work with the County to build and develop the Resilience Plan. Please see the Combined Grant Application attached to this submission to receive further information on identified resource needs.

Describe the plan for developing, increasing, or strengthening knowledge, skills and abilities of existing or new staff. This may include training of existing staff, hiring personnel, contracting consultants or advisors

Development of Existing or New Staff*:

The resilience plan will be developed in a way that will strengthen the knowledge of both new and existing staff in flood resilience strategies. Staff will also be able to utilize the resilience plan to prepare for an increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. Please see the Combined Grant Application attached to this submission to receive further information on the components of the resilience plan development.

Where capacity is limited by funding, what strategies will be developed to increase resources in the local government? (This may include work with non-governmental organization, or applying for grants, loans, or other funding sources)

Resource Development Strategies*:

The county needs capacity to develop this plan in terms of bringing in expertise and consultant support to develop the plan in a timely manner.

Describe policy management and/or development plans

Policy management and/or development*:

The resilience plan proposed to be developed as part of this grant application will be utilized to plan and prepare for an increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. As such, the plan will be developed in a way to be a

foundational document for potential future changes to county policy related to flood resilience.

Describe plans for stakeholder identification, outreach, and education strategies

Stakeholder identification, outreach, and education strategies*:

Once the County Resilience Plan is developed and approved, it will be made available to the County as a whole through the County Website thus providing outreach and education to constituents and stakeholders.

Budget

Budget Summary

Grant Matching Requirement*:

Planning and Capacity Building - Fund 75%/Match 25%
*Match requirements for Planning and Capacity Building in low-income geographic areas will not require match for applications requesting less than $3,000.

Total Project Amount*: $89,210.00

REQUIRED Match Percentage Amount: $22,302.50

BUDGET TOTALS

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

Match Percentage: 25.00%
Verify that your match percentage matches your required match percentage amount above.

Total Requested Fund Amount: $66,907.50

Total Match Amount: $22,302.50

TOTAL: $89,210.00

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

No Data for Table

Contracts

Description	Requested Fund Amount	Match Amount	Match Source
Consultant fee to develop the resilience plan	$66,907.50	$22,302.50	Stafford County Acct#100-3414-424-55.40-3415
	$66,907.50	**$22,302.50**	

Pre-Award and Startup Costs

Description	Requested Fund Amount	Match Amount	Match Source

No Data for Table

Other Direct Costs

Description	Requested Fun Amount	Match Amount	Match Source

No Data for Table

Supporting Documentation - General

Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		Detailed Maps of Project Area	CID510154_StaffordCounty_CFPF_DetailedMaps.pdf	pdf	4 MB	11/10/2023 07:35 AM
FIRMette of the project area(s) (Projects/Studies)						
Historic flood damage data and/or images (Projects/Studies)						
A link to or a copy of the current floodplain ordinance		Stafford Co. FP Ordinance	CID510154_StaffordCounty_CFPF_StaffordCoFPOrd.pdf	pdf	302 KB	11/10/2023 07:38 AM
Maintenance and management plan for project						
A link to or a copy of the current hazard mitigation plan						
A link to or a copy of the current comprehensive plan		Link to the Comp Plan	CID510154_StaffordCounty_CFPF_LinktoCompPlan.pdf	pdf	161 KB	11/10/2023 07:44 AM
Social vulnerability index score(s) for the project area		Stafford SVI Map	CID510154_StaffordCounty_CFPF_SVImap.pdf	pdf	1 MB	11/10/2023 08:05 AM
Authorization to request funding from the Fund from governing body or chief executive of the local government		Stafford Co Board of Supervisors Resolution Authorization to Request Funding	CID510154_StaffordCounty_CFPF_BOSResolution_for_CFPF.pdf	pdf	752 KB	11/10/2023 09:39 AM
Signed pledge agreement from each contributing organization						
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		Combined CFPF Grant Application for Stafford County Virginia - Development of a Resilience Plan	CID510154_StaffordCounty_CFPF_Resilience_Plan.pdf	pdf	11 MB	11/10/2023 10:09 AM

Letters of Support

Description	File Name	Type	Size	Upload Date
No files attached.				

Detailed Map(s) of Project Area

Produced: 9/15/2021

FIGURE 6.10
Natural Resources
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Legend

- Streams
- National Wetlands
- RPA Buffer
- Forest

0 6,250 12,500 25,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.10_naturalResources.mxd

Produced: 9/15/2021

FIGURE 6.11
Watersheds
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Legend

- ACCOKEEK
- AQUIA
- CHOPAWAMSIC
- POTOMAC CREEK
- POTOMAC RIVER
- RAPPAHANNOCK
- WIDEWATER

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.11_watershed.mxd

Produced: 9/30/2021

FIGURE 6.12
Dam Break Inundation Zones
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.12_DamInundationZones.mxd

STAFFORD Virginia

Legend

- Flood Hazard
- BFE
- Flood Cross Sections
- Water Bodies
- County Boundary

FIRM

- 51179C0010F
- 51179C0014F
- 51179C0018F
- 51179C0020F
- 51179C0030F
- 51179C0035F
- 51179C0040F
- 51179C0045F
- 51179C0063G
- 51179C0064G
- 51179C0068G
- 51179C0085F
- 51179C0095F
- 51179C0102F
- 51179C0105F
- 51179C0106F
- 51179C0107F
- 51179C0110F
- 51179C0115F
- 51179C0118F
- 51179C0119F
- 51179C0120F
- 51179C0126F
- 51179C0127F
- 51179C0128F
- 51179C0129F
- 51179C0131F
- 51179C0132G
- 51179C0133F
- 51179C0134G
- 51179C0137F
- 51179C0139F
- 51179C0140F
- 51179C0141F
- 51179C0142F
- 51179C0143F
- 51179C0144F
- 51179C0151G
- 51179C0152G
- 51179C0153G
- 51179C0154G
- 51179C0156G
- 51179C0161G
- 51179C0162G
- 51179C0163G
- 51179C0164G
- 51179C0168G
- 51179C0180F
- 51179C0182F
- 51179C0184F
- 51179C0185F
- 51179C0195F
- 51179C0201F
- 51179C0202F
- 51179C0203F
- 51179C0204F
- 51179C0208F
- 51179C0210G
- 51179C0212F
- 51179C0214F
- 51179C0216F
- 51179C0218F
- 51179C0220F
- 51179C0226G
- 51179C0227G
- 51179C0228G
- 51179C0229G
- 51179C0231G
- 51179C0240F
- 51179C0260F
- 51179C0280F

N

0 12,500 25,000 US Feet

DATE
10/30/2023

DRAWN BY
CDC

CHECKED BY
JJD

STAFFORD COUNTY

PREPARED FOR STAFFORD COUNTY

SCALE
1" = 12,500'

PROJECT NUMBER
N/A

SHEET NUMBER
APPENDIX C

Copy of the Stafford County Floodplain Ordinance

Sec. 28-57. - Flood Hazard Overlay District (FH).

(a) *Definitions [44 C.F.R. § 59.1].* For the purposes of this section 28-57, the following words and phrases shall have the meanings respectively ascribed to them by this section; provided that unless specifically defined below, words and phrases used in this section shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this section its most reasonable application:

Accessory building or *accessory structure.* A non-residential structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures are not to exceed six hundred (600) square feet.

Base flood elevation. The FEMA designated one (1) percent annual chance water surface elevation and the elevation determined per County Code subsection 28-57(q)(3). The water surface elevation of the base flood in relation to the datum specified on the county's FIRM.

Basement. Any area of the building having its floor sub-grade (below ground level) on all sides.

Board of zoning appeals. The board of zoning appeals as established in Article XIX of Chapter 28 of this Code.

Building. See the definition for "structure."

Coastal A Zone. Flood hazard areas that have been delineated as subject to wave heights between one and one-half (1.5) feet and three (3) feet.

Community means any state or area or political subdivision thereof, or any Indian tribe or authorized tribal organization, or Alaska Native village or authorized native organization, which has authority to adopt and enforce flood plain management regulations for the areas within its jurisdiction. For most purposes in this section 28-57(a), it is synonymous with the term "locality." Stafford County, Virginia, is specifically referred to herein as the "county."

Development. Any manmade change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, temporary structures, dredging, filling, grading, paving, excavation, drilling operations, other land-disturbing activities, or permanent or temporary storage of equipment or materials.

Elevated building. A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

Encroachment. The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Existing construction. Structures for which the start of construction commenced before the effective date of the FIRM or before January 1, 1975 for FIRMs effective before that date. Existing construction may also be referred to as an "existing structure" or "pre-FIRM".

FEMA. Federal Emergency Management Agency.

Floodplain or *flood-prone area.* Any land area susceptible to being inundated by water from any source.

Floodplain administrator. The county administrator or his designee(s) responsible for administering the floodplain ordinance on behalf of the county.

Floodproofing. Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Freeboard. A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed. When a freeboard is included in the height of a structure, the flood insurance premiums may be less expensive.

Functionally dependent use. A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Manufactured home park or *subdivision.* A parcel or contiguous parcels of land divided into two (2) or more manufactured home lots for rent or sale.

Mean sea level. For purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988 to which base flood elevations shown on a community's FIRM are referenced.

New construction. For the purposes of determining insurance rates and floodplain management, new construction means structures for which the start of construction commenced on or after November 19, 1980, and includes any subsequent improvements to such structures.

Post-FIRM structures. A structure for which construction or substantial improvement occurred on or after November 19, 1980.

Pre-FIRM structures. A structure for which construction or substantial improvement occurred before November 19, 1980.

Primary frontal dune. A continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms.

Principal building or *structure.* Shall have the same meaning as is provided for that term in the zoning ordinance as amended from time to time.

Recreational vehicle. A vehicle which is:

(i) Built on a single chassis;

(ii) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(iii) Designed to be self-propelled or permanently towable by a light duty truck; and

(iv) Designed primarily as temporary living quarters for recreational camping, travel or seasonal use, not for use as a permanent dwelling.

Repetitive loss structure. A building covered by a flood insurance contract that incurred flood-related damages on two (2) occasions during a ten-year period ending on the date of the event for which a second claim is made, in which the cost of repairing the flood damage, on the average, equaled or exceeded twenty-five (25) percent of the market value of the building at the time of each flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Severe repetitive loss structure. A structure that:

(a) Is covered under a flood insurance contract made available under the NFIP; and

(b) Incurred flood related damage:

  (i) For which four (4) or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding five thousand dollars ($5,000.00), and with the cumulative amount of such claims payments exceeding twenty thousand dollars ($20,000.00); or

  (ii) For which at least two (2) separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

Structure. For floodplain management purposes, a walled and roofed building, that is principally above ground, including a gas or liquid storage tank, as well as a manufactured home.

Substantial damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred; or flood-related damages sustained by a structure on two occasions in a 10-year period, in which the cost of the repair, on the average, equals or exceeds twenty-five (25) percent of the market value of the structure at the time of each such flood event.

Substantial improvement. Any reconstruction, rehabilitation, addition, or other improvement of a structure, when added to any reconstruction, rehabilitation, addition, or other improvement of a structure made during a rolling 5-year period, the total cost of which equals or exceeds fifty (50) percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred repetitive loss or substantial damage regardless of the actual repair work performed. The term does not however include:

(i) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions;

(ii) Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure; or

(iii) Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement, must comply with all requirements of this section that do not preclude the structure's continued designation as a historic structure. Documentation that a specific requirement will cause removal of the structure from the National Register of Historic Places or the state inventory of historic places must be obtained from the Secretary of the Interior or the state historic preservation officer. Any exemption from this section's requirements shall be the minimum necessary to preserve the historic character and design of the structure.

Variance means a grant of relief by the board of zoning appeals from the terms of a floodplain management regulation.

Violation. The failure of a structure or other development to comply with this section. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required under this section is presumed to be in violation until such time as that documentation is provided to the floodplain administrator.

Watercourse. A lake, river, creek, stream, wash, channel, or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

(b)

Statutory authorization and purpose [44 C.F.R. § 59.22(a)(2)]. This section is adopted pursuant to Virginia Code § 15.2-2200 et seq. in order to satisfy the requirements of the National Flood Insurance Program (NFIP).

The purpose of these provisions is to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:

(1) Regulating uses, activities and development which, alone or in combination with other existing or future uses, activities and development, will cause unacceptable increases in flood heights, velocities and frequencies;

(2) Restricting or prohibiting certain uses, activities and development from locating within districts subject to flooding;

(3) Requiring all those uses, activities and developments that occur in flood-prone districts to be protected and/or floodproofed against flooding and flood damage; and

(4) Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

(c) *Applicability.* These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the county and identified as areas of special flood hazard identified by the county or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that are provided to the county by FEMA.

(d) *Compliance and liability.*

(1) No land shall be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with this section and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this section.

(2) The degree of flood protection sought by this section is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Flood elevations may increase by manmade or natural causes, such as ice jams and debris, restricted bridge openings. This section does not imply that areas outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.

(3) This section shall not create any liability on the part of the county or any county officer or employee for any flood damages that result from reliance on this section or any administrative decision lawfully made under this section.

(e)

Records [44 C.F.R. § 59.22(a)(9)(iii)]. Records of actions associated with administering this section shall be kept on file and maintained by or under the direction of the floodplain administrator in perpetuity.

(f) *Abrogation and greater restrictions [44 C.F.R. § 60.1(b)].*

(1) The regulations contained in this section 28-57 take precedence over any less restrictive conflicting local laws, ordinances, or codes.

(2) The regulations contained in this section 28-57 are not intended to repeal or abrogate any existing ordinances including subdivision regulations, zoning ordinances, or building codes. In the event of a conflict between the regulations contained in this section 28-57 and any other ordinance, the more restrictive shall govern.

(g) *Severability.* If any subsection, paragraph, sentence, clause, or phrase of this section shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this section. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this section are declared to be severable.

(h) *Penalty for violations [44 C.F.R. § 60.2(e)].*

(1) Any person who fails to comply with any of the requirements of this section, the direction, discussion, or order of the floodplain administrator or any authorized employee of the county shall be guilty of the appropriate violation and subject to the penalties therefore.

(2) The Virginia Uniform Statewide Building Code addresses building code violations and the associated penalties in Section 104 and Section 115. Violations and associated penalties of the zoning ordinance are addressed in county Code Chapter 28, Article XVII.

(3) In addition to the above penalties, all other actions are reserved, including an action for an injunction for the proper enforcement of this section. The imposition of a fine or penalty for any violation of, or noncompliance with, this section shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered, or relocated in noncompliance with this section is subject to this subsection (h). Flood insurance may be withheld from structures constructed in violation of this section.

(i) *Designation of the floodplain administrator [44 C.F.R. § 59.22(b)].* The floodplain administrator is appointed to administer and implement this section 28-57. The floodplain administrator may:

(1) Review applications for permits to determine whether proposed activities will be located in the special flood hazard area (SFHA).

(2) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

(3) Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the

requirements of these regulations.

(4) Review applications to determine whether all necessary permits have been obtained from federal, state or county departments or agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair or alteration of a dam, reservoir or waterway obstruction (including bridges, culverts or structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the state.

(5) Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies such as Virginia Department of Environmental Quality (VADEQ) and United States Army Corps of Engineers (USACE), and have submitted copies of such notifications to FEMA.

(6) Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that federal flood insurance is not available on such structures; areas subject to this limitation are shown on FIRMS as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).

(7) Approve applications and issue permits to develop in flood hazard areas if the provisions of this section are met, or disapprove applications if the provisions of this section are not met.

(8) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with this section, if noncompliance has occurred, or violations have been committed.

(9) Review elevation certificates and require incomplete or deficient certificates to be corrected.

(10) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the county, within six (6) months after such data and information becomes available if the analyses indicate changes in base flood elevations.

(11) Maintain and permanently keep records that are necessary for the administration of this section, including:

a. Flood insurance studies, FIRMS (including historic studies and maps and current effective studies and maps), and LOMC; and

b. Documentation supporting issuance and denial of permits, elevation certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of this section.

(12) Enforce this section, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.

(13) Advise the board of zoning appeals regarding the intent of this section and, for each variance application, prepare a staff report and recommendation.

(14) Administer the requirements related to proposed work on existing buildings.

a. Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.

b. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct, and prohibit the noncompliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

(15) Undertake other actions which may include, but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other federal, state and local agencies to assist with substantial damage determinations; providing county departments and owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for increased cost of compliance coverage under NFIP flood insurance policies.

(16) Notify FEMA when the jurisdictional boundaries of the county have been modified and:

a. Provide a map that clearly delineates the new boundaries or the new area for which the authority to regulate pursuant to this section has been assumed or relinquished through annexation; and

b. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in this section, prepare amendments to this section to adopt the FIRM and appropriate requirements, and submit the amendments to the board of supervisors for its consideration; such consideration shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

(17) Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

(18)

It is the duty of the floodplain administrator to take in to account flood, mudslide, and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdiction of the county, whether or not those hazards are specifically delineated geographically (e.g., via mapping or surveying).

(k) *[44 C.F.R. § 60.3]. Interpretation of district boundaries.* Initial interpretations of the boundaries of the floodplain districts, including special flood hazard areas, floodplain boundaries, and floodway boundaries, shall be made by the floodplain administrator. Should a dispute arise concerning the boundaries of any of the floodplain districts, the board of zoning appeals shall make the necessary determination. Any person who disputes the location of district boundary shall be given a reasonable opportunity to present the case to the board of zoning appeals and to submit technical evidences if so desired. The following principles shall apply to the use and interpretation of FIRMs and data:

(1) Where field surveyed topography indicates that adjacent ground elevations:

a. Are below the base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations; or

b. Are above the base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a letter of map change that removes the area from the SFHA.

(2) In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a federal, state, or other source shall be reviewed and reasonably used.

(3) Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

(4) Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.

(5) If a preliminary FIRM and/or a preliminary flood insurance study is provided by FEMA:

a. Upon the issuance of a letter of final determination by FEMA, the preliminary flood hazard data shall be used and shall replace the flood hazard data previously provided by FEMA for the purposes of administering this section.

b. Prior to the issuance of a letter of final determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to county Code subsection 28-57(q)(3) and used where no base flood elevations and/or floodway areas are provided on the FIRM.

c. Prior to issuance of a letter of final determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change by and/or appeal to FEMA.

(l) *Jurisdictional boundary changes [44 C.F.R. § 59.22, 65.3].*

(1) The county floodplain provisions in effect on the date of annexation or a boundary adjustment shall go into effect and shall be enforced by the county for all areas added to the jurisdiction of the county upon the effective date of the annexation or boundary adjustment.

(2) The floodplain administrator shall notify FEMA and the Virginia Department of Conservation and Recreation Division of Dam Safety and Floodplain Management in writing whenever the boundaries of the county are modified by annexation or boundary adjustment or the county otherwise assumes or is no longer authorized to adopt and enforce floodplain management regulations for a particular area. Such written notification shall include a copy of a map of the county suitable for reproduction, clearly delineating the new jurisdictional limits or new area for which the county assumesor relinquishes floodplain management regulatory authority.

(m) *District boundary changes.* Upon FEMA approval, the he delineation of any of the floodplain districts may be revised by the county where natural or manmade changes have occurred, where more detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers or other qualified agency, and/or an individual documents the need for such change.

(n) *Reserved.*

(o) *Submitting model backed technical data [44 C.F.R. § 65.3].* The county's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but no later than six (6) months after the date such information becomes available, the floodplain administrator shall notify FEMA of the changes by submitting technical or scientific data.

(p) *Letters of map revision.* When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a CLOMR and then a LOMR.

Examples:

(1) Any development in the floodway that causes a rise in the base flood elevations.

(2) Any development occurring in Zones A1—30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.

(3) Alteration or relocation of a stream including but not limited to installing culverts and bridges.

(q)

Establishment and description of special flood hazard districts [44 C.F.R. § 59.1,60.3]. The Flood Hazard (FH) Overlay District shall consist of the SFHA. The basis of delineation of SFHAs shall be the FIRM and FIS for the county prepared by the FEMA, dated June 21, 2023, and any subsequent revisions or amendments.

In the event that the county identifies and regulates local flood hazard or ponding areas that are not delineated on the FIRM, these areas may be delineated on a local flood hazard map using best available topographic data and locally-derived information such as flood of record, historic high water marks or approximate study methodologies.

The boundaries of the SFHA are established as shown on the FIRM, which is incorporated in and a part of this section and which shall be kept on file at the county

(1) The floodway district is in an AE Zone and is delineated, for purposes of this section, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one (1) percent annual chance flood without increasing the water surface elevation of that flood by more than one (1) foot at any point. The areas included in this district are specifically defined in Table 23 of the above-referenced FIS and shown on the accompanying FIRM.

The following shall apply within the floodway districts of an AE zone [44 C.F.R. § 60.3(d)]:

a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice, that the proposed encroachment will not result in any increase in flood levels within the county during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, and/or computations shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies with the county's endorsement for a CLOMR, and receives FEMA approval.

If county Code subsection 28.57(q)(1)a. is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of county Code subsections 28-57(s), (t) and (u).

b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or

subdivision provided the anchoring, elevation, and encroachment standards are met.

(2) The AE Zone shall be those areas for which the FIRM and the FIS have established one percent annual chance flood elevations. The following provisions shall apply within an AE Zone where floodway has not been delineated. [44 C.F.R. § 60.3(c)]:

a. Along rivers, streams, and other watercourses where FEMA has provided base flood elevations, until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones AE on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the county.

b. Development activities in Zone AE, on the county's FIRM which increase the water surface elevation of the base flood by more than one (1) foot may be allowed; provided that, the applicant first applies with the county's endorsement for a CLOMR, and receives the approval of FEMA.

(3) The A Zone on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(b)]:

The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a 100-year floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Floodplain Information Reports, U.S. Geological Survey Flood-Prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted non-detailed technical concepts, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, and/or computations shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

The floodplain administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood level by three (3) feet.

During the permitting process, the floodplain administrator shall obtain:

a. The elevation of the lowest floor (including the basement) of all new and substantially improved structures; and

b. If the structure was flood-proofed in accordance with this section, the elevation (in relation to mean sea level) to which the structure has been floodproofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty (50) lots or five (5) acres, whichever is less.

(4) The AO Zone on the FIRM accompanying the FIS shall be those areas of shallow flooding identified as AO on the FIRM. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(c)]:

a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM.

If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two (2) feet above the highest adjacent grade.

b. All new construction and substantial improvements of nonresidential structures shall:

1. Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet above the highest adjacent grade; or

2. Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(5) The Coastal A Zone shall be those areas, as defined by the USBC, that are subject to wave heights between one and one-half (1.5) feet and three (3) feet. In the Coastal A Zone, the floodplain development and building standards for VE Zones shall apply. When the limits of

moderate wave action (LiMWA) line is shown on the effective FIRM, the Coastal A Zone can be identified as the AE Zone areas seaward of the LiMWA line.

(6) The VE or V Zones on FIRMs accompanying the FIS shall be those areas that are known as coastal high hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(e)]:

a. All new construction and substantial improvements, including manufactured homes, in Zones V and VE (VE if base flood elevation is available) shall be elevated on pilings or columns so that:

1. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level plus three (3) feet; and

2. The pile or column foundation and structure attached to it is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year (one percent annual chance).

b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the requirements of county Code subsection 28-57(q)(5)a.

c. The floodplain administrator shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE. The floodplain administrator shall maintain a record of all such information.

d. All new construction shall be located landward of the reach of mean high tide.

e. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

For the purpose of this subsection, a breakaway wall shall have a design safe loading resistance of not less than ten (10) and no more than twenty (20) pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of twenty (20)

pounds per square foot (either by design or when so required by county ordinance) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

1. Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and
2. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one (1) percent chance of being equaled or exceeded in any given year.

f. The enclosed space below the lowest floor shall be used solely for vehicle parking, building access or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation.

g. The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a development permit.

h. The manmade alteration of sand dunes, which would increase potential flood damage, is prohibited.

(7) The mapped floodplain includes all of the above regions and also the regions designated as having a two-tenths (0.2) percent annual chance of flooding on a flood map or flood insurance study. In the mapped floodplain, no emergency service, medical service, governmental records storage shall be allowed except by exceptions using the variance process.

(r) *Overlay concept.*

(1) The FH Overlay District shall be overlays to the existing underlying districts as shown on the county's zoning map. As such, the provisions for the floodplain districts shall serve as a supplement to the underlying zoning district provisions.

(2) If there is any conflict between the provisions or requirements of the FH Overlay District and those of any underlying zoning district, the more restrictive provisions shall apply.

(3) If any provision concerning the FH Overlay District is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

(s) *Permit and application requirements in floodplain districts [44 C.F.R. § 59.22, 60.2, and 60.3].*

(1) *Permit requirement.*

a.

All uses, activities and development occurring within any floodplain district, including placement of manufactured homes, shall be undertaken only upon the issuance of a zoning permit.

b. Such development shall be undertaken only in strict compliance with the this section and with all other applicable codes and ordinances, including, but not limited to, USBC and County Code chapter 22. Prior to the issuance of any such permit, the floodplain administrator shall require all applications to include compliance with all applicable state and federal laws, and shall review all sites to assure they are reasonably safe from flooding.

c. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

(2) *Site plans and permit applications.* All applications for development within any floodplain district and all building permits issued for the floodplain shall incorporate the following information:

a. The elevation of the base flood at the site.

b. For structures to be elevated, the elevation of the lowest floor (including basement) or, in V Zones, the lowest horizontal structural member.

c. For structures to be floodproofed (nonresidential only), the elevation to which the structure will be floodproofed.

d. Topographic information showing existing and proposed ground elevations at the datum of the FIRM.

(t) *General standards.* The following shall apply to all permits:

(1) New construction and substantial improvements shall be according to county Code subsection 28-57(q) and the USBC, and anchored to prevent flotation, collapse or lateral movement of the structure. In addition to the USBC requirements, structures shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. The USBC building standards for VE Zones shall apply to Coastal AE Zones.

(2) Manufactured homes shall be anchored to prevent flotation, collapse or lateral movement. Anchoring methods include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

(3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(4) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

(5) Electrical systems, equipment and components; heating, ventilation, air conditioning; plumbing, appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the base flood level plus three (3) feet. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilation, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under floods.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the base flood level provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with American Society of Civil Engineers Standard 24. Electrical wiring systems are permitted to be below the required elevation provided they conform to the provisions of the electrical part of the Virginia commercial or residential building code for wet locations, as adopted by the county.

(6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

(8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

In addition to provisions (t)(1)—(7) of this section in all special flood hazard areas, the additional provisions shall apply:

(9) Prior to any proposed alteration or relocation of any channels or of any watercourse and/or stream, within this jurisdiction a permit shall be obtained from the USACE, the VADEQ, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and FEMA.

(10) The flood-carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(11)

The floodplain administrator may at his discretion issue, in writing, an administrative exception for specified uses and activities in the Coastal A and coastal high hazard areas. The floodplain administrator must find that the placement of fill material for the proposed activity or use would not create a flood hazard or contribute to increased flood elevations of off-site properties. The applicant requesting an administrative exception shall provide sufficient information, plans, and drawings for the floodplain administrator to determine that there would be no flood hazard impacts. The following uses and activities may be permitted, by administrative exception, in the Coastal A and coastal high hazard areas:

a. Water-dependent uses and activities associated with tidal water bodies, such as marinas, docks, wharves and piers; and

b. Shoreline protection measures where the maximum elevation of the structure or fill does not exceed the base flood elevation.

(u) *Elevation and construction standards [44 C.F.R. § 60.3].*

(1) In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with county Code subsection 28-57(q)(3), the following provisions shall apply:

a. *Residential construction.* New construction or substantial improvement of any residential structure (including manufactured homes) in Zones AE (except Coastal A Zones), and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. See county Code subsections 28-57(q)(4), (5), (6), and (7) for the requirements in the AO, Coastal A, VE and V Zones. Recreational amenities constructed in residential developments such as tennis courts, basketball courts, and similar court facilities, sports fields, tot lots, and playgrounds shall meet the same elevation requirement as for residential construction contained in this subsection.

b. *Nonresidential construction.* New construction or substantial improvement of any commercial, industrial or nonresidential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. See subsections 28-57(q)(4), (5), (6), and (7) for requirements in the AO, Coastal A, VE and V Zones. Buildings located in all AE (except Coastal A Zones), and A Zones may be floodproofed in lieu of being elevated, provided that all areas of the building components below the elevation corresponding to the BFE plus three (3) feet are watertight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this

subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by floodplain administrator.

c. *Space below the lowest floor.* In Zones A, AE, and AO, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall only be used for vehicle parking, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for vehicle parking (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator);
2. Be constructed entirely of flood-resistant materials below the regulatory flood protection elevation;
3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must be certified by a professional engineer or architect, or meet the following minimum design criteria:

(i) Provide a minimum of two (2) openings on different sides of each enclosed area subject to flooding;

(ii) The total net area of all openings must be at least one square inch for each square foot of enclosed area subject to flooding;

(iii) If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit;

(iv) The bottom of all required openings shall be no higher than one foot above the adjacent grade;

(v) Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions; and

(vi) Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

d. *Accessory structures.* Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of County Code subsection 28-57(u)(1)b or, if not elevated or dry floodproofed, shall:

1. Not be used for human habitation;

2. Be limited to no more than six hundred (600) square feet in total floor area;
3. Be useable only for parking of vehicles or limited storage;
4. Be constructed with flood damage-resistant materials below the base flood elevation;
5. Be constructed and placed to offer the minimum resistance to the flow of floodwaters;
6. Be anchored to prevent flotation;
7. Have electrical service and mechanical equipment elevated to or above the base flood elevation; and
8. Shall be provided with flood openings which shall meet the following criteria:
   (i) There shall be a minimum of two (2) flood openings on different sides of each enclosed area; if a structure has more than one (1) enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.
   (ii) The total net area of all flood openings shall be at least one (1) square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.
   (iii) The bottom of each flood opening shall be one (1) foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.
   (iv) Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.
9. A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be recorded with respect to the property in the land records of Stafford County Circuit Court.

e. *Standards for manufactured homes and recreational vehicles.*

1. All manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in county Code subsections 28-57(t) and (u).
2. All recreational vehicles placed on sites must either:
   (i) Be on the site for fewer than one hundred eighty (180) consecutive days, be fully licensed, and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick-disconnect type utilities and security devices and has no permanently attached additions); or
   (ii)

Meet all the requirements for manufactured homes in county Code subsection 28-57(u)(1)e.1.

(v) *Standards for subdivision proposals.*

(1) All subdivision proposals shall be consistent with the need to minimize flood damage.

(2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(3) All subdivision proposals shall have adequate drainage to reduce exposure to flood hazards.

(4) Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty (50) lots or five (5) acres, whichever is less.

(w) *Existing structures in floodplain areas.* A structure or use of a structure or premises which lawfully existed before the enactment of Ordinance No. O23-09, but which is not in conformity with this section, may be continued subject to the following conditions:

(1) Existing structures in the floodway area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed expansion would not result in any increase in the base flood elevation.

(2) Any modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use located in any floodplain areas to an extent or amount of less than fifty (50) percent of its market value shall conform to the USBC and the applicable provisions of this section, and;

a. The modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use located in any floodplain areas, when added to all of the modifications, repairs, reconstruction or improvements made during a rolling 5-year period shall not constitute fifty (50) percent of the structure's value.

(3) The modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use, regardless of its location in a floodplain area to an extent or amount of fifty (50) percent or more of its market value or a substantial improvement shall be undertaken only in compliance with this section and shall require the entire structure to conform to the USBC.

(x) *Variances: Factors to be considered [44 C.F.R. § 60.6].*

(1) Variances shall be issued only upon: (i) a showing of good and sufficient cause; (ii) after the board of zoning appeals determines that failure to grant the variance would result in exceptional hardship to the applicant; and (iii) after the board of zoning appeals determines that the granting of such variance will not result in: (a) unacceptable or prohibited increases in

flood heights; (b) additional threats to public safety; (c) extraordinary public expense; and will not: (d) create nuisances; (e) cause fraud or victimization of the public; or (f) conflict with county Code or county ordinances.

(2) While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may be granted. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. The board of zoning appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with this section.

(3) The board of zoning appeals may issue variances for new construction and substantial improvements and for other development necessary for the conduct of a functionally-dependent use provided that the criteria of this section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

(4) In considering variance applications, the board of zoning appeals shall consider all relevant provisions of County Code chapter 28 and the following factors:

a. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any floodway district that will cause any increase in the 100-year flood elevation.

b. The danger that materials may be swept on to other lands or downstream to the injury of others.

c. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions.

d. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner(s).

e. The importance of the services provided by the proposed facility to the county.

f. The requirements of the facility for a waterfront location.

g. The availability of alternative locations that are not subject to flooding.

h. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

i. The relationship of the proposed use to the comprehensive plan and floodplain management program for the county.

j. The safety of access by ordinary and emergency vehicles to the property during a flood.

k.

The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.

l. The historic nature of a structure. The board of zoning appeals may grant variances for repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

m. No variance shall be granted for an accessory structure exceeding six hundred (600) square feet.

n. Such other factors which are relevant to the purposes of this section.

(5) The board of zoning appeals may refer any application and accompanying documentation pertaining to any variance request to an engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

(6) Variances shall be issued only after the board of zoning appeals determines that the granting of such will not result in: (a) unacceptable or prohibited increases in flood heights; (b) additional threats to public safety; (c) extraordinary public expense; and will not: (d) create nuisances; (e) cause fraud or victimization of the public; or (f) conflict with local laws or ordinances.

(7) The board of zoning appeals may issue a variance after it determines that the variance will be the minimum required to provide the requested relief.

(8) The board of zoning appeals shall notify the applicant for a variance, in writing that the issuance of a variance to construct a structure below the 100-year flood elevation: (a) increases the risks to life and property; and (b) will result in increased premium rates for flood insurance.

(9) A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that the board of zoning appeals issues shall be noted in the annual or biennial report submitted to the FEMA.

(Ord. No. 094-29, § 28-407, 8-9-94; Ord. No. 099-41, 7-13-99; Ord. No. 099-76, 11-16-99; Ord. No. O04-63, 12-7-04; Ord. No. O07-31, 5-1-07; Ord. No. O08-37, 6-17-08; Ord. No. O08-80, 12-2-08; Ord. No. O14-37, 12-16-14; Ord. No. O19-38, 10-1-19; Ord. No. O23-09 , 5-2-23)

Sec. 28-58. - Historic Resource Overlay District (HR).

(a) *Definition and purpose.* The Historic Resource Overlay District (HR) shall be defined as consisting of any historic area, landmark, building or structure, or any land pertaining to any estate or interest therein, along with any adjoining lands deemed necessary to protect the context in which

the resource exists, which, in the opinion of the board of supervisors, should be preserved and maintained for the use, observation, education, pleasure and welfare of the people, and is so designated.

It is intended that the establishment of HR districts will protect against destruction of and encroachment upon historic resources. HR districts are areas containing buildings or places in which historic events have occurred or which have special public value because of notable architectural or other features relating to the cultural or artistic heritage of the county, the commonwealth, and the nation, of such significance as to warrant conservation and preservation.

(b) *Architectural review board.* The governing body shall appoint an architectural review board (ARB) consisting of seven (7) members for the purpose of administering this section, subject to the following conditions:

(1) All members appointed to the ARB shall have a demonstrated knowledge, interest, or competence in historic preservation.

(2) At least one member shall be a registered architect, or an architectural historian, with a demonstrated interest in historic preservation; at least one member shall be a member of the planning commission; at least one member shall be a resident of a designated historic district in Stafford County. When adequate review of any proposed action would normally involve a professional discipline not represented on the ARB, the ARB shall seek appropriate professional advice before rendering a decision. Information on the credentials of all ARB members shall be kept on file locally for public inspection.

(3) The ARB shall adopt written bylaws that include at a minimum: Provision for regularly scheduled meetings at least four (4) times a year; a requirement that a quorum of four (4) members be present to conduct business; rules of procedure for considering applications; written minutes of all meetings.

(4) Terms of office for ARB members shall be for three (3) years and shall be staggered.

(5) Vacancies on the ARB shall be filled within sixty (60) days.

(6) In addition to those duties specified in this chapter, the ARB shall at a minimum perform the following duties:

a. Conduct or cause to be conducted a continuing survey of the cultural resources in the community according to guidelines established by the state historic preservation office.

b. Act in an advisory role to other officials, and departments of local government regarding protection of cultural resources.

c. Disseminate information within the locality on historic preservation issues and concerns.

d. The ARB shall provide for adequate public participation, including:

1.

All meetings of the ARB must be publicly announced, to be open to the public, and have an agenda made available to the public prior to the meeting. ARB meetings must occur at regular intervals at least four (4) times per year. Public notices must be provided prior to any special meetings. The ARB shall allow for public testimony from interested members of the public, not just applicants.

2. Minutes of all decisions and actions of the ARB, or in appeals to the local governing body, must be kept on file and available for public inspection.
3. All decisions made by the ARB shall be made in a public forum and applicants shall be given written notification of decisions made by the ARB.
4. The rules of procedure adopted by the ARB shall be made available for public inspection.

(c) *Designation of historic districts.* The board of supervisors may designate by ordinance historic resources to be included in the Historic Resource (HR) Overlay District. These resources may be, but are not limited to, landmarks established by the Virginia Landmarks Commission and any other building or structures within the county having important historic, architectural or cultural interest.

(1) The ARB shall recommend and the governing body may, approve by ordinance the designation of an area or resource as Historic Resource Overlay District within which the regulations set forth in this section and regulations adopted for each specific historic district shall apply.

(2) In order to fully protect historic resources and areas, the boundaries of an Historic Resource Overlay District may include adjoining land closely related to and bearing upon the character of the historic resource, including lands within proximity of the historic resource.

(3) Individual property owners' consent for inclusion of their property within the HR district is not required.

(4) The board of supervisors may create HR overlay districts, provided such districts:

a. Contain buildings or places in which historic events have occurred or having special public value because of notable architectural or other features relating to the cultural or artistic heritage of the community, or such significance to warrant conservation and preservation.
b. Is [are] closely associated with one or more persons, events, activities, or institutions that have made a significant contribution to local, regional, or national history; or
c. Contain buildings or structures whose exterior design or features exemplify the distinctive characteristics of one or more historic types, periods, or methods of construction, or which represent the work of an acknowledged master or masters; or
d. Have yielded, or are likely to yield, information important to local, regional or national history; or

e. Possess an identifiable character representative of the architectural or cultural heritage of Stafford County; or

f. Contain a landmark, building or structure included on the National Register of Historic Places or the Virginia Landmark Register.

(d) *Historic resource overlay district regulations.* Historic resource overlay districts shall be subject to the following regulations in addition to those imposed for each specific historic district and those pursuant to the underlying zoning classification of the property. The Historic Resource Overlay District regulations shall take precedence over the underlying regulations when they conflict. All HR district boundaries shall be delineated on the official zoning map.

(1) A certificate of appropriateness issued by the agent or his designee shall be required prior to the erection, reconstruction, exterior alteration, restoration or excavation of any building or structure within a HR district, or prior to the demolition, razing, relocation, or moving of any building or structure therein. The agent shall not issue a certificate of appropriateness until an application therefor has been approved by the ARB or upon appeal to the board of supervisors with consultation of the ARB, following the procedures set forth below. In addition, no demolition, razing, relocation, or moving of an historic resource in an HR district shall occur until approved by the ARB or upon appeal to the board of supervisors with consultation of the ARB.

(2) Upon receipt of a complete application for a certificate of appropriateness, the agent shall forward to the ARB copies of the permit application, plat, site plan, and any other materials filed with such application. The complete application must be received by the ARB fourteen (14) days or more prior to its meeting.

(3) The ARB may require the submission of the following information and other materials necessary for its review of the complete application: statement of proposed use; name of proposed user; design sketches showing exterior building configuration, topography, paving and grading; and, a plan showing exterior signs, graphics, and lighting to establish location, color, size, and type of materials.

(4) The ARB shall review and render a decision upon each application for a certificate of appropriateness within sixty (60) days of receipt, unless the applicant agrees in writing to an extension of the review period. The ARB shall apply the following criteria for its evaluation of any application. In addition to the following criteria, and guidelines adopted by the county, the ARB shall consider the Secretary of Interior's "Standards for Rehabilitation," as may be amended from time to time in determining the appropriateness of any application for approval pertaining to existing structures.

a. Risk of substantial alteration of the exterior features of an historic resource.

b.

Compatibility in character, context and nature with the historic, architectural or cultural features of the historic district.

c. Value of the resource and the proposed change in the protection, preservation, and utilization of the historic resource located in the historic district.

d. Exterior architectural features, including all signs.

e. General design, scale, and arrangement.

f. Texture and materials.

g. The relationship of subsections a., b., and c., above, to other structures and features of the district.

h. The purpose for which the district was created.

i. The relationship of the size, design, and orientation of any new or reconstructed structure to the landscape of the district.

j. The extent to which denial of a certificate of appropriateness would constitute a deprivation of a reasonable use of private property.

(5) No application for a permit to erect, reconstruct, alter, or restore any building or structure, including signs, shall be approved unless the ARB determines or upon appeal to the board of supervisors with consultation of the ARB that it is architecturally compatible with the historic resources in the HR district.

(6) In reviewing an application to raze or demolish an historic resource the ARB shall review the circumstances and the condition of the structures proposed for demolition and shall make its decision based on consideration of the following criteria:

a. Is the historic resource of such architectural, cultural, or historic interest that its removal would be detrimental to the public interest?

b. Is the historic resource of such old and unusual design, texture, and material that it could not be reproduced or be reproduced only with great difficulty?

c. Would retention of the historic resource help preserve and/or protect another historic resource?

(7) In reviewing an application to move or relocate an historic resource, the ARB shall consider the following criteria:

a. Detrimental effect of the proposed relocation on the structural integrity of the historic resource.

b Detrimental effect of the proposed relocation on the historical aspects and context of other historic resources, buildings, or structures in the HR district.

c. Compatibility of proposed new surroundings with the historic resource if relocated.

d. Benefits of relocation of the historic resource with regard to its preservation.

(8) The ARB, on the basis of the application and the criteria set forth herein shall approve, with or without modifications, or deny the application. If the ARB approves or approves with modifications the application, it shall authorize the agent to issue the permit. The permit shall expire after twelve (12) months from the date of issuance if work has not yet commenced on the property. If the ARB denies the application, it shall so notify the applicant and the agent in writing.

(9) Minor work or actions, deemed by the agent or his designee not to have a permanent effect upon the character of the historic property or district, shall be exempt from full review by the ARB. Instead, such minor work or actions shall be reviewed and approved or disapproved by the agent or his designee. Decisions made regarding minor work shall be rendered in writing. An applicant may appeal the decision of the agent or his designee to the ARB and of the ARB to the board of supervisors, in accord with the procedures hereinafter established. The term "minor work" shall include, but not be limited to, the repair or replacement of existing materials on exterior surfaces or appurtenances, such as steps, gutters, chimneys, windows, or exterior painting, except on unpainted masonry surfaces.

(e) *Appeals; right to demolish.*

(1) Any owner or owners of real property within Stafford County who are jointly or severally aggrieved by a decision of the ARB, may appeal the decision to the board of supervisors by filing a written petition with the agent within thirty (30) days of that decision. The filing of the petition shall not stay the decision of the ARB if that decision denies the right to demolish a historic resource. The board of supervisors, after consultation with the ARB, may reverse the decision of the ARB, in whole or in part, or it may affirm the decision of the ARB.

(2) Any owner or owners of real property within Stafford County who are jointly or severally aggrieved by a final decision of the board of supervisors, may appeal to the Circuit Court of Stafford County for review of that decision by filing a petition at law setting forth the alleged illegality within thirty (30) days of the final decision of the board, in accordance with Code of Virginia § 15.1-503.2, as amended. The filing of said petition shall stay the decision of the board pending the outcome of the appeal to the court, provided that the filing of such petition shall not stay the decision of the board if such decision denies the right to raze or demolish an historic resource. The court may reverse or modify the decision of the board of supervisors, in whole or in part, if it finds upon review that the decision of the board is contrary to the law or that its decision is arbitrary and constitutes an abuse of discretion, or it may affirm the decision of the board of supervisors.

(3) In addition to the right of appeal set forth in subsection (2) above, the owner of an historic resource, the razing of which is subject to the provisions of this chapter, shall, as a matter of right, be entitled to demolish such historic resource, provided that:

a. He has applied to the governing body for such right; and

b. He has, for a period of time set forth in the time schedule contained in this section, and at a price reasonably related to its fair market value, made a bona fide offer to sell such historic resource, and the land pertaining thereto, to the county, or any person, firm, corporation, government or agency thereof which gives reasonable assurance that it is willing to preserve and restore the historic resource and the land pertaining thereto; and

c. No bona fide contract, binding upon all parties thereto, shall have been executed for the sale of such historic resource, and the land pertaining thereto, prior to the expiration of the application time set forth in the time schedule contained in this section.

(4) Any appeal which may be taken to the court from a decision of the board of supervisors, whether instituted by the owner or by any other party with proper standing, notwithstanding the provisions heretofore stated relating to a stay of the decision appealed from, shall not affect the right of the owner to make a bona fide offer to sell such historic resource. No offer shall be made more than one year after a final decision by the board of supervisors, but thereafter the owner may renew his request to the board to approve razing of the historic resource. The time schedule for offers to sell shall be as follows:

a. Three (3) months when the offering price is less than twenty-five thousand dollars ($25,000.00).

b. Four (4) months when the offering price is twenty-five thousand dollars ($25,000.00) or more, but less than forty thousand dollars ($40,000.00).

c. Five (5) months when the offering price is forty thousand dollars ($40,000.00) or more, but less than fifty-five thousand dollars ($55,000.00).

d. Six (6) months when the offering price is fifty-five thousand dollars ($55,000.00) or more, but less than seventy-five thousand dollars ($75,000.00).

e. Seven (7) months when the offering price is seventy-five thousand dollars ($75,000.00) or more, but less than ninety thousand dollars ($90,000.00).

f. Twelve (12) months when the offering price is ninety thousand dollars ($90,000.00) or more.

(5) The time periods specified in this section shall commence upon receipt by the ARB of the owner's written notification of his intention to sell an historic resource. This statement shall identify the property, state the offering price, and the name of the real estate agent, if any. The ARB shall, within five (5) days, convey a copy of such statement to the county attorney.

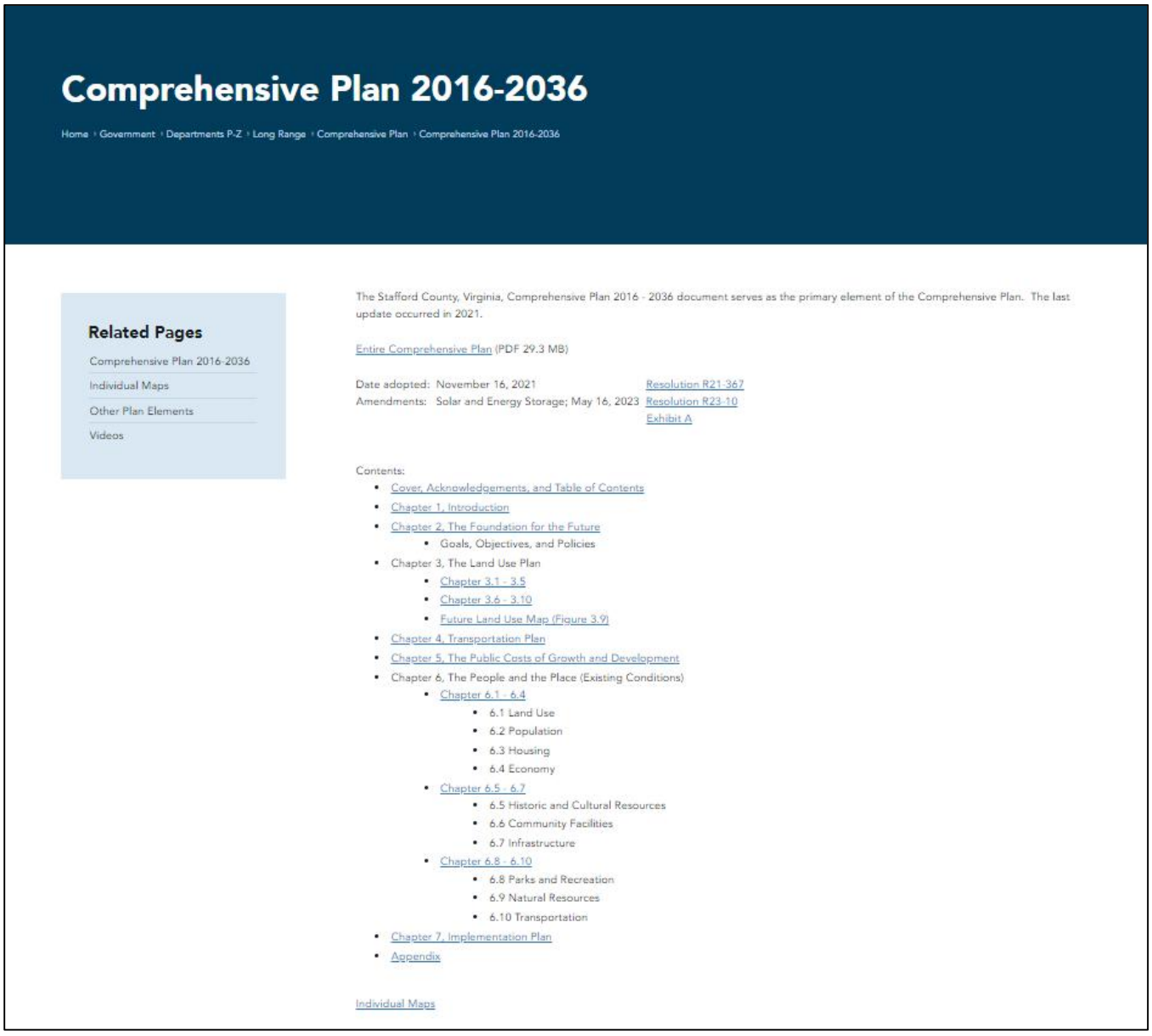
(Ord. No. 094-29, § 28-408, 8-9-94; Ord. No. O13-31, 9-3-13; Ord. No. O14-07, 6-3-14; Ord. No. O14-28, 11-13-14)

Link to a Copy of the Current Comprehensive Plan

(Stafford County 2016-2036 Comprehensive Plan)

Link to Stafford County 2016-2036 Comprehensive Plan

https://staffordcountyva.gov/government/departments_p-z/planning_and_zoning/long_range/comprehensive_plan/comprehensive_plan_2016-2036.php



Comprehensive Plan 2016-2036

Home › Government › Departments P-Z › Long Range › Comprehensive Plan › Comprehensive Plan 2016-2036

Related Pages

- Comprehensive Plan 2016-2036
- Individual Maps
- Other Plan Elements
- Videos

The Stafford County, Virginia, Comprehensive Plan 2016 - 2036 document serves as the primary element of the Comprehensive Plan. The last update occurred in 2021.

Entire Comprehensive Plan (PDF 29.3 MB)

Date adopted: November 16, 2021 Resolution R21-367
Amendments: Solar and Energy Storage; May 16, 2023 Resolution R23-10
Exhibit A

Contents:

- Cover, Acknowledgements, and Table of Contents
- Chapter 1, Introduction
- Chapter 2, The Foundation for the Future
  - Goals, Objectives, and Policies
- Chapter 3, The Land Use Plan
  - Chapter 3.1 - 3.5
  - Chapter 3.6 - 3.10
  - Future Land Use Map (Figure 3.9)
- Chapter 4, Transportation Plan
- Chapter 5, The Public Costs of Growth and Development
- Chapter 6, The People and the Place (Existing Conditions)
  - Chapter 6.1 - 6.4
    - 6.1 Land Use
    - 6.2 Population
    - 6.3 Housing
    - 6.4 Economy
  - Chapter 6.5 - 6.7
    - 6.5 Historic and Cultural Resources
    - 6.6 Community Facilities
    - 6.7 Infrastructure
  - Chapter 6.8 - 6.10
    - 6.8 Parks and Recreation
    - 6.9 Natural Resources
    - 6.10 Transportation
- Chapter 7, Implementation Plan
- Appendix

Individual Maps

Social Vulnerability Index			
ID	Social Vulnerability Score	ID	Social Vulnerability Score
1	2.0025	41	-1.225
2	0	42	-0.715
3	-0.275	43	1.0275
4	-1.79	44	-0.76
5	-0.78	45	-0.78
6	-0.1	46	-1.735
7	0.43	47	-1.06
8	1.275	48	-0.175
9	-0.2	49	-0.45
10	2.5875	50	-0.31
11	-0.825	51	1.19
12	1.18	52	-0.525
13	-0.72	53	0.105
14	-1.665	54	-0.425
15	-0.785	55	0.34
16	0.56	56	-1.675
17	0.265	57	-0.935
18	-0.95	58	-1.135
19	-1.19	59	-1.635
20	-1.87	60	0.44
21	-1.655	61	0.945
22	-0.58	62	-1.06
23	-1.66	63	-1.42
24	-1.51	64	-1.97
25	0.48	65	1.1
26	-1.48	66	1.12
27	0.145	67	-1.11
28	-1.15	68	-1.875
29	1.345	69	-1.155
30	1.1125	70	-1.585
31	0.005	71	-1.53
32	-1.445	72	0.335
33	-1.74	73	-0.185
34	-1.82	74	-0.395
35	-1.87	75	-0.415
36	-1.39	76	-1.275
37	-1.465	77	-1.87
38	-1.74	78	-1.25
39	-1.6	79	0.535
40	-0.41		

Legend
County Boundary
Social Vulnerability Index
Very Low Social Vulnerability
Low Social Vulnerability
Moderate Social Vulnerability
High Social Vulnerability
Very High Social Vulnerability

0 12,500 25,000 US Feet

Stafford County GIS Office, VGIN, Esri, HERE, Garm

STAFFORD Virginia

STAFFORD COUNTY

PREPARED FOR STAFFORD COUNTY

DATE
10/30/2023

DRAWN BY
CDC

CHECKED BY
JJD

SCALE
1" = 13,000'

PROJECT NUMBER
N/A

SHEET NUMBER
APPENDIX C

R23-299

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of October, 2023:

MEMBERS:	VOTE:
Dr. R. Pamela Yeung, Chairman	Yes
Thomas C. Coen, Vice Chairman	Yes
Tinesha O. Allen	Yes
Meg Bohmke	Yes
Darrell E. English	Yes
Monica L. Gary	Yes
Crystal L. Vanuch	Yes

On motion of Mr. Coen, seconded by Ms. Bohmke, which carried by a vote of 7 to 0, the following was adopted:

A RESOLUTION TO AUTHORIZE THE SUBMISSION OF A CAPACITY BUILDING AND PLANNING GRANT APPLICATION TO THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION FOR THE DEVELOPMENT OF A FLOOD RESILIENCE PLAN

WHEREAS, the County has prepared an application for the development of a Flood Resilience Plan to submit to the Virginia Department of Conservation and Recreation (DCR) for a Capacity Building and Planning grant through the Community Flood Preparedness Fund (CFPF); and

WHEREAS, the grant will be scored on technical and qualitative criteria in a statewide competition and funding will be awarded based on overall score; and

WHEREAS, if awarded, the County may be reimbursed up to $66,908 for the development of a Flood Resilience Plan;

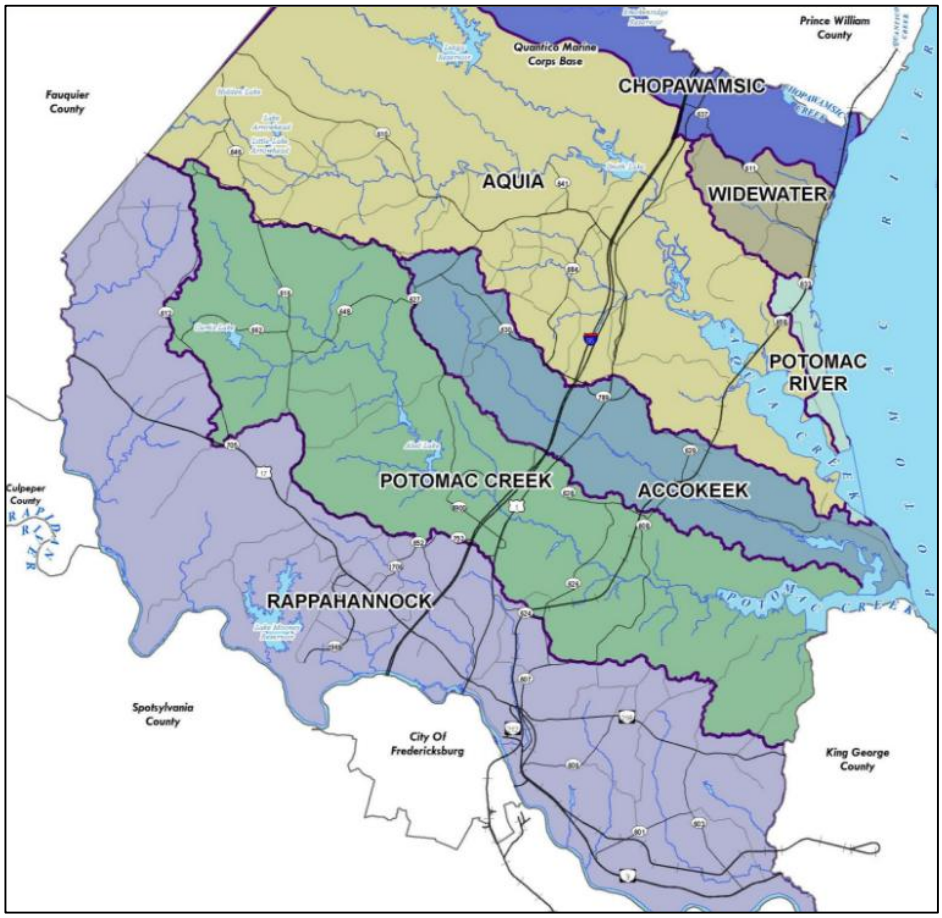
NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of October, 2023, that the County Administrator, or his designee, be and he hereby is authorized to submit a Capacity Building and Planning grant application to DCR for the development of a Flood Resilience Plan; and

BE IT FURTHER RESOLVED that the Capacity Building and Planning grant application shall be approved as to form by the County Attorney's office prior to submission.

A Copy, teste:

Randal E. Vosburg
County Administrator

Stafford County, Virginia
Flood Resilience Plan Development
Community Flood Preparedness Fund (CFPF)
Grant Application Package



Submitted by:

Stafford County - Department of Environmental Services
2126 Richmond Highway
Suite 203
Stafford, VA 22554

COMMUNITY FLOOD PREPAREDNESS FUND GRANT APPLICATION

Stafford County is pleased to submit this application for a Community Flood Preparedness Fund (CFPF) Capacity Building and Planning Grant for the development of a Flood Resilience Plan to meet the Appendix F (Elements of Resilience Plan) requirements outlined in the 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF Grant Manual). This grant application has been developed to meet the applicable scoring criteria outlined in Appendix D of the CFPF Grant Manual. The Flood Resilience Plan will provide a planning level document to assist the County in preparation for the increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan is intended to serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities. Refer to the Scope of Services included in Section B for additional information about the proposed work that will be covered under this capacity building and planning grant and Section A for the qualifications of the individuals conducting the study.

Table of Contents

SECTION A – APPENDIX

ORGANIZATIONAL DATA

SECTION – OUTLINE

- Application Form for Grant and Loan Requests for All Categories
- Scope of Work Narrative and Qualifications of Project Team

Applicants must have prior approval from the Department to submit applications, forms, and supporting documents by mail in lieu of the WebGrants portal.

Appendix A: Application Form for Grant and Loan Requests for All Categories

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Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Name of Local Government: Stafford County

Category Being Applied for (check one):

☒ **Capacity Building/Planning**

☐ **Project**

☐ **Study**

NFIP/DCR Community Identification Number (CID) 510154

Name of Authorized Official and Title: Emily Torrey, Deputy Environmental Programs Administrator

Signature of Authorized Official: _____

Mailing Address (1): 1300 Courthouse Road

Mailing Address (2): P.O. Box 339

County: Stafford **State:** Virginia **Zip:** 22555

Telephone Number: (540) 658- 8667 **Cell Phone Number:** (540) 379-6311

Email Address: ETorrey@staffordcountyva.gov

Contact and Title (If different from authorized official): _____

Mailing Address (1): _____

Mailing Address (2): _____

City: _____ **State:** _____ **Zip:** _____

Telephone Number: (____) _____ **Cell Phone Number: (____)** _____

Email Address: _____

Is the proposal in this application intended to benefit a low-income geographic area as defined in the Part 1 Definitions? Yes ____ No ___X___

Categories (select applicable activities that will be included in the project and used for scoring criterion):

Capacity Building and Planning Grants

☐ Floodplain Staff Capacity.

☒ Resilience Plan Development **(Development of a new Resilience Plan)**

- ☐ Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.
- ☐ Resource assessments, planning, strategies, and development.
  - Policy management and/or development.
  - Stakeholder engagement and strategies.

☐ Other: _____

Study Grants (Check All that Apply)

☐ Studies to aid in updating 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, freeboard, or other

higher standards, RiskMAP public noticing requirements, or correcting issues identified in a Corrective Action Plan.

- Revising other land use ordinances to incorporate flood protection and mitigation goals, standards, and practices.
- Conducting hydrologic and hydraulic (H&H) studies of floodplains. *Changes to the base flood, as demonstrated by the H&H must be submitted to FEMA within 6 months of the data becoming available.*
- Studies and Data Collection of Statewide and Regional Significance.
- Revisions to existing resilience plans and modifications to existing comprehensive and hazard.
- Other relevant flood prevention and protection project or study.

Project Grants and Loans (Check All that Apply – Hybrid Solutions will include items from both the "Nature-Based" and "Other" categories)

Nature-based solutions

- Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development, and where the flood mitigation benefits will be achieved as a part of the same project as the property acquisition.
- Wetland restoration.
- Floodplain restoration.
- Construction of swales and settling ponds.
- Living shorelines and vegetated buffers.
- Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool, or the acquisition of developed land for future conservation.
- Dam removal.
- Stream bank restoration or stabilization.
- Restoration of floodplains to natural and beneficial function.

Other Projects

- Structural floodwalls, levees, berms, flood gates, structural conveyances.
- Storm water system upgrades.
- Medium and large-scale Low Impact Development (LID) in urban areas.

- Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.
- Dam restoration.
- Beneficial reuse of dredge materials for flood mitigation purposes
- Removal or relocation of structures from flood-prone areas where the land will not be returned to open space.
- Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development, and where the flood mitigation benefits will **not be** achieved as a part of the same project as the property acquisition.
- Other project identified in a DCR-approved Resilience Plan.

Location of Project or Activity (Include Maps): County wide (See Appendix C)

NFIP Community Identification Number (CID#) : 510154

Is Project Located in an NFIP Participating Community? X Yes □ No

Is Project Located in a Special Flood Hazard Area? X Yes □ No

Flood Zone(s) (If Applicable): Zone AE, Zone A, Zone AO, Zone VE, Zone X

Flood Insurance Rate Map Number(s) (If Applicable): County wide (See Appendix C)

Total Cost of Project: $89,210.00

Total Amount Requested $66,907.50

Amount Requested as Grant $66,907.50

Amount Requested as Project Loan (not including short-term loans for up-front costs) N/A

Amount Requested as Short-Term loan for Up-Front Costs (not to exceed 20% of amount requested as Grant) N/A

For projects, planning, capacity building, and studies in low-income geographic areas: Are you requesting that match be waived? □ Yes X No

Additional Information for Loan Requests
Requested Loan Security: N/A A loan request from the County is not included in this Application.

(General Obligation, Lease, Revenue, Special Fund Revenue, and/or Moral obligation from other government entity)

Desired loan term: N/A

Since the date of your latest financial statements, did the applicant issue any new debt? N/A
(If yes, provide details)

Is there any pending or potential litigation by or against the applicant? N/A

Attach five years of current audited financial statements (FY18-22) or refer to website if posted
(Not necessary for existing VRA borrowers)
N/A

Attach FY2024 adopted budget or refer to website
N/A

Attach current Capital Improvement Plan
N/A

Attach adopted Financial Policies
N/A

Attach a list of the ten largest employers in the Applicant's jurisdiction.
N/A

Attach a list of the ten largest taxpayers in the Applicant's jurisdiction
N/A

Scope of Work Narrative

Stafford County is one of the fastest growing areas in the State of Virginia. The rapid urbanization and development, paired with the presence of the Potomac River, Rappahannock River, and their many large tributaries create the need for future planning to assist with the impacts of flooding on current and future planned infrastructure. The need to create a comprehensive plan to address current and future impacts of flooding has necessitated this request for a capacity building and planning grant to develop a Flood Resilience Plan. As part of the overall County's capacity building and planning strategies, it was imperative to bring an expert group of consultant advisors on to work with the County to build and develop the Resilience Plan. If awarded, this grant will be used to develop a Flood Resilience Plan to assist the County in preparing for an increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan will serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies, to include policy development, that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities.

A detailed Scope of Services for the development of the Flood Resilience Plan that elaborates on each task, project assumptions and exclusions, and schedule is included in Section B and the qualifications of the individuals executing this project's scope of services are included in this section. An outline of the scope of services for this project is as follows:

1. Flood Resilience Plan Research and Data
2. Stafford County GIS Desktop Analysis
3. Flood Resilience Project Identification and Site Due Diligence
4. Resilience Plan Development
5. Meetings & Coordination

The following items are anticipated deliverables for this project's scope of services:

- Final Stafford County – Flood Resilience Plan
- All background data, analyses, calculations, and project files, if requested.

This project is estimated to be completed by June 30th, 2024, assuming the project team receives notice to proceed by January 31st, 2024. Stafford County Department of Environmental Services (Department) is responsible for managing this project and project progress will be tracked monthly and reported to the Department with a monthly progress report containing documentation of services provided. Because the proposed project is a development of a resilience plan, no operation or maintenance will be required on behalf of the Department. Potential project partners for this project could include several inter county departments (Office of Emergency Management, Parks, etc.) as well as numerous regional commissions, State agencies (DCR, DEQ), and Non-Profit Groups (i.e. Friends of the Rappahannock).

The information documented and planning associated with the Resilience plan will be beneficial is assisting a large developing County containing significant water resources and with a propensity for flooding issues, as well as provides a piece to overall state flooding resilience by creating a local and basin-wide scale plan that will be a tool that inevitably will identify drainage and infrastructure improvement projects to aid in protecting County residents, commercial centers, historical resources and both major and rural roadways.

Project Team

Key Individuals

Kimley-Horn brings you a carefully selected team of seasoned professionals who are genuinely committed to Stafford County's success. Our team serving the County prides ourselves on maintaining our strong project delivery, reputation for dependability, proactive thinking, and solid, consistent results. We are committed to delivering projects successfully and improving Stafford's resilience to flooding. Brief introductions to our team can be found below and resumes for each team member can be found on subsequent pages.

Jon D'Alessandro, P.E.

Project Manager

Jon has more than 14 years of experience in water resources engineering. He is experienced in the design and implementation of stormwater management projects with core expertise in hydrologic and hydraulic (H&H) modeling, Best Management Practice (BMP) design, BMP retrofit analysis and design, floodplain analysis, dam failure analysis, stream restoration design, and stormwater master planning. He has extensive experience using AutoCAD Civil 3D and Arc-GIS, as well as various H&H modeling software including, but not limited to, HEC-HMS, HEC-RAS, PondPack, Flowmaster, SWMM, WMS, and L-THIA. Additionally, he has supported local government municipal separate storm sewer systems (MS4) permit compliance programs through TMDL Action Plan Development, Program Plan and Annual Reporting Development, and inspection of stormwater infrastructure. His municipal relationships in Virginia include the City of Fairfax, Loudoun County, City of Winchester, Fairfax County, Stafford County, City of Fredericksburg, and support to the Loudoun County Soil and Water Conservation District.

Jared Hodes, P.E.

Jared has more than 7 years of experience in technical H&H modeling with a focus on hydrologic extremes, floodplain management, and municipal flooding issues. Jared has used a variety of H&H software including HEC-RAS, HEC-HMS, XPSWMM, HY-8, FlowMaster, and PondPack to model watersheds, culverts, bridges, dams, stormwater infrastructure, and stormwater BMPs for the purposes of design, retrofitting, municipality permitting, FEMA floodplain permitting, resiliency assessment, and flooding hot spot identification. He has extensive experience using ArcGIS for spatial data analysis, map product creation, online dashboard creation, and compiling and editing ESRI geodatabases for asset management. He has performed field work for stream, stormwater, precipitation, and geophysical measurements and for pollutant sampling projects.

Juan Campos, P.E.

Juan has more than 6 years of water resources experience primarily focused on support of municipal projects needed to meet local and Chesapeake Bay TMDL POC reduction requirements. Juan's core expertise lies in his knowledge of the approved design protocols required for restoration and retrofit projects in the Commonwealth and the implementation of different strategies and funding mechanisms to assist localities with improving their stormwater resiliency efforts. He has executed successful projects in the City of Fairfax, Loudoun County, City of Fredericksburg, City of Winchester, Prince William County, Fauquier County, and as part of the Virginia State Community College System.

Joe Arizzi, P.E.

Joe is an experienced urban stormwater management designer in the State of Virginia. His skills include technical use of ArcGIS for land cover analyses and BMP desktop siting studies, and HEC-RAS and HEC-HMS for hydrology and hydraulic analyses of stream channel characteristics. He is experienced in urban drainage assessments including conveyance system modeling, flood studies, and green infrastructure design.

Michelle Manfrey, EIT

Michelle has 2 years of water resources engineering experience. Michelle's experience is primarily focused on supporting municipal projects needed to meet local and Chesapeake TMDL POC reduction requirements as well as spearheading field campaign efforts. Michelle is well-versed in AutoCAD Civil 3D and ArcGIS and has had exposure to numerous H&H modeling software, including, but not limited to, HEC-HMS, HEC-RAS, and PondPack. Michelle has municipal relationships in the City of Fairfax, Loudoun County, City of Winchester, and Fairfax County.

Jon D'Alessandro, P.E.

Project Manager

Relevant Experience

Lake Drive Dam and Roadway Preliminary Engineering Design, Loudoun County, VA — Senior Project Manager and Senior Engineer. Jon is leading an effort to develop a preliminary design that will improve Lake Drive from Thomas Avenue to the terminus of Lake Drive with the design goal of future road acceptance into the Virginia Department of Transportation (VDOT) Secondary System of Roadways. Jon also is leading a team that is performing an evaluation of rehabilitation, repair, and retrofit options for the pond, dam, and downstream receiving channels at the 30 percent design level. The dam and roadway overtop multiple times annually, and the dam is experiencing significant downstream erosion at the toe of the dam and dam abutments. The dam impoundment area also is exhibiting enhanced sediment loading and erosion along the two main inflow channels.

Willow Lake Dam and Spillway Rehabilitation Plan/Pond Dredging and Retrofit, Loudoun County, VA — Senior Project Manager and Senior Engineer. Jon is the project manager and senior engineer responsible for leading a team in the development of a dam and spillway rehabilitation plan to repair the Willow Lake Dam and accompanying principal and emergency spillway channels. As part of this project, Jon and his team are also providing storm sewer system realignment design services to modify the discharge location of a 48-inch storm sewer pipe away from the toe of the dam to help with embankment erosion.

During the dam and spillway repair design, Jon worked with the County to identify if the corresponding Willow Pond needed maintenance and potential enhancement. From the joint analysis with County, Jon is managing a team that is preparing an accompanying Willow Lake Dredging and Pond Retrofit Design Plan that will be paired with the dam and spillway rehabilitation plan. It is anticipated that once fully designed and constructed, the conversion, enhancement, and retrofit of Willow Lake will provide Phosphorous, Nitrogen, and Total Suspended Solid (TSS) removal capabilities that will assist the County in meeting the pollutant load reduction requirements set forth in their municipal separate storm sewer system (MS4) permit and Chesapeake Bay TMDL Action Plan. Furthermore, the proposed dredging of the pond will return the pond to its original design volume and will help with pond maintenance and the aesthetics of the community.

Ashby Pond Conservancy – Pond Retrofit Final Design Services, Fairfax, VA — Senior Project Manager and Senior Engineer. Jon is leading an effort to finalize design plans for the Ashby Pond Conservancy – Pond Retrofit project. When completed the project will restore, enhance, and retrofit Ashby Pond in the City of Fairfax. This project also includes restoration and stabilization of both inflow channels that drain to the pond. The pond was designed in 2010, constructed in 2011, and does not meet Technical II.B criteria design standards for Wet Ponds outlined in BMP Clearinghouse Specification No. 14.

The project is intended to provide Phosphorous, Nitrogen, and Sediment reductions within the Accotink Creek, Potomac River, and Chesapeake Bay Watershed. The project has duplicative benefits towards assisting the City in meeting their MS4 Permit requirements for Chesapeake Bay TMDL Pollutant of Concern Reductions, as well as assists the City in implementing one of the Means and Methods outlined in their Local TMDL Action Plan for the Benthic/Sediment

Special Qualifications

- More than 14 years of experience in water resources engineering.

Professional Credentials

- Professional Engineer in Virginia
- Bachelor of Science, Biological Systems Engineering, Virginia Polytechnic Institute and State University, 2008
- Bachelor of Science, Biology, Virginia Polytechnic Institute and State University, 2008
- Applied Fluvial Geomorphology (Rosgen Level 1)
- River Morphology and Applications (Rosgen Level 2)
- VDEQ - Stormwater Management Program Administrator
- VDEQ - Stormwater Management Inspector

TMDL for Accotink Creek. Furthermore, this project is a community centerpiece with a trail that encompasses the pond. Once the pond is retrofitted, the trail around the pond will be paired with signage which will provide Public Education and Outreach opportunities for the City which will help address Minimum Control Measure 1 (MCM-1) requirements of the MS-4 Permit.

Staff Augmentation Services for Review of Floodplain Use Determination Request Package Submittals, Fairfax County, VA — Program Manager. Jon is the program manager for a team that provides staff augmentation services related to the review of County Floodplain Use Determination Request Package submissions and re-submissions received by the County.

***Riverbend Stream Restoration Design, Loudoun County, VA —** Senior Project Manager and Senior Engineer. Jon was the project manager and senior engineer responsible for engineering design and analysis for a comprehensive stream and outfall restoration project totaling 3,125 linear feet of stream and five outfall channels totaling at 800 linear feet. The design and corresponding engineering analyses utilized natural channel design (NCD) restoration techniques to repair extreme channel erosion and aimed to minimize grading impacts to the floodplain fringe to preserve existing riparian areas. The outfall restorations were credited and designed in accordance with Protocol 5 *"Recommendations for Crediting Outfall and Gully Stabilization Projects in the Chesapeake Bay Watershed."*

***Moorefield Station East Pond - Dam Safety Compliance Services, Loudoun County, VA —** Senior Project Manager and Senior Engineer. Jon assisted Loudoun County with Dam Safety Compliance Services for the Moorefield Station – East Pond Dam. The dam that impounds the East Pond is a State Regulated, High Hazard Dam classified through the Virginia Department of Conservation and Recreation (DCR) dam safety program. Jon provided engineering and consulting services to assist the County in transferring ownership from the Claude Moore Charitable Foundation to the County. As part of this project Jon recreated existing inundation zone mapping, performed an update of the existing Moorefield Station East Pond – Emergency Action Plan (EAP), researched and provided recommendation(s) for installation of pond and dam gauging equipment, and provided support services for transfer of dam ownership.

***Lake Carroll - Dam Failure Analysis, Dam Inundation Zone Mapping, and Design Alternatives Analysis, Stafford County, VA —** Assistant Project Manager and Lead Engineer. Jon was the lead engineer and assistant project manager for the Lake Carroll Dam Failure Analysis and Dam Design Alternatives Project. Jon was responsible for development of hydrologic, hydraulic, and dam breach modeling input parameters to determine different breach scenarios, derive breach hydrographs, and perform HEC-RAS unsteady state routing of the breach hydrographs to develop respective breach inundation boundaries. Jon was also tasked to develop conceptual design alternatives that could modify the dam to meet Virginia Dam Safety requirements for High Hazard Dams.

***2nd Phase Chesapeake Bay TMDL Action Plan Development, Fairfax, VA —** Senior Project Manager. Jon was responsible for the development of an update of the city's Chesapeake Bay TMDL Action Plan in accordance with Part II.A.11 of the MS4 General Permit. Jon managed a team and provided technical expertise to develop the city's estimated 2nd permit cycle Chesapeake Bay TMDL Pollutant of Concern (POC) Reduction requirements. Jon also was responsible for outlining and developing means and methods to help address the city's 2nd Phase POC reduction goals.

***Smith Run – Pond D Dam Failure Analysis, Dam Inundation Zone Mapping, and Design Alternatives Analysis, City of Fredericksburg, VA —** Senior Project Manager and Engineer of Record for the Dam. Jon prepared a dam failure analysis for the Smith Run – Pond D Dam in accordance with current VA DCR Dam Safety Regulation requirements. As part of this project, Jon managed a team that developed design alternatives analysis to evaluate repair/renovation alternatives needed to meet spillway design requirements in accordance with State Regulations. Also, Jon provided Virginia Dam Safety services to assist the city with the Virginia DCR regulatory requirements related to the Smith Run – Pond D Dam.

***Indicates project completed prior to joining Kimley-Horn**

Jared Hodes, P.E.

Project Engineer

Relevant Experience

Stafford Drive Stream Restoration CLOMR, City of Fairfax, VA — Project Manager. Jared is responsible for managing a team that is providing hydrologic and hydraulic modeling services for approximately 2,400 linear feet of stream restoration along the North Fork Accotink Creek. As part of the permitting process, a CLOMR submittal package was prepared for FEMA approval. The tasks associated with the CLOMR package include HEC-RAS model development to reflect existing and proposed grading reflective of the restoration, evaluation of land cover changes, and utilization of model results to prepare a FEMA MT-2 application.

The Lakes Dam Inundation Study and Emergency Action Plan Development, City of Fayetteville, NC — Project Manager. Jared performed a dam breach analysis and subsequently provided inundation mapping for The Lakes Dam, which is classified as a high hazard dam. As part of this project, Jared updated the existing Emergency Action Plan based on the results of the inundation study. 1/3 Probable Maximum Precipitation and Sunny Day breaches were modeled using HEC-RAS 1-D unsteady methodology. The project resulted in successful approval through North Carolina Dam Safety.

Fairfax County Floodplain Use Determination (FPUD) Reviews and Other Services, Fairfax County, VA — Project Manager. Jared is leading a team contracted to provide engineering augmentation services for county reviews of FPUD requests. This includes utilizing GIS-based tools and detailed Zoning Ordinance understanding to assess if the proposed work is approvable under Zoning Ordinance statutes. This work also includes cost estimation in accordance with FEMA NFIP Substantial Improvement guidelines.

East Durham Water Sewer and Belt Street Stormwater, Durham, NC — Lead Engineer. Kimley-Horn evaluated approximately 68,500 linear feet of waterlines, 56,000 linear feet of sanitary sewer lines, and 9,000 linear feet of stormwater pipes via in-field and CCTV footage assessments. Designed approximately 2,100 linear feet of 15- through 66-inch stormwater infrastructure. A combined 1-D/2-D XPSWMM model was developed for a larger and more complex portion of the stormwater network with known flooding issues to better assess the existing system's performance. The model was field verified in an intense storm event and was then used to help design the proposed system. Civil 3D was utilized for iterative pipe network design and plan set development and hydraulic performance was confirmed in the XPSWMM model.

Lakeside Trail Phases, Henrico County, VA — Lead Engineer. Kimley-Horn is designing 4 phases of the overall Lakeside Trail project in Henrico County. Jared has led the floodplain permitting and modeling effort to provide Henrico County with analyses of the floodplains associated with North Run and Upham Brook in relation to the multi-phase trail design. Jared guided iterative trail design updates to achieve a No-Rise for the County. The County has also asked Kimley-Horn to incorporate an additional adjacent project into Phase 1 of the analysis, since they have been so pleased with the coordination, quality of deliverables, and responsiveness of the team. This project involves coordination with Henrico County and City of Richmond Floodplain Administrators, and VDOT. There are multiple funding sources for this work including County funds, bonds, VDOT, and ARPA funding, which necessitates hitting schedule milestones to bid the work for construction in accordance with the various funding sources.

Special Qualifications

- Experienced water resources engineer
- Applied Fluvial Geomorphology (Rosgen Level1)

Professional Credentials

- Master of Science, Civil and Environmental Engineering, Duke University, 2016
- Bachelor of Science, Atmospheric, Oceanic, and Environmental Sciences, University of California, Los Angeles, 2014
- Professional Engineer in Virginia and North Carolina

Holly Springs Road Widening Phase 2 CLOMR, Holly Springs, NC — Lead Engineer. Jared provided engineering services to the Town of Holly Springs to evaluate the effects of a proposed road widening on the floodplain. One of the main project objectives was to address the recurring flooding at the crossing of Middle Creek. Kimley-Horn designed the conversion of a triple barrel box culvert to a 150 linear foot, 3-span bridge to elevate the roadway profile to avoid roadway overtopping in the 100-year flood event. This work included HEC-RAS model development and modification using best available public data, survey data, proposed grading, land use changes, and FEMA MT-2 application preparation. Effective and Preliminary Floodway remapping was required.

Loudoun Soil and Water Conservation District (LSWCD) Floodplain Services, Loudoun County, VA — Project Manager. Jared is responsible for leading a team that provides floodplain analyses using GIS-based tools and available FEMA models, performing site visits to characterize potential impacts on the floodplain, and coordinating with the county's floodplain administrator to facilitate permit approvals through No-Rise designations. The County has a cost sharing program to help partially fund riparian tree plantings or livestock control fence installations that will lead to improved floodplain management. These projects had previously been on hold due to impasses encountered during floodplain permitting. Kimley-Horn was hired to assist LSWCD navigate the permitting process for these projects without making them cost prohibitive. Kimley-Horn has helped LSWCD successfully navigate the permitting process in a cost-effective manner for all projects worked on thus far.

Junction and Ferrell Industrial & Beth Page Apartments No-Rise Studies, Durham, NC — Project Manager. Jared managed a team that provided engineering services on two sites (for Scannell Properties LLC and Buckingham Companies respectively) with three new roadway crossings in the floodplain. This work required HEC-RAS analyses to design the culvert crossings such that a No-Rise could be achieved for the non-encroachment areas, effective floodplain, and future conditions floodplain along Panther Creek Trib. 1 and Unnamed Trib. to Stirrup Iron Creek Tributary D, per Durham County standards.

Juan Campos, P.E.

Project Engineer

Relevant Experience

Stafford Drive Stream Restoration Construction Plans, Fairfax, VA — Project Manager. Juan managed the design and development of the construction documents for approximately 2,400 linear feet of stream restoration and two outfall restorations along the North Fork of Accotink Creek. As part of the project the following services were performed: threatened & endangered species study, FEMA Conditional Letter of Map Revision (CLOMR) submission, development of a Stormwater Construction General Permit Registration Statement (VAR10), development of a Stormwater Pollutant Prevention Plan (SWPPP), development of a USACE Nationwide Permit 27, and three community outreach presentations to obtain constituents and public official's support.

2022 Virginia Community Flood Preparedness Fund – Resiliency Plan and Mosby Woods Study, Fairfax, VA — Project Manager. Juan managed, prepared, and assembled two grant applications packages for the 2022 Virginia Community Flood Preparedness Fund – Round 3. The first grant application was submitted for the development of a Resilience Plan to assist the City of Fairfax in the development and implementation of a strategy to reduce localized flooding. Once approved, the Resilience Plan will also be used as part of the FEMA Community Rating System (CRS) program under Activity 510 – Floodplain Management Planning. The second grant application was submitted in the Studies category for the evaluation of the effects of the North Fork of Accotink Creek floodplain on the Mosby Woods Condominiums. Both grants were selected and awarded funding as part of Round 3.

Outfall and Gully Stabilization Project (OGSP) 100% Construction Plans, Fairfax, VA — Project Manager. Juan managed the design and development of construction plan sets for three outfall restoration projects on separate sites. The design was done in accordance with the Unified Guide for Crediting Stream and Floodplain Restoration Projects in the Chesapeake Bay Watershed. The projects were conducted to assist the City of Fairfax in meeting their Chesapeake Bay Phase II TMDL Pollutant of Concern (POC) reduction requirements as well as satisfy the City's Benthic (Sediment) Local TMDL Reduction Requirements for Accotink Creek.

Stormwater and Flooding Resilience Plan Development, City of Winchester, VA — Project Manager. Juan managed the preparation and submittal of a Virginia Community Flood Preparedness Fund (CFPF) grant for the development of a Resiliency Plan. The grant application was successful and the City received a 90%/10% match from DCR. The Resilience Plan is now being developed to assist the City in project prioritization and implementation to reduce their localized flooding. The Resilience Plan will serve as the base document for future CFPF grant applications and allow the City to apply for project related grants to offset infrastructure improvements costs.

Tye River Stream Restoration Guidance Document, Nelson County, VA — Project Manager. Juan managed the design and development of guidance documents for approximately 4,350 linear feet of stream restoration. The stream restoration was a critical component of a large private stream mitigation credit bank. Minimal grading practices along with structural solutions were implemented to help minimize the impact to the private property.

Special Qualifications

- 6+ years of water resources engineering experience with a focus in stream & outfall restoration, pond enhancement and retrofit, hydrology & hydraulics, design implementation and construction administration, flood resiliency planning and improvements, and grant funding assistance.
- Applied Fluvial Geomorphology (Rosgen Level 1)

Professional Credentials

- Master of Science, Civil Engineering, Virginia Polytechnic Institute and State University, 2016
- Bachelor of Science, Civil Engineering, Virginia Polytechnic Institute and State University, 2015
- Professional Engineer in Virginia

Joe Arizzi, P.E.

Project Engineer

Relevant Experience

Loudoun County Department of General Services (DGS) On-Call MS4 Support, Loudoun County, VA — Project Engineer. Joe actively assists Loudoun County's DGS department in providing municipal separate storm sewer system (MS4) program support. This work has consisted of various tasks orders including watershed planning for quality and quantity control which includes identifying projects for stream and outfall restorations, BMP retrofits, and infrastructure improvements. Project evaluation for this client has included assessing projects for both phosphorus, nitrogen and TSS reductions associated with the Chesapeake Bay TMDL and TSS reductions for Loudoun County's local TMDL. The assessments include use of GIS to identify project locations based on hydrologic, environmental and developmental restrictions, ease of implementation, and constructibility.

Greening of Lincoln, City of Falls Church, Falls Church, VA — Project Manager. Joe is actively leading a PCSWMM analysis for a 250-acre watershed with known flooding issues in the City of Falls Church. This project is a hybrid stormwater – roadway capital improvement project which also is evaluating traffic calming measures and roadway features along an existing corridor within this watershed. As part of Phase 2 of this project, recommendations and solutions will be presented which incorporate GI along the corridor to act as both community assets and stormwater treatment practices.

Zumot Data Center, Manassas, VA — Task Manager. Joe is the task manager for a data center development in the City of Manassas that included the relocation of an existing stream around the proposed data center, along with the design of several bioretention facilities, dry ponds, and underground detention facilities to meet VSMP requirements for the development. Joe oversaw the design, modeling, and permitting of this task for the approximately 18-acre site in the city.

GMU MS4 and Annual Standards and Specifications Program Mock Audit, Fairfax, VA — Project Engineer. Joe completed a comprehensive review of George Mason's MS4 Program to ensure compliance with regulatory requirements in anticipation of a DEQ audit. This review consisted of the entire program, evaluating each individual MCM and the Annual Standards and Specifications, and determining any outstanding information that should be incorporated to comply with their MS4 permit.

***Fairfax County MSMD Facility Inspections and Reporting, Fairfax, VA —** Task Manager. Joe oversaw a team of 15 stormwater management inspectors responsible for the inspection of privately and publicly owned stormwater management facilities as part of the Maintenance and Stormwater Management Division's inspection program within Fairfax County. Joe managed inspection assignments and tracked progress through ArcCollector. Joe was responsible for the quality control of completed inspection reports, including the review of identified maintenance issues and recommendations for remediation in support of Fairfax County's MS4 Requirements.

***Indicates project completed prior to joining Kimley-Horn.**

Special Qualifications

- Joe is an accomplished water resources engineer providing MS4 Support Services in Virginia for nearly a decade

Professional Credentials

- Bachelor of Science, Environmental Engineering, Rensselaer Polytechnic Institute, 2014
- Professional Engineer in Virginia
- Rosgen II Certified
- VDEQ Stormwater Management Inspector and Plan Reviewer

Michelle Manfrey, EIT

Project Engineer

Relevant Experience

Lake Drive Dam and Roadway Preliminary Engineering Design, Loudoun County, VA — Project Engineer. Michelle is assisting in evaluating rehabilitation, repair, and retrofit options for the Lake Drive pond, dam, and downstream receiving channels. The dam and roadway overtop multiple times annually and the dam is experiencing significant downstream erosion at the toe of the dam and dam abutments. The impoundment area is exhibiting enhanced sediment loading and erosion along the two main inflow channels. This project has required a considerable amount of coordination due to the risk involved as well as the project crossing County lines, HOA-owned property, and privately owned property. In addition to alternatives development, Michelle has been at the forefront of that coordination.

Ashby Pond Wet Pond Enhancement Plans (90% Design), City of Fairfax, VA — Project Engineer. The goal of this project is to restore, enhance, and retrofit Ashby Pond to return the pond to its original design volume and achieve current design standards, as well as restore and stabilize both inflow channels that drain to the pond. Michelle has provided direct engineering support for this project in the form of developing engineering plans, performing hydrologic analyses, and utilizing Quality Assurance and Quality Control protocols throughout the design process. Michelle has also provided auxiliary support by preparing SLAF Grant materials, performing field reconnaissance to provide site status updates, and provided field mapping services for ancillary service.

Accotink Creek Stream Stability Assessment and Prioritization Plan, Fairfax, VA — Project Engineer. The goal of this project is to update the 2008 Accotink Creek Stream Stability Assessment and Prioritization Plan with current stream assessment information. Michelle collaborated with the City to develop a GIS-based platform that allows multiple types of data to be collected simultaneously for rapid assessment of stream geometry and attribute data to automatically prioritize reaches of Accotink Creek in terms of their restoration potential. In addition to her role in its development, Michelle has been instrumental in the field implementation of the data collection platform. Michelle leads and manages data collection efforts, interfaces with the City to communicate progress, and continues to work with the City to refine the platform and create a user-friendly interface and dashboard.

Fairfax County Floodplain Use Determination (FPUD) Reviews and Other Services, Fairfax County, VA — Project Engineer. Kimley-Horn has been contracted to provide engineering augmentation services for county reviews of FPUD requests. Michelle intakes and reviews these cases, which includes utilizing GIS-based tools, detailed Zoning Ordinance understanding, and cost estimation in accordance with FEMA NFIP Substantial Improvement guidelines, to assess if the proposed work is approvable under Zoning Ordinance statutes.

Special Qualifications

- Applied Fluvial Geomorphology (Rosgen Level 1)

Professional Credentials

- Bachelor of Science, Environmental Engineering, University of Florida, 2021
- Engineer-in-Training, 1100025639, FL

SECTION B – APPENDIX

BUDGET NARRATIVE

SECTION – OUTLINE

- Project Budget Narrative
- Budget Narrative Template
- Authorization to request funding from the Fund from governing body or chief executive of the local government.
- Detailed budget and narrative for all costs

(Kimley-Horn Scope of Services for Stafford County – Flood Resilience Plan Development)

Project Budget Narrative

Project Budget Narrative

A detailed budget narrative is included below and contains the required information outlined in the 2023 Funding Manual for the Virginia Community Flood Preparedness Fund.

Estimated total project cost: The total identified project cost to complete the Stafford County Flood Resilience Plan Development is $89,210.00.

Amount of funds requested from the Fund: The total amount of grant assistance sought from the Fund is $66,907.50. A detailed breakdown of how this funding is proposed to be allocated is shown in this Appendix as an attached Scope of Services.

Amount of funds available: The amount of funds available through this project's funding source is greater total project cost of $89,210.00. Attached in this Appendix is the following documentation:

- Stafford County FY2024 Adopted Budget – Development Services. This outlines the role of Environmental Services and the allocation of the FY24 budget to provide technical assistance to assist with erosion and stormwater drainage issues.
- Stafford County Account #100-3414-424-55.40-3415 image and confirmation of current year funding available for this project.

Authorization to request for funding: Included in this Appendix is a Stafford County Board of Supervisors Resolution signed by the Stafford County Administrator which authorizes the request for funding for this project.

Development Services

Mission

To ensure the Department of Development Services provides exceptional customer services, permitting processes, plan review and site inspections to ensure healthy, practicable and sustainable residential and commercial growth and development in Stafford County.

Who Are We?

Customer & Development Services

- Intake, processing and issuing permits associated with residential and commercial development.
- Manages and continually monitors the County's electronic permit application process.
- Provides in-person training to builders, engineers, etc., regarding the electronic permit process.
- Provides effective and convenient services for all walk-in customers while continuously managing phone calls and email requests associated with the Department of Development Services activities.
- Updating the Department of Development Services website to ensure information is consistently and readily available to customers.
- Promptly addresses Freedom of Information Act (FOIA) requests.

Building

- Ensures safe and properly constructed residential and commercial structures in Stafford County.
- Detailed review of building plans, thorough and complete inspection services during construction activities to ensure building code compliance with regulatory requirements.
- Provide technical assistance to property owners regarding building code issues and/or provide resolutions involving owner/tenant/contractor disputes.
- Responds to emergencies involving structural failures due to fire, flood, and weather-related conditions.

Environmental

- Protection of Stafford County's natural resources by implementing best management practices.
- Detailed review of development plans, and thorough and complete inspection services during construction activities to ensure environmental compliance with regulatory requirements.
- Investigate violations and issue corrective actions associated with the County's resource protection areas.
- Technical assistance provided to citizens to assist with erosion and stormwater drainage issues.

Securities

- Manage securities and performance agreements associated with residential and commercial development.
- Issuance of grading permit applications for residential and commercial land development projects.

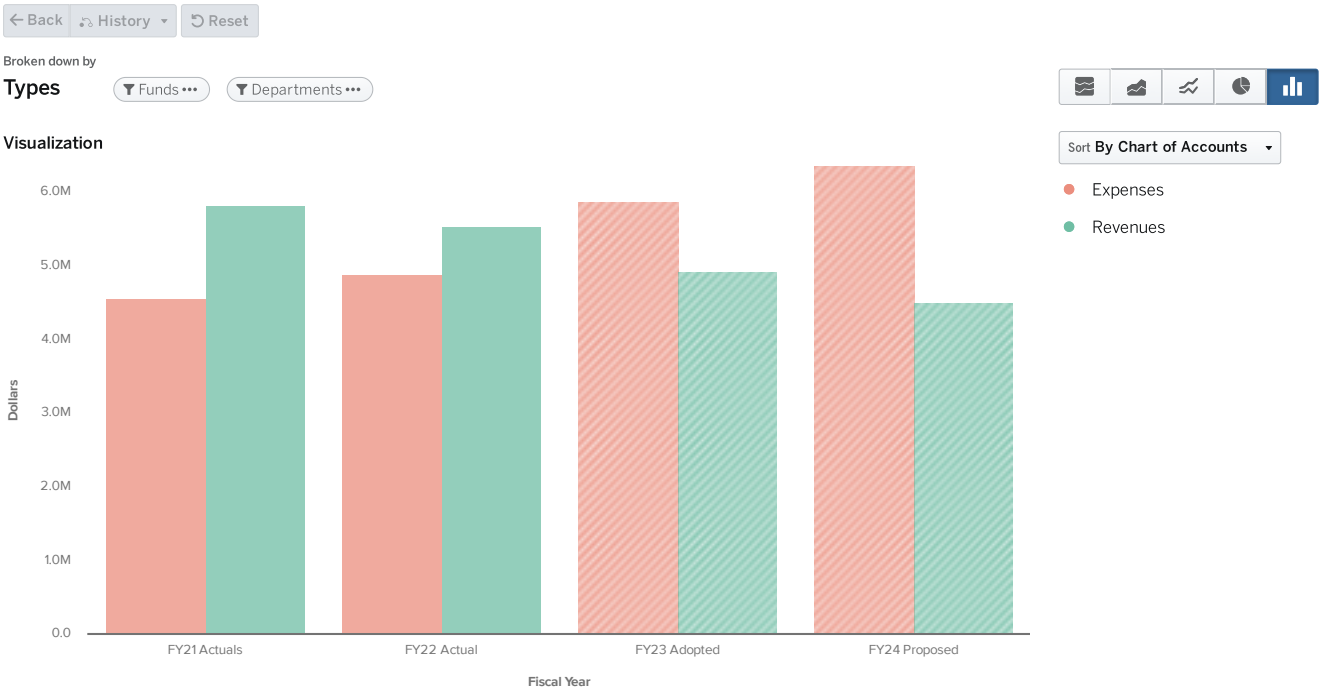
Transportation

- Assists with the Virginia Department of Transportation (VDOT) road acceptance process.
- Resolution of citizen concerns relating to transportation issues, including street signs, traffic management, and safety.
- Review of residential development plans for compliance with County and VDOT requirements.

Budget Summary

Development Services

	FY21 Actuals	FY22 Actual	FY23 Adopted	FY24 Adopted
Revenues	$5,815,558	$5,532,363	$4,919,554	$4,503,426
Expenses				
Personnel	$4,050,884	$4,364,350	$5,172,194	$5,588,512
Operating	$454,155	$515,789	$698,684	$761,252
Capital	$57,049	$7,145	$0	$0
EXPENSES TOTAL	**$4,562,088**	**$4,887,284**	**$5,870,878**	**$6,349,764**
REVENUES LESS EXPENSES	**$1,253,470**	**$645,079**	**-$951,324**	**-$1,846,338**



Funded Positions

Funded Positions	FY2021 Actual	FY2022 Actual	FY2023 Revised	FY2024 Adopted	Changes 23 to '24	
Full-Time Positions	45	46	46	46	0	0.0%
Part-Time Positions	0	0	0	0	0	0.0%

Notable Changes

Personnel

- 4.0% Pay Scale Adjustment Effective July 1, 2023
- 4.0% Salary Increase Effective on July 1, 2023
- Decrease Vacancy Savings

Operating

- Increase for internal billing

Goals/Objectives

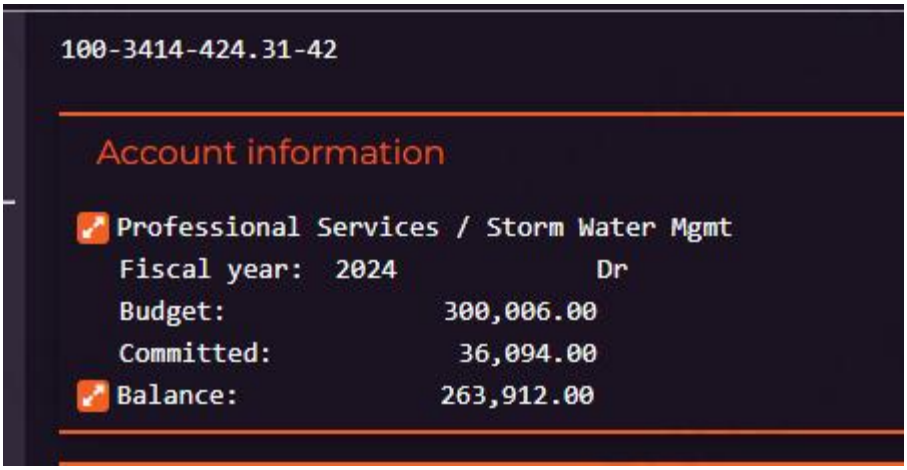
- Maintain timely and efficient processing of residential and commercial building permit applications, and implement process improvements associated with the Board's strategic priorities. (Service level 1)
- Streamline the electronic plan review process by introducing Infor Rythmn for Civics and DigEplan electronic plan software. (Service Level 1)
- Continued implementation and enforcement of the 2015 and 2018 (effective 7/01/2022) Virginia Uniform Statewide Building Code. Assist customers and citizens with property maintenance issues. (Service levels 1, 2, 3, and 4)
- Perform detailed environmental plan review and related inspection services while implementing a plan of action to address the County’s stormwater challenges. Assist customers and citizens with erosion and storm drainage issues. (Service levels 1 and 5)
- Process developer securities, manage performance agreements, and continued issuance of grading permits. (Service levels 6 and 7)
- Continue assisting in the VDOT road acceptance process.
- Provide technical assistance to County citizens and manage street sign replacement and installation.
- Perform detailed transportation plan reviews of all development projects for compliance with County and VDOT standards.

DAlessandro, Jon

From: Annette M. Hyder <ahyder@staffordcountyva.gov>
Sent: Thursday, November 2, 2023 11:40 AM
To: etorrey <etorrey@staffordcountyva.gov>; DAlessandro, Jon <Jon.DAlessandro@kimley-horn.com>
Cc: jsaunders <jsaunders@staffordcountyva.gov>
Subject: RE: CFPF Appendix A - Application Form for Grant and Loan Requests (Signature Needed)

Hello Jon,

We have enough funds in the stormwater professional services account for $90,000



Ann Hyder
Administrative Specialist II
Department of Development Services
P.O. Box 339
Stafford, VA 22555
O: 540-658-4887 | C: 540-621-2469

STAFFORD Virginia

Budget Narrative Template

Appendix B: Budget Narrative Template

Applicant Name: **Stafford County Department of Development Services**
Community Flood Preparedness Fund &
Resilient Virginia Revolving Loan Fund
Detailed Budget Narrative
Period of Performance: **January 1, 2024** through **July 1, 2024**
Submission Date: **November 10, 2023**

Grand Total State Funding Request	**$66,907.50**
Grand Total Local Share of Project	**$22,302.50**
Federal Funding (if applicable)	$
Project Grand Total	**$89,210.00**
Locality Cost Match	**%25**

Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						**$66,907.50**			**$66,907.50**
State Share						**$22,302.50**			**$22,302.50**
Pre-Award/Startup									
Maintenance									
Total	$	$	$	$	$	**$89,210.00**	$	$	**$89,210.00**

Authorization to request funding from the Fund from governing body or chief executive of the local government.

R23-299

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of October, 2023:

MEMBERS:	VOTE:
Dr. R. Pamela Yeung, Chairman	Yes
Thomas C. Coen, Vice Chairman	Yes
Tinesha O. Allen	Yes
Meg Bohmke	Yes
Darrell E. English	Yes
Monica L. Gary	Yes
Crystal L. Vanuch	Yes

On motion of Mr. Coen, seconded by Ms. Bohmke, which carried by a vote of 7 to 0, the following was adopted:

A RESOLUTION TO AUTHORIZE THE SUBMISSION OF A CAPACITY BUILDING AND PLANNING GRANT APPLICATION TO THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION FOR THE DEVELOPMENT OF A FLOOD RESILIENCE PLAN

WHEREAS, the County has prepared an application for the development of a Flood Resilience Plan to submit to the Virginia Department of Conservation and Recreation (DCR) for a Capacity Building and Planning grant through the Community Flood Preparedness Fund (CFPF); and

WHEREAS, the grant will be scored on technical and qualitative criteria in a statewide competition and funding will be awarded based on overall score; and

WHEREAS, if awarded, the County may be reimbursed up to $66,908 for the development of a Flood Resilience Plan;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of October, 2023, that the County Administrator, or his designee, be and he hereby is authorized to submit a Capacity Building and Planning grant application to DCR for the development of a Flood Resilience Plan; and

BE IT FURTHER RESOLVED that the Capacity Building and Planning grant application shall be approved as to form by the County Attorney's office prior to submission.

A Copy, teste:

Randal E. Vosburg
County Administrator

Detailed budget and Narrative for All Costs

(*Kimley-Horn Scope of Services for Stafford County – Flood Resilience Plan Development*)

September 8, 2023

John Saunders, P.E, CFM - Environmental Programs Administrator
Stafford County, Department of Development Services
1300 Courthouse Rd
Stafford, VA 22554

RE: STAFFORD COUNTY – FLOOD RESILIENCE PLAN DEVELOPMENT

Mr. Saunders:

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this summary of proposed services to Stafford County (County) to provide professional consulting services related to the Stafford County – Flood Resilience Plan Development (Flood Resilience Plan). It is Kimley-Horn's understanding that the County wants to develop a Flood Resilience Plan to prepare for the increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan is intended to serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities. The language outlined below identifies our project understanding, summary of proposed services, and fee related to the Stafford County –Flood Resilience Plan Development.

PROJECT UNDERSTANDING

At the County's request, Kimley-Horn is providing this summary of proposed services outlining the development of a Flood Resilience Plan. It is anticipated that the Flood Resilience Plan will adhere to the principles detailed in the Costal Resilience Master Planning Framework which are:

1. Acknowledgement of climate change and its consequences, and base decision making on the best available science.
2. Identification and addressing socioeconomic inequities and working to enhance equity through adaptation and protection efforts.
3. Utilizing community and regional scale planning to the maximum extent possible, seeking region-specific approaches tailored to the needs of individual communities.
4. Understanding of fiscal realities and focusing on the most cost-effective solutions for the protection and adaptation of communities, businesses, and critical infrastructure. The solutions will, to the extent possible, prioritize effective natural solutions.
5. Recognizing the importance of protecting and enhancing green infrastructure in all regions and in the coastal region, natural coastal barriers, and fish and wildlife habitat by prioritizing nature-based solutions.

This Scope of Services is based on the assumption that it is the County's intent to develop a Flood Resilience Plan to assist in management of increased flooding frequency. The Flood Resilience Plan is also intended to serve as a required document to allow the County's participation in project funding through the Virginia Department of Conservation & Recreation (VADCR) Community Flood Preparedness Fund (CFPF) Grant. Kimley-Horn will develop the Flood Resilience Plan in accordance with the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Grant Manual). Appendix I from the Grant Manual has been included in Attachment 2 of this proposal for reference purposes.

SCOPE OF SERVICES

This proposal has been divided into five (5) tasks. Each task is outlined below with a brief summary defining the scope of work for each task. A lump sum cost to perform this work is provided in Attachment 1 and includes Kimley-Horn project management and coordination time.

TASK 100 – FLOOD RESILIENCE PLAN RESEARCH AND DATA COLLECTION

Kimley-Horn will obtain and evaluate best available County hydrologic & hydraulic, flood, climate, environmental, economic, and historical data for the purpose of developing the Flood Resilience Plan. Documentation of data and information specific to social and economic vulnerability, historical precipitation data, current FEMA flood maps, and best available County historical flooding data will be prioritized. Kimley-Horn anticipates using the following resources:

- Relevant Stafford County specific manuals and documents, and elements of other plans that could be included in the Flood Resilience Plan by reference such as:
  - Comprehensive and other Land Use Plans
  - Ordinances
  - Local Hazard Mitigation Plans
  - Other plans developed to address flooding and resilience, and,
  - Regional strategies or plans in which Stafford County is a party.
- Stafford County institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding, that cannot be ascertained by map-based analysis.
- Most Current Federal Emergency Management Agency (FEMA) Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMs)
- Virginia DCR – Virginia Flood Risk Information System (VFRIS)
- Virginia DCR – Dam Safety and Floodplains Open Data Hub
- Relevant data related to County Historical Watershed Studies, Drainage Projects, Dam Projects, and Infrastructure Projects impacted by floodplain corridors.
- National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Data
- Virginia Department of Housing and Community Development (DHCD) Qualified Opportunity Zone Data
- ADAPT Virginia's Vulnerability Viewer, and,
- The Virginia Coastal Resilience Master Planning Framework

Kimley-Horn will collaborate with County staff to identify on-going projects that could be included as part of the Resilience Plan. It is anticipated that Kimley-Horn will coordinate with County staff to obtain project files and any historic plan information that would be relevant to include in the Flood Resilience Plan.

TASK 200 – STAFFORD COUNTY GIS DESKTOP ANALYSIS

Utilizing the information obtained in Task 100, along with the best available Stafford County Geographic Information System (GIS) shapefile data and aerial imagery, Kimley-Horn will develop County-wide base mapping to assist in identifying critical features and locations integral to the development of the Flood Resilience Plan. Kimley-Horn will place emphasis on the two (2) River Basins located in the County and their associated major tributaries and corresponding floodplains. They are as follows:

Potomac River Basin

- Chopawamsic Creek (PL53)
- Aquia Creek
    - Upper Aquia Creek (PL56)
    - Lower Aquia Creek (PL57)
- Beaverdam Run
- Potomac River – Tank Creek (PL54)
- Potomac River – Passapatanzy Creek (PL61)
- Accokeek Creek (PL58)
- Potomac Creek – Beaverdam Creek (PL60)
- Potomac Creek – Long Branch (PL59)
- Tidal areas along the Potomac

Rappahannock River Basin

- Deep Run (RA23)
- Hazel Run (RA46)
- Motts Run (RA45)
- Muddy Creek (RA48)
- Tidal areas along the Rappahannock

As part of this task, the GIS Desktop Analysis will also include documentation of the County's State Regulated Dams along with best available dam break inundation zone (DBIZ) extents and structures effected.

The GIS Desktop Analysis is intended to focus on the following categories:

1. Social/Economical Vulnerable Areas
2. High Risk Flooding Areas
3. Critical Infrastructure Locations
4. Existing Historical Resources
5. Environmentally Critical Areas
6. Existing Resiliency Efforts

The GIS graphic(s) will be developed as stand alone 11"x17" exhibits and depict the necessary information to identify critical resilience opportunity areas within the County. Kimley-Horn will rely on the accuracy of the best available data and any/all necessary assumptions will be documented for reference purposes.

TASK 300 – FLOOD RESILIENCE PROJECT IDENTIFICATION / SITE DUE DILIGENCE

Kimley-Horn will utilize the information developed in Task 100 and Task 200 to identify potential County-wide projects that could provide a wholistic approach to the County's flood resilience efforts. Existing, planned, and in-design flood control and infrastructure projects will be included in this project identification task to assess their respective capabilities to provide improved flood resilience within the County. Kimley-Horn will prioritize projects that provide large scale community flood relief benefits while utilizing nature-based infrastructure practices to the maximum extent possible. Additional focus will be given to areas of social and economic vulnerability as defined within the ***DRAFT*** - 2023 Funding Manual for the Virginia

Community Flood Preparedness Fund (CFPF) – 2023 Funding Round. The following project types will be prioritized for identification at the County wide level for potential implementation and inclusion in the Flood Resilience Plan:

- Regional Ponds Retrofits and Pond Infrastructure Upgrades
- County Owned State Regulated Dam Spillway Capacity Modifications and Dam Infrastructure Upgrades
- Stream Restoration Practices paired with floodplain improvement projects.
- Storm Sewer System Improvements
- Floodwall Implementation Projects
- Land Acquisition Techniques
- Residential Floodproofing and Urban BMP Installation
- Restoration of Floodplains
- Development of Flood Warning and Response Systems
- Site specific nature-based approaches aimed on increased resilience.

Kimley-Horn will conduct an opportunities and constraints analysis for each potential project to determine its implementation viability. The opportunity and constraints analyses are intended to serve as a planning level exercise and are not intended to be utilized as engineering design and engineering study documents. The following project features are anticipated as part of the opportunities and constraints analysis:

1. Project Constraints Present
2. Project Opportunities Present
3. Project Point of Analysis (POI) Drainage Area Delineation(s)
4. Project Drainage Area - Existing Land Cover Analysis
5. Project Drainage Area - Future Land Cover Analysis (based on best available Comprehensive Plan Data)
6. County Owned Property Analysis
7. Grade Feasibility Analysis
8. Estimated Project Layout Configuration

This analysis will be conducted utilizing best available digital data, to include survey data if provided by the County. It is assumed that at this time limited County-wide survey data is available, and as such, the majority of the Flood Resilience Plan potential projects outlined in this section will be derived from GIS shapefile information and historical plan information. If there is insufficient data available to conduct a specific site analysis or corridor analysis, Kimley-Horn will apply best applicable engineering practices and document any necessary assumptions. Each opportunity and constraints assessment will include a brief project summary, potential project opportunity & constraints outline, preliminary project layout, and preliminary Engineer's Opinion of Probable Construction Costs (EOPCC). Kimley-Horn will identify up to five (5) potential new projects and analyze up to five (5) existing/planned/on-going County identified project locations as part of the Flood Resilience Plan. If evaluation of additional projects and/or project corridors are requested by the County, Kimley-Horn can submit an additional scope of services for their evaluation.

As part of this task, Kimley-Horn will identify key resilience stake holder(s) that could provide the County with potential partnership opportunities. The partnership opportunities will be aimed at programs that can increase the County's resilience for flooding, provide an ability to implement nature-based solutions, or provide County-wide community benefits. Kimley-Horn will prioritize governmental agencies/programs and non-profit corporations for partnership opportunities. For this task, Kimley-Horn will only identify the

key stake holder(s), engagement and coordination of any partnership agreement is excluded from this summary of proposed services.

As part of this task, Kimley-Horn will perform site visits for up to five (5) potential new projects and up to five (5) existing/planned/on-going County identified project locations. Kimley-Horn staff will photo-document in-field conditions at each location and attempt to identify any items of interest not captured in already obtained information. The photos will be utilized to create an AutoCAD derived photo-station map for each project location to pair with the opportunity and constraints assessments.

TASK 400 – RESILIENCE PLAN DEVELOPMENT

Kimley-Horn will the develop the Flood Resilience Plan based on the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Attachment 2 of this Scope of Services). The Flood Resilience Plan will utilize the information identified in Tasks 100-300 to provide a County-wide approach to flood mitigation and prevention. As specified in the Appendix I - Grant Document, the Flood Resilience Plan will be developed in accordance with the following principles:

1. Be project-based with projects focused on flood control and resilience.
2. Incorporate nature-based infrastructure to the maximum extent possible.
3. Include consideration of all parts of a locality regardless of socioeconomics or race, and address and addresses flood resilience needs of underserved populations within the community.
4. Identify and include all flooding occurring in all areas of the community, not just within the SFHAs, and provides the number and location of repetitive loss and severe repetitive loss properties. Repetitive loss and/or severe repetitive loss often occurs outside of the SFHA and to properties not captured in NFIP reporting. All flooding should be tracked and managed by the community.
5. If it is determined that property acquisition and/or relocation guidelines are included in the resilience plan, the guidelines will include equitable relocation strategies for all affected and where land is acquired. Property acquisitions must remain undeveloped, as permanent open space and under ownership or easement by the locality in perpetuity, except that flood control structures may be built on the property.
6. Include a strategy for debris management.
7. Include coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation.
8. It includes administrative procedures for substantial development/substantial improvement of structures within the SFHA.
9. Is based on the best available science, and incorporates climate change, sea level rise, storm surge (where appropriate), and current flood maps.

The Flood Resilience Plan will be provided in 8.5” x 11” report format. All associated exhibits and supporting documentation identified in Task 100 - 300 will be included as appendices. If sections of the Flood Resilience Plan include references to compiled elements of multiple plans or documents, an executive summary that specifically identifies the source of the information and summarizes relevant the elements of the plan/document will be as provided as required by the Grant Document.

Kimley-Horn will submit the Draft - Flood Resilience Plan report to the County for one (1) round of review and comment. Once comments are received, Kimley-Horn will revise the Flood Resilience Plan with all agreed upon changes and will finalize the Flood Resilience Plan, which will be submitted to the County and the Virginia Department of Conservation & Recreation (VADCR) at the conclusion of this task.

As part of this task, Kimley-Horn will provide (1) round of comment responses and Flood Resilience Plan revisions based on the Flood Resilience Plan review from VADCR. It is anticipated that after revisions have been made to the Flood Resilience Plan based on DCR's comments, the Flood Resilience Plan will be approved by the State of Virginia.

TASK 500 – MEETINGS AND COORDINATION

Kimley-Horn staff will be available for up to three (3) milestone coordination meetings, in person, to discuss the development of the Flood Resilience Plan. The meetings will be conducted to update County staff on overall project progress and provide a forum for County staff to provide project input. Kimley-Horn anticipates meeting as part of the following Tasks:

1.) **Flood Resilience Plan Research and Data Collection (Task 100)** – Meet with County staff to identify, discuss, and obtain information about existing and on-going projects that could provide resilience benefits, as well as request County-wide institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding that cannot be ascertained by map-based identification.
2.) **Resilience Project Identification (Task 300)** – Meet with County staff to provide a preliminary identification of projects and gain any institutional knowledge prior to further analysis and site due diligence.
3.) **Resilience Plan Development (Task 500)** – Meet with County staff to discuss the Draft Flood Resilience Plan submittal and County provided comments and discuss Kimley-Horn's revision workplan to prepare for final Plan submission.

In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate scope of services and cost estimate for client approval prior to proceeding with the additional work.

DELIVERABLES

The following items are anticipated as project deliverables for this scope of work.

- Final Stafford County – Flood Resilience Plan
- All background data, analyses, calculations, and project files if requested.

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed scope of work and the accompanying fee, we have made the following assumptions:

- Should the guidance change in Appendix I (Elements of Resilience Plans) of the ***DRAFT*** 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF), and the changes require more stringent requirements for Resilience Plans and thus more effort to develop the Flood Resilience Plan outlined in this Scope of Services, Kimley-Horn will provide a separate Scope of Services to the County to adjust to the scale of the Flood Resilience Plan.
- The Flood Resilience Plan is intended as a planning level document and as such will not be stamped and signed by licensed Virginia Professional Engineer (PE).

- All historic project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate the anticipated project schedule.
- The County will provide site access permission to Kimley Horn for conducting any necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Best available County GIS shapefile and geodatabase information will be used as a supplement to the Flood Resilience Plan, as needed.
- If necessary, the County will provide all coordination with Inter-County departments with regards to this project.
- Kimley-Horn will not be held accountable for the accuracy of the data created by others utilized in the development of the Flood Resilience Plan.
- All identified projects and their respective opportunity and constraints analysis is intended as a planning analysis only. Further detailed project evaluation could potentially identify constraints not highlighted within the development of the Flood Resilience Plan.
- Any necessary permits, permit application fees, review fees will be prepared and paid for by the County.
- This proposal and the accompanying cost estimate are valid for a period of 120 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this project and are therefore outside the scope of this task order proposal include the following:

- Site Survey and SUE Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Delineations and Wetland Impact Permit Compliance
- Forest Stand Delineations
- Landscape Architectural Renderings
- Engineering Design and Construction Plan Assembly Development Services
- Floodplain Related Studies and Submittals
- Hydrologic and Hydraulic (H&H) Studies
- Watershed Studies / Watershed Master Planning
- FEMA CLOMR or LOMR Applications
- Development/Delivery of Presentations to Stakeholders
- All other services not explicitly stated in this Scope of Work

SCHEDULE

The tasks referenced in this scope will be coordinated with County Staff. Meetings, action items, and deliverables will be tracked monthly. Kimley-Horn anticipates completion of the scope of work outlined above within 20 weeks of receiving a notice to proceed. A detailed schedule will be developed for the County outlining project workflow and deliverables after contract execution.

FEE AND BILLING

Kimley-Horn will provide the following scope of services under our term contract #23-011-5001-SP-KIM. The following tasks will be provided for a lump sum cost of **$89,210.00**. A detailed breakdown (by task) of Kimley-Horn's fee estimate is provided in Attachment 1 and utilizes the rate schedule as provided in the Stafford County Task Order Contract #23-011-5001-SP-KIM, Year 1. Please note that fees will be invoiced monthly based upon hours expended for services performed and payment will be due within 25 days of receipt of invoices related to this project.

CLOSURE

The work described with this proposal will be completed in accordance with the terms and conditions of Contract #23-011-5001-SP-KIM between the Stafford County and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,
KIMLEY-HORN AND ASSOCIATES, INC.

Jon D'Alessandro, P.E.
Senior Project Manager

Attachment 1

Kimley-Horn Horn Fee Breakdown

Attachment 2

Appendix I of the DRAFT - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round

Appendix I: Elements of Resilience Plans

The contents of a resilience plan for the purpose of this grant round are must include the following elements.

1. It is project-based with projects focused on flood control and resilience.
2. It incorporates nature-based infrastructure to the maximum extent possible.
3. It includes considerations of all parts of a locality regardless of socioeconomics or race, and addresses flood resilience needs of underserved populations within the community.
4. It identifies and includes all flooding occurring in all areas of the community, not just within the SFHAs, and provides the number and location of repetitive loss and severe repetitive loss properties. Repetitive loss and/or severe repetitive loss often occurs outside of the SFHA and to properties not captured in NFIP reporting. All flooding should be tracked and managed by the community.
5. If property acquisition and/or relocation guidelines are included, the guidelines include equitable relocation strategies for all affected and where land is acquired. Property acquisitions must remain undeveloped, as permanent open space and under ownership or easement by the locality in perpetuity, except that flood control structures may be built on the property.
6. It includes a strategy for debris management.
7. It includes administrative procedures for substantial development/substantial improvement of structures within the SFHA.
8. It includes coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation.
9. Is based on the best available science, and incorporates climate change, sea level rise, and storm surge (where appropriate), and current flood maps.

Plans may refer to a previously adopted "stand alone" plan that meets the resilience plan definition or references the elements of other plans or documents that when compiled address the minimum requirements of a resilience plan. This may include sections cited from a local comprehensive plan, other land use plan, ordinance, local hazard mitigation plan, other plans developed to address flooding and resilience, and plans developed for the local government by a third party. This may also include regional strategies or plans in which a local government is party. In either case, a stand-alone plan, or a document that includes the compiled elements of multiple plans or documents should include an executive summary that specifically identifies the source of information and summarizes relevant the elements as outlined in this Appendix.

The following list of elements, plans and considerations are provided to help guide the development and identification of strategies/documents necessary for a successful resilience plan.

- Strategic polices for local government-wide flood protection and prevention that include considerations of all parts of a locality regardless of socioeconomics or race, and address flood resilience needs of underserved populations within the community.

- Proposed projects that enables communities to adapt to and thrive through natural or human hazards.

- Documentation of existing social, economic, natural, and other conditions present in the local government.

- Review of the vulnerabilities and stressors, both natural and social in the local government.

- Forward-looking goals, actionable strategies, and priorities that incorporate protections for all impacted parts of a locality.

- Strategies that guide growth and development away from high-risk locations that may include strategies in comprehensive plans or other land use plans or ordinances or other studies, plans or strategies adopted by a local government.

- Proposed acquisition of land or conservation easements or identification of areas suitable for conservation particularly areas identified as having high flood attenuation benefit by *ConserveVirginia* or similar data driven tools. Documentation (proposed easement, maintenance agreement, deed language, etc.) must be provided which ensures the property will be owned and maintained by the locality in perpetuity as an open space or conservation area, except that flood control structures may be built on the property. Additionally, any relocation strategy must be achievable and approved by the Department, address depressed housing values when buy outs are used, and provide a pathway to relocation for all individuals residing in the occupied structures, including tenants.

- Identification of areas suitable for property buyouts in frequently flooded areas. Documentation (proposed easement, maintenance agreement, deed language, etc.) must be provided which ensures the property will be owned and maintained by the locality in perpetuity as an open space or conservation area.

  Additionally, any relocation strategy must be achievable and approved by the Department, address depressed housing values when buy outs are used, and provide a pathway to relocation for all individuals residing in the occupied structures, including tenants.

- Identification of critical facilities and their vulnerability throughout the local government such as water and sewer or other types identified as “lifelines” by FEMA.

- ☐ Identified ecosystems/wetlands/floodplains suitable for permanent protection.
- ☐ Identified incentives for restoring riparian and wetland vegetation.
- ☐ A framework for implementation, capacity building and community engagement.
- ☐ Strategies for creating knowledgeable, inclusive community leaders and networks.
- ☐ A community dam safety inventory and risk assessment posed by the location and condition of dams.
- ☐ A characterization of the community including:
    - Population, economics, cultural and historic resources,
    - Dependence on the built environment and infrastructure and, the risks posed to such infrastructure, and
    - Characteristics of flooding from climate change, riverine flooding, sea level rise, tidal events or storm surges or other weather.
- ☐ Strategies to address other natural hazards, where applicable, that would cause, affect or result from flooding events including:
    - Earthquakes.
    - Storage of hazardous materials
    - Landslides/mud/debris flow/rock falls.
    - Dam failures
    - Prevention of wildfires that would result in denuded lands making flooding, mudslides or similar events more likely.
    - Preparations for severe weather events including tropical storms or other severe storms, including winter storms.

SECTION C - APPENDIX

CHECKLIST REQUIREMENTS

SECTION OUTLINE

- Appendix C – Completed Checklist from 2023 Funding Manual for the Virginia Community Flood Preparedness Fund
- Detailed Map(s) of Project Area
- Copy of the Stafford County Floodplain Ordinance
- Link to a Copy of the Current Comprehensive Plan (Stafford County 2016-2036 Comprehensive Plan)
- Social Vulnerability Index Score(s) for the Project Area

Appendix C

Completed Checklist from 2023 Funding Manual for the Virginia Community Flood Preparedness Fund

Appendix C: Checklist All Categories

(Benefit-cost analysis must be included if the proposed Project is over $2 million.)

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

☒ Detailed map of the project area(s) (Projects/Studies)

Included in Section C Appendix

☒ FIRMette of the project area(s) (Projects/Studies)

Not Applicable - Project is Capacity Building and Planning

☒ Historic flood damage data and/or images (Projects/Studies)

Not Applicable - Project is Capacity Building and Planning

☒ A link to or a copy of the current floodplain ordinance

Included in Section C Appendix

☒ Non-Fund financed maintenance and management plan for project extending a minimum of 10 years from project close

Not Applicable

☒ A link to or a copy of the current comprehensive plan

Included in Section C Appendix

☒ Social vulnerability index score(s) for the project area from VFRIS SVI Layer

Included in Section C Appendix

☒ If applicant is not a town, city, or county, letters of support from affected localities

Not Applicable

☒ Letter of support from impacted stakeholders

Not Applicable

☒ Budget Narrative

Included in Section B Appendix

☒ Supporting Documentation, including the Benefit-Cost Analysis tool/narrative (for projects over $2 million)

Not Applicable

☒ Authorization to request funding from the Fund from governing body or chief executive of the local government

Included in Section B Appendix as a signed Board Resolution

☒ N/A Signed pledge agreement from each contributing organization

Not Applicable

☒ X Detailed budget and narrative for all costs

Included in Section B Appendix - Kimley-Horn Scope of Services to Develop a Stafford County Flood Resilience Plan

Detailed Map(s) of Project Area

Produced: 9/15/2021

FIGURE 6.10
Natural Resources
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Legend

- Streams
- National Wetlands
- RPA Buffer
- Forest

0 6,250 12,500 25,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.10_naturalResources.mxd

Produced: 9/15/2021

FIGURE 6.11
Watersheds
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Legend

- ACCOKEEK
- AQUIA
- CHOPAWAMSIC
- POTOMAC CREEK
- POTOMAC RIVER
- RAPPAHANNOCK
- WIDEWATER

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.11_watershed.mxd

Produced: 9/30/2021

FIGURE 6.12
Dam Break Inundation Zones
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter6.12_DamInundationZones.mxd

STAFFORD Virginia

Legend

- Flood Hazard
- BFE
- Flood Cross Sections
- Water Bodies
- County Boundary

FIRM

- 51179C0010F
- 51179C0014F
- 51179C0018F
- 51179C0020F
- 51179C0030F
- 51179C0035F
- 51179C0040F
- 51179C0045F
- 51179C0063G
- 51179C0064G
- 51179C0068G
- 51179C0085F
- 51179C0095F
- 51179C0102F
- 51179C0105F
- 51179C0106F
- 51179C0107F
- 51179C0110F
- 51179C0115F
- 51179C0118F
- 51179C0119F
- 51179C0120F
- 51179C0126F
- 51179C0127F
- 51179C0128F
- 51179C0129F
- 51179C0131F
- 51179C0132G
- 51179C0133F
- 51179C0134G
- 51179C0137F
- 51179C0139F
- 51179C0140F
- 51179C0141F
- 51179C0142F
- 51179C0143F
- 51179C0144F
- 51179C0151G
- 51179C0152G
- 51179C0153G
- 51179C0154G
- 51179C0156G
- 51179C0161G
- 51179C0162G
- 51179C0163G
- 51179C0164G
- 51179C0168G
- 51179C0180F
- 51179C0182F
- 51179C0184F
- 51179C0185F
- 51179C0195F
- 51179C0201F
- 51179C0202F
- 51179C0203F
- 51179C0204F
- 51179C0208F
- 51179C0210G
- 51179C0212F
- 51179C0214F
- 51179C0216F
- 51179C0218F
- 51179C0220F
- 51179C0226G
- 51179C0227G
- 51179C0228G
- 51179C0229G
- 51179C0231G
- 51179C0240F
- 51179C0260F
- 51179C0280F

N

0 12,500 25,000 US Feet

DATE
10/30/2023

DRAWN BY
CDC

CHECKED BY
JJD

STAFFORD COUNTY

PREPARED FOR STAFFORD COUNTY

SCALE
1" = 12,500'

PROJECT NUMBER
N/A

SHEET NUMBER
APPENDIX C

Copy of the Stafford County Floodplain Ordinance

Sec. 28-57. - Flood Hazard Overlay District (FH).

(a) *Definitions [44 C.F.R. § 59.1].* For the purposes of this section 28-57, the following words and phrases shall have the meanings respectively ascribed to them by this section; provided that unless specifically defined below, words and phrases used in this section shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this section its most reasonable application:

Accessory building or *accessory structure.* A non-residential structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures are not to exceed six hundred (600) square feet.

Base flood elevation. The FEMA designated one (1) percent annual chance water surface elevation and the elevation determined per County Code subsection 28-57(q)(3). The water surface elevation of the base flood in relation to the datum specified on the county's FIRM.

Basement. Any area of the building having its floor sub-grade (below ground level) on all sides.

Board of zoning appeals. The board of zoning appeals as established in Article XIX of Chapter 28 of this Code.

Building. See the definition for "structure."

Coastal A Zone. Flood hazard areas that have been delineated as subject to wave heights between one and one-half (1.5) feet and three (3) feet.

Community means any state or area or political subdivision thereof, or any Indian tribe or authorized tribal organization, or Alaska Native village or authorized native organization, which has authority to adopt and enforce flood plain management regulations for the areas within its jurisdiction. For most purposes in this section 28-57(a), it is synonymous with the term "locality." Stafford County, Virginia, is specifically referred to herein as the "county."

Development. Any manmade change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, temporary structures, dredging, filling, grading, paving, excavation, drilling operations, other land-disturbing activities, or permanent or temporary storage of equipment or materials.

Elevated building. A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

Encroachment. The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Existing construction. Structures for which the start of construction commenced before the effective date of the FIRM or before January 1, 1975 for FIRMs effective before that date. Existing construction may also be referred to as an "existing structure" or "pre-FIRM".

FEMA. Federal Emergency Management Agency.

Floodplain or *flood-prone area.* Any land area susceptible to being inundated by water from any source.

Floodplain administrator. The county administrator or his designee(s) responsible for administering the floodplain ordinance on behalf of the county.

Floodproofing. Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

Freeboard. A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed. When a freeboard is included in the height of a structure, the flood insurance premiums may be less expensive.

Functionally dependent use. A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Manufactured home park or *subdivision.* A parcel or contiguous parcels of land divided into two (2) or more manufactured home lots for rent or sale.

Mean sea level. For purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988 to which base flood elevations shown on a community's FIRM are referenced.

New construction. For the purposes of determining insurance rates and floodplain management, new construction means structures for which the start of construction commenced on or after November 19, 1980, and includes any subsequent improvements to such structures.

Post-FIRM structures. A structure for which construction or substantial improvement occurred on or after November 19, 1980.

Pre-FIRM structures. A structure for which construction or substantial improvement occurred before November 19, 1980.

Primary frontal dune. A continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms.

Principal building or *structure.* Shall have the same meaning as is provided for that term in the zoning ordinance as amended from time to time.

Recreational vehicle. A vehicle which is:

(i) Built on a single chassis;

(ii) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(iii) Designed to be self-propelled or permanently towable by a light duty truck; and

(iv) Designed primarily as temporary living quarters for recreational camping, travel or seasonal use, not for use as a permanent dwelling.

Repetitive loss structure. A building covered by a flood insurance contract that incurred flood-related damages on two (2) occasions during a ten-year period ending on the date of the event for which a second claim is made, in which the cost of repairing the flood damage, on the average, equaled or exceeded twenty-five (25) percent of the market value of the building at the time of each flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Severe repetitive loss structure. A structure that:

(a) Is covered under a flood insurance contract made available under the NFIP; and

(b) Incurred flood related damage:

  (i) For which four (4) or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding five thousand dollars ($5,000.00), and with the cumulative amount of such claims payments exceeding twenty thousand dollars ($20,000.00); or

  (ii) For which at least two (2) separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

Structure. For floodplain management purposes, a walled and roofed building, that is principally above ground, including a gas or liquid storage tank, as well as a manufactured home.

Substantial damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred; or flood-related damages sustained by a structure on two occasions in a 10-year period, in which the cost of the repair, on the average, equals or exceeds twenty-five (25) percent of the market value of the structure at the time of each such flood event.

Substantial improvement. Any reconstruction, rehabilitation, addition, or other improvement of a structure, when added to any reconstruction, rehabilitation, addition, or other improvement of a structure made during a rolling 5-year period, the total cost of which equals or exceeds fifty (50) percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred repetitive loss or substantial damage regardless of the actual repair work performed. The term does not however include:

(i) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions;

(ii) Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure; or

(iii) Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement, must comply with all requirements of this section that do not preclude the structure's continued designation as a historic structure. Documentation that a specific requirement will cause removal of the structure from the National Register of Historic Places or the state inventory of historic places must be obtained from the Secretary of the Interior or the state historic preservation officer. Any exemption from this section's requirements shall be the minimum necessary to preserve the historic character and design of the structure.

Variance means a grant of relief by the board of zoning appeals from the terms of a floodplain management regulation.

Violation. The failure of a structure or other development to comply with this section. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required under this section is presumed to be in violation until such time as that documentation is provided to the floodplain administrator.

Watercourse. A lake, river, creek, stream, wash, channel, or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

(b)

Statutory authorization and purpose [44 C.F.R. § 59.22(a)(2)]. This section is adopted pursuant to Virginia Code § 15.2-2200 et seq. in order to satisfy the requirements of the National Flood Insurance Program (NFIP).

The purpose of these provisions is to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:

(1) Regulating uses, activities and development which, alone or in combination with other existing or future uses, activities and development, will cause unacceptable increases in flood heights, velocities and frequencies;

(2) Restricting or prohibiting certain uses, activities and development from locating within districts subject to flooding;

(3) Requiring all those uses, activities and developments that occur in flood-prone districts to be protected and/or floodproofed against flooding and flood damage; and

(4) Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

(c) *Applicability.* These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the county and identified as areas of special flood hazard identified by the county or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that are provided to the county by FEMA.

(d) *Compliance and liability.*

(1) No land shall be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with this section and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this section.

(2) The degree of flood protection sought by this section is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Flood elevations may increase by manmade or natural causes, such as ice jams and debris, restricted bridge openings. This section does not imply that areas outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.

(3) This section shall not create any liability on the part of the county or any county officer or employee for any flood damages that result from reliance on this section or any administrative decision lawfully made under this section.

(e)

Records [44 C.F.R. § 59.22(a)(9)(iii)]. Records of actions associated with administering this section shall be kept on file and maintained by or under the direction of the floodplain administrator in perpetuity.

(f) *Abrogation and greater restrictions [44 C.F.R. § 60.1(b)].*

(1) The regulations contained in this section 28-57 take precedence over any less restrictive conflicting local laws, ordinances, or codes.

(2) The regulations contained in this section 28-57 are not intended to repeal or abrogate any existing ordinances including subdivision regulations, zoning ordinances, or building codes. In the event of a conflict between the regulations contained in this section 28-57 and any other ordinance, the more restrictive shall govern.

(g) *Severability.* If any subsection, paragraph, sentence, clause, or phrase of this section shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this section. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this section are declared to be severable.

(h) *Penalty for violations [44 C.F.R. § 60.2(e)].*

(1) Any person who fails to comply with any of the requirements of this section, the direction, discussion, or order of the floodplain administrator or any authorized employee of the county shall be guilty of the appropriate violation and subject to the penalties therefore.

(2) The Virginia Uniform Statewide Building Code addresses building code violations and the associated penalties in Section 104 and Section 115. Violations and associated penalties of the zoning ordinance are addressed in county Code Chapter 28, Article XVII.

(3) In addition to the above penalties, all other actions are reserved, including an action for an injunction for the proper enforcement of this section. The imposition of a fine or penalty for any violation of, or noncompliance with, this section shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered, or relocated in noncompliance with this section is subject to this subsection (h). Flood insurance may be withheld from structures constructed in violation of this section.

(i) *Designation of the floodplain administrator [44 C.F.R. § 59.22(b)].* The floodplain administrator is appointed to administer and implement this section 28-57. The floodplain administrator may:

(1) Review applications for permits to determine whether proposed activities will be located in the special flood hazard area (SFHA).

(2) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

(3) Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the

requirements of these regulations.

(4) Review applications to determine whether all necessary permits have been obtained from federal, state or county departments or agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair or alteration of a dam, reservoir or waterway obstruction (including bridges, culverts or structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the state.

(5) Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies such as Virginia Department of Environmental Quality (VADEQ) and United States Army Corps of Engineers (USACE), and have submitted copies of such notifications to FEMA.

(6) Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that federal flood insurance is not available on such structures; areas subject to this limitation are shown on FIRMS as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).

(7) Approve applications and issue permits to develop in flood hazard areas if the provisions of this section are met, or disapprove applications if the provisions of this section are not met.

(8) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with this section, if noncompliance has occurred, or violations have been committed.

(9) Review elevation certificates and require incomplete or deficient certificates to be corrected.

(10) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the county, within six (6) months after such data and information becomes available if the analyses indicate changes in base flood elevations.

(11) Maintain and permanently keep records that are necessary for the administration of this section, including:

a. Flood insurance studies, FIRMS (including historic studies and maps and current effective studies and maps), and LOMC; and

b. Documentation supporting issuance and denial of permits, elevation certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of this section.

(12) Enforce this section, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.

(13) Advise the board of zoning appeals regarding the intent of this section and, for each variance application, prepare a staff report and recommendation.

(14) Administer the requirements related to proposed work on existing buildings.

a. Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.

b. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct, and prohibit the noncompliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

(15) Undertake other actions which may include, but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other federal, state and local agencies to assist with substantial damage determinations; providing county departments and owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for increased cost of compliance coverage under NFIP flood insurance policies.

(16) Notify FEMA when the jurisdictional boundaries of the county have been modified and:

a. Provide a map that clearly delineates the new boundaries or the new area for which the authority to regulate pursuant to this section has been assumed or relinquished through annexation; and

b. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in this section, prepare amendments to this section to adopt the FIRM and appropriate requirements, and submit the amendments to the board of supervisors for its consideration; such consideration shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

(17) Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

(18)

It is the duty of the floodplain administrator to take in to account flood, mudslide, and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdiction of the county, whether or not those hazards are specifically delineated geographically (e.g., via mapping or surveying).

(k) *[44 C.F.R. § 60.3]. Interpretation of district boundaries.* Initial interpretations of the boundaries of the floodplain districts, including special flood hazard areas, floodplain boundaries, and floodway boundaries, shall be made by the floodplain administrator. Should a dispute arise concerning the boundaries of any of the floodplain districts, the board of zoning appeals shall make the necessary determination. Any person who disputes the location of district boundary shall be given a reasonable opportunity to present the case to the board of zoning appeals and to submit technical evidences if so desired. The following principles shall apply to the use and interpretation of FIRMs and data:

(1) Where field surveyed topography indicates that adjacent ground elevations:

a. Are below the base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations; or

b. Are above the base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a letter of map change that removes the area from the SFHA.

(2) In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a federal, state, or other source shall be reviewed and reasonably used.

(3) Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

(4) Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.

(5) If a preliminary FIRM and/or a preliminary flood insurance study is provided by FEMA:

a. Upon the issuance of a letter of final determination by FEMA, the preliminary flood hazard data shall be used and shall replace the flood hazard data previously provided by FEMA for the purposes of administering this section.

b. Prior to the issuance of a letter of final determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to county Code subsection 28-57(q)(3) and used where no base flood elevations and/or floodway areas are provided on the FIRM.

c. Prior to issuance of a letter of final determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change by and/or appeal to FEMA.

(l) *Jurisdictional boundary changes [44 C.F.R. § 59.22, 65.3].*

(1) The county floodplain provisions in effect on the date of annexation or a boundary adjustment shall go into effect and shall be enforced by the county for all areas added to the jurisdiction of the county upon the effective date of the annexation or boundary adjustment.

(2) The floodplain administrator shall notify FEMA and the Virginia Department of Conservation and Recreation Division of Dam Safety and Floodplain Management in writing whenever the boundaries of the county are modified by annexation or boundary adjustment or the county otherwise assumes or is no longer authorized to adopt and enforce floodplain management regulations for a particular area. Such written notification shall include a copy of a map of the county suitable for reproduction, clearly delineating the new jurisdictional limits or new area for which the county assumesor relinquishes floodplain management regulatory authority.

(m) *District boundary changes.* Upon FEMA approval, the he delineation of any of the floodplain districts may be revised by the county where natural or manmade changes have occurred, where more detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers or other qualified agency, and/or an individual documents the need for such change.

(n) *Reserved.*

(o) *Submitting model backed technical data [44 C.F.R. § 65.3].* The county's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but no later than six (6) months after the date such information becomes available, the floodplain administrator shall notify FEMA of the changes by submitting technical or scientific data.

(p) *Letters of map revision.* When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a CLOMR and then a LOMR.

Examples:

(1) Any development in the floodway that causes a rise in the base flood elevations.

(2) Any development occurring in Zones A1—30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.

(3) Alteration or relocation of a stream including but not limited to installing culverts and bridges.

(q)

Establishment and description of special flood hazard districts [44 C.F.R. § 59.1,60.3]. The Flood Hazard (FH) Overlay District shall consist of the SFHA. The basis of delineation of SFHAs shall be the FIRM and FIS for the county prepared by the FEMA, dated June 21, 2023, and any subsequent revisions or amendments.

In the event that the county identifies and regulates local flood hazard or ponding areas that are not delineated on the FIRM, these areas may be delineated on a local flood hazard map using best available topographic data and locally-derived information such as flood of record, historic high water marks or approximate study methodologies.

The boundaries of the SFHA are established as shown on the FIRM, which is incorporated in and a part of this section and which shall be kept on file at the county

(1) The floodway district is in an AE Zone and is delineated, for purposes of this section, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one (1) percent annual chance flood without increasing the water surface elevation of that flood by more than one (1) foot at any point. The areas included in this district are specifically defined in Table 23 of the above-referenced FIS and shown on the accompanying FIRM.

The following shall apply within the floodway districts of an AE zone [44 C.F.R. § 60.3(d)]:

a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice, that the proposed encroachment will not result in any increase in flood levels within the county during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, and/or computations shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies with the county's endorsement for a CLOMR, and receives FEMA approval.

If county Code subsection 28.57(q)(1)a. is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of county Code subsections 28-57(s), (t) and (u).

b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or

subdivision provided the anchoring, elevation, and encroachment standards are met.

(2) The AE Zone shall be those areas for which the FIRM and the FIS have established one percent annual chance flood elevations. The following provisions shall apply within an AE Zone where floodway has not been delineated. [44 C.F.R. § 60.3(c)]:

a. Along rivers, streams, and other watercourses where FEMA has provided base flood elevations, until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones AE on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the county.

b. Development activities in Zone AE, on the county's FIRM which increase the water surface elevation of the base flood by more than one (1) foot may be allowed; provided that, the applicant first applies with the county's endorsement for a CLOMR, and receives the approval of FEMA.

(3) The A Zone on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(b)]:

The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a 100-year floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Floodplain Information Reports, U.S. Geological Survey Flood-Prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted non-detailed technical concepts, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, and/or computations shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

The floodplain administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood level by three (3) feet.

During the permitting process, the floodplain administrator shall obtain:

a. The elevation of the lowest floor (including the basement) of all new and substantially improved structures; and

b. If the structure was flood-proofed in accordance with this section, the elevation (in relation to mean sea level) to which the structure has been floodproofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty (50) lots or five (5) acres, whichever is less.

(4) The AO Zone on the FIRM accompanying the FIS shall be those areas of shallow flooding identified as AO on the FIRM. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(c)]:

a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM.

If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two (2) feet above the highest adjacent grade.

b. All new construction and substantial improvements of nonresidential structures shall:

1. Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet above the highest adjacent grade; or

2. Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(5) The Coastal A Zone shall be those areas, as defined by the USBC, that are subject to wave heights between one and one-half (1.5) feet and three (3) feet. In the Coastal A Zone, the floodplain development and building standards for VE Zones shall apply. When the limits of

moderate wave action (LiMWA) line is shown on the effective FIRM, the Coastal A Zone can be identified as the AE Zone areas seaward of the LiMWA line.

(6) The VE or V Zones on FIRMs accompanying the FIS shall be those areas that are known as coastal high hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast. For these areas, the following provisions shall apply [44 C.F.R. § 60.3(e)]:

a. All new construction and substantial improvements, including manufactured homes, in Zones V and VE (VE if base flood elevation is available) shall be elevated on pilings or columns so that:

1. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level plus three (3) feet; and

2. The pile or column foundation and structure attached to it is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year (one percent annual chance).

b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the requirements of county Code subsection 28-57(q)(5)a.

c. The floodplain administrator shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE. The floodplain administrator shall maintain a record of all such information.

d. All new construction shall be located landward of the reach of mean high tide.

e. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

For the purpose of this subsection, a breakaway wall shall have a design safe loading resistance of not less than ten (10) and no more than twenty (20) pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of twenty (20)

pounds per square foot (either by design or when so required by county ordinance) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

1. Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and
2. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one (1) percent chance of being equaled or exceeded in any given year.

f. The enclosed space below the lowest floor shall be used solely for vehicle parking, building access or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation.

g. The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a development permit.

h. The manmade alteration of sand dunes, which would increase potential flood damage, is prohibited.

(7) The mapped floodplain includes all of the above regions and also the regions designated as having a two-tenths (0.2) percent annual chance of flooding on a flood map or flood insurance study. In the mapped floodplain, no emergency service, medical service, governmental records storage shall be allowed except by exceptions using the variance process.

(r) *Overlay concept.*

(1) The FH Overlay District shall be overlays to the existing underlying districts as shown on the county's zoning map. As such, the provisions for the floodplain districts shall serve as a supplement to the underlying zoning district provisions.

(2) If there is any conflict between the provisions or requirements of the FH Overlay District and those of any underlying zoning district, the more restrictive provisions shall apply.

(3) If any provision concerning the FH Overlay District is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

(s) *Permit and application requirements in floodplain districts [44 C.F.R. § 59.22, 60.2, and 60.3].*

(1) *Permit requirement.*

a.

All uses, activities and development occurring within any floodplain district, including placement of manufactured homes, shall be undertaken only upon the issuance of a zoning permit.

b. Such development shall be undertaken only in strict compliance with the this section and with all other applicable codes and ordinances, including, but not limited to, USBC and County Code chapter 22. Prior to the issuance of any such permit, the floodplain administrator shall require all applications to include compliance with all applicable state and federal laws, and shall review all sites to assure they are reasonably safe from flooding.

c. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

(2) *Site plans and permit applications.* All applications for development within any floodplain district and all building permits issued for the floodplain shall incorporate the following information:

a. The elevation of the base flood at the site.

b. For structures to be elevated, the elevation of the lowest floor (including basement) or, in V Zones, the lowest horizontal structural member.

c. For structures to be floodproofed (nonresidential only), the elevation to which the structure will be floodproofed.

d. Topographic information showing existing and proposed ground elevations at the datum of the FIRM.

(t) *General standards.* The following shall apply to all permits:

(1) New construction and substantial improvements shall be according to county Code subsection 28-57(q) and the USBC, and anchored to prevent flotation, collapse or lateral movement of the structure. In addition to the USBC requirements, structures shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. The USBC building standards for VE Zones shall apply to Coastal AE Zones.

(2) Manufactured homes shall be anchored to prevent flotation, collapse or lateral movement. Anchoring methods include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

(3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(4) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

(5) Electrical systems, equipment and components; heating, ventilation, air conditioning; plumbing, appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the base flood level plus three (3) feet. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilation, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under floods.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the base flood level provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with American Society of Civil Engineers Standard 24. Electrical wiring systems are permitted to be below the required elevation provided they conform to the provisions of the electrical part of the Virginia commercial or residential building code for wet locations, as adopted by the county.

(6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

(7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

(8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

In addition to provisions (t)(1)—(7) of this section in all special flood hazard areas, the additional provisions shall apply:

(9) Prior to any proposed alteration or relocation of any channels or of any watercourse and/or stream, within this jurisdiction a permit shall be obtained from the USACE, the VADEQ, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and FEMA.

(10) The flood-carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(11)

The floodplain administrator may at his discretion issue, in writing, an administrative exception for specified uses and activities in the Coastal A and coastal high hazard areas. The floodplain administrator must find that the placement of fill material for the proposed activity or use would not create a flood hazard or contribute to increased flood elevations of off-site properties. The applicant requesting an administrative exception shall provide sufficient information, plans, and drawings for the floodplain administrator to determine that there would be no flood hazard impacts. The following uses and activities may be permitted, by administrative exception, in the Coastal A and coastal high hazard areas:

a. Water-dependent uses and activities associated with tidal water bodies, such as marinas, docks, wharves and piers; and

b. Shoreline protection measures where the maximum elevation of the structure or fill does not exceed the base flood elevation.

(u) *Elevation and construction standards [44 C.F.R. § 60.3].*

(1) In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with county Code subsection 28-57(q)(3), the following provisions shall apply:

a. *Residential construction.* New construction or substantial improvement of any residential structure (including manufactured homes) in Zones AE (except Coastal A Zones), and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. See county Code subsections 28-57(q)(4), (5), (6), and (7) for the requirements in the AO, Coastal A, VE and V Zones. Recreational amenities constructed in residential developments such as tennis courts, basketball courts, and similar court facilities, sports fields, tot lots, and playgrounds shall meet the same elevation requirement as for residential construction contained in this subsection.

b. *Nonresidential construction.* New construction or substantial improvement of any commercial, industrial or nonresidential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the base flood level plus three (3) feet. See subsections 28-57(q)(4), (5), (6), and (7) for requirements in the AO, Coastal A, VE and V Zones. Buildings located in all AE (except Coastal A Zones), and A Zones may be floodproofed in lieu of being elevated, provided that all areas of the building components below the elevation corresponding to the BFE plus three (3) feet are watertight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this

subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by floodplain administrator.

c. *Space below the lowest floor.* In Zones A, AE, and AO, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall only be used for vehicle parking, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for vehicle parking (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator);
2. Be constructed entirely of flood-resistant materials below the regulatory flood protection elevation;
3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must be certified by a professional engineer or architect, or meet the following minimum design criteria:

(i) Provide a minimum of two (2) openings on different sides of each enclosed area subject to flooding;

(ii) The total net area of all openings must be at least one square inch for each square foot of enclosed area subject to flooding;

(iii) If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit;

(iv) The bottom of all required openings shall be no higher than one foot above the adjacent grade;

(v) Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions; and

(vi) Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

d. *Accessory structures.* Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of County Code subsection 28-57(u)(1)b or, if not elevated or dry floodproofed, shall:

1. Not be used for human habitation;

2. Be limited to no more than six hundred (600) square feet in total floor area;
3. Be useable only for parking of vehicles or limited storage;
4. Be constructed with flood damage-resistant materials below the base flood elevation;
5. Be constructed and placed to offer the minimum resistance to the flow of floodwaters;
6. Be anchored to prevent flotation;
7. Have electrical service and mechanical equipment elevated to or above the base flood elevation; and
8. Shall be provided with flood openings which shall meet the following criteria:
   (i) There shall be a minimum of two (2) flood openings on different sides of each enclosed area; if a structure has more than one (1) enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.
   (ii) The total net area of all flood openings shall be at least one (1) square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.
   (iii) The bottom of each flood opening shall be one (1) foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.
   (iv) Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.
9. A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be recorded with respect to the property in the land records of Stafford County Circuit Court.

e. *Standards for manufactured homes and recreational vehicles.*

1. All manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in county Code subsections 28-57(t) and (u).
2. All recreational vehicles placed on sites must either:
   (i) Be on the site for fewer than one hundred eighty (180) consecutive days, be fully licensed, and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick-disconnect type utilities and security devices and has no permanently attached additions); or
   (ii)

Meet all the requirements for manufactured homes in county Code subsection 28-57(u)(1)e.1.

(v) *Standards for subdivision proposals.*

(1) All subdivision proposals shall be consistent with the need to minimize flood damage.

(2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(3) All subdivision proposals shall have adequate drainage to reduce exposure to flood hazards.

(4) Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty (50) lots or five (5) acres, whichever is less.

(w) *Existing structures in floodplain areas.* A structure or use of a structure or premises which lawfully existed before the enactment of Ordinance No. O23-09, but which is not in conformity with this section, may be continued subject to the following conditions:

(1) Existing structures in the floodway area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed expansion would not result in any increase in the base flood elevation.

(2) Any modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use located in any floodplain areas to an extent or amount of less than fifty (50) percent of its market value shall conform to the USBC and the applicable provisions of this section, and;

a. The modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use located in any floodplain areas, when added to all of the modifications, repairs, reconstruction or improvements made during a rolling 5-year period shall not constitute fifty (50) percent of the structure's value.

(3) The modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use, regardless of its location in a floodplain area to an extent or amount of fifty (50) percent or more of its market value or a substantial improvement shall be undertaken only in compliance with this section and shall require the entire structure to conform to the USBC.

(x) *Variances: Factors to be considered [44 C.F.R. § 60.6].*

(1) Variances shall be issued only upon: (i) a showing of good and sufficient cause; (ii) after the board of zoning appeals determines that failure to grant the variance would result in exceptional hardship to the applicant; and (iii) after the board of zoning appeals determines that the granting of such variance will not result in: (a) unacceptable or prohibited increases in

flood heights; (b) additional threats to public safety; (c) extraordinary public expense; and will not: (d) create nuisances; (e) cause fraud or victimization of the public; or (f) conflict with county Code or county ordinances.

(2) While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may be granted. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. The board of zoning appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with this section.

(3) The board of zoning appeals may issue variances for new construction and substantial improvements and for other development necessary for the conduct of a functionally-dependent use provided that the criteria of this section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

(4) In considering variance applications, the board of zoning appeals shall consider all relevant provisions of County Code chapter 28 and the following factors:

a. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any floodway district that will cause any increase in the 100-year flood elevation.

b. The danger that materials may be swept on to other lands or downstream to the injury of others.

c. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions.

d. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner(s).

e. The importance of the services provided by the proposed facility to the county.

f. The requirements of the facility for a waterfront location.

g. The availability of alternative locations that are not subject to flooding.

h. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

i. The relationship of the proposed use to the comprehensive plan and floodplain management program for the county.

j. The safety of access by ordinary and emergency vehicles to the property during a flood.

k.

The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.

l. The historic nature of a structure. The board of zoning appeals may grant variances for repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

m. No variance shall be granted for an accessory structure exceeding six hundred (600) square feet.

n. Such other factors which are relevant to the purposes of this section.

(5) The board of zoning appeals may refer any application and accompanying documentation pertaining to any variance request to an engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

(6) Variances shall be issued only after the board of zoning appeals determines that the granting of such will not result in: (a) unacceptable or prohibited increases in flood heights; (b) additional threats to public safety; (c) extraordinary public expense; and will not: (d) create nuisances; (e) cause fraud or victimization of the public; or (f) conflict with local laws or ordinances.

(7) The board of zoning appeals may issue a variance after it determines that the variance will be the minimum required to provide the requested relief.

(8) The board of zoning appeals shall notify the applicant for a variance, in writing that the issuance of a variance to construct a structure below the 100-year flood elevation: (a) increases the risks to life and property; and (b) will result in increased premium rates for flood insurance.

(9) A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that the board of zoning appeals issues shall be noted in the annual or biennial report submitted to the FEMA.

(Ord. No. 094-29, § 28-407, 8-9-94; Ord. No. 099-41, 7-13-99; Ord. No. 099-76, 11-16-99; Ord. No. O04-63, 12-7-04; Ord. No. O07-31, 5-1-07; Ord. No. O08-37, 6-17-08; Ord. No. O08-80, 12-2-08; Ord. No. O14-37, 12-16-14; Ord. No. O19-38, 10-1-19; Ord. No. O23-09 , 5-2-23)

Sec. 28-58. - Historic Resource Overlay District (HR).

(a) *Definition and purpose.* The Historic Resource Overlay District (HR) shall be defined as consisting of any historic area, landmark, building or structure, or any land pertaining to any estate or interest therein, along with any adjoining lands deemed necessary to protect the context in which

the resource exists, which, in the opinion of the board of supervisors, should be preserved and maintained for the use, observation, education, pleasure and welfare of the people, and is so designated.

It is intended that the establishment of HR districts will protect against destruction of and encroachment upon historic resources. HR districts are areas containing buildings or places in which historic events have occurred or which have special public value because of notable architectural or other features relating to the cultural or artistic heritage of the county, the commonwealth, and the nation, of such significance as to warrant conservation and preservation.

(b) *Architectural review board.* The governing body shall appoint an architectural review board (ARB) consisting of seven (7) members for the purpose of administering this section, subject to the following conditions:

(1) All members appointed to the ARB shall have a demonstrated knowledge, interest, or competence in historic preservation.

(2) At least one member shall be a registered architect, or an architectural historian, with a demonstrated interest in historic preservation; at least one member shall be a member of the planning commission; at least one member shall be a resident of a designated historic district in Stafford County. When adequate review of any proposed action would normally involve a professional discipline not represented on the ARB, the ARB shall seek appropriate professional advice before rendering a decision. Information on the credentials of all ARB members shall be kept on file locally for public inspection.

(3) The ARB shall adopt written bylaws that include at a minimum: Provision for regularly scheduled meetings at least four (4) times a year; a requirement that a quorum of four (4) members be present to conduct business; rules of procedure for considering applications; written minutes of all meetings.

(4) Terms of office for ARB members shall be for three (3) years and shall be staggered.

(5) Vacancies on the ARB shall be filled within sixty (60) days.

(6) In addition to those duties specified in this chapter, the ARB shall at a minimum perform the following duties:

a. Conduct or cause to be conducted a continuing survey of the cultural resources in the community according to guidelines established by the state historic preservation office.

b. Act in an advisory role to other officials, and departments of local government regarding protection of cultural resources.

c. Disseminate information within the locality on historic preservation issues and concerns.

d. The ARB shall provide for adequate public participation, including:

1.

All meetings of the ARB must be publicly announced, to be open to the public, and have an agenda made available to the public prior to the meeting. ARB meetings must occur at regular intervals at least four (4) times per year. Public notices must be provided prior to any special meetings. The ARB shall allow for public testimony from interested members of the public, not just applicants.

2. Minutes of all decisions and actions of the ARB, or in appeals to the local governing body, must be kept on file and available for public inspection.
3. All decisions made by the ARB shall be made in a public forum and applicants shall be given written notification of decisions made by the ARB.
4. The rules of procedure adopted by the ARB shall be made available for public inspection.

(c) *Designation of historic districts.* The board of supervisors may designate by ordinance historic resources to be included in the Historic Resource (HR) Overlay District. These resources may be, but are not limited to, landmarks established by the Virginia Landmarks Commission and any other building or structures within the county having important historic, architectural or cultural interest.

(1) The ARB shall recommend and the governing body may, approve by ordinance the designation of an area or resource as Historic Resource Overlay District within which the regulations set forth in this section and regulations adopted for each specific historic district shall apply.

(2) In order to fully protect historic resources and areas, the boundaries of an Historic Resource Overlay District may include adjoining land closely related to and bearing upon the character of the historic resource, including lands within proximity of the historic resource.

(3) Individual property owners' consent for inclusion of their property within the HR district is not required.

(4) The board of supervisors may create HR overlay districts, provided such districts:

a. Contain buildings or places in which historic events have occurred or having special public value because of notable architectural or other features relating to the cultural or artistic heritage of the community, or such significance to warrant conservation and preservation.
b. Is [are] closely associated with one or more persons, events, activities, or institutions that have made a significant contribution to local, regional, or national history; or
c. Contain buildings or structures whose exterior design or features exemplify the distinctive characteristics of one or more historic types, periods, or methods of construction, or which represent the work of an acknowledged master or masters; or
d. Have yielded, or are likely to yield, information important to local, regional or national history; or

e. Possess an identifiable character representative of the architectural or cultural heritage of Stafford County; or

f. Contain a landmark, building or structure included on the National Register of Historic Places or the Virginia Landmark Register.

(d) *Historic resource overlay district regulations.* Historic resource overlay districts shall be subject to the following regulations in addition to those imposed for each specific historic district and those pursuant to the underlying zoning classification of the property. The Historic Resource Overlay District regulations shall take precedence over the underlying regulations when they conflict. All HR district boundaries shall be delineated on the official zoning map.

(1) A certificate of appropriateness issued by the agent or his designee shall be required prior to the erection, reconstruction, exterior alteration, restoration or excavation of any building or structure within a HR district, or prior to the demolition, razing, relocation, or moving of any building or structure therein. The agent shall not issue a certificate of appropriateness until an application therefor has been approved by the ARB or upon appeal to the board of supervisors with consultation of the ARB, following the procedures set forth below. In addition, no demolition, razing, relocation, or moving of an historic resource in an HR district shall occur until approved by the ARB or upon appeal to the board of supervisors with consultation of the ARB.

(2) Upon receipt of a complete application for a certificate of appropriateness, the agent shall forward to the ARB copies of the permit application, plat, site plan, and any other materials filed with such application. The complete application must be received by the ARB fourteen (14) days or more prior to its meeting.

(3) The ARB may require the submission of the following information and other materials necessary for its review of the complete application: statement of proposed use; name of proposed user; design sketches showing exterior building configuration, topography, paving and grading; and, a plan showing exterior signs, graphics, and lighting to establish location, color, size, and type of materials.

(4) The ARB shall review and render a decision upon each application for a certificate of appropriateness within sixty (60) days of receipt, unless the applicant agrees in writing to an extension of the review period. The ARB shall apply the following criteria for its evaluation of any application. In addition to the following criteria, and guidelines adopted by the county, the ARB shall consider the Secretary of Interior's "Standards for Rehabilitation," as may be amended from time to time in determining the appropriateness of any application for approval pertaining to existing structures.

a. Risk of substantial alteration of the exterior features of an historic resource.

b.

Compatibility in character, context and nature with the historic, architectural or cultural features of the historic district.

c. Value of the resource and the proposed change in the protection, preservation, and utilization of the historic resource located in the historic district.

d. Exterior architectural features, including all signs.

e. General design, scale, and arrangement.

f. Texture and materials.

g. The relationship of subsections a., b., and c., above, to other structures and features of the district.

h. The purpose for which the district was created.

i. The relationship of the size, design, and orientation of any new or reconstructed structure to the landscape of the district.

j. The extent to which denial of a certificate of appropriateness would constitute a deprivation of a reasonable use of private property.

(5) No application for a permit to erect, reconstruct, alter, or restore any building or structure, including signs, shall be approved unless the ARB determines or upon appeal to the board of supervisors with consultation of the ARB that it is architecturally compatible with the historic resources in the HR district.

(6) In reviewing an application to raze or demolish an historic resource the ARB shall review the circumstances and the condition of the structures proposed for demolition and shall make its decision based on consideration of the following criteria:

a. Is the historic resource of such architectural, cultural, or historic interest that its removal would be detrimental to the public interest?

b. Is the historic resource of such old and unusual design, texture, and material that it could not be reproduced or be reproduced only with great difficulty?

c. Would retention of the historic resource help preserve and/or protect another historic resource?

(7) In reviewing an application to move or relocate an historic resource, the ARB shall consider the following criteria:

a. Detrimental effect of the proposed relocation on the structural integrity of the historic resource.

b Detrimental effect of the proposed relocation on the historical aspects and context of other historic resources, buildings, or structures in the HR district.

c. Compatibility of proposed new surroundings with the historic resource if relocated.

d. Benefits of relocation of the historic resource with regard to its preservation.

(8) The ARB, on the basis of the application and the criteria set forth herein shall approve, with or without modifications, or deny the application. If the ARB approves or approves with modifications the application, it shall authorize the agent to issue the permit. The permit shall expire after twelve (12) months from the date of issuance if work has not yet commenced on the property. If the ARB denies the application, it shall so notify the applicant and the agent in writing.

(9) Minor work or actions, deemed by the agent or his designee not to have a permanent effect upon the character of the historic property or district, shall be exempt from full review by the ARB. Instead, such minor work or actions shall be reviewed and approved or disapproved by the agent or his designee. Decisions made regarding minor work shall be rendered in writing. An applicant may appeal the decision of the agent or his designee to the ARB and of the ARB to the board of supervisors, in accord with the procedures hereinafter established. The term "minor work" shall include, but not be limited to, the repair or replacement of existing materials on exterior surfaces or appurtenances, such as steps, gutters, chimneys, windows, or exterior painting, except on unpainted masonry surfaces.

(e) *Appeals; right to demolish.*

(1) Any owner or owners of real property within Stafford County who are jointly or severally aggrieved by a decision of the ARB, may appeal the decision to the board of supervisors by filing a written petition with the agent within thirty (30) days of that decision. The filing of the petition shall not stay the decision of the ARB if that decision denies the right to demolish a historic resource. The board of supervisors, after consultation with the ARB, may reverse the decision of the ARB, in whole or in part, or it may affirm the decision of the ARB.

(2) Any owner or owners of real property within Stafford County who are jointly or severally aggrieved by a final decision of the board of supervisors, may appeal to the Circuit Court of Stafford County for review of that decision by filing a petition at law setting forth the alleged illegality within thirty (30) days of the final decision of the board, in accordance with Code of Virginia § 15.1-503.2, as amended. The filing of said petition shall stay the decision of the board pending the outcome of the appeal to the court, provided that the filing of such petition shall not stay the decision of the board if such decision denies the right to raze or demolish an historic resource. The court may reverse or modify the decision of the board of supervisors, in whole or in part, if it finds upon review that the decision of the board is contrary to the law or that its decision is arbitrary and constitutes an abuse of discretion, or it may affirm the decision of the board of supervisors.

(3) In addition to the right of appeal set forth in subsection (2) above, the owner of an historic resource, the razing of which is subject to the provisions of this chapter, shall, as a matter of right, be entitled to demolish such historic resource, provided that:

a. He has applied to the governing body for such right; and

b. He has, for a period of time set forth in the time schedule contained in this section, and at a price reasonably related to its fair market value, made a bona fide offer to sell such historic resource, and the land pertaining thereto, to the county, or any person, firm, corporation, government or agency thereof which gives reasonable assurance that it is willing to preserve and restore the historic resource and the land pertaining thereto; and

c. No bona fide contract, binding upon all parties thereto, shall have been executed for the sale of such historic resource, and the land pertaining thereto, prior to the expiration of the application time set forth in the time schedule contained in this section.

(4) Any appeal which may be taken to the court from a decision of the board of supervisors, whether instituted by the owner or by any other party with proper standing, notwithstanding the provisions heretofore stated relating to a stay of the decision appealed from, shall not affect the right of the owner to make a bona fide offer to sell such historic resource. No offer shall be made more than one year after a final decision by the board of supervisors, but thereafter the owner may renew his request to the board to approve razing of the historic resource. The time schedule for offers to sell shall be as follows:

a. Three (3) months when the offering price is less than twenty-five thousand dollars ($25,000.00).

b. Four (4) months when the offering price is twenty-five thousand dollars ($25,000.00) or more, but less than forty thousand dollars ($40,000.00).

c. Five (5) months when the offering price is forty thousand dollars ($40,000.00) or more, but less than fifty-five thousand dollars ($55,000.00).

d. Six (6) months when the offering price is fifty-five thousand dollars ($55,000.00) or more, but less than seventy-five thousand dollars ($75,000.00).

e. Seven (7) months when the offering price is seventy-five thousand dollars ($75,000.00) or more, but less than ninety thousand dollars ($90,000.00).

f. Twelve (12) months when the offering price is ninety thousand dollars ($90,000.00) or more.

(5) The time periods specified in this section shall commence upon receipt by the ARB of the owner's written notification of his intention to sell an historic resource. This statement shall identify the property, state the offering price, and the name of the real estate agent, if any. The ARB shall, within five (5) days, convey a copy of such statement to the county attorney.

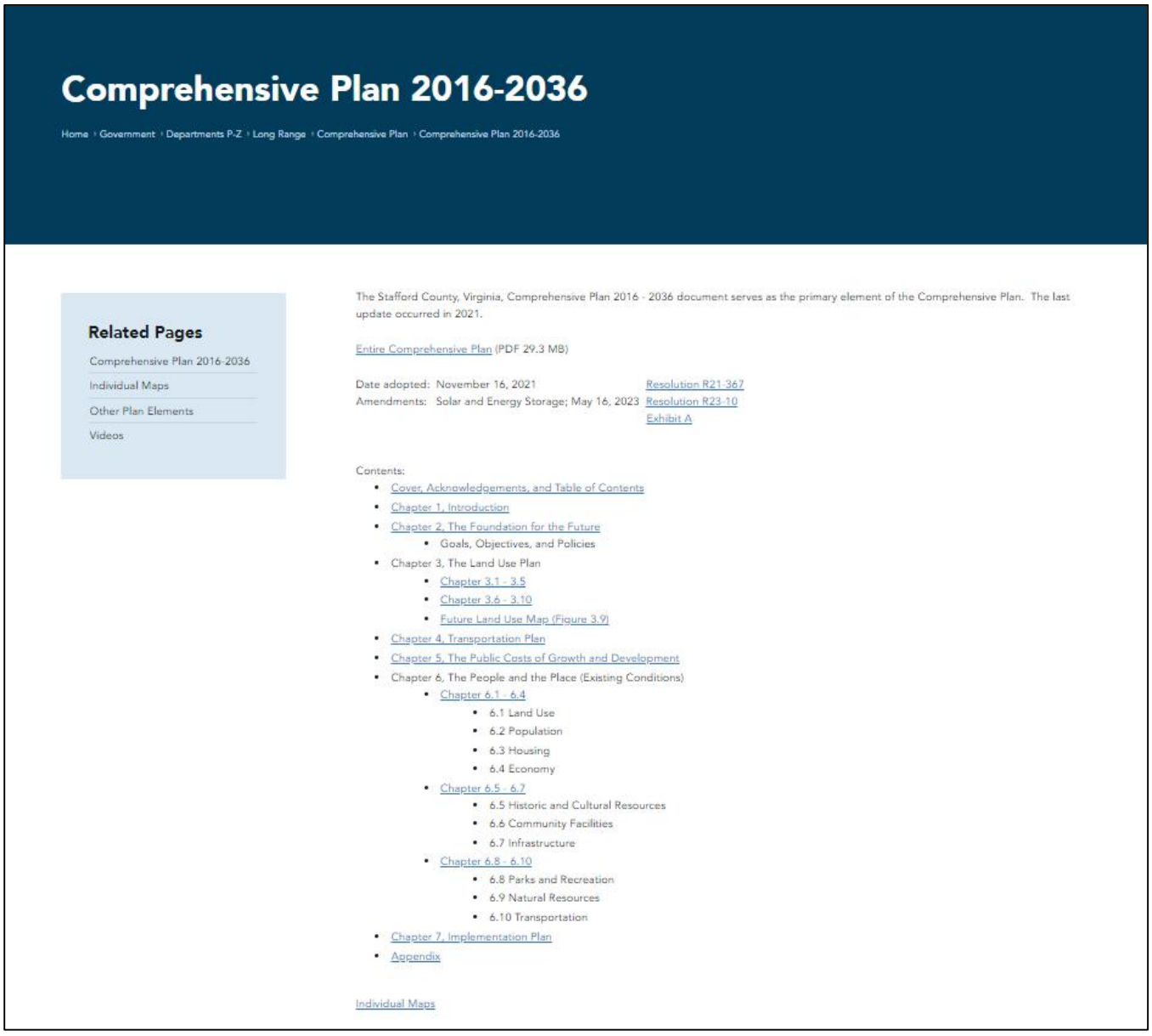
(Ord. No. 094-29, § 28-408, 8-9-94; Ord. No. O13-31, 9-3-13; Ord. No. O14-07, 6-3-14; Ord. No. O14-28, 11-13-14)

Link to a Copy of the Current Comprehensive Plan

(Stafford County 2016-2036 Comprehensive Plan)

Link to Stafford County 2016-2036 Comprehensive Plan

https://staffordcountyva.gov/government/departments_p-z/planning_and_zoning/long_range/comprehensive_plan/comprehensive_plan_2016-2036.php



Comprehensive Plan 2016-2036

Home › Government › Departments P-Z › Long Range › Comprehensive Plan › Comprehensive Plan 2016-2036

Related Pages

- Comprehensive Plan 2016-2036
- Individual Maps
- Other Plan Elements
- Videos

The Stafford County, Virginia, Comprehensive Plan 2016 - 2036 document serves as the primary element of the Comprehensive Plan. The last update occurred in 2021.

Entire Comprehensive Plan (PDF 29.3 MB)

Date adopted: November 16, 2021 Resolution R21-367
Amendments: Solar and Energy Storage; May 16, 2023 Resolution R23-10
Exhibit A

Contents:

- Cover, Acknowledgements, and Table of Contents
- Chapter 1, Introduction
- Chapter 2, The Foundation for the Future
  - Goals, Objectives, and Policies
- Chapter 3, The Land Use Plan
  - Chapter 3.1 - 3.5
  - Chapter 3.6 - 3.10
  - Future Land Use Map (Figure 3.9)
- Chapter 4, Transportation Plan
- Chapter 5, The Public Costs of Growth and Development
- Chapter 6, The People and the Place (Existing Conditions)
  - Chapter 6.1 - 6.4
    - 6.1 Land Use
    - 6.2 Population
    - 6.3 Housing
    - 6.4 Economy
  - Chapter 6.5 - 6.7
    - 6.5 Historic and Cultural Resources
    - 6.6 Community Facilities
    - 6.7 Infrastructure
  - Chapter 6.8 - 6.10
    - 6.8 Parks and Recreation
    - 6.9 Natural Resources
    - 6.10 Transportation
- Chapter 7, Implementation Plan
- Appendix

Individual Maps

Social Vulnerability Index Score(s) for the Project Areas

Social Vulnerability Index			
ID	Social Vulnerability Score	ID	Social Vulnerability Score
1	2.0025	41	-1.225
2	0	42	-0.715
3	-0.275	43	1.0275
4	-1.79	44	-0.76
5	-0.78	45	-0.78
6	-0.1	46	-1.735
7	0.43	47	-1.06
8	1.275	48	-0.175
9	-0.2	49	-0.45
10	2.5875	50	-0.31
11	-0.825	51	1.19
12	1.18	52	-0.525
13	-0.72	53	0.105
14	-1.665	54	-0.425
15	-0.785	55	0.34
16	0.56	56	-1.675
17	0.265	57	-0.935
18	-0.95	58	-1.135
19	-1.19	59	-1.635
20	-1.87	60	0.44
21	-1.655	61	0.945
22	-0.58	62	-1.06
23	-1.66	63	-1.42
24	-1.51	64	-1.97
25	0.48	65	1.1
26	-1.48	66	1.12
27	0.145	67	-1.11
28	-1.15	68	-1.875
29	1.345	69	-1.155
30	1.1125	70	-1.585
31	0.005	71	-1.53
32	-1.445	72	0.335
33	-1.74	73	-0.185
34	-1.82	74	-0.395
35	-1.87	75	-0.415
36	-1.39	76	-1.275
37	-1.465	77	-1.87
38	-1.74	78	-1.25
39	-1.6	79	0.535
40	-0.41		

Legend
County Boundary
Social Vulnerability Index
Very Low Social Vulnerability
Low Social Vulnerability
Moderate Social Vulnerability
High Social Vulnerability
Very High Social Vulnerability

0 12,500 25,000 US Feet

Stafford County GIS Office, VGIN, Esri, HERE, Garm

STAFFORD Virginia

STAFFORD COUNTY

PREPARED FOR STAFFORD COUNTY

DATE
10/30/2023

DRAWN BY
CDC

CHECKED BY
JJD

SCALE
1" = 13,000'

PROJECT NUMBER
N/A

SHEET NUMBER
APPENDIX C

September 8, 2023

John Saunders, P.E, CFM - Environmental Programs Administrator
Stafford County, Department of Development Services
1300 Courthouse Rd
Stafford, VA 22554

RE: STAFFORD COUNTY – FLOOD RESILIENCE PLAN DEVELOPMENT

Mr. Saunders:

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this summary of proposed services to Stafford County (County) to provide professional consulting services related to the Stafford County – Flood Resilience Plan Development (Flood Resilience Plan). It is Kimley-Horn's understanding that the County wants to develop a Flood Resilience Plan to prepare for the increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan is intended to serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities. The language outlined below identifies our project understanding, summary of proposed services, and fee related to the Stafford County –Flood Resilience Plan Development.

PROJECT UNDERSTANDING

At the County's request, Kimley-Horn is providing this summary of proposed services outlining the development of a Flood Resilience Plan. It is anticipated that the Flood Resilience Plan will adhere to the principles detailed in the Costal Resilience Master Planning Framework which are:

1. Acknowledgement of climate change and its consequences, and base decision making on the best available science.
2. Identification and addressing socioeconomic inequities and working to enhance equity through adaptation and protection efforts.
3. Utilizing community and regional scale planning to the maximum extent possible, seeking region-specific approaches tailored to the needs of individual communities.
4. Understanding of fiscal realities and focusing on the most cost-effective solutions for the protection and adaptation of communities, businesses, and critical infrastructure. The solutions will, to the extent possible, prioritize effective natural solutions.
5. Recognizing the importance of protecting and enhancing green infrastructure in all regions and in the coastal region, natural coastal barriers, and fish and wildlife habitat by prioritizing nature-based solutions.

This Scope of Services is based on the assumption that it is the County's intent to develop a Flood Resilience Plan to assist in management of increased flooding frequency. The Flood Resilience Plan is also intended to serve as a required document to allow the County's participation in project funding through the Virginia Department of Conservation & Recreation (VADCR) Community Flood Preparedness Fund (CFPF) Grant. Kimley-Horn will develop the Flood Resilience Plan in accordance with the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Grant Manual). Appendix I from the Grant Manual has been included in Attachment 2 of this proposal for reference purposes.

SCOPE OF SERVICES

This proposal has been divided into five (5) tasks. Each task is outlined below with a brief summary defining the scope of work for each task. A lump sum cost to perform this work is provided in Attachment 1 and includes Kimley-Horn project management and coordination time.

TASK 100 – FLOOD RESILIENCE PLAN RESEARCH AND DATA COLLECTION

Kimley-Horn will obtain and evaluate best available County hydrologic & hydraulic, flood, climate, environmental, economic, and historical data for the purpose of developing the Flood Resilience Plan. Documentation of data and information specific to social and economic vulnerability, historical precipitation data, current FEMA flood maps, and best available County historical flooding data will be prioritized. Kimley-Horn anticipates using the following resources:

- Relevant Stafford County specific manuals and documents, and elements of other plans that could be included in the Flood Resilience Plan by reference such as:
  - Comprehensive and other Land Use Plans
  - Ordinances
  - Local Hazard Mitigation Plans
  - Other plans developed to address flooding and resilience, and,
  - Regional strategies or plans in which Stafford County is a party.
- Stafford County institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding, that cannot be ascertained by map-based analysis.
- Most Current Federal Emergency Management Agency (FEMA) Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMs)
- Virginia DCR – Virginia Flood Risk Information System (VFRIS)
- Virginia DCR – Dam Safety and Floodplains Open Data Hub
- Relevant data related to County Historical Watershed Studies, Drainage Projects, Dam Projects, and Infrastructure Projects impacted by floodplain corridors.
- National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Data
- Virginia Department of Housing and Community Development (DHCD) Qualified Opportunity Zone Data
- ADAPT Virginia's Vulnerability Viewer, and,
- The Virginia Coastal Resilience Master Planning Framework

Kimley-Horn will collaborate with County staff to identify on-going projects that could be included as part of the Resilience Plan. It is anticipated that Kimley-Horn will coordinate with County staff to obtain project files and any historic plan information that would be relevant to include in the Flood Resilience Plan.

TASK 200 – STAFFORD COUNTY GIS DESKTOP ANALYSIS

Utilizing the information obtained in Task 100, along with the best available Stafford County Geographic Information System (GIS) shapefile data and aerial imagery, Kimley-Horn will develop County-wide base mapping to assist in identifying critical features and locations integral to the development of the Flood Resilience Plan. Kimley-Horn will place emphasis on the two (2) River Basins located in the County and their associated major tributaries and corresponding floodplains. They are as follows:

Potomac River Basin

- Chopawamsic Creek (PL53)
- Aquia Creek
    - Upper Aquia Creek (PL56)
    - Lower Aquia Creek (PL57)
- Beaverdam Run
- Potomac River – Tank Creek (PL54)
- Potomac River – Passapatanzy Creek (PL61)
- Accokeek Creek (PL58)
- Potomac Creek – Beaverdam Creek (PL60)
- Potomac Creek – Long Branch (PL59)
- Tidal areas along the Potomac

Rappahannock River Basin

- Deep Run (RA23)
- Hazel Run (RA46)
- Motts Run (RA45)
- Muddy Creek (RA48)
- Tidal areas along the Rappahannock

As part of this task, the GIS Desktop Analysis will also include documentation of the County's State Regulated Dams along with best available dam break inundation zone (DBIZ) extents and structures effected.

The GIS Desktop Analysis is intended to focus on the following categories:

1. Social/Economical Vulnerable Areas
2. High Risk Flooding Areas
3. Critical Infrastructure Locations
4. Existing Historical Resources
5. Environmentally Critical Areas
6. Existing Resiliency Efforts

The GIS graphic(s) will be developed as stand alone 11"x17" exhibits and depict the necessary information to identify critical resilience opportunity areas within the County. Kimley-Horn will rely on the accuracy of the best available data and any/all necessary assumptions will be documented for reference purposes.

TASK 300 – FLOOD RESILIENCE PROJECT IDENTIFICATION / SITE DUE DILIGENCE

Kimley-Horn will utilize the information developed in Task 100 and Task 200 to identify potential County-wide projects that could provide a wholistic approach to the County's flood resilience efforts. Existing, planned, and in-design flood control and infrastructure projects will be included in this project identification task to assess their respective capabilities to provide improved flood resilience within the County. Kimley-Horn will prioritize projects that provide large scale community flood relief benefits while utilizing nature-based infrastructure practices to the maximum extent possible. Additional focus will be given to areas of social and economic vulnerability as defined within the ***DRAFT*** - 2023 Funding Manual for the Virginia

Community Flood Preparedness Fund (CFPF) – 2023 Funding Round. The following project types will be prioritized for identification at the County wide level for potential implementation and inclusion in the Flood Resilience Plan:

- Regional Ponds Retrofits and Pond Infrastructure Upgrades
- County Owned State Regulated Dam Spillway Capacity Modifications and Dam Infrastructure Upgrades
- Stream Restoration Practices paired with floodplain improvement projects.
- Storm Sewer System Improvements
- Floodwall Implementation Projects
- Land Acquisition Techniques
- Residential Floodproofing and Urban BMP Installation
- Restoration of Floodplains
- Development of Flood Warning and Response Systems
- Site specific nature-based approaches aimed on increased resilience.

Kimley-Horn will conduct an opportunities and constraints analysis for each potential project to determine its implementation viability. The opportunity and constraints analyses are intended to serve as a planning level exercise and are not intended to be utilized as engineering design and engineering study documents. The following project features are anticipated as part of the opportunities and constraints analysis:

1. Project Constraints Present
2. Project Opportunities Present
3. Project Point of Analysis (POI) Drainage Area Delineation(s)
4. Project Drainage Area - Existing Land Cover Analysis
5. Project Drainage Area - Future Land Cover Analysis (based on best available Comprehensive Plan Data)
6. County Owned Property Analysis
7. Grade Feasibility Analysis
8. Estimated Project Layout Configuration

This analysis will be conducted utilizing best available digital data, to include survey data if provided by the County. It is assumed that at this time limited County-wide survey data is available, and as such, the majority of the Flood Resilience Plan potential projects outlined in this section will be derived from GIS shapefile information and historical plan information. If there is insufficient data available to conduct a specific site analysis or corridor analysis, Kimley-Horn will apply best applicable engineering practices and document any necessary assumptions. Each opportunity and constraints assessment will include a brief project summary, potential project opportunity & constraints outline, preliminary project layout, and preliminary Engineer's Opinion of Probable Construction Costs (EOPCC). Kimley-Horn will identify up to five (5) potential new projects and analyze up to five (5) existing/planned/on-going County identified project locations as part of the Flood Resilience Plan. If evaluation of additional projects and/or project corridors are requested by the County, Kimley-Horn can submit an additional scope of services for their evaluation.

As part of this task, Kimley-Horn will identify key resilience stake holder(s) that could provide the County with potential partnership opportunities. The partnership opportunities will be aimed at programs that can increase the County's resilience for flooding, provide an ability to implement nature-based solutions, or provide County-wide community benefits. Kimley-Horn will prioritize governmental agencies/programs and non-profit corporations for partnership opportunities. For this task, Kimley-Horn will only identify the

key stake holder(s), engagement and coordination of any partnership agreement is excluded from this summary of proposed services.

As part of this task, Kimley-Horn will perform site visits for up to five (5) potential new projects and up to five (5) existing/planned/on-going County identified project locations. Kimley-Horn staff will photo-document in-field conditions at each location and attempt to identify any items of interest not captured in already obtained information. The photos will be utilized to create an AutoCAD derived photo-station map for each project location to pair with the opportunity and constraints assessments.

TASK 400 – RESILIENCE PLAN DEVELOPMENT

Kimley-Horn will the develop the Flood Resilience Plan based on the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Attachment 2 of this Scope of Services). The Flood Resilience Plan will utilize the information identified in Tasks 100-300 to provide a County-wide approach to flood mitigation and prevention. As specified in the Appendix I - Grant Document, the Flood Resilience Plan will be developed in accordance with the following principles:

1. Be project-based with projects focused on flood control and resilience.
2. Incorporate nature-based infrastructure to the maximum extent possible.
3. Include consideration of all parts of a locality regardless of socioeconomics or race, and address and addresses flood resilience needs of underserved populations within the community.
4. Identify and include all flooding occurring in all areas of the community, not just within the SFHAs, and provides the number and location of repetitive loss and severe repetitive loss properties. Repetitive loss and/or severe repetitive loss often occurs outside of the SFHA and to properties not captured in NFIP reporting. All flooding should be tracked and managed by the community.
5. If it is determined that property acquisition and/or relocation guidelines are included in the resilience plan, the guidelines will include equitable relocation strategies for all affected and where land is acquired. Property acquisitions must remain undeveloped, as permanent open space and under ownership or easement by the locality in perpetuity, except that flood control structures may be built on the property.
6. Include a strategy for debris management.
7. Include coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation.
8. It includes administrative procedures for substantial development/substantial improvement of structures within the SFHA.
9. Is based on the best available science, and incorporates climate change, sea level rise, storm surge (where appropriate), and current flood maps.

The Flood Resilience Plan will be provided in 8.5” x 11” report format. All associated exhibits and supporting documentation identified in Task 100 - 300 will be included as appendices. If sections of the Flood Resilience Plan include references to compiled elements of multiple plans or documents, an executive summary that specifically identifies the source of the information and summarizes relevant the elements of the plan/document will be as provided as required by the Grant Document.

Kimley-Horn will submit the Draft - Flood Resilience Plan report to the County for one (1) round of review and comment. Once comments are received, Kimley-Horn will revise the Flood Resilience Plan with all agreed upon changes and will finalize the Flood Resilience Plan, which will be submitted to the County and the Virginia Department of Conservation & Recreation (VADCR) at the conclusion of this task.

As part of this task, Kimley-Horn will provide (1) round of comment responses and Flood Resilience Plan revisions based on the Flood Resilience Plan review from VADCR. It is anticipated that after revisions have been made to the Flood Resilience Plan based on DCR's comments, the Flood Resilience Plan will be approved by the State of Virginia.

TASK 500 – MEETINGS AND COORDINATION

Kimley-Horn staff will be available for up to three (3) milestone coordination meetings, in person, to discuss the development of the Flood Resilience Plan. The meetings will be conducted to update County staff on overall project progress and provide a forum for County staff to provide project input. Kimley-Horn anticipates meeting as part of the following Tasks:

1.) **Flood Resilience Plan Research and Data Collection (Task 100)** – Meet with County staff to identify, discuss, and obtain information about existing and on-going projects that could provide resilience benefits, as well as request County-wide institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding that cannot be ascertained by map-based identification.
2.) **Resilience Project Identification (Task 300)** – Meet with County staff to provide a preliminary identification of projects and gain any institutional knowledge prior to further analysis and site due diligence.
3.) **Resilience Plan Development (Task 500)** – Meet with County staff to discuss the Draft Flood Resilience Plan submittal and County provided comments and discuss Kimley-Horn's revision workplan to prepare for final Plan submission.

In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate scope of services and cost estimate for client approval prior to proceeding with the additional work.

DELIVERABLES

The following items are anticipated as project deliverables for this scope of work.

- Final Stafford County – Flood Resilience Plan
- All background data, analyses, calculations, and project files if requested.

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed scope of work and the accompanying fee, we have made the following assumptions:

- Should the guidance change in Appendix I (Elements of Resilience Plans) of the ***DRAFT*** 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF), and the changes require more stringent requirements for Resilience Plans and thus more effort to develop the Flood Resilience Plan outlined in this Scope of Services, Kimley-Horn will provide a separate Scope of Services to the County to adjust to the scale of the Flood Resilience Plan.
- The Flood Resilience Plan is intended as a planning level document and as such will not be stamped and signed by licensed Virginia Professional Engineer (PE).

- All historic project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate the anticipated project schedule.
- The County will provide site access permission to Kimley Horn for conducting any necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Best available County GIS shapefile and geodatabase information will be used as a supplement to the Flood Resilience Plan, as needed.
- If necessary, the County will provide all coordination with Inter-County departments with regards to this project.
- Kimley-Horn will not be held accountable for the accuracy of the data created by others utilized in the development of the Flood Resilience Plan.
- All identified projects and their respective opportunity and constraints analysis is intended as a planning analysis only. Further detailed project evaluation could potentially identify constraints not highlighted within the development of the Flood Resilience Plan.
- Any necessary permits, permit application fees, review fees will be prepared and paid for by the County.
- This proposal and the accompanying cost estimate are valid for a period of 120 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this project and are therefore outside the scope of this task order proposal include the following:

- Site Survey and SUE Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Delineations and Wetland Impact Permit Compliance
- Forest Stand Delineations
- Landscape Architectural Renderings
- Engineering Design and Construction Plan Assembly Development Services
- Floodplain Related Studies and Submittals
- Hydrologic and Hydraulic (H&H) Studies
- Watershed Studies / Watershed Master Planning
- FEMA CLOMR or LOMR Applications
- Development/Delivery of Presentations to Stakeholders
- All other services not explicitly stated in this Scope of Work

SCHEDULE

The tasks referenced in this scope will be coordinated with County Staff. Meetings, action items, and deliverables will be tracked monthly. Kimley-Horn anticipates completion of the scope of work outlined above within 20 weeks of receiving a notice to proceed. A detailed schedule will be developed for the County outlining project workflow and deliverables after contract execution.

FEE AND BILLING

Kimley-Horn will provide the following scope of services under our term contract #23-011-5001-SP-KIM. The following tasks will be provided for a lump sum cost of **$89,210.00**. A detailed breakdown (by task) of Kimley-Horn's fee estimate is provided in Attachment 1 and utilizes the rate schedule as provided in the Stafford County Task Order Contract #23-011-5001-SP-KIM, Year 1. Please note that fees will be invoiced monthly based upon hours expended for services performed and payment will be due within 25 days of receipt of invoices related to this project.

CLOSURE

The work described with this proposal will be completed in accordance with the terms and conditions of Contract #23-011-5001-SP-KIM between the Stafford County and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,
KIMLEY-HORN AND ASSOCIATES, INC.

Jon D'Alessandro, P.E.
Senior Project Manager

Attachment 1

Kimley-Horn Horn Fee Breakdown

SECTION B – APPENDIX

BUDGET NARRATIVE

SECTION – OUTLINE

- Project Budget Narrative
- Budget Narrative Template
- Authorization to request funding from the Fund from governing body or chief executive of the local government.
- Detailed budget and narrative for all costs

(Kimley-Horn Scope of Services for Stafford County – Flood Resilience Plan Development)

Project Budget Narrative

Project Budget Narrative

A detailed budget narrative is included below and contains the required information outlined in the 2023 Funding Manual for the Virginia Community Flood Preparedness Fund.

Estimated total project cost: The total identified project cost to complete the Stafford County Flood Resilience Plan Development is $89,210.00.

Amount of funds requested from the Fund: The total amount of grant assistance sought from the Fund is $66,907.50. A detailed breakdown of how this funding is proposed to be allocated is shown in this Appendix as an attached Scope of Services.

Amount of funds available: The amount of funds available through this project's funding source is greater total project cost of $89,210.00. Attached in this Appendix is the following documentation:

- Stafford County FY2024 Adopted Budget – Development Services. This outlines the role of Environmental Services and the allocation of the FY24 budget to provide technical assistance to assist with erosion and stormwater drainage issues.
- Stafford County Account #100-3414-424-55.40-3415 image and confirmation of current year funding available for this project.

Authorization to request for funding: Included in this Appendix is a Stafford County Board of Supervisors Resolution signed by the Stafford County Administrator which authorizes the request for funding for this project.

Development Services

Mission

To ensure the Department of Development Services provides exceptional customer services, permitting processes, plan review and site inspections to ensure healthy, practicable and sustainable residential and commercial growth and development in Stafford County.

Who Are We?

Customer & Development Services

- Intake, processing and issuing permits associated with residential and commercial development.
- Manages and continually monitors the County's electronic permit application process.
- Provides in-person training to builders, engineers, etc., regarding the electronic permit process.
- Provides effective and convenient services for all walk-in customers while continuously managing phone calls and email requests associated with the Department of Development Services activities.
- Updating the Department of Development Services website to ensure information is consistently and readily available to customers.
- Promptly addresses Freedom of Information Act (FOIA) requests.

Building

- Ensures safe and properly constructed residential and commercial structures in Stafford County.
- Detailed review of building plans, thorough and complete inspection services during construction activities to ensure building code compliance with regulatory requirements.
- Provide technical assistance to property owners regarding building code issues and/or provide resolutions involving owner/tenant/contractor disputes.
- Responds to emergencies involving structural failures due to fire, flood, and weather-related conditions.

Environmental

- Protection of Stafford County's natural resources by implementing best management practices.
- Detailed review of development plans, and thorough and complete inspection services during construction activities to ensure environmental compliance with regulatory requirements.
- Investigate violations and issue corrective actions associated with the County's resource protection areas.
- Technical assistance provided to citizens to assist with erosion and stormwater drainage issues.

Securities

- Manage securities and performance agreements associated with residential and commercial development.
- Issuance of grading permit applications for residential and commercial land development projects.

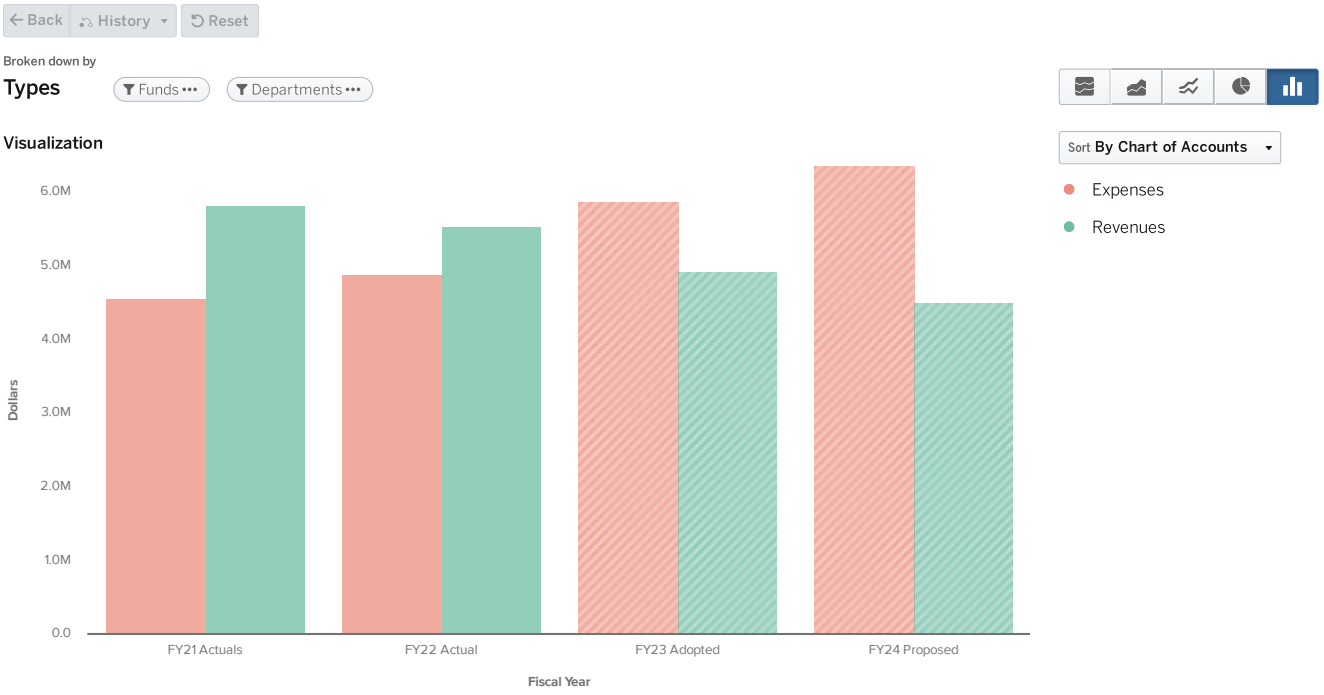
Transportation

- Assists with the Virginia Department of Transportation (VDOT) road acceptance process.
- Resolution of citizen concerns relating to transportation issues, including street signs, traffic management, and safety.
- Review of residential development plans for compliance with County and VDOT requirements.

Budget Summary

Development Services

	FY21 Actuals	FY22 Actual	FY23 Adopted	FY24 Adopted
Revenues	$5,815,558	$5,532,363	$4,919,554	$4,503,426
Expenses				
Personnel	$4,050,884	$4,364,350	$5,172,194	$5,588,512
Operating	$454,155	$515,789	$698,684	$761,252
Capital	$57,049	$7,145	$0	$0
EXPENSES TOTAL	**$4,562,088**	**$4,887,284**	**$5,870,878**	**$6,349,764**
REVENUES LESS EXPENSES	**$1,253,470**	**$645,079**	**-$951,324**	**-$1,846,338**



Funded Positions

Funded Positions	FY2021 Actual	FY2022 Actual	FY2023 Revised	FY2024 Adopted	Changes 23 to '24	
Full-Time Positions	45	46	46	46	0	0.0%
Part-Time Positions	0	0	0	0	0	0.0%

Notable Changes

Personnel

- 4.0% Pay Scale Adjustment Effective July 1, 2023
- 4.0% Salary Increase Effective on July 1, 2023
- Decrease Vacancy Savings

Operating

- Increase for internal billing

Goals/Objectives

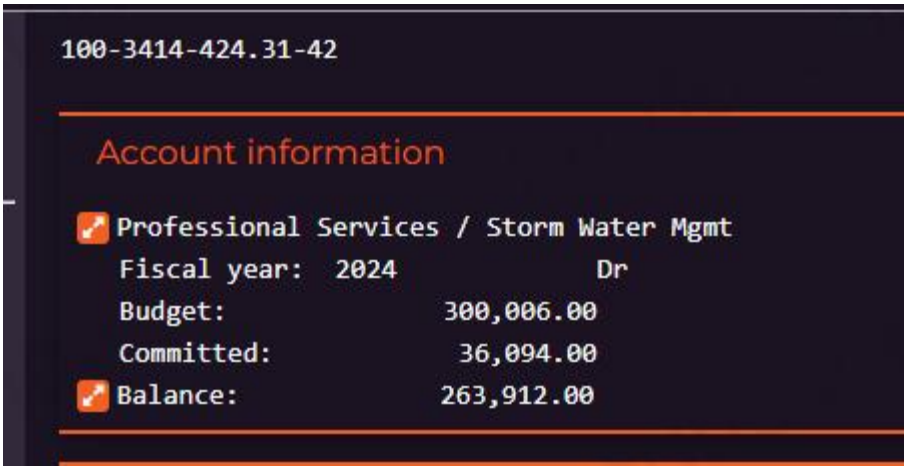
- Maintain timely and efficient processing of residential and commercial building permit applications, and implement process improvements associated with the Board's strategic priorities. (Service level 1)
- Streamline the electronic plan review process by introducing Infor Rythmn for Civics and DigEplan electronic plan software. (Service Level 1)
- Continued implementation and enforcement of the 2015 and 2018 (effective 7/01/2022) Virginia Uniform Statewide Building Code. Assist customers and citizens with property maintenance issues. (Service levels 1, 2, 3, and 4)
- Perform detailed environmental plan review and related inspection services while implementing a plan of action to address the County’s stormwater challenges. Assist customers and citizens with erosion and storm drainage issues. (Service levels 1 and 5)
- Process developer securities, manage performance agreements, and continued issuance of grading permits. (Service levels 6 and 7)
- Continue assisting in the VDOT road acceptance process.
- Provide technical assistance to County citizens and manage street sign replacement and installation.
- Perform detailed transportation plan reviews of all development projects for compliance with County and VDOT standards.

DAlessandro, Jon

From: Annette M. Hyder <ahyder@staffordcountyva.gov>
Sent: Thursday, November 2, 2023 11:40 AM
To: etorrey <etorrey@staffordcountyva.gov>; DAlessandro, Jon <Jon.DAlessandro@kimley-horn.com>
Cc: jsaunders <jsaunders@staffordcountyva.gov>
Subject: RE: CFPF Appendix A - Application Form for Grant and Loan Requests (Signature Needed)

Hello Jon,

We have enough funds in the stormwater professional services account for $90,000



Ann Hyder
Administrative Specialist II
Department of Development Services
P.O. Box 339
Stafford, VA 22555
O: 540-658-4887 | C: 540-621-2469

STAFFORD Virginia

Budget Narrative Template

Appendix B: Budget Narrative Template

Applicant Name: **Stafford County Department of Development Services**
Community Flood Preparedness Fund &
Resilient Virginia Revolving Loan Fund
Detailed Budget Narrative
Period of Performance: **January 1, 2024** through **July 1, 2024**
Submission Date: **November 10, 2024**

Grand Total State Funding Request	**$66,907.50**
Grand Total Local Share of Project	**$22,302.50**
Federal Funding (if applicable)	$
Project Grand Total	**$89,210.00**
Locality Cost Match	**%25**

Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						**$66,907.50**			**$66,907.50**
State Share						**$22,302.50**			**$22,302.50**
Pre-Award/Startup									
Maintenance									
Total	$	$	$	$	$	**$89,210.00**	$	$	**$89,210.00**

Authorization to request funding from the Fund from governing body or chief executive of the local government.

R23-299

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of October, 2023:

MEMBERS:	VOTE:
Dr. R. Pamela Yeung, Chairman	Yes
Thomas C. Coen, Vice Chairman	Yes
Tinesha O. Allen	Yes
Meg Bohmke	Yes
Darrell E. English	Yes
Monica L. Gary	Yes
Crystal L. Vanuch	Yes

On motion of Mr. Coen, seconded by Ms. Bohmke, which carried by a vote of 7 to 0, the following was adopted:

A RESOLUTION TO AUTHORIZE THE SUBMISSION OF A CAPACITY BUILDING AND PLANNING GRANT APPLICATION TO THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION FOR THE DEVELOPMENT OF A FLOOD RESILIENCE PLAN

WHEREAS, the County has prepared an application for the development of a Flood Resilience Plan to submit to the Virginia Department of Conservation and Recreation (DCR) for a Capacity Building and Planning grant through the Community Flood Preparedness Fund (CFPF); and

WHEREAS, the grant will be scored on technical and qualitative criteria in a statewide competition and funding will be awarded based on overall score; and

WHEREAS, if awarded, the County may be reimbursed up to $66,908 for the development of a Flood Resilience Plan;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of October, 2023, that the County Administrator, or his designee, be and he hereby is authorized to submit a Capacity Building and Planning grant application to DCR for the development of a Flood Resilience Plan; and

BE IT FURTHER RESOLVED that the Capacity Building and Planning grant application shall be approved as to form by the County Attorney's office prior to submission.

A Copy, teste:

Randal E. Vosburg
County Administrator

Detailed budget and Narrative for All Costs

(*Kimley-Horn Scope of Services for Stafford County – Flood Resilience Plan Development*)

September 8, 2023

John Saunders, P.E, CFM - Environmental Programs Administrator
Stafford County, Department of Development Services
1300 Courthouse Rd
Stafford, VA 22554

RE: STAFFORD COUNTY – FLOOD RESILIENCE PLAN DEVELOPMENT

Mr. Saunders:

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this summary of proposed services to Stafford County (County) to provide professional consulting services related to the Stafford County – Flood Resilience Plan Development (Flood Resilience Plan). It is Kimley-Horn's understanding that the County wants to develop a Flood Resilience Plan to prepare for the increase in urban flooding due to higher frequency storm events caused by climate and environmental changes. The Flood Resilience Plan is intended to serve as a locally adopted planning level document aimed at assisting the County and its citizens by outlining flood reduction methodologies that could potentially reduce impacts to properties and community assets, while providing equitable treatment for all communities. The language outlined below identifies our project understanding, summary of proposed services, and fee related to the Stafford County –Flood Resilience Plan Development.

PROJECT UNDERSTANDING

At the County's request, Kimley-Horn is providing this summary of proposed services outlining the development of a Flood Resilience Plan. It is anticipated that the Flood Resilience Plan will adhere to the principles detailed in the Costal Resilience Master Planning Framework which are:

1. Acknowledgement of climate change and its consequences, and base decision making on the best available science.
2. Identification and addressing socioeconomic inequities and working to enhance equity through adaptation and protection efforts.
3. Utilizing community and regional scale planning to the maximum extent possible, seeking region-specific approaches tailored to the needs of individual communities.
4. Understanding of fiscal realities and focusing on the most cost-effective solutions for the protection and adaptation of communities, businesses, and critical infrastructure. The solutions will, to the extent possible, prioritize effective natural solutions.
5. Recognizing the importance of protecting and enhancing green infrastructure in all regions and in the coastal region, natural coastal barriers, and fish and wildlife habitat by prioritizing nature-based solutions.

This Scope of Services is based on the assumption that it is the County's intent to develop a Flood Resilience Plan to assist in management of increased flooding frequency. The Flood Resilience Plan is also intended to serve as a required document to allow the County's participation in project funding through the Virginia Department of Conservation & Recreation (VADCR) Community Flood Preparedness Fund (CFPF) Grant. Kimley-Horn will develop the Flood Resilience Plan in accordance with the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Grant Manual). Appendix I from the Grant Manual has been included in Attachment 2 of this proposal for reference purposes.

SCOPE OF SERVICES

This proposal has been divided into five (5) tasks. Each task is outlined below with a brief summary defining the scope of work for each task. A lump sum cost to perform this work is provided in Attachment 1 and includes Kimley-Horn project management and coordination time.

TASK 100 – FLOOD RESILIENCE PLAN RESEARCH AND DATA COLLECTION

Kimley-Horn will obtain and evaluate best available County hydrologic & hydraulic, flood, climate, environmental, economic, and historical data for the purpose of developing the Flood Resilience Plan. Documentation of data and information specific to social and economic vulnerability, historical precipitation data, current FEMA flood maps, and best available County historical flooding data will be prioritized. Kimley-Horn anticipates using the following resources:

- Relevant Stafford County specific manuals and documents, and elements of other plans that could be included in the Flood Resilience Plan by reference such as:
  - Comprehensive and other Land Use Plans
  - Ordinances
  - Local Hazard Mitigation Plans
  - Other plans developed to address flooding and resilience, and,
  - Regional strategies or plans in which Stafford County is a party.
- Stafford County institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding, that cannot be ascertained by map-based analysis.
- Most Current Federal Emergency Management Agency (FEMA) Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMs)
- Virginia DCR – Virginia Flood Risk Information System (VFRIS)
- Virginia DCR – Dam Safety and Floodplains Open Data Hub
- Relevant data related to County Historical Watershed Studies, Drainage Projects, Dam Projects, and Infrastructure Projects impacted by floodplain corridors.
- National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Data
- Virginia Department of Housing and Community Development (DHCD) Qualified Opportunity Zone Data
- ADAPT Virginia's Vulnerability Viewer, and,
- The Virginia Coastal Resilience Master Planning Framework

Kimley-Horn will collaborate with County staff to identify on-going projects that could be included as part of the Resilience Plan. It is anticipated that Kimley-Horn will coordinate with County staff to obtain project files and any historic plan information that would be relevant to include in the Flood Resilience Plan.

TASK 200 – STAFFORD COUNTY GIS DESKTOP ANALYSIS

Utilizing the information obtained in Task 100, along with the best available Stafford County Geographic Information System (GIS) shapefile data and aerial imagery, Kimley-Horn will develop County-wide base mapping to assist in identifying critical features and locations integral to the development of the Flood Resilience Plan. Kimley-Horn will place emphasis on the two (2) River Basins located in the County and their associated major tributaries and corresponding floodplains. They are as follows:

Potomac River Basin

- Chopawamsic Creek (PL53)
- Aquia Creek
    - Upper Aquia Creek (PL56)
    - Lower Aquia Creek (PL57)
- Beaverdam Run
- Potomac River – Tank Creek (PL54)
- Potomac River – Passapatanzy Creek (PL61)
- Accokeek Creek (PL58)
- Potomac Creek – Beaverdam Creek (PL60)
- Potomac Creek – Long Branch (PL59)
- Tidal areas along the Potomac

Rappahannock River Basin

- Deep Run (RA23)
- Hazel Run (RA46)
- Motts Run (RA45)
- Muddy Creek (RA48)
- Tidal areas along the Rappahannock

As part of this task, the GIS Desktop Analysis will also include documentation of the County's State Regulated Dams along with best available dam break inundation zone (DBIZ) extents and structures effected.

The GIS Desktop Analysis is intended to focus on the following categories:

1. Social/Economical Vulnerable Areas
2. High Risk Flooding Areas
3. Critical Infrastructure Locations
4. Existing Historical Resources
5. Environmentally Critical Areas
6. Existing Resiliency Efforts

The GIS graphic(s) will be developed as stand alone 11"x17" exhibits and depict the necessary information to identify critical resilience opportunity areas within the County. Kimley-Horn will rely on the accuracy of the best available data and any/all necessary assumptions will be documented for reference purposes.

TASK 300 – FLOOD RESILIENCE PROJECT IDENTIFICATION / SITE DUE DILIGENCE

Kimley-Horn will utilize the information developed in Task 100 and Task 200 to identify potential County-wide projects that could provide a wholistic approach to the County's flood resilience efforts. Existing, planned, and in-design flood control and infrastructure projects will be included in this project identification task to assess their respective capabilities to provide improved flood resilience within the County. Kimley-Horn will prioritize projects that provide large scale community flood relief benefits while utilizing nature-based infrastructure practices to the maximum extent possible. Additional focus will be given to areas of social and economic vulnerability as defined within the ***DRAFT*** - 2023 Funding Manual for the Virginia

Community Flood Preparedness Fund (CFPF) – 2023 Funding Round. The following project types will be prioritized for identification at the County wide level for potential implementation and inclusion in the Flood Resilience Plan:

- Regional Ponds Retrofits and Pond Infrastructure Upgrades
- County Owned State Regulated Dam Spillway Capacity Modifications and Dam Infrastructure Upgrades
- Stream Restoration Practices paired with floodplain improvement projects.
- Storm Sewer System Improvements
- Floodwall Implementation Projects
- Land Acquisition Techniques
- Residential Floodproofing and Urban BMP Installation
- Restoration of Floodplains
- Development of Flood Warning and Response Systems
- Site specific nature-based approaches aimed on increased resilience.

Kimley-Horn will conduct an opportunities and constraints analysis for each potential project to determine its implementation viability. The opportunity and constraints analyses are intended to serve as a planning level exercise and are not intended to be utilized as engineering design and engineering study documents. The following project features are anticipated as part of the opportunities and constraints analysis:

1. Project Constraints Present
2. Project Opportunities Present
3. Project Point of Analysis (POI) Drainage Area Delineation(s)
4. Project Drainage Area - Existing Land Cover Analysis
5. Project Drainage Area - Future Land Cover Analysis (based on best available Comprehensive Plan Data)
6. County Owned Property Analysis
7. Grade Feasibility Analysis
8. Estimated Project Layout Configuration

This analysis will be conducted utilizing best available digital data, to include survey data if provided by the County. It is assumed that at this time limited County-wide survey data is available, and as such, the majority of the Flood Resilience Plan potential projects outlined in this section will be derived from GIS shapefile information and historical plan information. If there is insufficient data available to conduct a specific site analysis or corridor analysis, Kimley-Horn will apply best applicable engineering practices and document any necessary assumptions. Each opportunity and constraints assessment will include a brief project summary, potential project opportunity & constraints outline, preliminary project layout, and preliminary Engineer's Opinion of Probable Construction Costs (EOPCC). Kimley-Horn will identify up to five (5) potential new projects and analyze up to five (5) existing/planned/on-going County identified project locations as part of the Flood Resilience Plan. If evaluation of additional projects and/or project corridors are requested by the County, Kimley-Horn can submit an additional scope of services for their evaluation.

As part of this task, Kimley-Horn will identify key resilience stake holder(s) that could provide the County with potential partnership opportunities. The partnership opportunities will be aimed at programs that can increase the County's resilience for flooding, provide an ability to implement nature-based solutions, or provide County-wide community benefits. Kimley-Horn will prioritize governmental agencies/programs and non-profit corporations for partnership opportunities. For this task, Kimley-Horn will only identify the

key stake holder(s), engagement and coordination of any partnership agreement is excluded from this summary of proposed services.

As part of this task, Kimley-Horn will perform site visits for up to five (5) potential new projects and up to five (5) existing/planned/on-going County identified project locations. Kimley-Horn staff will photo-document in-field conditions at each location and attempt to identify any items of interest not captured in already obtained information. The photos will be utilized to create an AutoCAD derived photo-station map for each project location to pair with the opportunity and constraints assessments.

TASK 400 – RESILIENCE PLAN DEVELOPMENT

Kimley-Horn will the develop the Flood Resilience Plan based on the guidance provided in Appendix I of the ***DRAFT*** - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round (Attachment 2 of this Scope of Services). The Flood Resilience Plan will utilize the information identified in Tasks 100-300 to provide a County-wide approach to flood mitigation and prevention. As specified in the Appendix I - Grant Document, the Flood Resilience Plan will be developed in accordance with the following principles:

1. Be project-based with projects focused on flood control and resilience.
2. Incorporate nature-based infrastructure to the maximum extent possible.
3. Include consideration of all parts of a locality regardless of socioeconomics or race, and address and addresses flood resilience needs of underserved populations within the community.
4. Identify and include all flooding occurring in all areas of the community, not just within the SFHAs, and provides the number and location of repetitive loss and severe repetitive loss properties. Repetitive loss and/or severe repetitive loss often occurs outside of the SFHA and to properties not captured in NFIP reporting. All flooding should be tracked and managed by the community.
5. If it is determined that property acquisition and/or relocation guidelines are included in the resilience plan, the guidelines will include equitable relocation strategies for all affected and where land is acquired. Property acquisitions must remain undeveloped, as permanent open space and under ownership or easement by the locality in perpetuity, except that flood control structures may be built on the property.
6. Include a strategy for debris management.
7. Include coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation.
8. It includes administrative procedures for substantial development/substantial improvement of structures within the SFHA.
9. Is based on the best available science, and incorporates climate change, sea level rise, storm surge (where appropriate), and current flood maps.

The Flood Resilience Plan will be provided in 8.5” x 11” report format. All associated exhibits and supporting documentation identified in Task 100 - 300 will be included as appendices. If sections of the Flood Resilience Plan include references to compiled elements of multiple plans or documents, an executive summary that specifically identifies the source of the information and summarizes relevant the elements of the plan/document will be as provided as required by the Grant Document.

Kimley-Horn will submit the Draft - Flood Resilience Plan report to the County for one (1) round of review and comment. Once comments are received, Kimley-Horn will revise the Flood Resilience Plan with all agreed upon changes and will finalize the Flood Resilience Plan, which will be submitted to the County and the Virginia Department of Conservation & Recreation (VADCR) at the conclusion of this task.

As part of this task, Kimley-Horn will provide (1) round of comment responses and Flood Resilience Plan revisions based on the Flood Resilience Plan review from VADCR. It is anticipated that after revisions have been made to the Flood Resilience Plan based on DCR's comments, the Flood Resilience Plan will be approved by the State of Virginia.

TASK 500 – MEETINGS AND COORDINATION

Kimley-Horn staff will be available for up to three (3) milestone coordination meetings, in person, to discuss the development of the Flood Resilience Plan. The meetings will be conducted to update County staff on overall project progress and provide a forum for County staff to provide project input. Kimley-Horn anticipates meeting as part of the following Tasks:

1.) **Flood Resilience Plan Research and Data Collection (Task 100)** – Meet with County staff to identify, discuss, and obtain information about existing and on-going projects that could provide resilience benefits, as well as request County-wide institutional/organizational knowledge on areas of localized flooding and areas of large-scale community impacts due to flooding that cannot be ascertained by map-based identification.
2.) **Resilience Project Identification (Task 300)** – Meet with County staff to provide a preliminary identification of projects and gain any institutional knowledge prior to further analysis and site due diligence.
3.) **Resilience Plan Development (Task 500)** – Meet with County staff to discuss the Draft Flood Resilience Plan submittal and County provided comments and discuss Kimley-Horn's revision workplan to prepare for final Plan submission.

In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate scope of services and cost estimate for client approval prior to proceeding with the additional work.

DELIVERABLES

The following items are anticipated as project deliverables for this scope of work.

- Final Stafford County – Flood Resilience Plan
- All background data, analyses, calculations, and project files if requested.

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed scope of work and the accompanying fee, we have made the following assumptions:

- Should the guidance change in Appendix I (Elements of Resilience Plans) of the ***DRAFT*** 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF), and the changes require more stringent requirements for Resilience Plans and thus more effort to develop the Flood Resilience Plan outlined in this Scope of Services, Kimley-Horn will provide a separate Scope of Services to the County to adjust to the scale of the Flood Resilience Plan.
- The Flood Resilience Plan is intended as a planning level document and as such will not be stamped and signed by licensed Virginia Professional Engineer (PE).

- All historic project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate the anticipated project schedule.
- The County will provide site access permission to Kimley Horn for conducting any necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Best available County GIS shapefile and geodatabase information will be used as a supplement to the Flood Resilience Plan, as needed.
- If necessary, the County will provide all coordination with Inter-County departments with regards to this project.
- Kimley-Horn will not be held accountable for the accuracy of the data created by others utilized in the development of the Flood Resilience Plan.
- All identified projects and their respective opportunity and constraints analysis is intended as a planning analysis only. Further detailed project evaluation could potentially identify constraints not highlighted within the development of the Flood Resilience Plan.
- Any necessary permits, permit application fees, review fees will be prepared and paid for by the County.
- This proposal and the accompanying cost estimate are valid for a period of 120 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this project and are therefore outside the scope of this task order proposal include the following:

- Site Survey and SUE Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Delineations and Wetland Impact Permit Compliance
- Forest Stand Delineations
- Landscape Architectural Renderings
- Engineering Design and Construction Plan Assembly Development Services
- Floodplain Related Studies and Submittals
- Hydrologic and Hydraulic (H&H) Studies
- Watershed Studies / Watershed Master Planning
- FEMA CLOMR or LOMR Applications
- Development/Delivery of Presentations to Stakeholders
- All other services not explicitly stated in this Scope of Work

SCHEDULE

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CLOSURE

The work described with this proposal will be completed in accordance with the terms and conditions of Contract #23-011-5001-SP-KIM between the Stafford County and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,
KIMLEY-HORN AND ASSOCIATES, INC.

Jon D'Alessandro, P.E.
Senior Project Manager

Attachment 1

Kimley-Horn Horn Fee Breakdown

Attachment 2

Appendix I of the DRAFT - 2023 Funding Manual for the Virginia Community Flood Preparedness Fund (CFPF) – 2023 Funding Round

Appendix I: Elements of Resilience Plans

The contents of a resilience plan for the purpose of this grant round are must include the following elements.

1. It is project-based with projects focused on flood control and resilience.
2. It incorporates nature-based infrastructure to the maximum extent possible.
3. It includes considerations of all parts of a locality regardless of socioeconomics or race, and addresses flood resilience needs of underserved populations within the community.
4. It identifies and includes all flooding occurring in all areas of the community, not just within the SFHAs, and provides the number and location of repetitive loss and severe repetitive loss properties. Repetitive loss and/or severe repetitive loss often occurs outside of the SFHA and to properties not captured in NFIP reporting. All flooding should be tracked and managed by the community.
5. If property acquisition and/or relocation guidelines are included, the guidelines include equitable relocation strategies for all affected and where land is acquired. Property acquisitions must remain undeveloped, as permanent open space and under ownership or easement by the locality in perpetuity, except that flood control structures may be built on the property.
6. It includes a strategy for debris management.
7. It includes administrative procedures for substantial development/substantial improvement of structures within the SFHA.
8. It includes coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation.
9. Is based on the best available science, and incorporates climate change, sea level rise, and storm surge (where appropriate), and current flood maps.

Plans may refer to a previously adopted "stand alone" plan that meets the resilience plan definition or references the elements of other plans or documents that when compiled address the minimum requirements of a resilience plan. This may include sections cited from a local comprehensive plan, other land use plan, ordinance, local hazard mitigation plan, other plans developed to address flooding and resilience, and plans developed for the local government by a third party. This may also include regional strategies or plans in which a local government is party. In either case, a stand-alone plan, or a document that includes the compiled elements of multiple plans or documents should include an executive summary that specifically identifies the source of information and summarizes relevant the elements as outlined in this Appendix.

The following list of elements, plans and considerations are provided to help guide the development and identification of strategies/documents necessary for a successful resilience plan.

- Strategic polices for local government-wide flood protection and prevention that include considerations of all parts of a locality regardless of socioeconomics or race, and address flood resilience needs of underserved populations within the community.

- Proposed projects that enables communities to adapt to and thrive through natural or human hazards.

- Documentation of existing social, economic, natural, and other conditions present in the local government.

- Review of the vulnerabilities and stressors, both natural and social in the local government.

- Forward-looking goals, actionable strategies, and priorities that incorporate protections for all impacted parts of a locality.

- Strategies that guide growth and development away from high-risk locations that may include strategies in comprehensive plans or other land use plans or ordinances or other studies, plans or strategies adopted by a local government.

- Proposed acquisition of land or conservation easements or identification of areas suitable for conservation particularly areas identified as having high flood attenuation benefit by *ConserveVirginia* or similar data driven tools. Documentation (proposed easement, maintenance agreement, deed language, etc.) must be provided which ensures the property will be owned and maintained by the locality in perpetuity as an open space or conservation area, except that flood control structures may be built on the property. Additionally, any relocation strategy must be achievable and approved by the Department, address depressed housing values when buy outs are used, and provide a pathway to relocation for all individuals residing in the occupied structures, including tenants.

- Identification of areas suitable for property buyouts in frequently flooded areas. Documentation (proposed easement, maintenance agreement, deed language, etc.) must be provided which ensures the property will be owned and maintained by the locality in perpetuity as an open space or conservation area.

  Additionally, any relocation strategy must be achievable and approved by the Department, address depressed housing values when buy outs are used, and provide a pathway to relocation for all individuals residing in the occupied structures, including tenants.

- Identification of critical facilities and their vulnerability throughout the local government such as water and sewer or other types identified as “lifelines” by FEMA.

- ☐ Identified ecosystems/wetlands/floodplains suitable for permanent protection.
- ☐ Identified incentives for restoring riparian and wetland vegetation.
- ☐ A framework for implementation, capacity building and community engagement.
- ☐ Strategies for creating knowledgeable, inclusive community leaders and networks.
- ☐ A community dam safety inventory and risk assessment posed by the location and condition of dams.
- ☐ A characterization of the community including:
    - Population, economics, cultural and historic resources,
    - Dependence on the built environment and infrastructure and, the risks posed to such infrastructure, and
    - Characteristics of flooding from climate change, riverine flooding, sea level rise, tidal events or storm surges or other weather.
- ☐ Strategies to address other natural hazards, where applicable, that would cause, affect or result from flooding events including:
    - Earthquakes.
    - Storage of hazardous materials
    - Landslides/mud/debris flow/rock falls.
    - Dam failures
    - Prevention of wildfires that would result in denuded lands making flooding, mudslides or similar events more likely.
    - Preparations for severe weather events including tropical storms or other severe storms, including winter storms.