2659 - Stormwater Master Drainage Plan Phase 1 (CID510057_TownofWarrenton_CFPF)

Application Details

Funding Opportunity:	2337-Virginia Community Flood Preparedness Fund - Study Grants - CY24 Round 5
Funding Opportunity Due Date:	Jan 24, 2025 11:59 PM
Program Area:	Virginia Community Flood Preparedness Fund
Status:	Under Review
Stage:	Final Application
Initial Submit Date:	Jan 29, 2025 1:50 PM
Initially Submitted By:	Jared Hodes
Last Submit Date:	
Last Submitted By:	

Contact Information

Primary Contact Information

Active User*:	Yes
Type:	External User
Name*:	Mr. (Salutation) Jared (First Name) Lee (Middle Name) Hodes (Last Name)
Title:	Engineer
Email*:	jared.hodes@kimley-horn.com
Address*:	11400 Commerce Park Dr Suite 400
	Reston (City) Virginia (State/Province) 20191 (Postal Code/Zip)
Phone*:	571-453-7587 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*: Town of Warrenton

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

NFIP/DCR Community Identification Number (CID)*: 510057

If a state or federally recognized Indian tribe,

Name of Tribe:

Authorized Individual*: Steven Friend
First Name Last Name

Mailing Address*: 21 Main Street
Address Line 1

Address Line 2

Warrenton Virginia 20186
City State Zip Code

Telephone Number*: 540-347-1103

Cell Phone Number*: 540-351-4908

Email*: sfriend@warrentonva.gov

Is the contact person different than the authorized individual?

Contact Person*: Yes

Contact: Kerry Wharton
First Name Last Name

21 Main Street
Address Line 1

Address Line 2

Warrenton Virginia 20186
City State Zip Code

Telephone Number: 540-347-1101

Cell Phone Number: 540-428-9587

Email Address: kwharton@warrentonva.gov

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

Project Description*:

Phase 1 of this stormwater master drainage plan will encompass 3 of the Town's 6 subwatersheds based upon prioritization of the subwatersheds

with more known drainage issues. These Phase 1 subwatersheds are labeled as Great Run 1, Turkey Run 1, and Turkey Run 2. The purpose of this project is to evaluate the hydrologic and hydraulic conditions within the Phase 1 subwatersheds, identify and confirm areas of flooding, and to conceptualize potential solutions to help mitigate flooding.

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*: 1000,1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1014,1015,1016,1017,1018,...

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

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

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

Flood Insurance Rate Map Number(s) (if applicable): 51061C0304D, 51061C0306D, 51061C0308D, 51061C0309D

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

Scope of Work - Studies - Round 4

Scope of Work

Upload your Scope of Work

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

Scope of Work*: CID510057_TownofWarrenton_CFPF_ScopeofServices.pdf

Comments:

Kimley-Horn scope of services. Attachment 1 (fee table) has been removed on purpose.

Budget Narrative

Budget Narrative Attachment*: CID510057_TownofWarrenton_CFPF_SectionB_Budget.pdf

Comments:

Section B of the overall grant application package. All budget related information is included.

Scoring Criteria for Studies - Round 4

Scoring

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

Revising Floodplain Ordinances*: No
Select

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

Mapping Platform*: No
Select

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

Hydrologic and Hydraulic Studies*: Yes
Select

Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the following types of studies:
Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis.

Updating Precipitation Data and IDF Information*: No
Select

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

Projections*: No
Select

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

Vulnerability Analysis*: Yes
Select

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

Flash Flood Studies*: Yes
Select

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

Stream Gauge Monitoring*: No
Select

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

Delineations of Areas of Recurrent Flooding*: Yes
Select

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

Regional Flood Studies*: Yes
Select

Regional Hydrologic and Hydraulic Studies of Floodplains

Regional Hydrologic and Hydraulic Studies of Floodplains*: Yes
Select

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

Potential Land Use Strategies*: Yes
Select

Pluvial Studies

Pluvial Studies*: No

Select

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

Other Proposals*: Yes

Select

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

Social Vulnerability Scoring:

Very High Social Vulnerability (More than 1.5)

High Social Vulnerability (1.0 to 1.5)

Moderate Social Vulnerability (0.0 to 1.0)

Low Social Vulnerability (-1.0 to 0.0)

Very Low Social Vulnerability (Less than -1.0)

Socially Vulnerable*: Moderate Social Vulnerability (0.0 to 1.0)

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

Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs.

Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?

Reduction of Nutrient and Sediment Pollution*: Yes

Comments:

It is anticipated that outfall channel restoration projects and/or BMP retrofits will be identified as a result of this study. These activities will assist the Town in meeting its Chesapeake Bay TMDL reduction goals.

Scope of Work Supporting Information - Studies

Scope of Work Supporting Information

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

New or Updated Study*: New Study

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

Relationship of Study to Priorities Contained in this Manual*:

This master plan study will be utilized to evaluate infrastructure criticality and quantify the extent of aging and undersized storm sewer infrastructure within the Town. The local government and public works, and public utilities department is aware of recurrent flooding and localized drainage issues within the Town and will use this study to model these known areas, as well as identify areas that are at, or near hydraulic capacity that will being to exhibit flooding characteristics with the anticipated increase in higher intensity and longer duration storm events. The initial 3 basin locations proposed in this watershed study were strategically picked to pair high priority storm infrastructure issues with an equitable distribution of projects over the Town?s many urban areas and neighborhoods. As with all watershed modeling, closed conduit system modeling will be paired with a riverine hydraulics analysis to wholistically evaluate each of the proposed sub watersheds, from pipe to channel. and the watershed modeling will inevitably be used to develop multifaceted project approaches that can address storm infrastructure issues, as well as stream bank and channel erosion cause by high exit velocities. The town anticipates using this modeling to identify project locations to abate flooding, as well as project locations to implement nature based solutions such as stream channel restoration, outfall channel restoration, and pond retrofit projects that will be utilized to generate Chesapeake Bay TMDL credits (Nitrogen/Phosphorus) that can be applied to the Towns MS4 Permit Requirements for Pollutant of Concern (POC) reductions.

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

Qualifications of Individuals Conducting Study*:

For the project team conducting the study outlined in this application, please see Combined Grant Application Package - Section A attached to this submittal for full qualifications and resumes of the project team.

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

Expected use of Study Results*:

The Town does not currently have a Resilience Plan but has expressed interest in potentially creating one in upcoming years. This study will help start a Town-wide stormwater model that can be updated with new development plans or other infrastructure projects. This will enable the Town to have an accurate depiction of its stormwater system and what any potential changes to the system would result in with regard to hydraulic grade lines, flood extents, and level of service. Building a state of the art, Town-wide stormwater management model will enhance the resiliency of the Town for decades to come and will allow the Town to effectively prioritize project funding across the Town. The modeling results will be utilized to help provide information to the Rappahannock-Rapidan Regional Commission and can be coordinated with counties such as Fauquier and others to help assist with regional hazard mitigation plans. The Town has worked with the Rappahannock-Rapidan Regional Commission previously to help obtain grant funding for pond retrofits and nature based solutions.

Rappahannock-Rapidan Regional Commission ? Regional Hazard Mitigation & Resiliency Plan
https://www.rrregion.org/program_areas/community_development/hazard_mitigation.php

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

Statewide Improvements*:

N/A

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

Repetitive Loss and/or Severe Repetitive Loss Properties*: Repetitive_Loss_Statement.docx

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

Residential and/or Commercial Structures*:

There are 1,489 buildings located within the study area. It will be determined through the results of this study, how many of these buildings are impacted by flooding conditions. There are significant commercial zoning districts within the Town in addition to the many residential neighborhoods that make up the majority of the Town.

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

Critical Facilities/Infrastructure*:

This study analyzes a large portion of the Town and therefore encompasses a tremendous amount of infrastructure that could stand to benefit from this work. There are 570 sanitary sewer manholes in the study area per Town GIS data, over 112,000 linear feet of sanitary sewer lines, over 74,000 linear feet of storm sewer pipe. There are at least 80 bridges and culvert located within the study are that stand to be impacted by and impact flooding conditions. These bridges and culverts will be analyzed as part of this study. A part of this study will be identifying additional critical facilities that are impacted by flooding (hospitals, emergency services police stations, fire stations, schools, etc.).

Budget

Budget Summary

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

Is a match waiver being requested?

Match Waiver Request*: No

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

Total Project Amount (Request + Match)*: $841,016.08

**This amount should equal the sum of your request and match figures

REQUIRED Match Percentage Amount: $420,508.04

BUDGET TOTALS

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

Match Percentage:	50.00% Verify that your match percentage matches your required match percentage amount above.
Total Requested Fund Amount:	$420,508.04
Total Match Amount:	$420,508.04
TOTAL:	$841,016.08

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
Engineering Services Contract	$420,508.04	$420,508.04	Town Stormwater Management Fund
	$420,508.04	**$420,508.04**	

Pre-Award and Startup Costs

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

Other Direct Costs

Description	Requested Fund Amount	Match Amount	Match Source

No Data for Table

Supporting Documentation

Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)						
FIRMette of the project area(s) (Projects/Studies)						
Historic flood damage data and/or images (Projects/Studies)		pictures of historic flooding	CID510057_TownofWarrenton_CFPF_historic_flooding.pdf	pdf	231 KB	01/24/2025 11:56 PM
A link to or a copy of the current floodplain ordinance		floodplain ordinance link	CID510057_TownofWarrenton_CFPF_floodplai_ordiancne.pdf	pdf	171 KB	01/24/2025 11:56 PM
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 comprehensive plan	CID510057_TownofWarrenton_CFPF_compplan.pdf	pdf	284 KB	01/24/2025 11:56 PM
Social vulnerability index score(s) for the project area		SVI map	CID510057_TownofWarrenton_CFPF_svi.pdf	pdf	2 MB	01/24/2025 11:58 PM
Authorization to request funding from the Fund from governing body or chief executive of the local government		funding authorization	CID510057_TownofWarrenton_CFPF_funding.pdf	pdf	177 KB	01/24/2025 11:57 PM
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		full submittal package	CID510057_TownofWarrenton_CFPF_subnittal.pdf	pdf	16 MB	01/24/2025 11:59 PM

Letters of Support

Description	File Name	Type	Size	Upload Date

No files attached.

January 21, 2025

Kerry Wharton
Town of Warrenton – Department of Public Utilities
21 Main Street
Warrenton, VA 20186

Town of Warrenton – Proposal for Stormwater Master Drainage Plan Phase 1

Kimley-Horn and Associates, Inc. (Kimley-Horn), pursuant to contract RFP 23-008, is pleased to submit this task order proposal to the Town of Warrenton's Department of Public Utilities to provide professional consulting services for Phase 1 of the Town's Stormwater Master Drainage Plan. The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

PROJECT UNDERSTANDING

The Town of Warrenton (Town) has requested that Kimley-Horn assist the Town in undertaking Phase 1 of the Town's Stormwater Master Drainage Plan. This project (SM-004) has been identified as a multiple year and multiple phase effort by Town staff and is documented within the Town's 2025-2030 Capital Improvement Plan (CIP).

After an initial due diligence task, it has been determined that Phase 1 of this stormwater master drainage plan will encompass 3 of the Town's 6 subwatersheds based upon prioritization of the subwatersheds with more known drainage issues. These Phase 1 subwatersheds are labeled as "Great Run 1", "Turkey Run 1", and "Turkey Run 2" as shown in Figure 1.

At the Town's request, Kimley-Horn is providing this task order proposal for the services necessary to evaluate the hydrologic and hydraulic conditions within the Phase 1 subwatersheds, hereby referred to as the Study Area, that are leading to flooding issues within the Study Area, and to conceptualize potential solutions to help mitigate flooding within the Study Area.

Kimley-Horn will provide the services specifically set forth below.

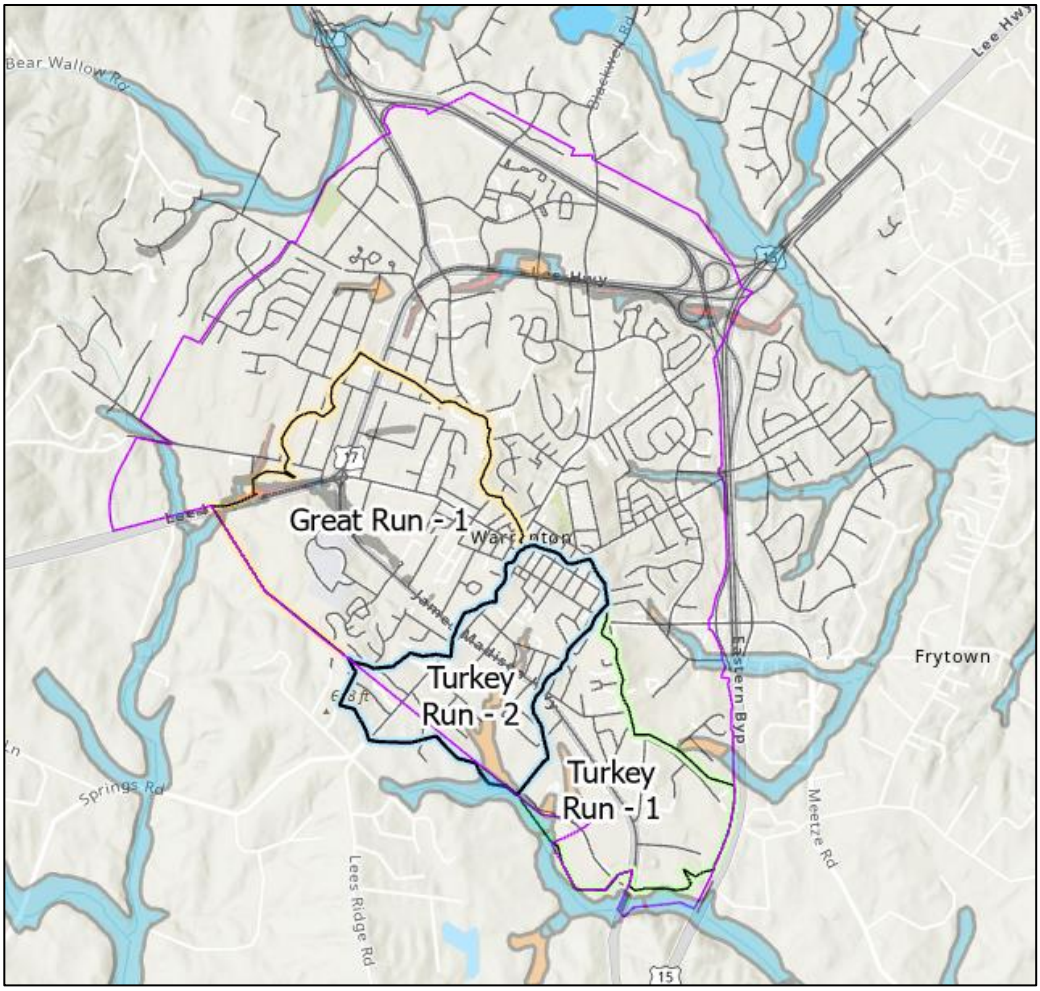


Figure 1. Town of Warrenton - Phase 1 subwatersheds (Study Area).

SCOPE OF SERVICES

This proposal has been divided into 7 tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Survey Services (to be provided by GRS Group, LLC)
2. Site Base Mapping, Project Due Diligence, and Site Visits
3. Hydrologic Analysis of the Phase 1 Study Area
4. Development of a Phase 1 Study Area Stormwater Management Model
5. Development of a Phase 1 Stormwater Master Drainage Improvements Concept Plan
6. Development of a Phase 1 Stormwater Master Drainage Plan Report
7. Meetings & Coordination

TASK 100 – SURVEY SERVICES (TO BE PROVIDED BY GRS GROUP, LLC)

Survey services to be provided by GRS Group, LLC. Please see Attachment 2 for detailed survey scope and fee breakdown. As part of this task, Kimley-Horn will provide comments related to completeness of data for the survey deliverable and will not assume any responsibility for the precision or accuracy of the survey field data or CAD deliverable.

TASK 200 – SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISITS

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the Study Area. The base mapping will utilize readily available Town GIS, VFRIS, and FEMA data to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

Kimley-Horn will conduct a series of 10 site visits to confirm the presence of stormwater network infrastructure that will need to be surveyed. Kimley-Horn will generate GIS Field Maps data for these stormwater nodes and points of observation.

Kimley-Horn will perform project due diligence for the study areas by compiling pertinent information from the following surveys, reports, and data sets:

- Survey Data – To be derived by Others (GRS Group, LLC)
- Relevant Flood Insurance Studies (FIS)
- Relevant FEMA Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the Study Area (to be provided by the Town, if available)
- Available FEMA, Town of Warrenton, or Fauquier County Hydraulic and/or Floodplain Models.
- Available VDOT / Town of Warrenton Roadway/Drainage Infrastructure Plans for the Study Area.
- Best available VFRIS, FEMA, State, Town of Warrenton and Fauquier County GIS Shapefile Data and Aerial Imagery.
- Available as-builts/electronic records of existing stormwater infrastructure.

Kimley-Horn will utilize the base mapping and background data obtained through this task to perform a site visit to photo-document the current conditions within the study areas. Kimley-Horn will use the photos, information obtained during the site visit, and base mapping to create a composite GIS map depicting photo locations captured in the field that identify potential study area opportunities and constraints. This site visit will also be utilized to confirm that stormwater/drainage connections are consistent with what will be shown in the survey data and GIS data, and to identify any areas where additional survey may be needed.

TASK 300 – HYDROLOGIC ANALYSIS OF THE PHASE 1 STUDY AREA

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), runoff coefficients, Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 400 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, 25-yr, 100-yr, and 500-yr storm events. All information derived in this task will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 400 – DEVELOPMENT OF A PHASE 1 STUDY AREA STORMWATER MANAGEMENT MODEL

Task 400A – Existing Conditions Modeling

Kimley-Horn will build an existing conditions model of the Study Area to create a baseline condition off of which proposed alternatives can be compared. Kimley-Horn will model this Study Area using InfoWorks ICM, dynamic SWMM software, to adequately capture the complexities of the drainage and conveyance networks within the Study Area that ultimately contribute to the flooding in the Study Area. To adequately simulate the flooding conditions that occur in the Study Area, it is critical to use a model that varies in time (unsteady/temporally varied) so that that timing of the stormwater flows during storms are captured.

Additionally, from Town staff and citizen complaints to Town staff, it is known that some areas of the stormwater conveyance systems within the Study Area have been known to flood. This leads to the need to utilize a 1-Dimensional/2-Dimensional (1-D/2-D) modeling approach to properly simulate the behavior of any surcharged volumes of water as they move over the surface. This approach also allows for a broader watershed model approach as there are many overland and depressional features that can be modeled with the aid of the publicly available 1-meter resolution topographic data and LiDAR topographic data. This 1-D/2-D, time varying modeling approach will allow the model to simulate surface ponding and flooding conditions over time and to quantify the length of time that flooding occurs around structures in the area. This approach will also allow for a more explicit representation of how the flow and structures interact during flood events, since there are portions of flow paths through the Study Area being conveyed through open channels that are immediately adjacent to houses and structures.

The stormwater network model will utilize survey data and then field measurements where survey is not possible. Kimley-Horn will also leverage any Town provided as-builts, record drawings, and design plans within the Study Area. For topographic data, survey will be utilized, and publicly available topographic data will be used to supplement where survey data is not available.

Model validation will be performed in discussion with Town staff to confirm that the model outputs are in line with what has been observed in the Study Area. Kimley-Horn staff will conduct up to 3 site visits during a severe rainfall event to make in-field observations to compare against

model outputs. The model will be updated accordingly based on this validation exercise, to more realistically represent the existing conditions in flood events for the Study Area.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding within the Study Area. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. Map products of flood extents and graphs of Hydraulic Grade Line (HGL) profiles for the modeled return period storm events will be generated. These values will provide a baseline comparison off which to assess proposed conceptual design implementation scenarios both in the horizontal (mapping), and vertical (HGLs/depth) planes. All information derived in this subtask will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

Task 400B – Proposed Improvements Modeling

Kimley-Horn will modify the Existing Conditions Watershed Model to evaluate proposed infrastructure and grading changes that could help abate flooding throughout the study area. The modeling will focus on implementation of modern drainage infrastructure in areas without it, infrastructure changes at major stream crossings, stream and floodplain grading techniques, installation or augmentation of stormwater management facilities, and pairing of multiple practices within the study areas (if necessary). Watershed scale implementation and evaluation of conceptual solutions will be prioritized as to provide wholistic approaches to flooding issues, and to not potentially transfer any flooding downstream.

Kimley-Horn will model up to 12 conceptual solutions within the Study Area. After assessing the viability and potential success of the conceptual infrastructure or nature-based changes within the Study Area, Kimley-Horn will run revised model scenarios for the 1, 2, 10, 25, 100, and 500-yr storm events to compare to the existing conditions modeling to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Study Area. The graphical and tabular information generated from this task will be included in the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 500 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE IMPROVEMENTS CONCEPT PLAN

Based on the results of the Stormwater Modeling (Task 400), Kimley-Horn and the Town will agree upon 6 conceptual solutions to evaluate further. From this, Kimley-Horn will develop 6 - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Study Area. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, creating or enhancing areas of flood storage, etc.

- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

Due to the conceptual nature of this plan, all proposed structural improvements, preliminary grading and riparian enhancements, and proposed future project implementation locations will have limited engineering design and will focus on project layout, location, and feasibility.

TASK 600 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE PLAN REPORT

Kimley-Horn will develop Phase 1 Stormwater Master Drainage Plan Report outlining the information derived in tasks 100 - 500. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

TASK 700 – MEETINGS & COORDINATION

Kimley-Horn staff will be available for up to 6 project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with Town 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 Services:

- All developed Hydrologic and Hydraulic Model(s)
- Phase 1 Master Drainage Plan Flood and Drainage Improvements 24 x 36 AutoCAD Derived Conceptual Plans
- Phase 1 Master Drainage Plan Report
- All maps, models, analyses, spreadsheets, and base data utilized for the design (if requested).

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed Scope of Services and the accompanying cost estimate, we have made the following assumptions:

- It is assumed that survey data will be provided to Kimley-Horn prior to July 31st, 2025. If this assumed schedule for survey is held, Kimley-Horn anticipates completion of this study by December 31st, 2026.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the Town with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the Town to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered "for information purposes only".
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as "Not for Construction Purposes".
- The Town will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available Town GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The Town of Warrenton – Department of Public Utilities will provide all coordination with Inter-Town departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 60 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this task and are therefore outside of review under this proposal include the following:

- Grant Administration Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Permit Compliance
- Project Renderings
- VSMP Compliance
- Floodplain Studies and Submittals
- FEMA Applications
- Dam Safety Compliance
- Dam Break Inundation Zone (DBIZ) Modeling / Mapping

- Engineering Design Plan Submittals / Construction Document Development
- Utility Design (excluding Storm Sewer)
- VDOT Design or Permitting
- Right of Way Permitting or Dedication associated with planned or future development
- Development/Delivery of Presentations, Board of Supervisors, Committees, or the Public
- Notifications to impacted Property Owners
- All other services not explicitly stated in this Scope of Services

SCHEDULE

The tasks referenced in this scope will be coordinated with Town Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the Town with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by April 30, 2025, and survey data is received by July 31, 2025, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2026. A detailed schedule will be developed for the Town outlining project workflow and deliverables after contract execution.

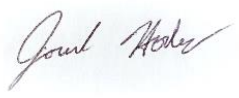
FEE AND BILLING

Kimley-Horn will provide the following scope of services under our term contract RFP 23-008, for a lump sum fee of **$841,016.08**. A detailed breakdown (by task) of Kimley-Horn Horn's labor costs are provided in Attachment 1. Please note that fees will be invoiced monthly 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 the executed contract RFP 23-008 between the Town of Warrenton and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact either of us if you have any questions.

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

Signed: 

Printed Name: **Jared Hodes, P.E., CFM**

Title: Project Manager

Signed: 

Printed Name: **Jon D'Alessandro, P.E.**

Title: Senior Project Manager

ATTACHMENT 1 – KIMLEY-HORN FEE BREAKDOWN

ATTACHMENT 2 – GRS GROUP, LLC, DETAILED SURVEY SCOPE AND FEE BREAKDOWN

6703 Deland Court
Springfield, VA 22152
(703) 727-5828 Cell
(703) 763-2320 Fax
grsgroup.llc@gmail.com
www.grsgroupllc.com

January 20, 2025

Kimley-Horn Associates, Inc.
11400 Commerce Park Dr., Suite 400
Reston, VA 20191

Attention: Jared Hodes P.E.

RE: Town of Warrenton Storm Drain Study
Phase 1

Dear Jared:

It is a pleasure to present our Proposal for Professional Land Surveying Services to be rendered in connection with the above referenced project. Our understanding of the work scope at the present time is to prepare a comprehensive survey of the Towns Storm Drain System including potential topographic survey of specific areas to understand drainage issues.

Based upon this our office will perform the following.

STORM DRAIN SURVEY

GRS will survey each of the requested storm drain structures. GRS will obtain information pertaining to elevation of top of structure, invert elevations in and out of structure, pipe size and material. A topographic survey including manmade and natural features and visible utilities will be performed. The survey will extend to 25 feet beyond limits requested. Elevations will be obtained at a thirty (30) foot interval with contours being generated at a one (1) foot interval. Wetlands, if marked, will be located at the time of the survey. The topography will be based upon NAVD 88 datum and NAD 83 grid. Underground utility information will be based upon surface features, utility company mark outs, and mapping provided by the client. GRS does not guarantee the underground utilities shown will comprise all the utilities in the area, either in service or abandoned. GRS does not certify that the utilities are shown in the exact location, however GRS will locate the utilities based upon the available information. This information will be collectively analyzed and compiled into an appropriately scaled AutoCAD 2024 drawing document.

1,000 STORM STRUCTURES FEE: $80,000

TOPOGRAHIC SURVEY FEE OF 250 ACRES: $ 225,000

If during the course of the field survey, boundary analysis or deed review an issue arises concerning the overall property boundary, your office will be notified immediately to discuss resolution. If this issue requires additional fieldwork or research time an estimate will be provided to you at that time. Furthermore, it is assumed that access to the site in question will be coordinated directly by your office.

This will be required in order to fulfill our surveying requirements and must be established 48 hours prior to the scheduling of field crews.

Professional Land Surveying Services can be initiated immediately upon acceptance of this Contract. If adverse weather conditions encumber the performance of field activities, the time frame will be adjusted accordingly.

If the terms and conditions of this Proposal are acceptable to you, please forward a Sub-consultant Agreement for our signature.

Should you have any questions or comments pertaining to this matter or if I can provide any further assistance, kindly contact me at your convenience.

Sincerely,

GRS Group LLC

Kevin F. Steinhilber, L.S.

SECTION B – BUDGET DATA

Project Budget Narrative and Scope of Services

Budget Narrative Template

Funding Request Authorization

Project Budget Narrative and Scope of Services

Project Budget Narrative and Scope of Services

A detailed budget narrative is included below and contains the required information outlined in the Grant Manual for the Virginia Community Flood Preparedness Fund. This section also includes the Kimley-Horn Scope of Services to complete Phase 1 of the Town's Stormwater Master Drainage Plan.

Estimated Total Project Cost

The total identified project cost to complete Phase 1 of the Town's Stormwater Master Drainage Plan.is $841,016.08.

Amount of Funds Requested from the Fund

The total amount of grant assistance sought from the Fund is $420,508.04.

Amount of Funds Available

The amount of funds available through this project's funding source is greater than the total estimated project cost of $841,016.08.. The following documentation has been included in this section:

- Town of Warrenton, Virginia – Pages from Fiscal Year 2025 Adopted Budget
- Town of Warrenton, Virginia – Pages from Adopted Capital Improvement Plan 2025-2030

Authorization to Request Funding

A signed statement from the Town of Warrenton Director of Public Utilities authorizing the request for funding for this project has been included in this section.

January 21, 2025

Kerry Wharton
Town of Warrenton – Department of Public Utilities
21 Main Street
Warrenton, VA 20186

Town of Warrenton – Proposal for Stormwater Master Drainage Plan Phase 1

Kimley-Horn and Associates, Inc. (Kimley-Horn), pursuant to contract RFP 23-008, is pleased to submit this task order proposal to the Town of Warrenton's Department of Public Utilities to provide professional consulting services for Phase 1 of the Town's Stormwater Master Drainage Plan. The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

PROJECT UNDERSTANDING

The Town of Warrenton (Town) has requested that Kimley-Horn assist the Town in undertaking Phase 1 of the Town's Stormwater Master Drainage Plan. This project (SM-004) has been identified as a multiple year and multiple phase effort by Town staff and is documented within the Town's 2025-2030 Capital Improvement Plan (CIP).

After an initial due diligence task, it has been determined that Phase 1 of this stormwater master drainage plan will encompass 3 of the Town's 6 subwatersheds based upon prioritization of the subwatersheds with more known drainage issues. These Phase 1 subwatersheds are labeled as "Great Run 1", "Turkey Run 1", and "Turkey Run 2" as shown in Figure 1.

At the Town's request, Kimley-Horn is providing this task order proposal for the services necessary to evaluate the hydrologic and hydraulic conditions within the Phase 1 subwatersheds, hereby referred to as the Study Area, that are leading to flooding issues within the Study Area, and to conceptualize potential solutions to help mitigate flooding within the Study Area.

Kimley-Horn will provide the services specifically set forth below.

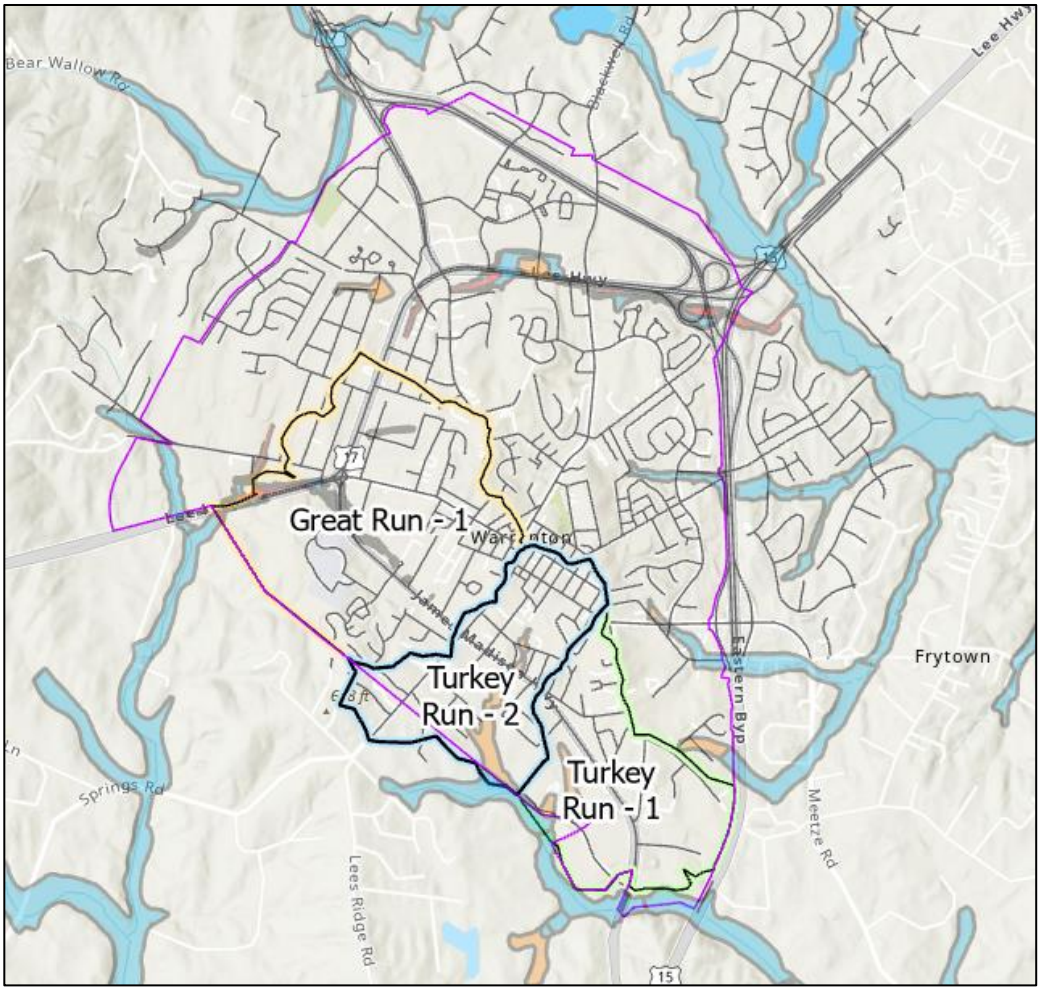


Figure 1. Town of Warrenton - Phase 1 subwatersheds (Study Area).

SCOPE OF SERVICES

This proposal has been divided into 7 tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Survey Services (to be provided by GRS Group, LLC)
2. Site Base Mapping, Project Due Diligence, and Site Visits
3. Hydrologic Analysis of the Phase 1 Study Area
4. Development of a Phase 1 Study Area Stormwater Management Model
5. Development of a Phase 1 Stormwater Master Drainage Improvements Concept Plan
6. Development of a Phase 1 Stormwater Master Drainage Plan Report
7. Meetings & Coordination

TASK 100 – SURVEY SERVICES (TO BE PROVIDED BY GRS GROUP, LLC)

Survey services to be provided by GRS Group, LLC. Please see Attachment 2 for detailed survey scope and fee breakdown. As part of this task, Kimley-Horn will provide comments related to completeness of data for the survey deliverable and will not assume any responsibility for the precision or accuracy of the survey field data or CAD deliverable.

TASK 200 – SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISITS

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the Study Area. The base mapping will utilize readily available Town GIS, VFRIS, and FEMA data to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

Kimley-Horn will conduct a series of 10 site visits to confirm the presence of stormwater network infrastructure that will need to be surveyed. Kimley-Horn will generate GIS Field Maps data for these stormwater nodes and points of observation.

Kimley-Horn will perform project due diligence for the study areas by compiling pertinent information from the following surveys, reports, and data sets:

- Survey Data – To be derived by Others (GRS Group, LLC)
- Relevant Flood Insurance Studies (FIS)
- Relevant FEMA Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the Study Area (to be provided by the Town, if available)
- Available FEMA, Town of Warrenton, or Fauquier County Hydraulic and/or Floodplain Models.
- Available VDOT / Town of Warrenton Roadway/Drainage Infrastructure Plans for the Study Area.
- Best available VFRIS, FEMA, State, Town of Warrenton and Fauquier County GIS Shapefile Data and Aerial Imagery.
- Available as-builts/electronic records of existing stormwater infrastructure.

Kimley-Horn will utilize the base mapping and background data obtained through this task to perform a site visit to photo-document the current conditions within the study areas. Kimley-Horn will use the photos, information obtained during the site visit, and base mapping to create a composite GIS map depicting photo locations captured in the field that identify potential study area opportunities and constraints. This site visit will also be utilized to confirm that stormwater/drainage connections are consistent with what will be shown in the survey data and GIS data, and to identify any areas where additional survey may be needed.

TASK 300 – HYDROLOGIC ANALYSIS OF THE PHASE 1 STUDY AREA

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), runoff coefficients, Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 400 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, 25-yr, 100-yr, and 500-yr storm events. All information derived in this task will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 400 – DEVELOPMENT OF A PHASE 1 STUDY AREA STORMWATER MANAGEMENT MODEL

Task 400A – Existing Conditions Modeling

Kimley-Horn will build an existing conditions model of the Study Area to create a baseline condition off of which proposed alternatives can be compared. Kimley-Horn will model this Study Area using InfoWorks ICM, dynamic SWMM software, to adequately capture the complexities of the drainage and conveyance networks within the Study Area that ultimately contribute to the flooding in the Study Area. To adequately simulate the flooding conditions that occur in the Study Area, it is critical to use a model that varies in time (unsteady/temporally varied) so that that timing of the stormwater flows during storms are captured.

Additionally, from Town staff and citizen complaints to Town staff, it is known that some areas of the stormwater conveyance systems within the Study Area have been known to flood. This leads to the need to utilize a 1-Dimensional/2-Dimensional (1-D/2-D) modeling approach to properly simulate the behavior of any surcharged volumes of water as they move over the surface. This approach also allows for a broader watershed model approach as there are many overland and depressional features that can be modeled with the aid of the publicly available 1-meter resolution topographic data and LiDAR topographic data. This 1-D/2-D, time varying modeling approach will allow the model to simulate surface ponding and flooding conditions over time and to quantify the length of time that flooding occurs around structures in the area. This approach will also allow for a more explicit representation of how the flow and structures interact during flood events, since there are portions of flow paths through the Study Area being conveyed through open channels that are immediately adjacent to houses and structures.

The stormwater network model will utilize survey data and then field measurements where survey is not possible. Kimley-Horn will also leverage any Town provided as-builts, record drawings, and design plans within the Study Area. For topographic data, survey will be utilized, and publicly available topographic data will be used to supplement where survey data is not available.

Model validation will be performed in discussion with Town staff to confirm that the model outputs are in line with what has been observed in the Study Area. Kimley-Horn staff will conduct up to 3 site visits during a severe rainfall event to make in-field observations to compare against

model outputs. The model will be updated accordingly based on this validation exercise, to more realistically represent the existing conditions in flood events for the Study Area.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding within the Study Area. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. Map products of flood extents and graphs of Hydraulic Grade Line (HGL) profiles for the modeled return period storm events will be generated. These values will provide a baseline comparison off which to assess proposed conceptual design implementation scenarios both in the horizontal (mapping), and vertical (HGLs/depth) planes. All information derived in this subtask will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

Task 400B – Proposed Improvements Modeling

Kimley-Horn will modify the Existing Conditions Watershed Model to evaluate proposed infrastructure and grading changes that could help abate flooding throughout the study area. The modeling will focus on implementation of modern drainage infrastructure in areas without it, infrastructure changes at major stream crossings, stream and floodplain grading techniques, installation or augmentation of stormwater management facilities, and pairing of multiple practices within the study areas (if necessary). Watershed scale implementation and evaluation of conceptual solutions will be prioritized as to provide wholistic approaches to flooding issues, and to not potentially transfer any flooding downstream.

Kimley-Horn will model up to 12 conceptual solutions within the Study Area. After assessing the viability and potential success of the conceptual infrastructure or nature-based changes within the Study Area, Kimley-Horn will run revised model scenarios for the 1, 2, 10, 25, 100, and 500-yr storm events to compare to the existing conditions modeling to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Study Area. The graphical and tabular information generated from this task will be included in the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 500 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE IMPROVEMENTS CONCEPT PLAN

Based on the results of the Stormwater Modeling (Task 400), Kimley-Horn and the Town will agree upon 6 conceptual solutions to evaluate further. From this, Kimley-Horn will develop 6 - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Study Area. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, creating or enhancing areas of flood storage, etc.

- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

Due to the conceptual nature of this plan, all proposed structural improvements, preliminary grading and riparian enhancements, and proposed future project implementation locations will have limited engineering design and will focus on project layout, location, and feasibility.

TASK 600 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE PLAN REPORT

Kimley-Horn will develop Phase 1 Stormwater Master Drainage Plan Report outlining the information derived in tasks 100 - 500. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

TASK 700 – MEETINGS & COORDINATION

Kimley-Horn staff will be available for up to 6 project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with Town 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 Services:

- All developed Hydrologic and Hydraulic Model(s)
- Phase 1 Master Drainage Plan Flood and Drainage Improvements 24 x 36 AutoCAD Derived Conceptual Plans
- Phase 1 Master Drainage Plan Report
- All maps, models, analyses, spreadsheets, and base data utilized for the design (if requested).

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed Scope of Services and the accompanying cost estimate, we have made the following assumptions:

- It is assumed that survey data will be provided to Kimley-Horn prior to July 31st, 2025. If this assumed schedule for survey is held, Kimley-Horn anticipates completion of this study by December 31st, 2026.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the Town with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the Town to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered "for information purposes only".
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as "Not for Construction Purposes".
- The Town will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available Town GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The Town of Warrenton – Department of Public Utilities will provide all coordination with Inter-Town departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 60 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this task and are therefore outside of review under this proposal include the following:

- Grant Administration Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Permit Compliance
- Project Renderings
- VSMP Compliance
- Floodplain Studies and Submittals
- FEMA Applications
- Dam Safety Compliance
- Dam Break Inundation Zone (DBIZ) Modeling / Mapping

- Engineering Design Plan Submittals / Construction Document Development
- Utility Design (excluding Storm Sewer)
- VDOT Design or Permitting
- Right of Way Permitting or Dedication associated with planned or future development
- Development/Delivery of Presentations, Board of Supervisors, Committees, or the Public
- Notifications to impacted Property Owners
- All other services not explicitly stated in this Scope of Services

SCHEDULE

The tasks referenced in this scope will be coordinated with Town Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the Town with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by April 30, 2025, and survey data is received by July 31, 2025, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2026. A detailed schedule will be developed for the Town outlining project workflow and deliverables after contract execution.

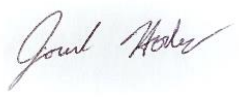
FEE AND BILLING

Kimley-Horn will provide the following scope of services under our term contract RFP 23-008, for a lump sum fee of **$841,016.08**. A detailed breakdown (by task) of Kimley-Horn Horn's labor costs are provided in Attachment 1. Please note that fees will be invoiced monthly 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 the executed contract RFP 23-008 between the Town of Warrenton and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact either of us if you have any questions.

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

Signed: 

Printed Name: **Jared Hodes, P.E., CFM**

Title: Project Manager

Signed: 

Printed Name: **Jon D'Alessandro, P.E.**

Title: Senior Project Manager

ATTACHMENT 1 – KIMLEY-HORN FEE BREAKDOWN

ATTACHMENT 2 – GRS GROUP, LLC, DETAILED SURVEY SCOPE AND FEE BREAKDOWN

6703 Deland Court
Springfield, VA 22152
(703) 727-5828 Cell
(703) 763-2320 Fax
grsgroup.llc@gmail.com
www.grsgroupllc.com

January 20, 2025

Kimley-Horn Associates, Inc.
11400 Commerce Park Dr., Suite 400
Reston, VA 20191

Attention: Jared Hodes P.E.

RE: Town of Warrenton Storm Drain Study
Phase 1

Dear Jared:

It is a pleasure to present our Proposal for Professional Land Surveying Services to be rendered in connection with the above referenced project. Our understanding of the work scope at the present time is to prepare a comprehensive survey of the Towns Storm Drain System including potential topographic survey of specific areas to understand drainage issues.

Based upon this our office will perform the following.

STORM DRAIN SURVEY

GRS will survey each of the requested storm drain structures. GRS will obtain information pertaining to elevation of top of structure, invert elevations in and out of structure, pipe size and material. A topographic survey including manmade and natural features and visible utilities will be performed. The survey will extend to 25 feet beyond limits requested. Elevations will be obtained at a thirty (30) foot interval with contours being generated at a one (1) foot interval. Wetlands, if marked, will be located at the time of the survey. The topography will be based upon NAVD 88 datum and NAD 83 grid. Underground utility information will be based upon surface features, utility company mark outs, and mapping provided by the client. GRS does not guarantee the underground utilities shown will comprise all the utilities in the area, either in service or abandoned. GRS does not certify that the utilities are shown in the exact location, however GRS will locate the utilities based upon the available information. This information will be collectively analyzed and compiled into an appropriately scaled AutoCAD 2024 drawing document.

1,000 STORM STRUCTURES FEE: $80,000

TOPOGRAHIC SURVEY FEE OF 250 ACRES: $ 225,000

If during the course of the field survey, boundary analysis or deed review an issue arises concerning the overall property boundary, your office will be notified immediately to discuss resolution. If this issue requires additional fieldwork or research time an estimate will be provided to you at that time. Furthermore, it is assumed that access to the site in question will be coordinated directly by your office.

This will be required in order to fulfill our surveying requirements and must be established 48 hours prior to the scheduling of field crews.

Professional Land Surveying Services can be initiated immediately upon acceptance of this Contract. If adverse weather conditions encumber the performance of field activities, the time frame will be adjusted accordingly.

If the terms and conditions of this Proposal are acceptable to you, please forward a Sub-consultant Agreement for our signature.

Should you have any questions or comments pertaining to this matter or if I can provide any further assistance, kindly contact me at your convenience.

Sincerely,

GRS Group LLC

Kevin F. Steinhilber, L.S.

Budget Narrative Template

Appendix B: Budget Narrative Template

Applicant Name: Community Flood Preparedness Fund & Resilient Virginia Revolving Loan Fund Detailed Budget Narrative

Town of Warrenton

Period of Performance: **January 25, 2025** through **December 31, 2026**

Submission Date: **January 24, 2025**

Grand Total State Funding Request	$ **420,508.04**
Grand Total Local Share of Project	$ **420,508.04**
Federal Funding (if applicable)	$
Project Grand Total	$ **841,016.08**
Locality Cost Match	% **50**

Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						**420,508.04**			**420,508.04**
State Share – CFPF Grant						**420,508.04**			**420,508.04**
State Share – RVRF Match Loan									
Pre-Award/Startup									
Maintenance									
Total	$	$	$	$	$	$**841,016.08**	$	$	$ **841,016.08**

Available Funding Documentation

TOWN OF WARRENTON, VIRGINIA

Fiscal Year 2025 Adopted Budget

OFFICE OF THE TOWN MANAGER
21 Main Street, Warrenton, Virginia 20186

STORMWATER MANAGEMENT FUND

FUND DESCRIPTION

Stormwater runoff is the most common cause of water pollution. state and federal clean water statutes require localities to have programs related to stormwater runoff, erosion, and sedimentation control protecting their water resources. The Town is an MS4, or a Municipal Separate Storm Sewer System, and is permitted to levy a stormwater utility fee to pay for the program. The fee was established by ordinance during the FY 2021 budget process, but Council delayed collection due to the COVID-19 pandemic. The collection of this fee began in FY 2022, and the Stormwater Management Fund was established as an enterprise fund to sustain the program.

The stormwater department works to consistently protect our environment by reducing flooding to protect Town residents and property, supporting healthy streams, and creating a healthier and more sustainable community in compliance with the Town's MS4 Permit administered by the Virginia Department of Environmental Quality (DEQ).

CURRENT STAFFING

This division is staffed by the Stormwater Administrator and Stormwater Inspector who are both allocated 100% to the department. The GIS Technician is split 80/20 between this fund and the Water & Sewer Operating Fund. The Director of Public Utilities is allocated 20% to this Fund. The Engineer, Permit Technicians, Zoning Official, and Tax Administrator are also partially allocated to this Fund based on support provided.

KEY PROJECTS FOR FY 2024

- Complete projects as outlined in the CIP.
- Continue reporting requirements to the Virginia Department of Environmental Quality (VDEQ).
- Continue working to find new ways to educate citizens about stormwater and outreach programs.
- Continue building a digital stormwater inventory.
- Continue to work with finance department to clarify fee information included with bills.

STORMWATER MANAGEMENT FUND REVENUES

	ACTUAL		ADOPTED			
	FY2022	FY2023	FY2024	FY2025	Variance ($)	Variance (%)
REVENUES						
LOCAL REVENUE	$773,629	$653,734	$0	$733,000	$733,000	–
CHARGES FOR SERVICES-UTILITIES	$0	$0	$700,000	$0	($700,000)	(100%)
MISCELLANEOUS REVENUE	$498	$556	$0	$300	$300	–
FEDERAL REVENUE	$11,750	$99,318	$369,000	$0	($369,000)	(100%)
USE OF FUND BALANCE	$0	$0	$416,404	$557,932	$141,528	34%
REVENUES TOTAL	**$785,877**	**$753,608**	**$1,485,404**	**$1,291,232**	**($194,172)**	**(13%)**

Stormwater Management Fees (Local Revenue)

This fee is a "fee for service" based on the cost to manage stormwater that runs off impervious surfaces, such as roofs and parking areas. Developed single family residential properties fall into one to three rate tiers based on the total impervious area of the property. Impervious area refers to solid surfaces on a property that will not allow rainwater to seep into the ground (e.g. – building and parking areas). The following table shows the current fees:

Tier	Impervious Area (sq. feet)	Fee Per Month
Tier 1	400 - 1,299	$5.55
Tier 2	1,300 - 4,4990	$6.94
Tier 3	4,500 +	$17.37

Non-residential fees are based on the overall impervious area of a parcel divided by the equivalent residential unit of 2,200 square feet and then multiplied by $5.55 per month.

The fees are billed twice each year on the Town's real estate tax bill. The bills are due on June 15th and December 15th. The fee is expected to generate $733,000 in FY 2025, up from $700,000 in FY 2024. The projected increase is based on actual billings for FY 2024. In addition, the Stormwater department intends to update the Fee Schedule to include modification, transfer, and permit maintenance fees for construction activity and land clearing. This update will ensure the Fee Schedule is in line with the Town Code.

Miscellaneous Revenue

Miscellaneous revenue is related to credit card fees collected from online payments. These fees are then remitted to the payment processor.

Grant Revenue (State and Federal)

In FY 2025, there are no stormwater management projects that have been awarded a grant.

Use of Fund Balance

In FY 2025, use of Fund Balance is used to fund the remainder of Stormwater Management Fund expenses that are not covered by other revenue streams. It is important to note that the Stormwater Management Fund has a capital component (as detailed below) and due to the nature of capital budgeting, the entire amount of a capital project must be budgeted up front, even though the project may span several fiscal years. As such, the actual cash outflows related to a capital project are typically less than the budgeted amount in any given fiscal year. As a result, the actual use of fund balance in FY 2025 will likely be lower than the budgeted figure as the budgeted figure assumes all capital amounts will be spent during the year.

STORMWATER MANAGEMENT FUND EXPENSES

	ACTUAL		ADOPTED			
	FY2022	FY2023	FY2024	FY2025	Variance ($)	Variance (%)
EXPENSES						
PERSONNEL	$397,407	$348,211	$426,746	$441,121	$14,375	3%
OPERATING	$54,708	$40,436	$81,168	$81,930	$762	1%
CAPITAL OUTLAY	$9,917	$0	$928,407	$720,500	($207,907)	(22%)
TRANSFERS	$0	$0	$49,083	$47,681	($1,402)	(3%)
EXPENSES TOTAL	**$462,033**	**$388,647**	**$1,485,404**	**$1,291,232**	**($194,172)**	**(13%)**

STAFFING SUMMARY

Department	FY2021	FY2022	FY2023	FY2024	FY2025
FTE Amount					
Stormwater Management	3	2	5.1	4.42	4.3
FTE AMOUNT	**3**	**2**	**5.1**	**4.42**	**4.3**

BUDGET ANALYSIS

The adopted FY 2025 budget represents a decrease compared to the adopted FY 2024 budget. Expenses related to stormwater operations are expected to remain relatively flat. Personnel expenses are expected to rise slightly due to COLA and merit raises for employees. The effect of the Director of Public Utilities being allocated 20% to this fund for FY 2025 is partially offset by the impact of removing the allocation of IT employee salaries and moving 20% of the GIS Technician allocation to other funds.

Operating expenses are projected to remain relatively flat as decreases in fuel and supplies costs offset a slight increase in costs associated with culvert outlet cleaning and the purchase of total suspended solids (TSS) credits. Included in operating expenses are reimbursements to certain employees for safety equipment required to perform the duties of their jobs. For FY 2025, the reimbursement for safety boots is set at $150 per employee.

There are three (3) capital projects driving the capital outlay category, discussed below. There is a transfer to the General Fund to cover the cost of services provided by the fleet and information technology departments.

Asset replacement and capital projects include the following:

TOWN OF WARRENTON, VIRGINIA

Adopted Capital Improvement Plan

2025-2030

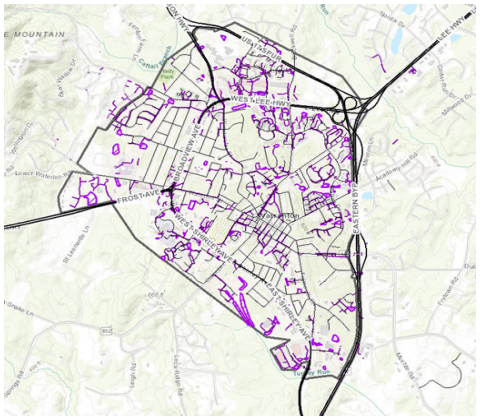
Stormwater Fund

Project Detail Pages

PROJECT NUMBER: SM-004 | **PROJECT TITLE: Master Drainage Plan** | **DEPARTMENT: Stormwater Management (SM)**

PROGRAM DESCRIPTION

This program is to update the 1990 Master Drainage Plan (MDP). This updated plan will be a phased approach to identify a list of priorities to the Town's current drainage infrastructure system. The MDP is the linchpin for prioritizing future stormwater projects in order to develop a plan for improving the existing drainage system aimed at reducing flooding and improving runoff quality. This MDP will help provide a projected view to align the Town's stormwater plan with other community planning efforts, such as comprehensive master plans, that often identify where and how communities will grow and redevelop over a 10- to 20-year period.



GOAL ADDRESSED

Plan Warrenton 2040 CF-3.8: Minimize impervious areas in new developments and future road construction projects, thereby reducing stormwater flows and impacts to the Municipal Separate Storm Sewer System program. P-1.3: Use a nature-based systems approach in development to mitigate stormwater and improve habitat within the Town's open spaces.

ESTIMATED COSTS	Previous Allocation	FY25 **2024-25**	FY26 **2025-26**	FY27 **2026-27**	FY28 **2027-28**	FY29 **2028-29**	FY30 **2029-30**	**Total**
Land Acquisition								**$0**
Architecture/Engineering	$100,000	$500,000	$500,000	$400,000				**$1,500,000**
Construction/Purchase								**$0**
Other								**$0**
TOTAL	**$100,000**	**$500,000**	**$500,000**	**$400,000**	**$0**	**$0**	**$0**	**$1,500,000**
FUNDING SOURCES								
General Fund								**$0**
Water and Sewer Fund								**$0**
Stormwater Fund	$100,000	$500,000	$500,000	$400,000				**$1,500,000**
Debt								**$0**
State								**$0**
Federal								**$0**
Other								**$0**
TOTAL	**$100,000**	**$500,000**	**$500,000**	**$400,000**	**$0**	**$0**	**$0**	**$1,500,000**

Funding Request Authorization

I, Steven Friend, Director of Public Utilities for the Town of Warrenton, authorize the Town of Warrenton to request funding from the 2025 Funding Round of the Virginia Community Flood Preparedness Fund for the development of a Stormwater Master Drainage Plan Phase 1 Study.

Signed: _____

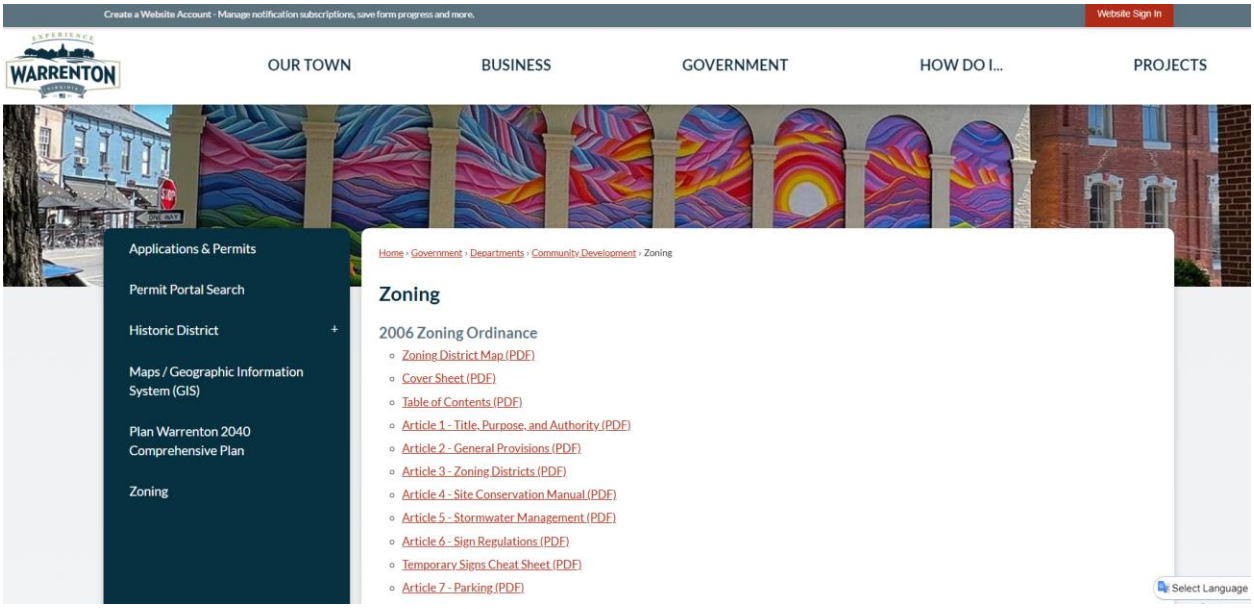
Date: 1 - 9 - 2 0 2 5 _____

Link to the Town of Warrenton Floodplain Ordinance

Link to the Town of Warrenton Floodplain Ordinance

https://www.warrentonva.gov/DocumentCenter/View/2450/Article-3---Zoning-Districts-PDF

See 3-5.1 FPD - Floodplain District



TOWN OF WARRENTON

STORMWATER MASTER DRAINAGE PLAN PHASE 1 - CFPF GRANT APPLICATION PACKAGE

January 24, 2025

Prepared for: Prepared by:

Community Flood Preparedness Fund Grant Application

The Town of Warrenton is pleased to submit this application for a Community Flood Preparedness Fund (CFPF) Study Grant that has been developed to meet the applicable scoring criteria outlined in Appendix D of the CFPF Grant Manual. The Town is seeking to undertake Phsae 1 of its Town-wide Stormwater Drainage Master Plan. The impacts to Town residents and their properties, as documented in **Section C**, has necessitated this study grant. If awarded, this grant would be used to bridge the gap between project costs and available funding in the Town's Adopted Capital Improvement Program, which has been included in **Section B**. The Scope of Services included in **Section B** includes additional information about the proposed work that will be covered under this study grant and **Section A** includes the qualifications of the individuals conducting the study.

Table of Contents

SECTION A – ORGANIZATIONAL DATA

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

Scope of Work Narrative

Scope of Work Narrative

This section includes a summary of the project's background, goals, scope of work, and impact on the community, the qualifications of the individuals on the study project team, and the application form for grant and loan requests for all categories of the CFPF grant.

This project has been outlined in the Town's Capital Improvement Program. This study will help better understand the possible flood mitigation potential not only within this study corridor but in the Town as a whole as well, as this phase of the master plan will lay the groundwork for the remainder of the Town to be analyzed. This study will also not only focus on floodplains, but will help identify locations of flooding that are located outside of the of the known flood hazard areas.

1. Survey Services (to be provided by GRS Group, LLC)
    a. Existing conditions survey will be necessary to ensure that the existing conditions of the Town's stormwater system and surrounding topography is accurately represented in order to establish an up to date existing conditions model of the Town's stormwater and drainage networks.
2. Site Base Mapping, Project Due Diligence, and Site Visits
    a. Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the Study Area. The base mapping will utilize readily available Town GIS, VFRIS, and FEMA data to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.
    b. Kimley-Horn will conduct a series of 10 site visits to confirm the presence of stormwater network infrastructure that will need to be surveyed. Kimley-Horn will generate GIS Field Maps data for these stormwater nodes and points of observation.
    c. Kimley-Horn will perform project due diligence for the study areas by compiling pertinent information from the following surveys, reports, and data sets:
3. Hydrologic Analysis of the Phase 1 Study Area
    a. Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), runoff coefficients, Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 400 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, 25-yr, 100-yr, and 500-yr storm events. All information derived in this task will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).
4. Development of a Phase 1 Study Area Stormwater Management Model

a. Kimley-Horn will build an existing conditions model of the Study Area to create a baseline condition off of which proposed alternatives can be compared. Kimley-Horn will model this Study Area using InfoWorks ICM, dynamic SWMM software, to adequately capture the complexities of the drainage and conveyance networks within the Study Area that ultimately contribute to the flooding in the Study Area. To adequately simulate the flooding conditions that occur in the Study Area, it is critical to use a model that varies in time (unsteady/temporally varied) so that that timing of the stormwater flows during storms are captured.

b. The stormwater network model will utilize survey data and then field measurements where survey is not possible. Kimley-Horn will also leverage any Town provided as-builts, record drawings, and design plans within the Study Area. For topographic data, survey will be utilized, and publicly available topographic data will be used to supplement where survey data is not available.

c. Model validation will be performed in discussion with Town staff to confirm that the model outputs are in line with what has been observed in the Study Area. Kimley-Horn staff will conduct up to 3 site visits during a severe rainfall event to make in-field observations to compare against model outputs. The model will be updated accordingly based on this validation exercise, to more realistically represent the existing conditions in flood events for the Study Area.

d. The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding within the Study Area. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. Map products of flood extents and graphs of Hydraulic Grade Line (HGL) profiles for the modeled return period storm events will be generated. These values will provide a baseline comparison off which to assess proposed conceptual design implementation scenarios both in the horizontal (mapping), and vertical (HGLs/depth) planes. All information derived in this subtask will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

e. Kimley-Horn will modify the Existing Conditions Watershed Model to evaluate proposed infrastructure and grading changes that could help abate flooding throughout the study area. The modeling will focus on implementation of modern drainage infrastructure in areas without it, infrastructure changes at major stream crossings, stream and floodplain grading techniques, installation or augmentation of stormwater management facilities, and pairing of multiple practices within the study areas (if necessary). Watershed scale implementation and evaluation of conceptual solutions will be prioritized as to provide wholistic approaches to flooding issues, and to not potentially transfer any flooding downstream.

f. Kimley-Horn will model up to 12 conceptual solutions within the Study Area. After assessing the viability and potential success of the conceptual infrastructure or nature-based changes within the Study Area, Kimley-Horn will run revised model scenarios for the 1, 2, 10, 25, 100, and 500-yr storm events to compare to the existing conditions modeling to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Study Area. The graphical

and tabular information generated from this task will be included in the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

5. Development of a Phase 1 Stormwater Master Drainage Improvements Concept Plan
    a. Based on the results of the Stormwater Modeling (Task 400), Kimley-Horn and the Town will agree upon 6 conceptual solutions to evaluate further. From this, Kimley-Horn will develop 6 - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Study Area. Proposed conceptual improvements will include, but are not limited to the following:
        i. Infrastructure based improvements
            1. Additional pipe locations, inlet placement, junction boxes, etc.
        ii. Natural based solutions
            1. Stream and floodplain restoration techniques, outfall channel restoration, creating or enhancing areas of flood storage, etc.
        iii. Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.
6. Development of a Phase 1 Stormwater Master Drainage Plan Report
    a. Kimley-Horn will develop Phase 1 Stormwater Master Drainage Plan Report outlining the information derived in tasks 100 - 500. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.
7. Meetings & Coordination
    a. Kimley-Horn staff will be available for up to 6 project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with Town staff.
    b. Any anticipated delays over the course of the study will be discussed during project coordination calls.

The following items are anticipated as project deliverables for this Scope of Services:

- All developed Hydrologic and Hydraulic Model(s)
- Phase 1 Master Drainage Plan Flood and Drainage Improvements 24 x 36 AutoCAD Derived Conceptual Plans
- Phase 1 Master Drainage Plan Report
- All maps, models, analyses, spreadsheets, and base data utilized for the design (if requested).

This project is estimated to be completed by December 31st, 2026, assuming that Kimley-Horn receives notice to proceed by April 30, 2025 and receives survey data by July 31st, 2025.

The Town of Warrenton Department of Public Utilities is responsible for managing this project from the Town side, while Kimley-Horn will be responsible for managing the work. Project progress and budget will be tracked monthly and reported to the Town with a monthly project progress report containing documentation of services provided. Because the proposed project is a study, no operation or maintenance will be required on behalf of the Town or Kimley-Horn. Kimley-Horn and the Town of Warrenton Department of Public Utilities are the main project partners. Additional Town departments could be potential partners to help validate existing conditions flooding.

Completing this study utilizing the tasks and procedures in Kimley-Horn's scope of services will help strengthen the Town's resilience to flooding on a local and basin-wide scale. The downstream ends of the subwatersheds often connect to Fauquier County, so there is opportunity to enhance resiliency beyond the Town limits as well.

Safety benefits include the identification of flood reduction solutions that could reduce flood hazards on roadways, to pedestrians, and help to remedy erosion in the Town that is encroaching on infrastructure and property. This study will allow for allocation of Town funds in the future toward project implementation in a manner that is strategic and maximizes the taxpayers' dollars. Additional benefits will be gained in the planned redevelopment in the Town as the creation of this comprehensive model with allow for implementation of future proposed work to understand its impacts on the Town's storm and drainage network.

Being awarded a CFPF grant would expedite the timeline of this study and would expand the Town's budget so additional funds can be concentrated on flood mitigation efforts based on the results of the study. If the Town were not to receive funding, the Town would still proceed with the study, but the timeline may be delayed and additional potential flood mitigation projects would be pushed farther out in future fiscal years, beyond what is currently projected in the Town's CIP.

Cost effectiveness is a key consideration of this study in assessing potential alternatives. This study will yield 6 potential projects for implementation that will reduce flood risk and help protect current and future Town resources. All solutions must be feasible and implementable both physically and financially. This will be ensured through frequent communication with Town staff and from receiving input on strategic uses of capital budgets in the coming years.

Supporting Documents for Study Application

Supporting Documentation for Study Application

The following Supporting Documentation items were referenced directly from the CFPF Grant Manual for Study Grant applications.

The specific type of study proposed including whether the study is new or updates a prior study.

There was a Stormwater Master Plan from 1990, but that study's data is outdated with a lot of development taking place in the last 35 years, so the purpose of this study is in part to act like a new study and bring the Town's stormwater planning and modeling into the modern digital age. This study is Phase 1 of the Town's Stormwater Master Drainage Plan, which will enable to the Town to quantify flooding and drainage problems, as well as the impacts of potential solutions. This will enable the Town to effectively plan out capital budgets in future fiscal years for project implementation based on the findings of this study.

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

This master plan study will be utilized to evaluate infrastructure criticality and quantify the extent of aging and undersized storm sewer infrastructure within the Town. The local government and public works, and public utilities department is aware of recurrent flooding and localized drainage issues within the Town and will use this study to model these known areas, as well as identify areas that are at, or near hydraulic capacity that will being to exhibit flooding characteristics with the anticipated increase in higher intensity and longer duration storm events. The initial 3 basin locations proposed in this watershed study were strategically picked to pair high priority storm infrastructure issues with an equitable distribution of projects over the Town's many urban areas and neighborhoods. As with all watershed modeling, closed conduit system modeling will be paired with a riverine hydraulics analysis to wholistically evaluate each of the proposed sub watersheds, from pipe to channel. and the watershed modeling will inevitably be used to develop multifaceted project approaches that can address storm infrastructure issues, as well as stream bank and channel erosion cause by high exit velocities. The town anticipates using this modeling to identify project locations to abate flooding, as well as project locations to implement nature based solutions such as stream channel restoration, outfall channel restoration, and pond retrofit projects that will be utilized to generate Chesapeake Bay TMDL credits (Nitrogen/Phosphorus) that can be applied to the Towns MS4 Permit Requirements for Pollutant of Concern (POC) reductions.

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

The qualifications of the project team are included on the following pages below.

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

The Town does not currently have a Resilience Plan but has expressed interest in potentially creating one in upcoming years. This study will help start a Town-wide stormwater model that can be updated with new development plans or other infrastructure projects. This will enable the Town to have an accurate depiction of its stormwater system and what any potential changes to the system would result in with regard to hydraulic grade lines, flood extents, and level of service. Building a state of the art, Town-wide stormwater management model will enhance the resiliency of the Town for decades to come and will allow the Town to effectively prioritize project funding across the Town. The modeling results will be utilized to help provide information to the Rappahannock-Rapidan Regional Commission and can be coordinated with counties such as Fauquier and others to help assist with regional hazard mitigation plans. The Town has worked with the Rappahannock-Rapidan Regional Commission previously to help obtain grant funding for pond retrofits and nature based solutions.

Rappahannock-Rapidan Regional Commission – Regional Hazard Mitigation & Resiliency Plan

https://www.rrregion.org/program_areas/community_development/hazard_mitigation.php

If applicable, how the study may improve Virginia's flood protection and prevention abilities in a statewide context.

N/A

Other necessary information to establish project priority

- ### Repetitive Loss and/or Severe Repetitive Loss Properties

  There are currently no known repetitive loss areas documented in this project corridor.

- ### Residential and/or Commercial Structures

  There are 1,489 buildings located within the study area. It will be determined through the results of this study, how many of these buildings are impacted by flooding conditions. There are significant commercial zoning districts within the Town in addition to the many residential neighborhoods that make up the majority of the Town.

- ### Critical Facilities/Infrastructure

  This study analyzes a large portion of the Town and therefore encompasses a tremendous amount of infrastructure that could stand to benefit from this work. There are 570 sanitary sewer manholes in the study area per Town GIS data, over 112,000 linear feet of sanitary sewer lines, over 74,000 linear feet of storm sewer pipe. There are at least 80 bridges and culvert located within the study are that stand to be impacted by

and impact flooding conditions. These bridges and culverts will be analyzed as part of this study. A part of this study will be identifying additional critical facilities that are impacted by flooding (hospitals, emergency services police stations, fire stations, schools, etc.).

Project Team Qualifications

Key Individuals

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

Jared Hodes, PE, CFM

Project Manager

Jared is a water resources engineer and project manager with 8 years of experience in technical hydrologic and hydraulic (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, HECHMS, 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.

Jon D'Alessandro, PE

Project Engineer

Jon has 16 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 and retrofit, stream restoration design, floodplain analysis, dam failure analysis, and stormwater master planning. 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.

Juan Campos, PE

Project Engineer

Juan has more than 7 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, PE

Project Engineer

Joe is an accomplished water resources engineer with a strong background in field services, including BMP inspections, IDDE, and various assessments in support of site stormwater design, stream restoration, and outfall restoration projects. Joe has led the stormwater design and VSMP permitting effort for dozens of site plans in Northern Virginia for both public and private clients. His skills include technical use of ArcGIS, Civil3D, HEC-RAS, HEC-HMS, PCSWMM, and various other hydrologic and hydraulic software for stormwater planning and design.

Michelle Manfrey, EIT

Project Engineer

Michelle is a project engineer with 3 years of water resources experience. Michelle's experience is primarily focused on supporting municipal projects needed to meet local and Chesapeake TMDL POC reduction requirements. Michelle is well-versed in the utilization of 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.

Jared Hodes, PE, CFM

Project Manager

Jared is a water resources engineer and project manager with 8 years of experience in technical hydrologic and hydraulic (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, HECHMS, 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 fieldwork for stream, stormwater, precipitation, and geophysical measurements and for pollutant sampling projects.

Education

- 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 Credentials

- Professional Engineer in Virginia (#0402065087) and North Carolina (#051773)
- Certified Floodplain Manager (#US-23-13028)
- Applied Fluvial Geomorphology (Rosgen Level 1)
- River Morphology and Applications (Rosgen Level 2)

Relevant Experience

Accotink Creek Stream Stability Assessment and Prioritization Plan, Fairfax, VA — Project Manager. Kimley-Horn developed an approach to update and build upon the 2008 Accotink Creek Stream Stability Assessment and Prioritization Plan with current stream assessment information. To do so, the City and Kimley-Horn collaborated to create a GIS-based platform that leverages advanced capabilities in Esri's Survey123 and allows multiple types of data to be collected simultaneously.

Stafford Drive Stream Restoration CLOMR, 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. A Letter of Final Determination was successfully obtained from FEMA.

Fairfax County Floodplain Use Determination (PFUD) Reviews, Fairfax, VA — Project Engineer. Kimley-Horn provided engineering design and construction administration services for the restoration of three (3) heavily eroded stormwater outfall channelsthat discharge directly into Accotink Creek. Each of these projects were SLAF grant funded and are being utilized for Chesapeake Bay TMDL Pollutant of Concern Reduction Credits (POC) that the City is using to satisfy their MS4 Permit Requirements tied to the Chesapeake Bay TMDL.

The Lakes Damn inundation Study and Emergency Action Plan Development, 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. The project resulted in successful approval through North Carolina Dam Safety.

East Durham Water Sewer and Belt Street Stormwater, Durham, NC— Lead Engineer. Kimley-Horn evaluated approximately 68,500 LF of waterlines, 56,000 LF of sanitary sewer lines, and 9,000 LF 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.

Jonathan D'Alessandro, PE

Project Engineer

Jon has 16 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 and retrofit, stream restoration design, floodplain analysis, dam failure analysis, and stormwater master planning. 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.

Education

- Bachelor of Science, Biological Systems Engineering, Virginia Polytechnic Institute and State University, 2008
- Bachelor of Science, Biology, Virginia Polytechnic Institute and State University, 2008

Professional Credentials

- Professional Engineer in Virginia (#0402052336)
- Applied Fluvial Geomorphology (Rosgen Level 1)
- River Morphology and Applications (Rosgen Level 2)
- Virginia DEQ Stormwater Plan Inspector
- Virginia DEQ Stormwater Plan Reviewer

Relevant Experience

Accotink Creek Stream Stability and Prioritization Plan, Fairfax, VA — Project Manager. Kimley-Horn is working to capture the scale and extent of stream bank erosion along Accotink Creek and its tributaries and develop a 10-year project prioritization and budgeting plan for future restoration activities for the City of Fairfax. As part of this project, a joint City of Fairfax and Kimley-Horn derived Survey 123 Data Collection Application was developed and paired with an ArcGIS collector application to rapidly gather geospatial field data along 50,000 linear feet of Accotink Creek. As part of the rapid assessment platform, Kimley-Horn and the City created a stream deficiency ranking system that automatically calculates a composite restorability score based on in-field assessed conditions.

Reslience Plan, Winchester, VA — Project Engineer. Kimley-Horn managed, prepared, and assembled a grant application package to request matching funds for the 2021 Virginia Community Flood Preparedness Fund (CFPF). The grant application package was for the development of a citywide resilience plan in the Planning and Capacity Building category. The resilience plan intends to assist the City of Winchester by outlining flood reduction methodologies that could help reduce the impact on the City's infrastructure using nature-based solutions.

Loudoun County, Willow Lake Dam and Spillway Rehabilitation, Leesburg, VA — 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 also provided 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.

Floodplain Use Determination (FPUD) Requests Reviews, Fairfax County, VA — Project Manager. Kimley-Horn is providing engineering staff augmentation services for Fairfax County's Land Development Services Site Development and Inspection Division to conduct reviews of FPUD application requests. The Kimley-Horn team has successfully conducted more than 60 reviews to date and will continue these staff augmentation services into a third year after the contract being renewed by the client.

Ashby Pond Conservancy, Pond Retrofit Final Design Services, Fairfax, VA— Project Manager and Senior Engineer. Jon is leading an effort to finalize design plans for the Ashby Pond Conservancy Pond Retrofit project. The project will restore, enhance, and retrofit Ashby Pond. This project also includes the restoration and stabilization of both inflow channels that drain to the pond as well as the design and installation of a maintenance access trail and on-grade walking trail around the perimeter of the pond.

Juan Campos, PE

Project Engineer

Juan has more than 7 years of of water resources experience primarily focused on support of municipal projects needed to meet local and Chesapeake Bay TMDL POC reduction requirements and as part of capital improvement projects. Juan's core expertise lies in his knowledge of the approved stormwater regulations and design 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.

Relevant Experience

Public Works Plan Review and Ancilliary Services, Fairfax, VA — Project Manager. Juan provided third-party review of City of Fairfax Public Works plan submissions to ensure compliance with the applicable sections of the Virginia Administrative Code, the Virginia Stormwater Management Handbook, the Virginia Stormwater Best Management Practice (BMP) Clearinghouse website, the City of Fairfax Public Facilities Manual (PFM), and any additional governing documents.

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 support from constituents and public officials.

Outfall and Gully Stabilization Project (100% Construction Plans), Fairfax, VA — Project Manager. 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.

Virginia CFPF 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.

Education

- 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 Credentials

- Professional Engineer in Virginia (#0402061628)
- Applied Fluvial Geomorphology (Rosgen Level 1)
- River Morphology and Applications (Rosgen Level 2)

Joe Arizzi, PE

Project Engineer

Joe is an accomplished water resources engineer with a strong background in field services, including BMP inspections, IDDE, and various assessments in support of site stormwater design, stream restoration, and outfall restoration projects. Joe has led the stormwater design and VSMP permitting effort for dozens of site plans in Northern Virginia for both public and private clients. His skills include technical use of ArcGIS, Civil3D, HEC-RAS, HEC-HMS, PCSWMM, and various other hydrologic and hydraulic software for stormwater planning and design.

Education

- Bachelor of Science, Environmental Engineering, Rennslear Polytechnic Institute, 2014

Professional Credentials

- Professional Engineer in Virginia (#0402059500)
- River Morphology and Applications (Rosgen Level 2)
- Virginia DEQ Stormwater Plan Inspector
- Virginia DEQ Stormwater Plan Reviewer

Relevant Experience

Greening of Lincoln, Falls Church, VA — Project Manager. Joe serves as Kimley-Horn's project manager for this project and is responsible for coordinating with the client, overseeing the team's technical work, and ensuring the project's schedule and budget are adhered to. Throughout this project, Joe has assisted the City with same-day support, ensuring that his client has the resources, results, and messaging to successfully deliver a controversial project in a heavily active neighborhood.

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 constructability.

Stormwater Management Services, Herndon, VA — Project Manager. Joe provides on-call support services to the Town of Herndon for their stormwater management needs. Task orders to date have included BMP maintenance plans and retrofit assessments for aging facilities, stream restoration design plans, urban drainage analyses to address resident complaints, and discussions and negotiations with Fairfax County with respect to funds authorized through the Vienna/Herndon/Fairfax triparty agreement.

Conklin Park Stream Restoration, Loudoun County, VA — Project Engineer. Kimley-Horn is performing a stream restoration for a 2,200 linear foot stream of unnamed tributary of Elklick Creek. This creek has high banks that have been excised by stormwater rushing through the tributary and the stream no longer functions as intended. This intention of this project is to restore the stream to a stable condition and incorporate improvements associated with a proposed dirt bike park parallel to the stream.

Carroll Creek Stream Restoration Design, Frederick, MD — Project Engineer. The project remediated and restored approximately 7,580 linear feet of Carroll Creek from immediately downstream of the Highland Street crossing to its confluence with the Monocacy River. The project area includes a portion of the Renn Farm development that will be dedicated to the City as park land and frontage along the City's wastewater treatment plant.

Michelle Manfrey, EIT

Project Engineer

Michelle is a project engineer with 3 years of water resources experience. Michelle's experience is primarily focused on supporting municipal projects needed to meet local and Chesapeake TMDL POC reduction requirements. Michelle is well-versed in the utilization of 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.

Education

- Bachelor of Science, Environmental Engineering, University of Florida, 2019

Professional Credentials

- Engineer-in-Traning in Florida (#1100025639)
- Applied Fluvial Geomorphology (Rosgen Level 1)
- River Morphology and Applications (Rosgen Level 2)

Relevant Experience

Accotink Creek Stream Stability and Prioritization Plan, Fairfax, VA — Project Engineer. Kimley-Horn is working to capture the scale and extent of stream bank erosion along Accotink Creek and its tributaries and develop a 10-year project prioritization and budgeting plan for future restoration activities for the City of Fairfax. As part of this project, a joint City of Fairfax and Kimley-Horn derived Survey 123 Data Collection Application was developed and paired with an ArcGIS collector application to rapidly gather geospatial field data along 50,000 linear feet of Accotink Creek.

Ashby Pond - Wet Pond Enhancement (90% Design), Fairfax, VA — Project Engineer. Kimley-Horn is currently providing final design services for the Ashby Pond Conservancy - Wet Pond Enhancement project. The project will restore, enhance, and retrofit Ashby Pond in the City of Fairfax. Approximately 135.85 acres of heavy urban, impervious area drains to the existing pond. This project also includes restoration and stabilization of both inflow channels that drain to the pond.

Mosby Woods Floodplain Study, Fairfax, VA — Project Engineer. Kimley-Horn developed conceptual design alternatives to the existing 9'W x 8'H double barrel box culvert system at the Stafford Drive stream crossing. This project was 50% funded by a VA DCR CFPF study grant that Kimley-Horn assisted in winning.

Outfall Restoration, Fairfax, VA — Project Engineer. Kimley-Horn provided engineering design and construction administration services for the restoration of three (3) heavily eroded stormwater outfall channels that discharge directly into Accotink Creek. Each of these projects were SLAF grant funded and are being utilized for Chesapeake Bay TMDL Pollutant of Concern Reduction Credits (POC) that the City is using to satisfy their MS4 Permit Requirements tied to the Chesapeake Bay TMDL.

Stafford Drive Stream Restoration, Fairfax, VA — Project Engineer. Kimley-Horn is currently providing full engineering design and analysis for the ongoing 2,300-linear-foot Stafford Drive Stream Restoration project. The design and corresponding engineering analyses use natural channel design (NCD) restoration techniques to repair extreme channel erosion, while also aiming to minimize grading impacts to the floodplain fringe to preserve existing riparian areas.

Application Form for Grant and Loan Requests for All Categories

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

---

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

Name of Local Government:

Category Being Applied for (check one):

☐ **Capacity Building/Planning**

☐ **Project**

☒ **Study**

NFIP/DCR Community Identification Number (CID) 510057

Name of Authorized Official and Title: Steven Friend - Director of Public Utilities

Signature of Authorized Official: _____

Mailing Address (1): 21 Main Street

Mailing Address (2): _____

City: Warrenton **State:** VA **Zip:** 20186

Telephone Number: (540) 347-1103 **Cell Phone Number:** (____) _____

Email Address: sfriend@warrentonva.gov
Contact and Title (If different from authorized official): Kerry Wharton - Stormwater Administrator

Mailing Address (1): 21 Main Street

Mailing Address (2): _____

City: Warrenton **State:** VA **Zip:** 20186

Telephone Number: (540) 347-1101 **Cell Phone Number:** (____) _____

Email Address: kwharton@warrentonva.gov

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

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

- ☐ Revisions to existing resilience plans and integration of 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)

☐ 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.

☐ Pluvial studies.

☐ 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.

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

☐ 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.

☐ Structural floodwalls, levees, berms, flood gates, structural conveyances.

☐ Storm water system upgrades.

☐ Medium and large-scale Low Impact Development (LID) in urban areas.

☐ 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): See Appendix C

NFIP Community Identification Number (CID#) : 370536

Is Project Located in an NFIP Participating Community? ☒ Yes ☐ No

Is Project Located in a Special Flood Hazard Area? ☒ Yes ☐ No

Flood Zone(s) (If Applicable): _____

Flood Insurance Rate Map Number(s) (If Applicable): _____

Total Cost of Project: _____

Total Amount Requested _____

Amount Requested as Grant _____

Amount Requested as Project Loan (Long-Term, not including short-term loans for up-front costs)

Not applicable

RVRF Loan Amount Requested as Project Match (Not including short-term loans for up-front costs)

Not applicable

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

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

SECTION B – BUDGET DATA

Project Budget Narrative and Scope of Services

Budget Narrative Template

Funding Request Authorization

Project Budget Narrative and Scope of Services

Project Budget Narrative and Scope of Services

A detailed budget narrative is included below and contains the required information outlined in the Grant Manual for the Virginia Community Flood Preparedness Fund. This section also includes the Kimley-Horn Scope of Services to complete Phase 1 of the Town's Stormwater Master Drainage Plan.

Estimated Total Project Cost

The total identified project cost to complete Phase 1 of the Town's Stormwater Master Drainage Plan.is $841,016.08.

Amount of Funds Requested from the Fund

The total amount of grant assistance sought from the Fund is $420,508.04.

Amount of Funds Available

The amount of funds available through this project's funding source is greater than the total estimated project cost of $841,016.08.. The following documentation has been included in this section:

- Town of Warrenton, Virginia – Pages from Fiscal Year 2025 Adopted Budget
- Town of Warrenton, Virginia – Pages from Adopted Capital Improvement Plan 2025-2030

Authorization to Request Funding

A signed statement from the Town of Warrenton Director of Public Utilities authorizing the request for funding for this project has been included in this section.

January 21, 2025

Kerry Wharton
Town of Warrenton – Department of Public Utilities
21 Main Street
Warrenton, VA 20186

Town of Warrenton – Proposal for Stormwater Master Drainage Plan Phase 1

Kimley-Horn and Associates, Inc. (Kimley-Horn), pursuant to contract RFP 23-008, is pleased to submit this task order proposal to the Town of Warrenton's Department of Public Utilities to provide professional consulting services for Phase 1 of the Town's Stormwater Master Drainage Plan. The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

PROJECT UNDERSTANDING

The Town of Warrenton (Town) has requested that Kimley-Horn assist the Town in undertaking Phase 1 of the Town's Stormwater Master Drainage Plan. This project (SM-004) has been identified as a multiple year and multiple phase effort by Town staff and is documented within the Town's 2025-2030 Capital Improvement Plan (CIP).

After an initial due diligence task, it has been determined that Phase 1 of this stormwater master drainage plan will encompass 3 of the Town's 6 subwatersheds based upon prioritization of the subwatersheds with more known drainage issues. These Phase 1 subwatersheds are labeled as "Great Run 1", "Turkey Run 1", and "Turkey Run 2" as shown in Figure 1.

At the Town's request, Kimley-Horn is providing this task order proposal for the services necessary to evaluate the hydrologic and hydraulic conditions within the Phase 1 subwatersheds, hereby referred to as the Study Area, that are leading to flooding issues within the Study Area, and to conceptualize potential solutions to help mitigate flooding within the Study Area.

Kimley-Horn will provide the services specifically set forth below.

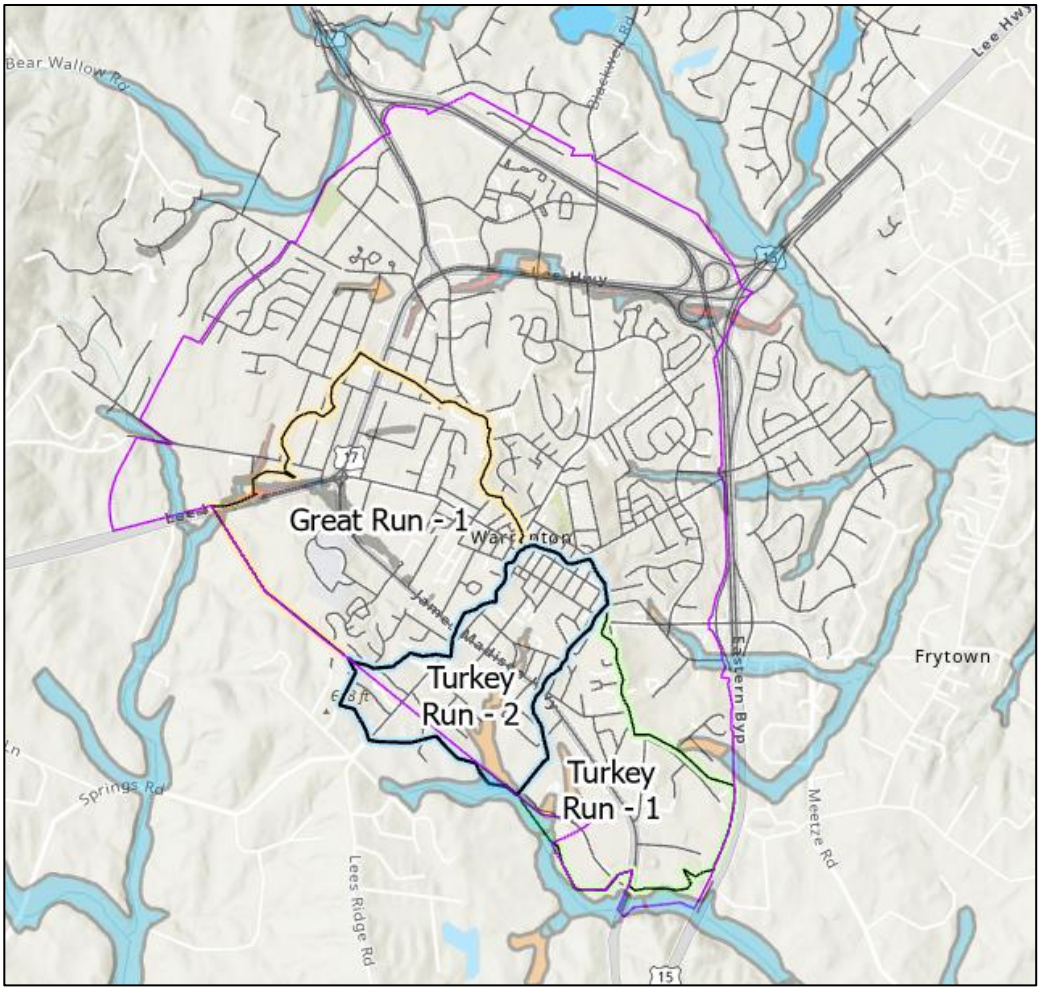


Figure 1. Town of Warrenton - Phase 1 subwatersheds (Study Area).

SCOPE OF SERVICES

This proposal has been divided into 7 tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Survey Services (to be provided by GRS Group, LLC)
2. Site Base Mapping, Project Due Diligence, and Site Visits
3. Hydrologic Analysis of the Phase 1 Study Area
4. Development of a Phase 1 Study Area Stormwater Management Model
5. Development of a Phase 1 Stormwater Master Drainage Improvements Concept Plan
6. Development of a Phase 1 Stormwater Master Drainage Plan Report
7. Meetings & Coordination

TASK 100 – SURVEY SERVICES (TO BE PROVIDED BY GRS GROUP, LLC)

Survey services to be provided by GRS Group, LLC. Please see Attachment 2 for detailed survey scope and fee breakdown. As part of this task, Kimley-Horn will provide comments related to completeness of data for the survey deliverable and will not assume any responsibility for the precision or accuracy of the survey field data or CAD deliverable.

TASK 200 – SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISITS

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the Study Area. The base mapping will utilize readily available Town GIS, VFRIS, and FEMA data to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

Kimley-Horn will conduct a series of 10 site visits to confirm the presence of stormwater network infrastructure that will need to be surveyed. Kimley-Horn will generate GIS Field Maps data for these stormwater nodes and points of observation.

Kimley-Horn will perform project due diligence for the study areas by compiling pertinent information from the following surveys, reports, and data sets:

- Survey Data – To be derived by Others (GRS Group, LLC)
- Relevant Flood Insurance Studies (FIS)
- Relevant FEMA Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the Study Area (to be provided by the Town, if available)
- Available FEMA, Town of Warrenton, or Fauquier County Hydraulic and/or Floodplain Models.
- Available VDOT / Town of Warrenton Roadway/Drainage Infrastructure Plans for the Study Area.
- Best available VFRIS, FEMA, State, Town of Warrenton and Fauquier County GIS Shapefile Data and Aerial Imagery.
- Available as-builts/electronic records of existing stormwater infrastructure.

Kimley-Horn will utilize the base mapping and background data obtained through this task to perform a site visit to photo-document the current conditions within the study areas. Kimley-Horn will use the photos, information obtained during the site visit, and base mapping to create a composite GIS map depicting photo locations captured in the field that identify potential study area opportunities and constraints. This site visit will also be utilized to confirm that stormwater/drainage connections are consistent with what will be shown in the survey data and GIS data, and to identify any areas where additional survey may be needed.

TASK 300 – HYDROLOGIC ANALYSIS OF THE PHASE 1 STUDY AREA

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), runoff coefficients, Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 400 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, 25-yr, 100-yr, and 500-yr storm events. All information derived in this task will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 400 – DEVELOPMENT OF A PHASE 1 STUDY AREA STORMWATER MANAGEMENT MODEL

Task 400A – Existing Conditions Modeling

Kimley-Horn will build an existing conditions model of the Study Area to create a baseline condition off of which proposed alternatives can be compared. Kimley-Horn will model this Study Area using InfoWorks ICM, dynamic SWMM software, to adequately capture the complexities of the drainage and conveyance networks within the Study Area that ultimately contribute to the flooding in the Study Area. To adequately simulate the flooding conditions that occur in the Study Area, it is critical to use a model that varies in time (unsteady/temporally varied) so that that timing of the stormwater flows during storms are captured.

Additionally, from Town staff and citizen complaints to Town staff, it is known that some areas of the stormwater conveyance systems within the Study Area have been known to flood. This leads to the need to utilize a 1-Dimensional/2-Dimensional (1-D/2-D) modeling approach to properly simulate the behavior of any surcharged volumes of water as they move over the surface. This approach also allows for a broader watershed model approach as there are many overland and depressional features that can be modeled with the aid of the publicly available 1-meter resolution topographic data and LiDAR topographic data. This 1-D/2-D, time varying modeling approach will allow the model to simulate surface ponding and flooding conditions over time and to quantify the length of time that flooding occurs around structures in the area. This approach will also allow for a more explicit representation of how the flow and structures interact during flood events, since there are portions of flow paths through the Study Area being conveyed through open channels that are immediately adjacent to houses and structures.

The stormwater network model will utilize survey data and then field measurements where survey is not possible. Kimley-Horn will also leverage any Town provided as-builts, record drawings, and design plans within the Study Area. For topographic data, survey will be utilized, and publicly available topographic data will be used to supplement where survey data is not available.

Model validation will be performed in discussion with Town staff to confirm that the model outputs are in line with what has been observed in the Study Area. Kimley-Horn staff will conduct up to 3 site visits during a severe rainfall event to make in-field observations to compare against

model outputs. The model will be updated accordingly based on this validation exercise, to more realistically represent the existing conditions in flood events for the Study Area.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding within the Study Area. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. Map products of flood extents and graphs of Hydraulic Grade Line (HGL) profiles for the modeled return period storm events will be generated. These values will provide a baseline comparison off which to assess proposed conceptual design implementation scenarios both in the horizontal (mapping), and vertical (HGLs/depth) planes. All information derived in this subtask will be documented within the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

Task 400B – Proposed Improvements Modeling

Kimley-Horn will modify the Existing Conditions Watershed Model to evaluate proposed infrastructure and grading changes that could help abate flooding throughout the study area. The modeling will focus on implementation of modern drainage infrastructure in areas without it, infrastructure changes at major stream crossings, stream and floodplain grading techniques, installation or augmentation of stormwater management facilities, and pairing of multiple practices within the study areas (if necessary). Watershed scale implementation and evaluation of conceptual solutions will be prioritized as to provide wholistic approaches to flooding issues, and to not potentially transfer any flooding downstream.

Kimley-Horn will model up to 12 conceptual solutions within the Study Area. After assessing the viability and potential success of the conceptual infrastructure or nature-based changes within the Study Area, Kimley-Horn will run revised model scenarios for the 1, 2, 10, 25, 100, and 500-yr storm events to compare to the existing conditions modeling to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Study Area. The graphical and tabular information generated from this task will be included in the Phase 1 Stormwater Master Drainage Plan Report (Task 600).

TASK 500 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE IMPROVEMENTS CONCEPT PLAN

Based on the results of the Stormwater Modeling (Task 400), Kimley-Horn and the Town will agree upon 6 conceptual solutions to evaluate further. From this, Kimley-Horn will develop 6 - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Study Area. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, creating or enhancing areas of flood storage, etc.

- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

Due to the conceptual nature of this plan, all proposed structural improvements, preliminary grading and riparian enhancements, and proposed future project implementation locations will have limited engineering design and will focus on project layout, location, and feasibility.

TASK 600 – DEVELOPMENT OF A PHASE 1 STORMWATER MASTER DRAINAGE PLAN REPORT

Kimley-Horn will develop Phase 1 Stormwater Master Drainage Plan Report outlining the information derived in tasks 100 - 500. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

TASK 700 – MEETINGS & COORDINATION

Kimley-Horn staff will be available for up to 6 project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with Town 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 Services:

- All developed Hydrologic and Hydraulic Model(s)
- Phase 1 Master Drainage Plan Flood and Drainage Improvements 24 x 36 AutoCAD Derived Conceptual Plans
- Phase 1 Master Drainage Plan Report
- All maps, models, analyses, spreadsheets, and base data utilized for the design (if requested).

OVERALL PROJECT ASSUMPTIONS

For the purposes of developing this proposed Scope of Services and the accompanying cost estimate, we have made the following assumptions:

- It is assumed that survey data will be provided to Kimley-Horn prior to July 31st, 2025. If this assumed schedule for survey is held, Kimley-Horn anticipates completion of this study by December 31st, 2026.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the Town with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the Town to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered "for information purposes only".
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as "Not for Construction Purposes".
- The Town will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available Town GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The Town of Warrenton – Department of Public Utilities will provide all coordination with Inter-Town departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 60 days and will expire if not accepted within that timeframe.

OVERALL PROJECT EXCLUSIONS

Services that are not currently anticipated as part of this task and are therefore outside of review under this proposal include the following:

- Grant Administration Services
- Phase I, II, III Archaeological Investigations
- Environmental Site Assessments
- Perennial Stream Assessments and/or Flow Determinations
- Wetland Permit Compliance
- Project Renderings
- VSMP Compliance
- Floodplain Studies and Submittals
- FEMA Applications
- Dam Safety Compliance
- Dam Break Inundation Zone (DBIZ) Modeling / Mapping

- Engineering Design Plan Submittals / Construction Document Development
- Utility Design (excluding Storm Sewer)
- VDOT Design or Permitting
- Right of Way Permitting or Dedication associated with planned or future development
- Development/Delivery of Presentations, Board of Supervisors, Committees, or the Public
- Notifications to impacted Property Owners
- All other services not explicitly stated in this Scope of Services

SCHEDULE

The tasks referenced in this scope will be coordinated with Town Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the Town with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by April 30, 2025, and survey data is received by July 31, 2025, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2026. A detailed schedule will be developed for the Town outlining project workflow and deliverables after contract execution.

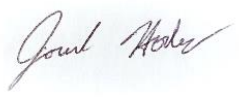
FEE AND BILLING

Kimley-Horn will provide the following scope of services under our term contract RFP 23-008, for a lump sum fee of **$841,016.08**. A detailed breakdown (by task) of Kimley-Horn Horn's labor costs are provided in Attachment 1. Please note that fees will be invoiced monthly 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 the executed contract RFP 23-008 between the Town of Warrenton and Kimley-Horn. We appreciate the opportunity to provide these services to you. Please contact either of us if you have any questions.

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

Signed: 

Printed Name: **Jared Hodes, P.E., CFM**

Title: Project Manager

Signed: 

Printed Name: **Jon D'Alessandro, P.E.**

Title: Senior Project Manager

ATTACHMENT 1 – KIMLEY-HORN FEE BREAKDOWN

ATTACHMENT 2 – GRS GROUP, LLC, DETAILED SURVEY SCOPE AND FEE BREAKDOWN

6703 Deland Court
Springfield, VA 22152
(703) 727-5828 Cell
(703) 763-2320 Fax
grsgroup.llc@gmail.com
www.grsgroupllc.com

January 20, 2025

Kimley-Horn Associates, Inc.
11400 Commerce Park Dr., Suite 400
Reston, VA 20191

Attention: Jared Hodes P.E.

RE: Town of Warrenton Storm Drain Study
Phase 1

Dear Jared:

It is a pleasure to present our Proposal for Professional Land Surveying Services to be rendered in connection with the above referenced project. Our understanding of the work scope at the present time is to prepare a comprehensive survey of the Towns Storm Drain System including potential topographic survey of specific areas to understand drainage issues.

Based upon this our office will perform the following.

STORM DRAIN SURVEY

GRS will survey each of the requested storm drain structures. GRS will obtain information pertaining to elevation of top of structure, invert elevations in and out of structure, pipe size and material. A topographic survey including manmade and natural features and visible utilities will be performed. The survey will extend to 25 feet beyond limits requested. Elevations will be obtained at a thirty (30) foot interval with contours being generated at a one (1) foot interval. Wetlands, if marked, will be located at the time of the survey. The topography will be based upon NAVD 88 datum and NAD 83 grid. Underground utility information will be based upon surface features, utility company mark outs, and mapping provided by the client. GRS does not guarantee the underground utilities shown will comprise all the utilities in the area, either in service or abandoned. GRS does not certify that the utilities are shown in the exact location, however GRS will locate the utilities based upon the available information. This information will be collectively analyzed and compiled into an appropriately scaled AutoCAD 2024 drawing document.

1,000 STORM STRUCTURES FEE: $80,000

TOPOGRAHIC SURVEY FEE OF 250 ACRES: $ 225,000

If during the course of the field survey, boundary analysis or deed review an issue arises concerning the overall property boundary, your office will be notified immediately to discuss resolution. If this issue requires additional fieldwork or research time an estimate will be provided to you at that time. Furthermore, it is assumed that access to the site in question will be coordinated directly by your office.

This will be required in order to fulfill our surveying requirements and must be established 48 hours prior to the scheduling of field crews.

Professional Land Surveying Services can be initiated immediately upon acceptance of this Contract. If adverse weather conditions encumber the performance of field activities, the time frame will be adjusted accordingly.

If the terms and conditions of this Proposal are acceptable to you, please forward a Sub-consultant Agreement for our signature.

Should you have any questions or comments pertaining to this matter or if I can provide any further assistance, kindly contact me at your convenience.

Sincerely,

GRS Group LLC

Kevin F. Steinhilber, L.S.

Budget Narrative Template

Appendix B: Budget Narrative Template

Applicant Name: Community Flood Preparedness Fund & Resilient Virginia Revolving Loan Fund Detailed Budget Narrative

Town of Warrenton

Period of Performance: **January 25, 2025** through **December 31, 2026**

Submission Date: **January 24, 2025**

Grand Total State Funding Request	$ **420,508.04**
Grand Total Local Share of Project	$ **420,508.04**
Federal Funding (if applicable)	$
Project Grand Total	$ **841,016.08**
Locality Cost Match	% **50**

Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						**420,508.04**			**420,508.04**
State Share – CFPF Grant						**420,508.04**			**420,508.04**
State Share – RVRF Match Loan									
Pre-Award/Startup									
Maintenance									
Total	$	$	$	$	$	$**841,016.08**	$	$	$ **841,016.08**

Available Funding Documentation

TOWN OF WARRENTON, VIRGINIA

Fiscal Year 2025 Adopted Budget

OFFICE OF THE TOWN MANAGER
21 Main Street, Warrenton, Virginia 20186

STORMWATER MANAGEMENT FUND

FUND DESCRIPTION

Stormwater runoff is the most common cause of water pollution. state and federal clean water statutes require localities to have programs related to stormwater runoff, erosion, and sedimentation control protecting their water resources. The Town is an MS4, or a Municipal Separate Storm Sewer System, and is permitted to levy a stormwater utility fee to pay for the program. The fee was established by ordinance during the FY 2021 budget process, but Council delayed collection due to the COVID-19 pandemic. The collection of this fee began in FY 2022, and the Stormwater Management Fund was established as an enterprise fund to sustain the program.

The stormwater department works to consistently protect our environment by reducing flooding to protect Town residents and property, supporting healthy streams, and creating a healthier and more sustainable community in compliance with the Town's MS4 Permit administered by the Virginia Department of Environmental Quality (DEQ).

CURRENT STAFFING

This division is staffed by the Stormwater Administrator and Stormwater Inspector who are both allocated 100% to the department. The GIS Technician is split 80/20 between this fund and the Water & Sewer Operating Fund. The Director of Public Utilities is allocated 20% to this Fund. The Engineer, Permit Technicians, Zoning Official, and Tax Administrator are also partially allocated to this Fund based on support provided.

KEY PROJECTS FOR FY 2024

- Complete projects as outlined in the CIP.
- Continue reporting requirements to the Virginia Department of Environmental Quality (VDEQ).
- Continue working to find new ways to educate citizens about stormwater and outreach programs.
- Continue building a digital stormwater inventory.
- Continue to work with finance department to clarify fee information included with bills.

STORMWATER MANAGEMENT FUND REVENUES

	ACTUAL		ADOPTED			
	FY2022	FY2023	FY2024	FY2025	Variance ($)	Variance (%)
REVENUES						
LOCAL REVENUE	$773,629	$653,734	$0	$733,000	$733,000	–
CHARGES FOR SERVICES-UTILITIES	$0	$0	$700,000	$0	($700,000)	(100%)
MISCELLANEOUS REVENUE	$498	$556	$0	$300	$300	–
FEDERAL REVENUE	$11,750	$99,318	$369,000	$0	($369,000)	(100%)
USE OF FUND BALANCE	$0	$0	$416,404	$557,932	$141,528	34%
REVENUES TOTAL	**$785,877**	**$753,608**	**$1,485,404**	**$1,291,232**	**($194,172)**	**(13%)**

Stormwater Management Fees (Local Revenue)

This fee is a "fee for service" based on the cost to manage stormwater that runs off impervious surfaces, such as roofs and parking areas. Developed single family residential properties fall into one to three rate tiers based on the total impervious area of the property. Impervious area refers to solid surfaces on a property that will not allow rainwater to seep into the ground (e.g. – building and parking areas). The following table shows the current fees:

Tier	Impervious Area (sq. feet)	Fee Per Month
Tier 1	400 - 1,299	$5.55
Tier 2	1,300 - 4,4990	$6.94
Tier 3	4,500 +	$17.37

Non-residential fees are based on the overall impervious area of a parcel divided by the equivalent residential unit of 2,200 square feet and then multiplied by $5.55 per month.

The fees are billed twice each year on the Town's real estate tax bill. The bills are due on June 15th and December 15th. The fee is expected to generate $733,000 in FY 2025, up from $700,000 in FY 2024. The projected increase is based on actual billings for FY 2024. In addition, the Stormwater department intends to update the Fee Schedule to include modification, transfer, and permit maintenance fees for construction activity and land clearing. This update will ensure the Fee Schedule is in line with the Town Code.

Miscellaneous Revenue

Miscellaneous revenue is related to credit card fees collected from online payments. These fees are then remitted to the payment processor.

Grant Revenue (State and Federal)

In FY 2025, there are no stormwater management projects that have been awarded a grant.

Use of Fund Balance

In FY 2025, use of Fund Balance is used to fund the remainder of Stormwater Management Fund expenses that are not covered by other revenue streams. It is important to note that the Stormwater Management Fund has a capital component (as detailed below) and due to the nature of capital budgeting, the entire amount of a capital project must be budgeted up front, even though the project may span several fiscal years. As such, the actual cash outflows related to a capital project are typically less than the budgeted amount in any given fiscal year. As a result, the actual use of fund balance in FY 2025 will likely be lower than the budgeted figure as the budgeted figure assumes all capital amounts will be spent during the year.

STORMWATER MANAGEMENT FUND EXPENSES

	ACTUAL		ADOPTED			
	FY2022	FY2023	FY2024	FY2025	Variance ($)	Variance (%)
EXPENSES						
PERSONNEL	$397,407	$348,211	$426,746	$441,121	$14,375	3%
OPERATING	$54,708	$40,436	$81,168	$81,930	$762	1%
CAPITAL OUTLAY	$9,917	$0	$928,407	$720,500	($207,907)	(22%)
TRANSFERS	$0	$0	$49,083	$47,681	($1,402)	(3%)
EXPENSES TOTAL	**$462,033**	**$388,647**	**$1,485,404**	**$1,291,232**	**($194,172)**	**(13%)**

STAFFING SUMMARY

Department	FY2021	FY2022	FY2023	FY2024	FY2025
FTE Amount					
Stormwater Management	3	2	5.1	4.42	4.3
FTE AMOUNT	**3**	**2**	**5.1**	**4.42**	**4.3**

BUDGET ANALYSIS

The adopted FY 2025 budget represents a decrease compared to the adopted FY 2024 budget. Expenses related to stormwater operations are expected to remain relatively flat. Personnel expenses are expected to rise slightly due to COLA and merit raises for employees. The effect of the Director of Public Utilities being allocated 20% to this fund for FY 2025 is partially offset by the impact of removing the allocation of IT employee salaries and moving 20% of the GIS Technician allocation to other funds.

Operating expenses are projected to remain relatively flat as decreases in fuel and supplies costs offset a slight increase in costs associated with culvert outlet cleaning and the purchase of total suspended solids (TSS) credits. Included in operating expenses are reimbursements to certain employees for safety equipment required to perform the duties of their jobs. For FY 2025, the reimbursement for safety boots is set at $150 per employee.

There are three (3) capital projects driving the capital outlay category, discussed below. There is a transfer to the General Fund to cover the cost of services provided by the fleet and information technology departments.

Asset replacement and capital projects include the following:

TOWN OF WARRENTON, VIRGINIA

Adopted Capital Improvement Plan

2025-2030

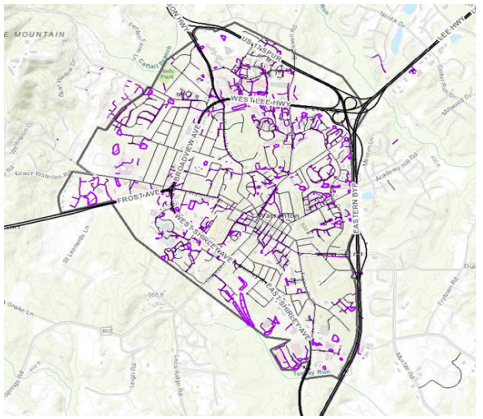
Stormwater Fund

Project Detail Pages

PROJECT NUMBER: SM-004 | **PROJECT TITLE: Master Drainage Plan** | **DEPARTMENT: Stormwater Management (SM)**

PROGRAM DESCRIPTION

This program is to update the 1990 Master Drainage Plan (MDP). This updated plan will be a phased approach to identify a list of priorities to the Town's current drainage infrastructure system. The MDP is the linchpin for prioritizing future stormwater projects in order to develop a plan for improving the existing drainage system aimed at reducing flooding and improving runoff quality. This MDP will help provide a projected view to align the Town's stormwater plan with other community planning efforts, such as comprehensive master plans, that often identify where and how communities will grow and redevelop over a 10- to 20-year period.



GOAL ADDRESSED

Plan Warrenton 2040 CF-3.8: Minimize impervious areas in new developments and future road construction projects, thereby reducing stormwater flows and impacts to the Municipal Separate Storm Sewer System program. P-1.3: Use a nature-based systems approach in development to mitigate stormwater and improve habitat within the Town's open spaces.

ESTIMATED COSTS	Previous Allocation	FY25 **2024-25**	FY26 **2025-26**	FY27 **2026-27**	FY28 **2027-28**	FY29 **2028-29**	FY30 **2029-30**	**Total**
Land Acquisition								**$0**
Architecture/Engineering	$100,000	$500,000	$500,000	$400,000				**$1,500,000**
Construction/Purchase								**$0**
Other								**$0**
TOTAL	**$100,000**	**$500,000**	**$500,000**	**$400,000**	**$0**	**$0**	**$0**	**$1,500,000**
FUNDING SOURCES								
General Fund								**$0**
Water and Sewer Fund								**$0**
Stormwater Fund	$100,000	$500,000	$500,000	$400,000				**$1,500,000**
Debt								**$0**
State								**$0**
Federal								**$0**
Other								**$0**
TOTAL	**$100,000**	**$500,000**	**$500,000**	**$400,000**	**$0**	**$0**	**$0**	**$1,500,000**

Funding Request Authorization

I, Steven Friend, Director of Public Utilities for the Town of Warrenton, authorize the Town of Warrenton to request funding from the 2025 Funding Round of the Virginia Community Flood Preparedness Fund for the development of a Stormwater Master Drainage Plan Phase 1 Study.

Signed: _____

Date: 1 - 9 - 2 0 2 5 _____

SECTION C – CHECKLIST REQUIREMENTS

Completed CFPF Funding Manual Checklist

Detailed Map(s) of the Project Area

FIRMette (FIRM Panels) of the Project Area

Historic Flood Damage Documentation

Link to the Town of Warrenton Floodplain Ordinance

Link to the Town of Warrenton Comprehensive Plan

Social Vulnerability Index Score(s) for the Project Area

Completed CFPF Funding Manual Checklist

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)

☒ 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

☐ ~~Non-Fund financed maintenance and management plan for project extending a minimum of 10 years from project close~~ N/A

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

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

☐ ~~If applicant is not a town, city, or county, letters of support from affected localities~~ N/A

☐ ~~Letter of support from impacted stakeholders~~ N/A

☒ Budget Narrative

☐ ~~Supporting Documentation, including the Benefit-Cost Analysis tool or narrative (for projects over $2 million)~~ N/A

☒ Authorization to request funding from the Fund and/or RVRF Match loan from governing body or chief executive of the local government

☐ ~~Signed pledge agreement from each contributing organization~~ N/A

☒ Detailed budget and narrative for all costs

Detailed Map(s) of Project Area

0 500 1,000 2,000 3,000 4,000 Feet

N

Legend

- Streams
- Town Limits

Study Subwatersheds

- Great Run - 1
- Turkey Run - 1
- Turkey Run - 2

FEMA Flood Zone

- Regulatory Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

TOWN OF WARRENTON

FAUQUIER COUNTY

Great Run - 1

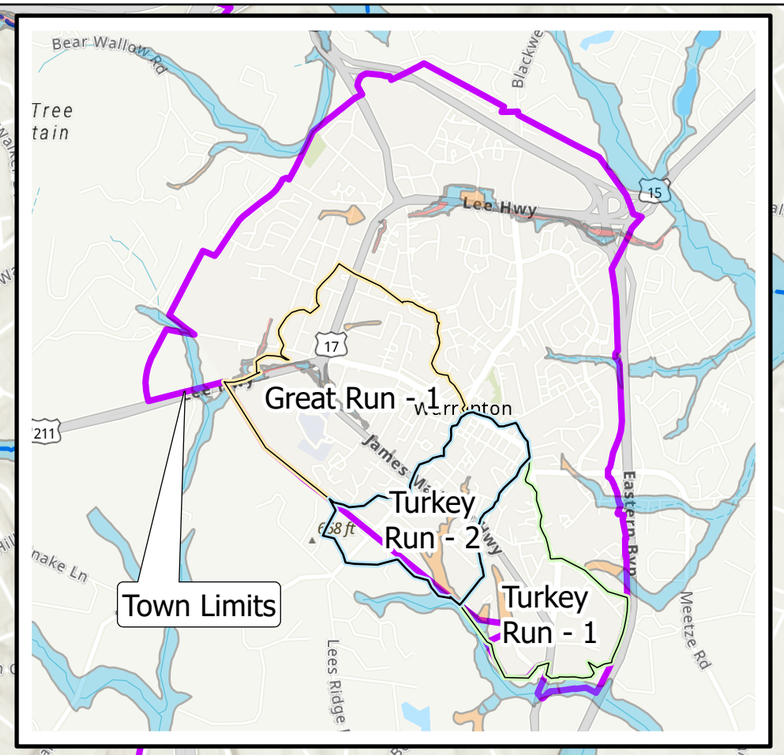
Turkey Run - 2

Turkey Run - 1

Warrenton

Fauquier Hospital

Frytown



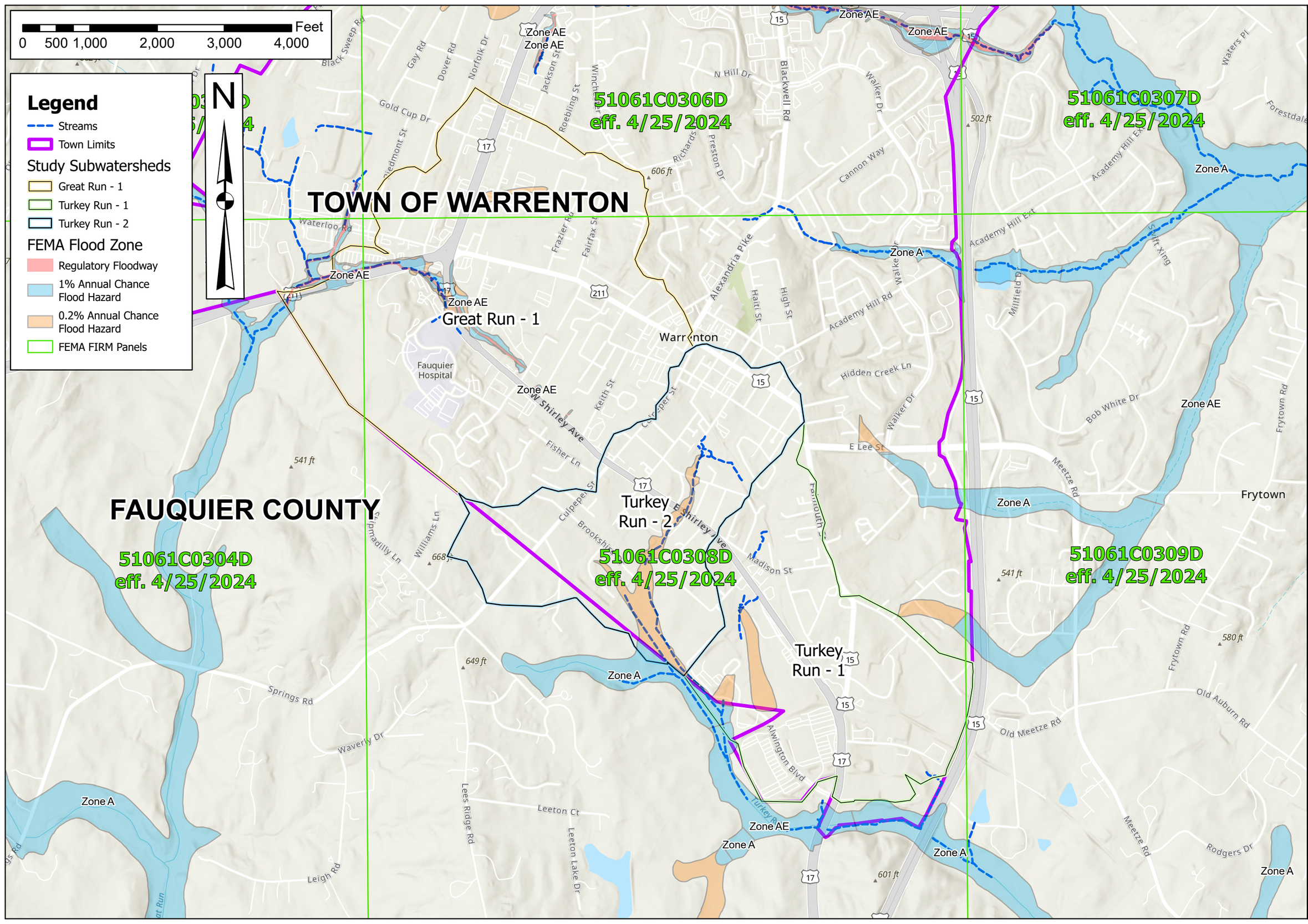
EXPERIENCE WARRENTON VIRGINIA

DATE	1/24/2025
DRAWN BY	SDL
CHECKED BY	JLH

TOWN OF WARRENTON STORMWATER MASTER DRAINAGE PLAN
PHASE 1 - CFPF GRANT VICINITY MAP

PREPARED FOR TOWN OF WARRENTON
DEPARTMENT OF PUBLIC UTILITIES

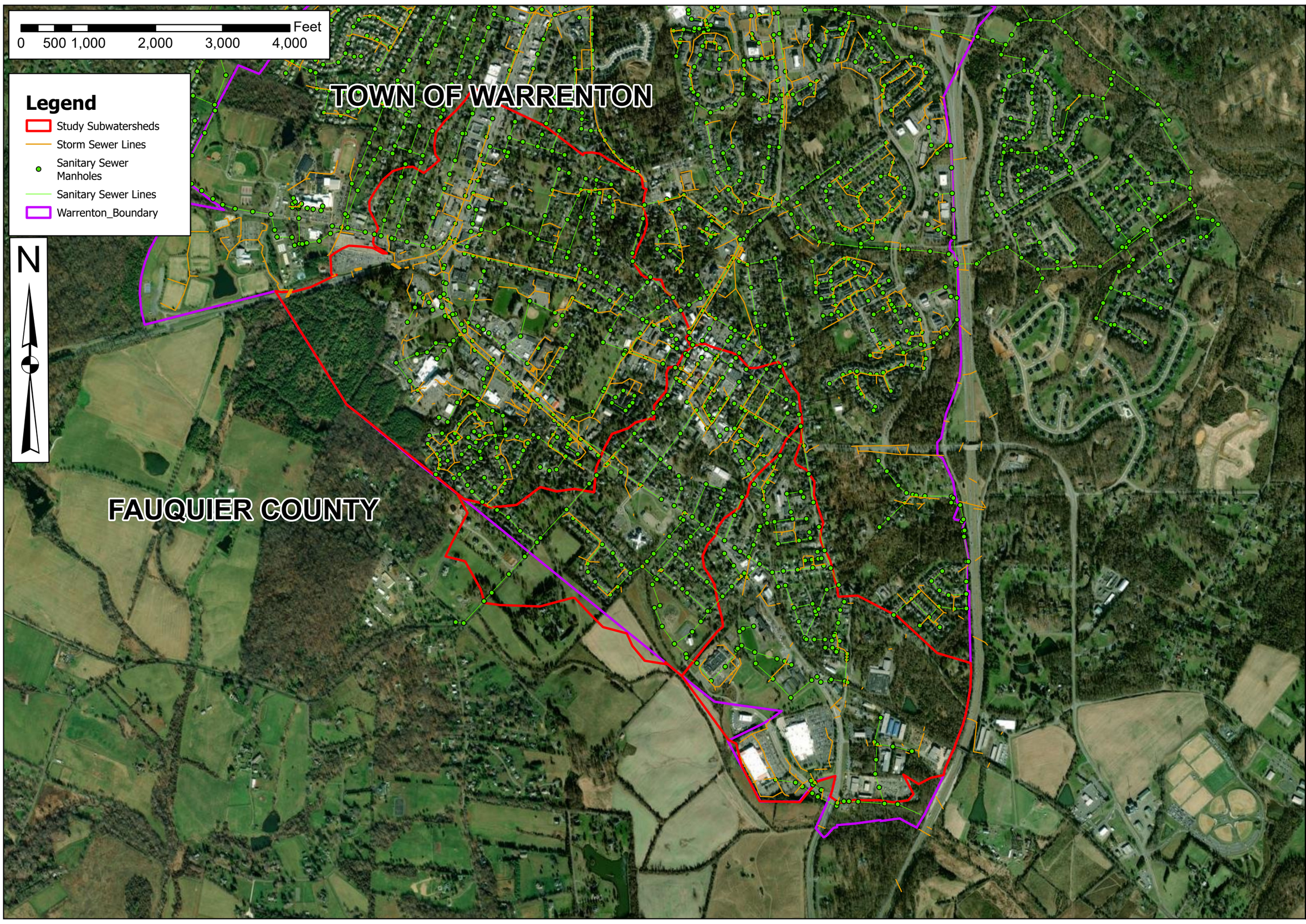
SCALE	1" = 1,250'
PROJECT NUMBER	N/A
SHEET NUMBER	APPENDIX C



TOWN OF WARRENTON STORMWATER MASTER DRAINAGE PLAN
PHASE 1 - CFPF GRANT FLOODPLAIN MAP

PREPARED FOR TOWN OF WARRENTON
DEPARTMENT OF PUBLIC UTILITIES

DATE	1/24/2025
DRAWN BY	SDL
CHECKED BY	JLH
SCALE	1" = 1,250'
PROJECT NUMBER	N/A
SHEET NUMBER	APPENDIX C



EXPERIENCE WARRENTON VIRGINIA

DATE
1/24/2025

DRAWN BY
SDL

CHECKED BY
JLH

TOWN OF WARRENTON STORMWATER MASTER DRAINAGE PLAN
PHASE 1 - CFPF GRANT UTILITY INFRASTRUCTURE MAP

PREPARED FOR TOWN OF WARRENTON
DEPARTMENT OF PUBLIC UTILITIES

SCALE
1" = 1,250'

PROJECT NUMBER
N/A

SHEET NUMBER
APPENDIX C

FIRMette (FIRM Panels)of the Project Area

Due to the large size of the study, FIRM Panels have been provided instead of FIRMettes.

Historic Flood Damage Documentation

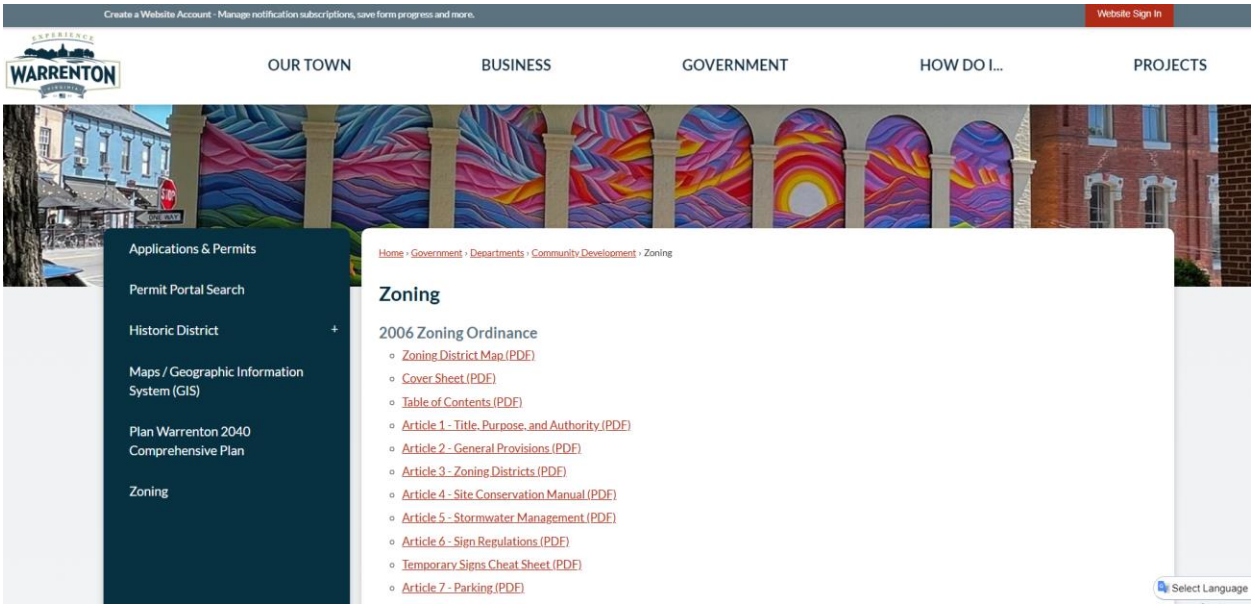
Below are numerous instances of localized flooding provided by Town Staff in support of this grant application to highlight flooding that occurs outside of the FEMA floodplain.

Link to the Town of Warrenton Floodplain Ordinance

Link to the Town of Warrenton Floodplain Ordinance

https://www.warrentonva.gov/DocumentCenter/View/2450/Article-3---Zoning-Districts-PDF

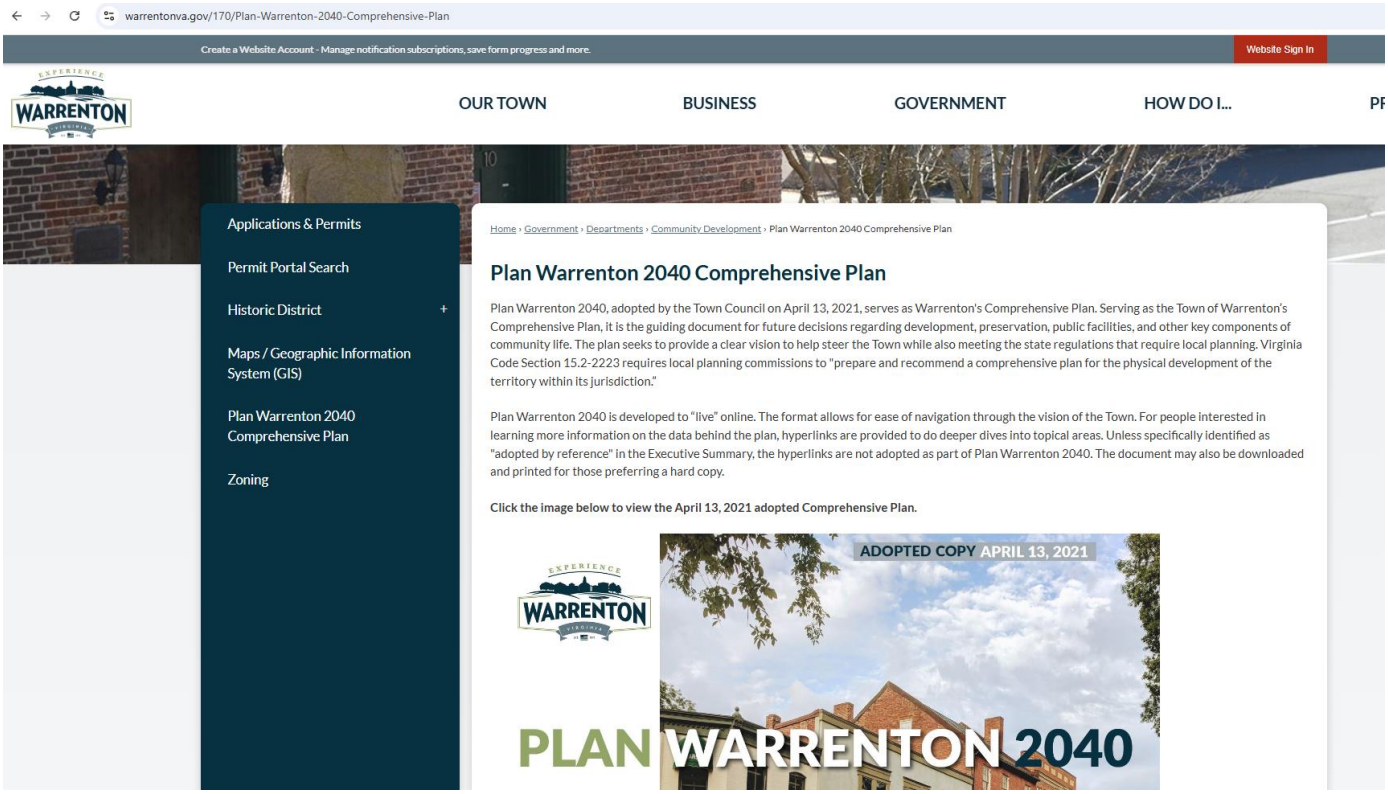
See 3-5.1 FPD - Floodplain District



Link to Town of Warrenton Comprehensive Plan

Link to the Town of Warrenton 2040 Comprehensive Plan

https://www.warrentonva.gov/DocumentCenter/View/200/April-13-2021-Adopted-Comprehensive-Plan-PDF?bidId=



Social Vulnerability Score(s) for the Project Area

0 500 1,000 2,000 3,000 4,000 Feet

Legend

- Study Subwatersheds
- Town Boundary

VA_SVI_BlockGroups_2020

- Very Low Social Vulnerability
- Low Social Vulnerability
- Moderate Social Vulnerability
- High Social Vulnerability
- Very High Social Vulnerability

FEMA Flood Zone

- Regulatory Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N

TOWN OF WARRENTON

FAUQUIER COUNTY

High Social Vulnerability (1.1425)

Very Low Social Vulnerability (-1.905)

Low Social Vulnerability (-0.21)

Very Low Social Vulnerability (-1.655)

Very Low Social Vulnerability (-1.425)

Moderate Social Vulnerability (0.995)

Very Low Social Vulnerability (-1.905)

Very Low Social Vulnerability (-1.645)

Low Social Vulnerability (-0.65)

Low Social

The study area contains SVI areas that are classified as High Social Vulnerability. The average of the 3 main SVI areas within of Town of Warrenton that are within the study sub watersheds have an average score of 0.24 (Moderate Social Vulnerability).

EXPERIENCE WARRENTON VIRGINIA

DATE	1/24/2025
DRAWN BY	SDL
CHECKED BY	JLH

TOWN OF WARRENTON STORMWATER MASTER DRAINAGE PLAN
PHASE 1 - CFPF GRANT SOCIAL VULNERABILITY INDEX MAP

PREPARED FOR TOWN OF WARRENTON
DEPARTMENT OF PUBLIC UTILITIES

SCALE	1" = 1,250'
PROJECT NUMBER	N/A
SHEET NUMBER	APPENDIX C

Funding Request Authorization

I, Steven Friend, Director of Public Utilities for the Town of Warrenton, authorize the Town of Warrenton to request funding from the 2025 Funding Round of the Virginia Community Flood Preparedness Fund for the development of a Stormwater Master Drainage Plan Phase 1 Study.

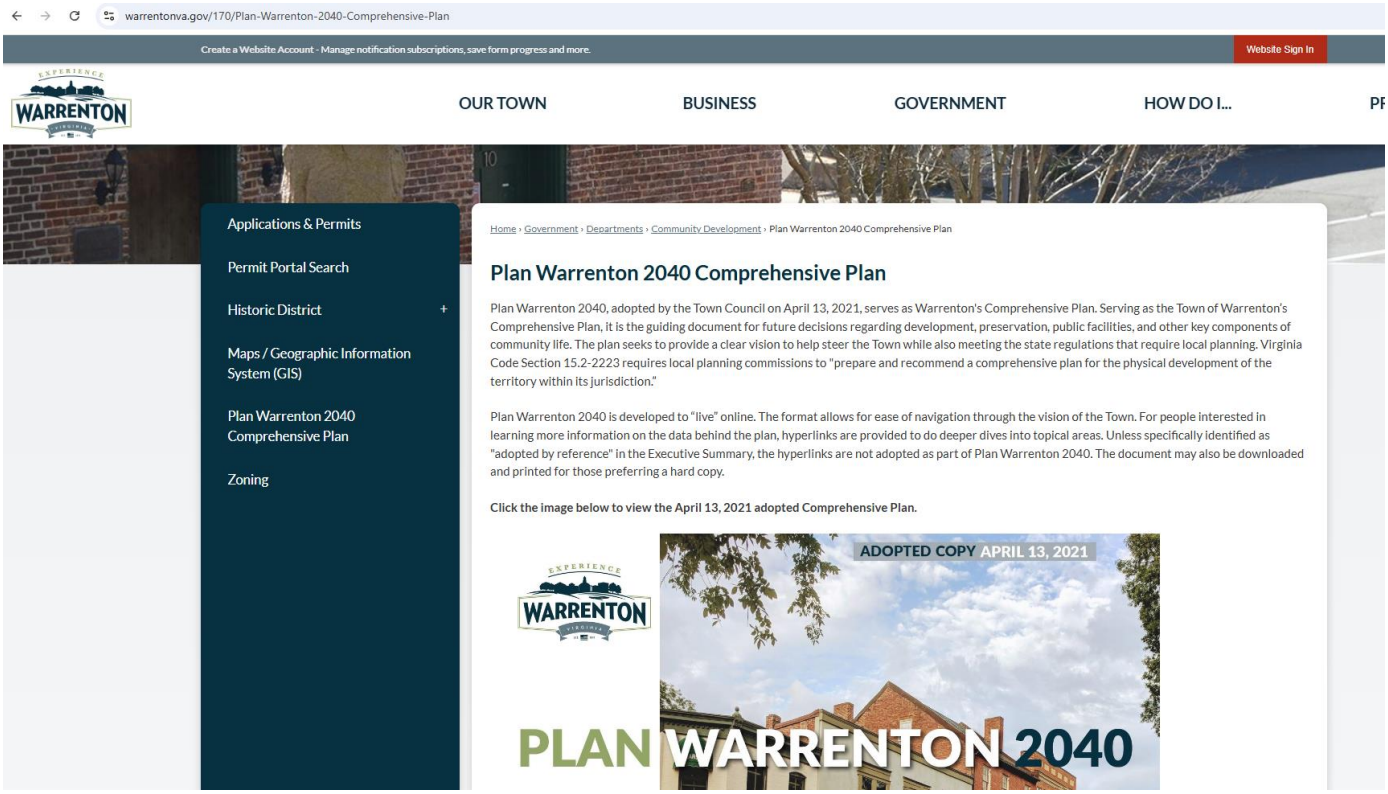
Signed: _____

Date: 1 - 9 - 2 0 2 5 _____

Link to Town of Warrenton Comprehensive Plan

Link to the Town of Warrenton 2040 Comprehensive Plan

https://www.warrentonva.gov/DocumentCenter/View/200/April-13-2021-Adopted-Comprehensive-Plan-PDF?bidId=



Historic Flood Damage Documentation

Below are numerous instances of localized flooding provided by Town Staff in support of this grant application to highlight flooding that occurs outside of the FEMA floodplain.

Social Vulnerability Score(s) for the Project Area

0 500 1,000 2,000 3,000 4,000 Feet

Legend

- Study Subwatersheds
- Town Boundary

VA_SVI_BlockGroups_2020

- Very Low Social Vulnerability
- Low Social Vulnerability
- Moderate Social Vulnerability
- High Social Vulnerability
- Very High Social Vulnerability

FEMA Flood Zone

- Regulatory Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N

TOWN OF WARRENTON

FAUQUIER COUNTY

High Social Vulnerability (1.1425)

Very Low Social Vulnerability (-1.905)

Low Social Vulnerability (-0.21)

Very Low Social Vulnerability (-1.655)

Very Low Social Vulnerability (-1.425)

Moderate Social Vulnerability (0.995)

Very Low Social Vulnerability (-1.905)

Very Low Social Vulnerability (-1.645)

Low Social Vulnerability (-0.65)

Low Social

The study area contains SVI areas that are classified as High Social Vulnerability. The average of the 3 main SVI areas within of Town of Warrenton that are within the study sub watersheds have an average score of 0.24 (Moderate Social Vulnerability).

EXPERIENCE WARRENTON VIRGINIA

DATE	1/24/2025
DRAWN BY	SDL
CHECKED BY	JLH

TOWN OF WARRENTON STORMWATER MASTER DRAINAGE PLAN
PHASE 1 - CFPF GRANT SOCIAL VULNERABILITY INDEX MAP

PREPARED FOR TOWN OF WARRENTON
DEPARTMENT OF PUBLIC UTILITIES

SCALE	1" = 1,250'
PROJECT NUMBER	N/A
SHEET NUMBER	APPENDIX C